Impact of Sewage Effluent on Drinking Water Sources of Shimla City and Suggesting Ameliorative Measures

(PDS Under Hydrology Project - II)

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PREFACE

In 1966, with reorganization of territory into Punjab, Haryana and Himachal Pradesh, Shimla became capital of Himachal Pradesh. Unplanned and haphazard development in and around Shimla City is a major reason of ecological crisis and is causing land, water, air and noise pollution. Added to this, it is also resulting into deforestation, floods, climatic variations, infrastructural and traffic and transportation chaos and other environmental problems.

A mass level jaundice was reported in the drinking water supply in part of Shimla City (Sanjauli-Malyana area) during 2006-07. Therefore, a need was felt to assess the impact of sewage effluent on drinking water sources of Shimla City. The Irrigation and Public Health Department, Shimla is responsible for the management of water resources of the State of Himachal Pradesh. The I&PH Department, Shimla is developing and looking after infrastructure of Water Supply, Sewerage, Irrigation and Flood Control Works. Himachal Pradesh is one of the states which is participating in the Hydrology Project Phase-II. The I&PH Department, Shimla has taken keen interest for jointly formulation of this project proposal on "Impact of Sewage Effluent on Drinking Water Sources of Shimla City and Suggesting Ameliorative Measures". During the execution of the project (2009-2012), two training courses were organized by the National Institute of Hydrology, Roorkee at Shimla to train the manpower of I&PH Department.

The draft report was submitted by Dr. V. K. Choubey, Sc. 'F', Environmental Hydrology Division, NIH, Roorkee on 30.04.2012. The findings of the project were presented in PDS workshop during 27-28 June 2012 in New Delhi and at Public Health Department, Shimla on 08.10.2012. The comments received on the report have been incorporated under the guidance of Dr. C. K. Jain, Sc. 'F' & Head, Environmental Hydrology Division by the co-investigators of the project, Shri. Omkar Singh, Sc. 'E', Dr. D. G. Durbude, Sc. 'C', Dr. M. K. Sharma, Sc. 'C' and Dr. Rajesh Singh, Sc. 'B'. The Superintending Engineer and Nodal Officer, HP-II and Executive Engineer (STP), Irrigation and Public Health Department, Shimla provided all necessary data and logistic support during the project.

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EXECUTIVE SUMMARY

The quality of water is deteriorating day by day due to the increase in population and improving living standard. This decrease in water quality is due to the continuous addition of pollutants in water resources which results in water-borne diseases. A mass level jaundice was reported in the drinking water supply in part of Shimla City (Sanjauli-Malyana area) during 2006-07. In view of this, a PDS entitled “Impact of Sewage Effluent on Drinking Water Sources of Shimla City and Suggesting Ameliorative Measures” was awarded under HP-II in collaboration with I&PH Department, Shimla.

Pre and post monsoon water quality monitoring for groundwater, surface water, treated water from water treatment plant and sewage treatment plant was carried out in the Sanjauli-Malyana area during 2010-11. During 2011-12, sampling frequency was increased from water treatment plant, sewage treatment plant, open drains, break points in water transmission, and user points on monthly basis based on recommendations of PCS/TAMC members. The samples were analyzed for physico-chemical and bacteriological parameters to assess the impact of sewage effluent on drinking water sources. Groundwater of Shimla city was found to be of Ca-Mg-HCO_3 type. Twenty five percent of groundwater samples were high in total dissolved solids, hardness, and nitrate. Groundwater samples from 4 locations were positive in E-coli indicating contamination with sewage. Analysis result of sewage treatment plant inlet and outlet indicated 30-40% reduction in COD. The COD and BOD values were exceeding the EPA standard for discharge of environmental pollutants (G.S.R. 422(E) dated 19.05.1993). Samples from open drains were also high in organics. Inlet water to Dhalli as well as Ashwani Khud WTP were high in organics and bacteria. Basin characteristics have been analyzed for the study area to investigate the sewer and drainage interactions. The efficacy and elevation profile of sewerage network was analyzed using SewerCAD software which was found satisfactory. The reasons for contamination of Aswani Khud WTP which is supplying water to affected areas were established and the measures for minimization of pollutant ingress in source water were suggested. During the study period two training courses on “Water Quality and its Management” were also organized at Shimla for field engineers of I&PH Department, Himachal Pradesh.

1.0 INTRODUCTION

The three essential requirements of all living organisms are air, water, and soil. In past, these were pure, virgin, undisturbed, uncontaminated, and basically most hospitable for living organisms. However, the rapid pace of industrial and agricultural activities, human population growth, deforestation, and unplanned urbanization, has led to the most horrible crisis known as "Environmental Pollution" (Hodges, 1973; Pierce et al., 1998). Environmental contamination of air, water, soil, and food has become a threat to the continued existence of plant and animal community of the ecosystem and may ultimately threaten the very survival of the human race. Water in addition to air, is the most important element of life. Water serves more in fulfilling of human needs than does any other natural resources. Indeed, it is a part of life itself, since the protoplasm of most living cells contains about 80 % of water. Most of the biochemical reactions that occur in the metabolism as well as in growth of living cells involve water. Man can survive without food for several weeks but in the absence of water, he cannot exist for more than few days. To signify the importance of water, the year 2005 marked the beginning of the "International Decade for Action: Water for Life" and renewed effort to achieve the Millennium Development Goal (MDG) to reduce by half the proportion of the world's population without sustainable access to safe drinking water and sanitation by 2015 by World Health Organization (WHO).

Of the total water available on the Earth's surface, 97.3 % is found in the oceans, 2.1 % makes up the glaciers and polar ice, and 0.6 % accounts for groundwater. The rivers, lakes, and streams contain only 0.02 % of the total, which is immediately available for use (Snoeyink and Jenkins, 1980). The search for clean, fresh, and potable water has been man's priority. This is evident from the ancient civilization of Harrapa and Mohen Jodero. Although water is a renewable resource, availability of water for the society is limited. Consequently, there is a tremendous pressure on water resources due to increasing population and growing water consumption. However, in recent times, the demand for water has increased tremendously to meet the industrial, agricultural, and domestic activities. In many mega-cities, people do not get adequate amount of water to meet their daily needs. Quality of drinking water is poor, particularly during rainy season, leading to high incidence of water borne diseases. As the result of its wide spread use in diversified area, the presence of toxic organic and inorganic substances are gradually increasing in water and waste water. Owing to indiscriminate abuse, many rivers have become sewers because municipal and industrial waste is dumped in them with little or hardly any treatment. Approximately half of the known chemicals are found dissolved in natural water. Clear running stream even in apparently unpolluted state; contain a complex mixture of organic and inorganic substances.

The provision of clean drinking water has been given priority in constitution of India, with Article 47 conferring the duty of providing clean drinking water and improving public health standards to the State. The government has undertaken various programmes since independence to provide safe drinking water. Till the 10th plan, an estimated total of Rs.1105 billion spent on providing safe drinking water. But inspite of the huge expenditure, availability of safe and secure drinking water to citizens is in question. This is due to high population growth through these years. The average availability of water is reducing steadily with the growing

population and it is estimated that India will become water stressed country by 2025 (IDSA, 2010).

The health burden of poor water quality is enormous. It is estimated that around 37.7 million Indians are affected by waterborne diseases annually, 1.5 million children are estimated to die of diarrhoea alone and 73 million working days are lost due to waterborne disease each year. Water-borne diseases are caused by contamination of water with virus (Viral hepatitis, Poliomyelitis), bacteria (cholera, typhoid fever, bacillary dysentery etc), parasites (amoebiasis, giardiasis, worm infestation, guinea worm etc.), or chemicals. Water gets contaminated either at source or while passing through water pipes which are poorly laid and maintained, or in the homes when it is not stored properly. The risk of water contamination resulting in water-borne diseases is higher under the following conditions: inadequate availability of water, poor quality of water at source, ill-maintained water pipelines and sewer lines, open air defecation is rampant, lack of disposal of human, animal and household wastes, and lack of awareness of good sanitation and personal hygienic practices (Planning Commission, 2002).

It has been estimated that diarrheal morbidity can be reduced by an average of 6-20 per cent with improvements in water supply and by 32 per cent with improvements in sanitation. In India, approximately 72.7 per cent of the rural population does not use any method of water disinfection and 74 per cent have no sanitary toilets (Mari-Bhat et al., 2007).

There can be little doubt that safe and clean water is a basic necessity for the survival of humans. This can be achieved by properly treating the wastewater / sewage in order to safeguard the drinking water source as well as holistic approach to water treatment and supply.

1.1 Statement of the Problem

Himachal Pradesh is one of the States which is included in the Hydrology Project Phase II. Mass level Jaundice has been reported due to influx of pollutants/bacteria in the drinking water of Shimla City during 2007 (Chobe et al., 2009) as shown in Fig. 1. After discussions with the officials of Himachal Pradesh, it is found that the assessment of impact of sewage effluent on drinking water sources of Shimla City is the real problem and needs to be assessed scientifically using hydrological and water quality data analysis.

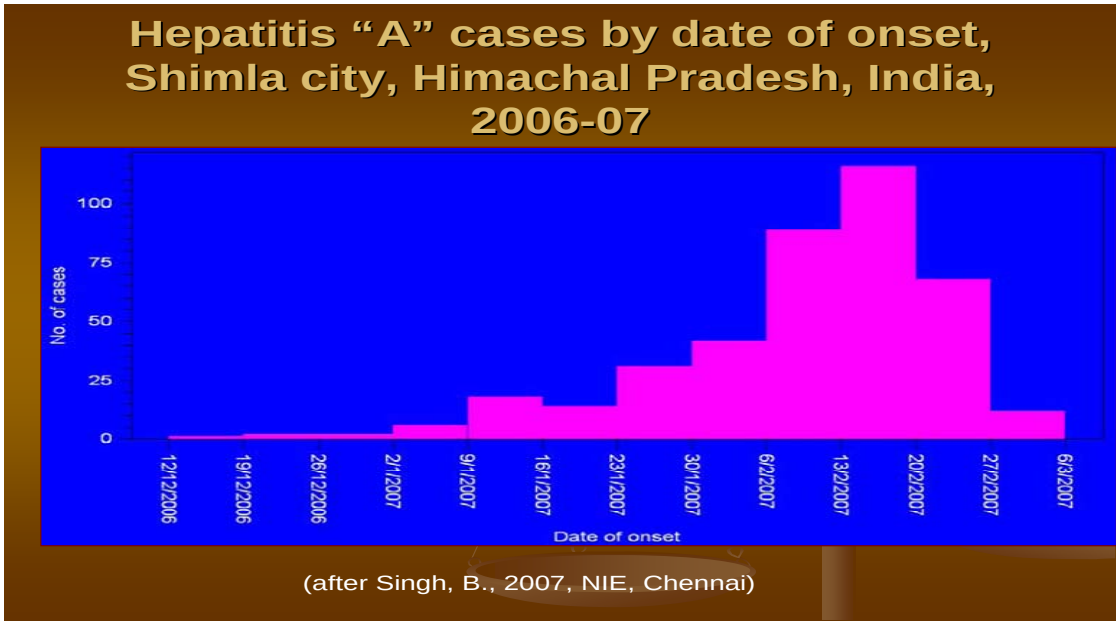


Fig. 1: Outbreak of Hepatitis A - Cases in Shimla City during 2006-2007

1.2 Objectives of the Study

The major objectives of the project study are:

i) Analysis of hydrological, water quality and basin characteristics of the study area.
ii) Assessment of water quality variables in drinking water sources, natural drains and sewage effluent.
iii) Analysis of pollutant / source identification (location) of sewage influx in drinking water.
iv) Impact assessment of sewage effluent in drinking water sources and suggesting possible remedial measures for its removal.
v) Dissemination of knowledge and findings to field engineers and common people through preparation of manual, leaflets, booklets and by organizing workshops / training.

2.0 REVIEW OF LITERATURE

Access to safe water and adequate sanitation are fundamental rights and conditions for basic health of humans. In grim fact, worldwide, two in ten people do not have access to safe drinking water; and four of every ten people in the world do not have access to even simple latrine (Bartram et al., 2005). However, the figure is more daunting in developing world where one person in three lacks safe drinking water and sanitation. In these nations, more than 80% of diseases and one third of deaths are caused by the consumption of contaminated water (Palamuleni, 2002). For example, at present approximately more than 35 million Ethiopians are deprived the dignity of adequate sanitation facilities to safely contain and dispose of human feces (Egge et al., 2008) and half of more than 75 million population of Ethiopia is suffering from unnecessary water related diseases, Khartoum's sewage covers 5% of the urban area where as in Malawi only 6% of the population has access to proper sanitation and 39% of the population has no access to latrine. This silent humanitarian crisis kills about 3900 children per day throughout the world and thwarts progress towards millennium development goals (MDGS) set out in 2000 to avert abject living conditions, especially in developing world (Bartram et al., 2005). At any given time, about half the population in developing world is suffering from diseases associated with water supply and sanitation. Poor sanitation and insufficient supply of water results in waterborne diseases such as diarrhea (which kills about 200 children below age five per hour in most parts of developing world), malaria, cholera, schistosomiasis, trachoma, intestinal helminthes (Ashbolt, 2004; WHO, 2005). Some of these diseases are directly or indirectly associated with improper excreta disposal and absence of safe water. According to Georgia Institute of Technology research news, worldwide, more than one billion people lack access to an improved water source, and two billion still need access to basic sanitation and a clean and healthful living environment both at home and in the neighborhood.

The major source of contaminants from anthropogenic activities to aquatic surface and ground water is the pathway along which these contaminants move to become incorporated in drinking water supplies (Ritter et al., 2002). Drinking water can be contaminated physically, chemically, and biologically (Palamuleni, 2002). Contamination of water with fecal material is prominent in areas with poor standards of hygiene and sanitation (Luksamijarukul et al., 1994).

Sanitation crisis heightens when it is accompanied by poor health protection system connected to the low life standard. Inability to get safe drinking water is not only problem limited to developing countries but also most developed European countries do have the problem albeit the extent varies. Studies in Africa (Malawi) pointed out that household water supply as well as disposal of solid wastes is one of the challenging sanitation problem threatening health of inhabitants in rural areas and urban as well. Low life standard and poor design of sewage system for developing areas causes contamination of water sources (Palamuleni, 2002). Similar studies conducted in India indicated that problems of the environment and domestic hygiene are always related to poverty of population and the sanitation of settlements (Nath, 2003).

Open air defecations, a common practice among villagers, may lead to contamination of the water supply system and result in outbreaks of diarrheal disease (Sarkar et al., 2007). The practice of tethering animals close to human dwellings and the consequent proximity to animal fecal matter further enhances the risk of contamination of drinking water (Howe wt al., 2002;

Licence et al., 2001). The key to providing microbiologically safe drinking water lies in understanding the various mechanisms by which water gets contaminated, and formulating interventions at critical points to decrease and prevent contamination of drinking water (Trevett at al., 2004).

The present status on compliance of various rules in context of Shimla is presented in Table 1.

Table 1: Compliance of Environmental Acts/Rules

S.No.	Act / Rule	Status on Compliance
1	Water (Prevention & Control of Pollution) Act 1974 (Consent to Shimla Municipal Corporation for disposal of domestic sewage)	Irrigation and Public Health Department has constructed 7 Sewage Treatment Plants for treatment of sewage in conformation with disposal standards.
2	Bio-medical wastes (Management and handling) rules 1998	Common Bio Medical Waste Treatment Facility of 170 kg/Dc capacity established by Shimla Municipal Corporation.
3	Municipal solid wastes (Management and Handling) rules 2000	Shimla Municipal Corporation has installed waste processing plant based on composting. No disposal facility as per the requirement of MSW rules.
4	Hazardous waste (Management and Handling) Rules 1989	No Hazardous waste generating industries in Shimla.
5	Water Harvesting in New Hotels	Capacity of 12 lakhs litre created till date.

3.0 STUDY AREA

3.1 Location

Shimla City is situated in south of the river Satluj in the state of Himachal Pradesh (Fig. 2). At $31^0$6' North latitude and $77^0$13' East longitude, its mean elevation is 2130 m above mean sea level. The climate of Shimla City may be divided into four seasons of about three months each. Beginning in January, the first quarter is rough, snowy and stormy. The second quarter is dry and sunny, with gradually increasing dust and heat. The third is rainy, damp and the fourth bright, clear and bracing. Winters are cold and chilly winds from the upper Himalayas make the place cold. Around Christmas or last week of December Shimla gets snowfall. Temperature varies from 15 to 27^0C in summers and in winters it is in the range of 0 to 17^0C. The best seasons in Shimla can be broadly divided into two: winter starts from September to mid January and summer that extends from March to June. Shimla region consists of a thin soil layer (0.15m on ridges to 7m deep in valleys), an intervening layer of detritus (mix of soil and fragments of weathered bedrock); and hard bedrock (Tandon, 2008). Shimla is the only Class I (1 lakh+) city in the state of Himachal Pradesh. This explains the dominance of this capital in terms of facilities, amenities and opportunities. Consequently population of the city has grown by 10 times (from 14,000 in 1901 to 140,000 in 2001) during the century.

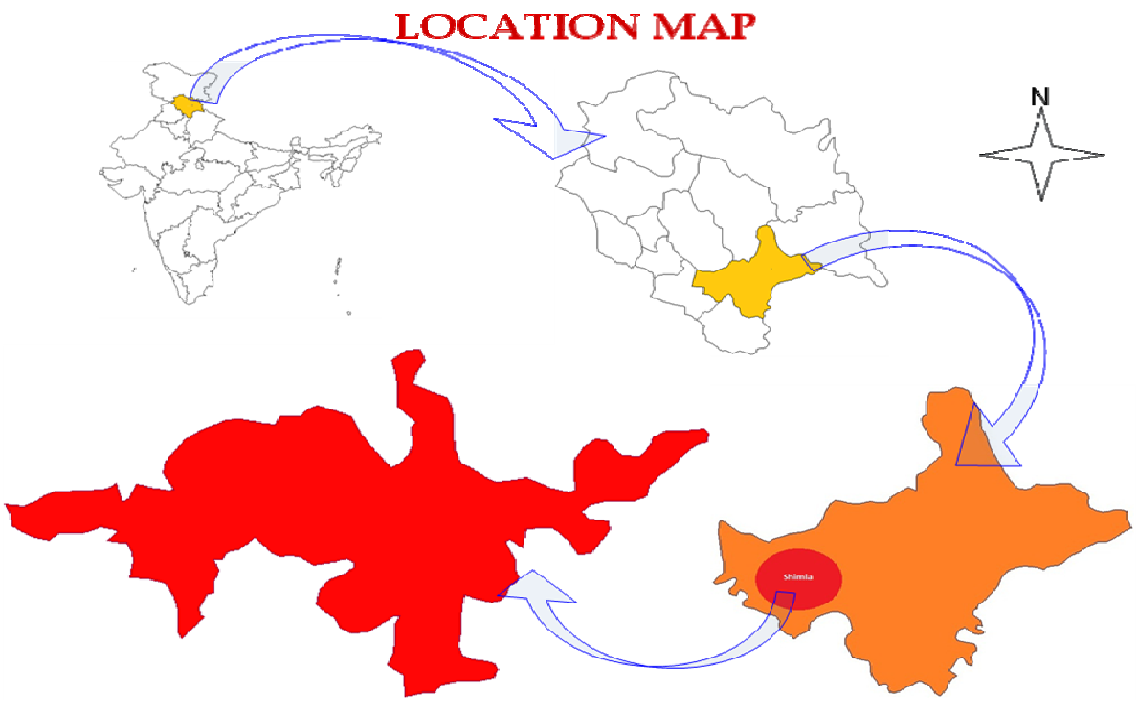


Fig. 2: Location Map of Shimla City

3.2 Water Supply System

Water supply system of Shimla City was established in 1875 to serve the population of 20,000. The water supply system was designed on pumping from nearby stream with the help of engineering structures. Today, water supply is one of the major impediments in the growth and development of Shimla. This chapter provides overview of the water supply system, its delivery performance, issues and strategy for improvement in water supply. Shimla Municipal Corporation (SMC) and Department of Irrigation and Public Health (I&PH) are responsible for water supply to Shimla City. I&PH provide treated bulk water to SMC for local supply and distribution. The role of I&PH is development of water related infrastructures for drinking water supply schemes, sewerage systems, irrigation systems through source development, lifting water, boring of tube wells & providing distribution systems and flood protection works to protect life and property in the state. Presently, I&PH is involved in sourcing the water, treatment of water, and transmission of water through raising and gravity mains to storage reservoirs. I&PH is also responsible for operation and maintenance of these systems. I&PH supplies bulk water to SMC, which in turns distributes the water to domestic and commercial connections. SMC is responsible for releasing water connections, reading of water m., billing and receipt posting besides collection of water charges, attending public grievances.

3.2.1 Sources of water

SMC meets its water demand for Shimla City from the bulk water supply from I&PH provided at subsidized rates. I&PH have set up pumping stations near six main sources of water with standby tube wells operated during lean period. The detail of water source for Shimla city is provided in Table 2. Water supply system for the city developed over a period of time and the history of development is as provided below in brief:

- First water supply scheme: 4.54 MLD, was implemented to utilize the water from the storage reservoir of 10.92 million liters (located at 12.85 km. from Shimla), which stores water from spring sources from Dhalli Catchment Area, during 1875 to support a population of 16,000.
- 1st Augmentation (year 1914): Subsequently, to fulfill the growing need of the city and the tourists, the first augmentation of Shimla Water Supply Scheme by provision of pump sets near Cherot Nallah (year 1889) and Jagroti Nallah (year 1914) to tap 4.80 MLD of water at source.
- 2nd Augmentation (year 1914): The second augmentation of Shimla Water Supply Scheme (year 1914) was implemented by installation of 2 pump sets at Chair Nallah to tap 2.50 MLD of water at source.
- 3rd Augmentation (year 1924): The third augmentation of Shimla Water Supply Scheme was commissioned during the year 1924 to tap 7.72 MLD of water from Nauti Khad with further up gradation of pumps at various stages.
- 4th Augmentation (year 1981-82): The fourth augmentation of Shimla Water Supply Scheme was installation of pump sets at Gumma and Darabla to tap additional 16.34 MLD of water at source. Today, the system is designed to lift 24.06 MLD of water at source.

- 5th Augmentation (year 1992): The fifth augmentation of Shimla Water Supply Scheme was commissioned in April 1992 designed to pump 10.80 MLD of water at two stage lifting at Ashwani Khad and at Kawalag.
- 6th Augmentation (year 2008): Augmentation of Shimla Water Supply Scheme from Giri.

Table 2: Details of Sources of Water for Shimla City

S.No.	Source Name	Transmission Type	Year of Start	Installed Capacity (MLD	Qty of water treated (MLD	Supply to SMC (MLD)	
						Non lean period	Lean period
1	Dhalli Catchment Area	Gravity	1875	4.54	1.80	0.23	0.20
2	Cherot / Jagroti Nallah	Pumping	1914	4.80	3.86	3.86	2.65
3	Chair Nallah	Pumping	1914	2.50	3.00	2.50	1.42
4	Nauti Kud (Gumma)	Pumping	1924 & 1982	24.06	19.75	24.06	16.80
5	Ashwani Khad	Pumping	1992	10.06	10.80	10.80	6.30
6	Giri Khad	Pumping	2008	20	20	15	15
	Sub Total			**56.62**	**53.55**	**52.36**	**39.52**
7	Tube Wells –10 no.						2.63
	Total						**42.15**

The combined design capacity of the sources is 56.62 MLD, although the present yield is limited to 53.55 MLD (from the six sources) due to technical problems. Presently, 39.52 MLD of treated water from main sources and 2.63 MLD from tube wells is supplied to SMC during the lean period. The total water supplied to the city is 42.15 MLD.

3.2.2 Treatment of water

The water lifted from the six main sources is treated at the water treatment plants consisting of coagulation, flocculation and sedimentation followed by filtration and disinfection before transmission by I&PH.

3.2.3 Present transmission and storage capacities

The treated water is conveyed to storage reservoirs by pumping at various stages though rising and gravity mains. The details of the pump-sets, rising and gravity mains are presented in Table 3.

Table 3: Details of Pumps, Raising & Gravity Mains of Bulk Water Supply

S.No.	Source Name / River Name	Name of the Head Works	Total Head (m)	Head (m)	Details of Pumps and year of Installation
1	Dhalli Catchment Area	17 Sources			No pumps due to gravity
2	Cherot / Jagroti Nallah	Cherot Pumping Station	800	400	265 BHP (1928)
					495 BHP (1963)
					600 HP (1983)
					600 HP (1998)
		Jagroti Pumping Station		400	2 no. of 350 BHP (1974)
3	Chair Nallah	Chair Nallah	950	950	165 HP (1913-14)
					2 no. of 670 HP (1996)
4	Nauti Khad (Gumma)	Gumma Stage Pumping	1440	1440	1850 BHP (1963)
					3 no. 1850 BHP (1994-99)
		1st Stage at Gumma	1440	720	4 no. of 925 BHP (1981-82)
		2nd Stage at Darabla		720	4 no. of 925 BHP (1981-82)
5	Ashwani Khad	1st Stage at Ashwani Khad	965	403	4 no. of 575 BHP (1992)
		2nd stage at Kawalag		407	4 no. of 575 BHP (1992)
		3rd stage at Kasumpti		155	2 no. 350 BHP (1992)
6	Giri Khad	1st Stage	1230	615	6 No. 825 BHP (2008)
		2nd stage		615	6 No. 825 BHP (2008)

3.2.4 Storage reservoirs

The SMC is being served water from 11 major reservoirs having a total capacity of 36.95 ML. In addition to the above 11 major reservoirs, 28 minor reservoirs having a total capacity of 5.8 ML are also available for distribution of water. There are 18 more sector storage tanks. The details of the storage reservoirs and its distribution network are presented in Table 4 & 5.

Table 4: Details of Major Storage Reservoirs

S.No.	Name of Storage reservoir	Capacity (ML)
1	Craignano	3.00
2	Sanjauli	8.78
3	Ridge	4.63
4	Mansfield	3.63
5	Mashobra	3.00
6	Seog	10.90
7	Kasumpti	2.00
8	Kasumpti	0.22
9	Vice Regal Lodge	0.23
10	Jakhoo	0.32
11	Boileauganj	0.24
	Total	**36.95**

Table 5: Details of Sector Storage Tanks

S.No.	Name of Sector Storage Tanks	Capacity (ML)
1	Bharari	1.20
2	Tutikandi	0.90
3	Kamna Devi	0.30
4	Kelston	0.30
5	Knoll's wood	0.90
6	Kalibari-1	0.16
7	Kalibari-2	0.16
8	Advance study	0.90
9	Chakkar	0.90
10	Totu	1.60
11	Engine Ghar	0.30
12	North Oak	0.10
13	North Oak	0.05
14	Dingoo Mandir	0.30
15	Sector-4 New Shimla	0.30
16	Corner House	0.30
17	Sector-III	0.30
18	Sector-I	0.60
	Total	**9.57**

3.2.5 Local water supply distribution system

The city is divided into 16 water supply distribution zones and the details of the zones are presented in Table 6.

Table 6: Details of the Zones and Areas Covered Under the Local Distribution System

Name of the Zone	Area Covered
Sanjauli	Sanjouli Bazaar, Engine Ghar, Nav Bahar, Snowdown, Jakhoo, Pumping Station, Grand Hotel, Shankli, Scandal, Sangti
Bharari	Bharari, Harvington, Kuftu, Anu, Bermu, etc
Ridge	Telegraph office, Krishna Nagar, Sabzi Mandi, Ripon, Lalpani, Western Command, Ram Bazaar, Middle bazaar
High-court	Lower High Court area, Parades Garden, Kalong, Talland
BCS	BCS, Khalini, Forest Colony
Mansfield	Mansfield to Marina, Secretariat, Chhota Shimla bazaar, Brock Hurst upto Govt. School
Kasumpti	Kasumpti Colony, Lower Brock Hurst, Patti Rehana, Patina Mehli, Pantha Ghati, Patelog
A G Office	Kaithu, Annandale, Kavi, AG Office, Ram nagar Vidhan Sabha, Chaura Maidan, Tuti Kandi, Kumar House, Raj Bhavan, Ava Lodge, Labour Bureau, Kenndy House, Win Gate
Viceregal Lodge	Institute of Advanced Studies, Tilak Nagar, Ghora Chowk, Hanuman Temple

Name of the Zone	Area Covered
University	University Complex, Summer Hill, Govt. Quarters, Shiva Mandir
Kamna Devi	Hill Spur of Kamna Devi, Forest Colony
Chakkar	Sandal Hill, Tara Devi, Shoghi
Tutu	Tutu Bazaar, Jutogh, Dhamida, Fatenchi
Kufri	Kufri bazaar, Holiday Resort Complex, Wild Flower, Chinni Bungalow, ITBP Colony, Fair Lawns
Mashobra	Mashobra Bazaar, Craignano, Retreat, Jungle Mashobra Sipur
Dhalli	Dhalli Bazaar, HRTC workshop, Dhingu Devi, Pumping Station for higher belt of Sanjauli area

The local distribution system of core area of Shimla is more than 100 years old. The new network system laid is not well interconnected to old network in absence of information on the layout of old network. The network is also characterized by heavy leakages, multiple pipes along the same alignment, network passing through natural drainages and road side drainages, crossing of network with sewerage network.

Total 41060 taps connections are provided. About 63% of the connections are private while the rest account for public connections. Water is supplied for around 60 to 90 minutes every day in non-lean period and for around 45 minutes on alternate days during lean period. The details of water supply consumer connections are presented in Table 7. The details of performance indicators are tabulated in Table 8.

Table 7: Details of Consumer Connections

S.No.	Head	Number of Taps	%
1	Private	25800	95.70
2	Public	200	0.74
3	Hand Pumps	38	0.14
4	Tank & Others	920	3.41
	Total	26958	100.00

Table 8: Water Supply Performance Indicators

S.No.	Indicator	Current Situation
1	Per Capita Supply at production end during lean period (LPCD)	94
2	Per Capital Supply at consumer end during lean period (LPCD)	47
3	T & D losses/ Total Supply	>30%
4	Supply Frequency	45 minutes on alternate days in lean period and 90 minutes daily on non-lean period
5	Storage Capacity Adequacy ratio (% of Net supply)	123%

3.2.6 Water demand, deficit and water charges

Present Water Demand

The present water requirement per day for Shimla City during peak tourist season for a total population of 2,84,635 @ 140 lpcd is 39.85 MLD. Thus, there is no shortfall of water as on date.

Future Water Demand

At current growth of existing and floating population, the water requirement of Shimla City and its surrounding areas is expected to be 105.66 MLD for the horizon year 2037, which creates a huge gap between present supply and expected demand. To bridge this gap between the future water demand of 106 MLD and present water supply of 42 MLD, 64 MLD of water has to be sourced. The estimation of water requirement based on above calculation is given in Table 9.

Table 9: Estimation of Future Water Demand (Source: I&PH Department)

Nature of Population	**Total Population (no.)**	**Rate of Consumption (liters/day)**	**Water Requirement Million (liters/day)**
Permanent Population	415497	150	62.32
Floating Population	239398	100	23.94
General requirement for various purposes other than residents.			
a) Schools 48 no. @ 450 students / school	21600	45	0.97
b) Community Centers 21 no. @ 200 each	4200	45	0.19
c) 3 Service Industries @ 100 vehicles each	300	45	0.01
d) Zonal Commercial Centres 3 no. @ 1500 each	4500	45	0.20
e) Hospitals 9 no. with 100 bed each	900	450	0.41
f) Colleges 6 no. with average strength 800 students each	4800	45	0.22
g) Special Public Institutions 8 no. @ 1000 each	8000	45	0.36
h) Cantonment area	3000	150	0.41
i) Multipurpose Cultural complexes	250	45	0.01
j) Railway stations 3 no. for 1st-6000, II-2000 & III-1000	9000	45	0.41
k) Parking-cum-commercial areas 5 no. @ 50 each	250	45	0.01
l) University Complex 1No.	5000	150	0.75
m) Milk processing plant optimum capacity 100001st. Milk. (Complex Processing)	10000	10	0.10
		Sub Total	90.30
Adding for wastage @ 2% for backwashing of filter beds			1.81
Adding 15% on account of losses in conveyance mains etc			13.55
		Grand Total	105.66
Water available from existing schemes			33
Net water requirement for the year 2037			72.66

Water Charges

The water charges notified by SMC for domestic and commercial connections are classified based on the quantity of water consumed under different slabs. Table 10 presents the water charges in Shimla City.

Table 10: Municipal Water Charges

Type of Connection	Usage 1000 Liter per month	Charges (Rs. per 1000 litre)				
		2003-04		2004-05		2005-06
		Up to 06.10.03	After 06.10.03	Up to 06.10.04	After 06.10.04	Till date
Residential	0-30	2.50	3.50	3.50	3.85	3.85
	30-75	2.50	5.00	5.00	5.50	5.50
	> 75	2.50	7.50	7.50	8.25	8.25
Commercial	0-30	10.50	15.00	15.00	16.50	16.50
	30-75	10.50	20.00	20.00	22.00	22.00
	> 75	10.50	27.50	27.50	30.25	30.25
Construction	NA	NA	NA	NA	30.25	30.25

In 2003, the water charges were revised from flat rates to slab rates and since then, the charges are revised annually over past three years. One time connection fee of Rs. 2,000/-and Rs. 5,000/- are collected for new domestic and commercial connections respectively.

Cost of Water and Subsidy on Water

The main source of funding for urban water supplies is by charging the end user of water. I&PH, which produces water at Rs. 35 per KL, charges SMC for bulk water supply at the rate of Rs. 14.00 per KL. SMC is charging Rs. 8.25 per KL of water for domestic purposes even though SMC incurs an additional cost of Rs. 6.50 per KL towards operation and maintenance costs. Table 11 indicates that there is subsidy of 80.12 % in urban water supply of Shimla.

Table 11: Water Cost and Water Charges

S.No.	Description	Cost (Rs. per 1000 L)
1	Production cost of water incurred by I&PH department	35.00
2	Supply of Bulk water to SMC	14.00
3	Subsidy rate for Bulk Water Supply (Item 1- Item 2)	21.00
4	Operation and Maintenance Costs incurred by SMC	6.50
5	Water Charges for domestic water supply	8.25
6	Cost Incurred by SMC (Item 2 + Item 4)	20.5
7	Subsidy rate for domestic water supply (Item 6 – Item 5)	12.25
8	Total Cost of Production of Water (Item 1+ Item 4)	41.50
9	Total Subsidy (Item 3 + Item 7)	33.25
	% Subsidy	80.12%

Unaccounted for Water

Unaccounted for Water (UFW) due to physical and administrative losses in the system, lead to loss of revenue. Physical losses are due to leakage from old, damaged, corroded pipe lines/ connections and leaking joints and overflow at overhead tanks. Public taps also cause significant waste of treated water. Administrative losses are due to theft, illegal tapping of water-unregistered connections, faulty m. and unrecorded supply due to poor records and billing errors. The study conducted by National Environmental Engineering Research Institute (NEERI) in 1986 established the leakages more than 45%.

In order to reduce leakages and improve performance of existing system, there is a need to conduct a leak detection study of the water supply network and develop sufficient and reliable database regarding the water supply systems. Good information base, willingness to follow-up on systematic replacement of leaking pipes, defective meters and connections as well as tariff revisions, etc are critical to the success of the water supply scheme.

Water Supply through tanker Lorries: The hotels and restaurants in Shimla City have engaged private tanker lorries to tap spring water or water from nallahs in neighbouring areas. The hoteliers spend about Rs. 3000 per month for tanker water to meet their water requirements. This shows the affordability to pay for water.

Issues and Aspects

- Inadequate Water Sources: The available water sources as listed in Table 8.1 have been tapped to the maximum extent possible. All water sources available nearby have been utilized and present water sources are inadequate. One of the water sources available in abundance nearby is River Satluj, which has not been tapped till date due to heavy silt content.
- Leakage of Water: Physical and administrative losses to the extent of more than 35% causes revenue loss, and it is one of the reason for inadequate water supply at tail end in certain areas.
- Service delivery: Only 57% of the households in Shimla Planning Area have private water supply pipe connections. The distribution time is only 45 to 90 minutes and depends upon the water pressure in the network. The supply is also characterized by low pressure.
- Cost of Production of Water: The cost of production of water incurred by I&PH is Rs. 35 per 1000 litre is very high. This is due to high energy cost to raise water to head of about 1470 m.
- Heavy subsidy on Water Supply: The cost of production of water and water charges from end users in Shimla does not match. The water supply has been highly subsidized to the extent of 90.72 % for domestic water and is very high. Also, the water charge of SMC is not commensurate with operation and maintenance cost of water supply systems.
- Loss of Revenue due to merger of Special Area: SMC used to collect Rs. 13 per KL for water supply to areas outside municipal limits. With merger of three special areas of Dhalli, Tutu, New Shimla in municipal limits, the SMC will have to charge notified rates as result causing loss of revenue from water supply.

3.2.7 Sewerage system of Shimla

Sewerage system is as important as the water supply system and forms an integral part of environmental character of a city. Sewage treatment facilities of Shimla have been substantially improved over the years to cater to future demand. I&PH and SMC are responsible for provision of sewerage system and related services. I&PH is involved in planning, construction, operation & maintenance of sewerage collection, treatment and disposal system. SMC maintains domestic and commercial connections from the door end to the main sewer lines, billing and collection and attending to citizen's grievances.

Shimla Municipal Area has a well-laid underground sewerage system and is maintained by I&PH. The first sewerage network was laid in the year 1880 to serve a population of 18000. In year 2005, under the assistance from OPEC and state funding, a new sewerage network for Shimla was designed and implemented to cater the demand for year 2031.

Network Coverage

The network of new sewerage system in Shimla is about 179 km and diameter of sewer pipes ranges from 150 mm to 800 mm. The network covers 70% of municipal area serving up to 30% of population. Special Areas, which are now merged in SMC, are without any sewerage network. Table 12 presents the performance indicators of the sewerage system.

Sewage Treatment Plants

I&PH has constructed 6 Sewage Treatment Plants (STPs) with total capacity of 35.63 MLD through OPEC funding. I&PH has given operation & maintenance of these STPs on management contract. The details of treatment plants are presented in Table 13. The total sewage received by six plants is only about 7.35 MLD for treatment. The treated effluents from STPs are disposed in adjoining Nallahs.

Table 12: Performance Indicators

S.No.	Indicator	SMC Area	Dhalli, Tutu, New Shimla	Special Areas of Ghanahatti, Kufri, and Shoghi
1	Network Coverage	70%	No coverage	No coverage
2	Access to Sewerage	30%	No access	No access
3	Total Quantity Collected	4.80 MLD	Information Not Available	Information Not Available
4	Capacity of Treatment Plants	35.63 MLD	-	-
5	Utilization of treatment and disposal plants	13.5%	Septic Tanks	Septic Tanks
6	Recycling / Reuse	Nil	Nil	Nil

Table 13: Details of Sewerage Treatment Plants

S.No.	Name of Sewage Treatment Plant	Capacity (MLD)	Locations	Technology Used
1	Lalpani	19.35	Near Baragaon on Shoghi Bypass	UASB
2	Sanjauli Malyana	4.44	Below Malyana Village on Shoghi Sanjauli Bypass	Extended Aeration System
3	Dhalli	0.76	Below Dhalli Churat Road	
4	Snowdown	1.35	Near Barmoo Village below Snowdown	
5	North Disposal	5.80	At Golcha below Annadale	
6	Summer Hill	3.93	At Gadog Village Summer Hill	

Recycling and Reuse of Treated Water

Presently, the treated sewage disposed in nallahs is used by downstream people for cultivation. The recycling and reuse of treated sewage for non potable purpose in the city is not feasible due to requirement of separate distribution network and pumping requirement as all STPs are located downhill side. Treated water from Malyana STP is discharged in the upstream of stream which is utilized as source of water for Ashwani Khad WTP.

Areas Served by Sewer Network

The existing sewerage network caters to needs of Central Shimla Chotta Shimla, Brockhurst, Khalini, Nabha Estate, Phagli, Tuti Kandi, Chakkar, Boileauganj, Summer Hill, Annandale, Kaithu and Bharari.

Areas Lacking Sewer Network

Many new areas along the present Municipal boundaries have been included in the Shimla urbanizable area, but underground sewage network has not been extended so far. Such areas are Wild Flower Hall, Kasumpti, parts of Sanjauli, Totu, Jutogh, Tara Devi, Shogi and other adjoining areas that now falling under the urbanisable boundaries are without sewerage system.

Location of Disposal Works

Various parts of the town are located on different terraces and on different hill spurs. The alignment of sewer lines and the setting of disposal works are therefore dictated by the topographic conditions of the town. Due to hill terrain, it is not possible to carry the waste water of the entire town to one place. In the existing system, there are five disposal points located below different hill spurs. Now with the extension of the urbanisable limits and inclusion of several new hill spurs as well as new areas of adjoining suburbs like Mashobra, Kufri, Jutogh etc. 14 new disposal points with STP's has been proposed in the Sewerage Improvement Scheme of I&PH Department. These are proposed keeping in mind the topography of the town. The

existing natural nallah/ channelized drains take care of storm water; therefore only sewage and sullage constitute the total volume of sewer generated.

3.2.8 Storm water drainage

The average annual rainfall over Shimla is about 1650 mm. The hilly terrain of Shimla has gifted itself with a good natural drainage pattern by the open streams or nallahs. The rainwater runoff finds its own course to open streams or nallahs. Public Works Department (PWD) is responsible for construction of side storm water drains on the either side of road network in Shimla City. Cross drainage works in form of culverts and bridges on the PWD road network is also under PWD, which also is responsible for its maintenance. The open streams or nallahs within Shimla city is under the control of Shimla Municipal Corporation.

Natural Drains

The Kufri-Dhalli-Sanjauli-Ridge-Tutu spinal is a drainage divide of Shimla city. The tributaries on southern side go to Yamuna and those on northern side to Satluj. Shimla has 13 major nallahs and number of minor nallahs, which are natural drains for rain water and off late for waste water too. Some lining is visible along these major nallahs but is not effectively coursing the storm water. Most of the natural drains (nallahs) are encroached upon and disposal or debris is a common view of the nallah.

Road Side Drains

KSC road and Motor Round Road have roadside open drains on the hilly side, which functions mainly for the water draining from the rocks and small water springs. These drains are further connected to nearby natural drains (nallahs). At some locations, they are provided with cross drainage works on the roads for the water to drain from the hilly side to the valley side. Roadside drains are provided on the hillside of the municipal roads, which are basically a shy away type of drain. The maintenance of storm water drains are in least priority and are attended only after excessive damage. It may be not a misnomer to call these roadsides drains as utility ducts cum drains, as most of the roadside drains have become a common right of way for water pipe lines, electric cables, telecommunication cables, TV cables and a few locations as waste water sewerage disposal nodes.

Issues and Aspects

- Choking of Nallahs due to disposal of debris and garbage into the drains
- Silting of drains due to constant blockages
- Dislocated and damaged old lining of the drains
- Encroachment of Nallahs
- Free access to dispose wastewater from nearby habitation and establishments into the natural drains
- No cleaning of natural drains and no clearance of excess floral growth on the drains
- Unpleasant odour of dirty water flowing in the drains
- Absence of check dams to conserve rain water

- Low coverage of road side drains
- Irregular and insufficient roadside drains sizes causes overflow of runoff water, which is very detrimental to black top roads
- Poor maintenance of road side drains
- Indiscriminate laying of services pipes and lines along the drains by other department and agencies
- Absence of comprehensive data on storm water drainage network

4.0 MATERIALS AND METHODS

Samples of groundwater, surface water, treated water from water treatment plant (WTP) and sewage treatment plant (STP) were collected in the pre as well as post monsoon season of year 2010 & 2011. Based on the results obtained in 2010-11, field observations and suggestions made by experts of PCS/TAMC, sampling from water treatment plant, sewage treatment plant, open drains, break points in water transmission lines and user points was carried out on monthly basis during 2011-12. The samples were preserved as per standard procedures and were analyzed for physico chemical as well as bacteriological parameters in the NIH water quality laboratory and I&PH Laboratory at Dhalli as per APHA 1995. A brief methodology of the study is described as below:

i) Analysis of hydrological and basin characteristics of Shimla City.

   a. Generation of basin characteristics maps using ILWIS GIS/ERDAS.
   b. Collection of relevant data/maps and other statistics of Shimla City from I&PH.

ii) Monitoring & Analysis of water quality variable in drinking water sources and sewage effluent.

   a. Monitoring of water quality parameters essential for drinking water from different drinking water sources and sewage effluent on quarterly basis
   b. Analysis of water quality samples using standard methods (APHA, 1995; Jain and Bhatia, 1987).

iii) Analysis of pollutant source identification/sewage effluent influx in drinking water and efficacy of existing sewerage network in the part of Shimla city (Sanjauli Malyana) using SewerCAD Software (Bentley, 2008).

iv) Assessment of possible impact of sewage effluent toxicants in drinking water sources from public health point of view based on water quality assessment using BIS/WHO standards.

v) Dissemination of knowledge, findings and application to field engineers and common people through preparation of Manual, leaflets, booklets and by organizing workshops/ seminars.

5.0 RESULTS AND DISCUSSION

5.1 Morphological Analysis

Drainage area of Shimla city consisting of part of Satluj and Yamuna sub-basins were digitized and prepared a digital elevation model (Figs. 3 to 6). The Shimla city lies partly in Satluj river basin and partly in Yamuna river basin. Morphological characteristics of stream (linear, aerial and relief aspect) of study area were analyzed and are shown in Tables 14, 15, 16 & 17.

Fig. 3: Drainage Map of Shimla City Falling Partly in Satluj (above) and Partly in Yamuna Basin (below)

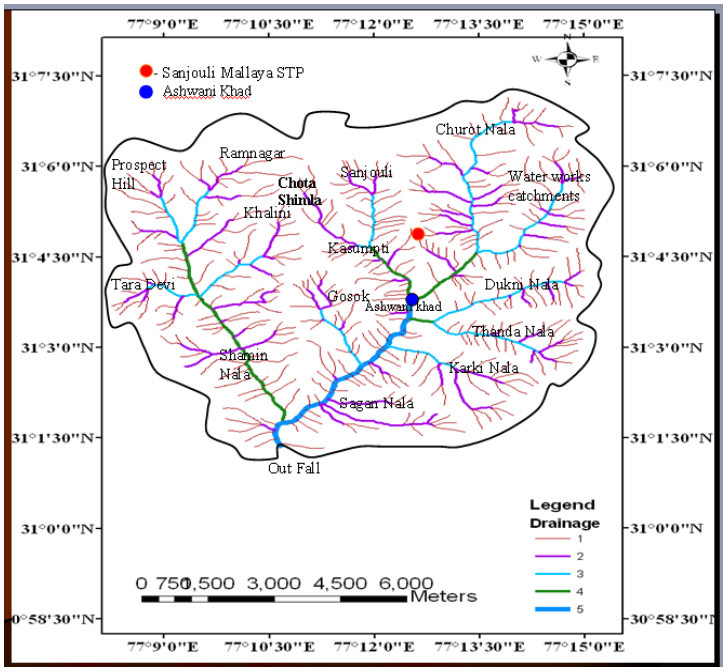


Fig. 4: Drainage Map of Yamuna Sub-basin for Shimla City

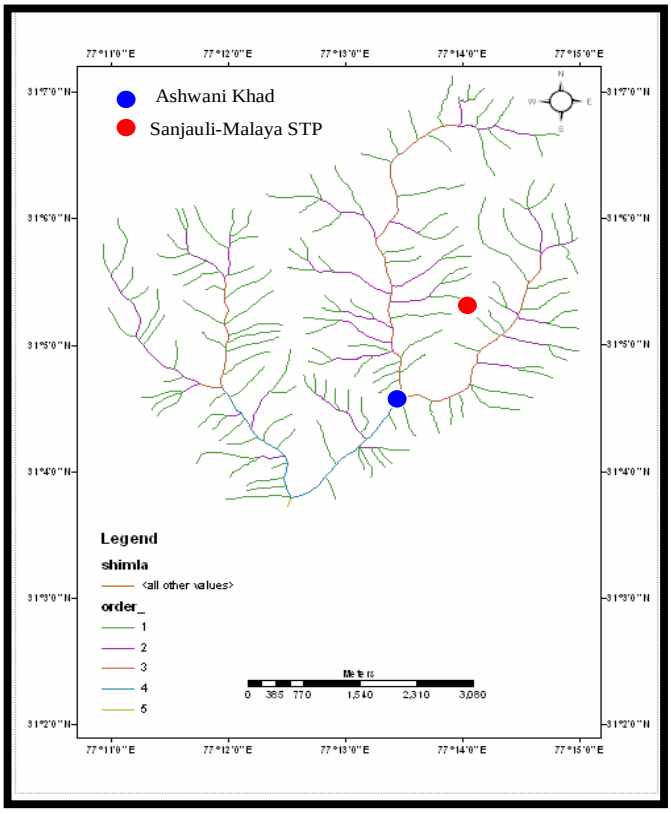


Fig. 5: Drainage Map of Yamuna Sub-basin for Sanjauli-Malyana Region

Table 14: Yamuna Sub-basin Characteristics w.r.t. Shimla City

S.No.	Description of Parameters	Value
1	Basin perimeter (P) in Km	38.601
2	Number of streams of various order	
	First order (N1)	382
	Second order (N2)	66
	Third order (N3)	12
	Fourth order (N4)	4
	Fifth order (N5)	1
	Total number of all order streams (N)	465
3	Length of streams of various order in Km	
	First order (N1)	203.28
	Second order (N2)	51.86
	Third order (N3)	26.66
	Fourth order (N4)	10.88
	Fifth order (N5)	6.12
	Total length of all order streams (L) in Km	298.797
4	Mean length of channel in Km	
	First order (N1)	0.532
	Second order (N2)	0.785
	Third order (N3)	2.22
	Fourth order (N4)	2.72
	Fifth order (N5)	6.12
	Length of basin (Lb) in Km	14.491

Table 15: Yamuna Sub-basin Characteristics w.r.t. Shimla City

S.No.	Description of morphological Parameters	Equation	Value
1	Areal Aspects	-----	
	Drainage area (A) in Km2	-----	91.97
	Drainage density (D) in Km/Km2	D=L/A	3.25
2	Relief Aspects	-----	
	Total Relief (H) in m	H = H2 – H1	1000
	Relief ratio (Rh)	Rh = H / Lb	0.069
	Relative relief (Rp)	Rp = H / P	0.26
	Ruggedness number (Rn)	Rn = HD	3.25

The Yamuna sub-basin of Shimla city is having 91.97 sq-km drainage area with fifth order stream and drainage density of 3.25.

Table 16: Yamuna Sub-basin Characteristics w.r.t. Sanjauli-Malyana Region

S.No.	Description of Parameters	Equation	Value
1	Basin perimeter (P) in Km		21.72
2	Number of streams of various order		
	First order (N1)		136
	Second order (N2)		23
	Third order (N3)		4
	Fourth order (N4)		2
	Fifth order (N5)		1
	Total number of all order streams (N)		166
3	Length of streams of various order in Km		
	First order (N1)		62.735
	Second order (N2)		3.856
	Third order (N3)		10.12
	Fourth order (N4)		4.088
	Fifth order (N5)		0.056
	Total length of all order streams (L) in Km		80.88
4	Mean length of channel in Km		
	First order (N1)		0.526
	Second order (N2)		0.461
	Third order (N3)		0.168
	Fourth order (N4)		2.53
	Fifth order (N5)		2.044
	Length of basin (Lb) in Km		7.25

Table 17: Yamuna Sub-basin Characteristics w.r.t. Sanjauli-Malyana region

S.No.	Description of morphological Parameters	Equation	Value
1	Areal Aspects		
	Drainage area (A) in Km2		29.95
	Drainage density (D) in Km/Km2	D=L/A	2.67
2	Relief Aspects		
	Total Relief (H) in m	H = H2 – H1	600
	Relief ratio (Rh)	Rh = H / Lb	0.082
	Relative relief (Rp)	Rp = H / P	0.028
	Ruggedness number (Rn)	Rn = HD	1.60

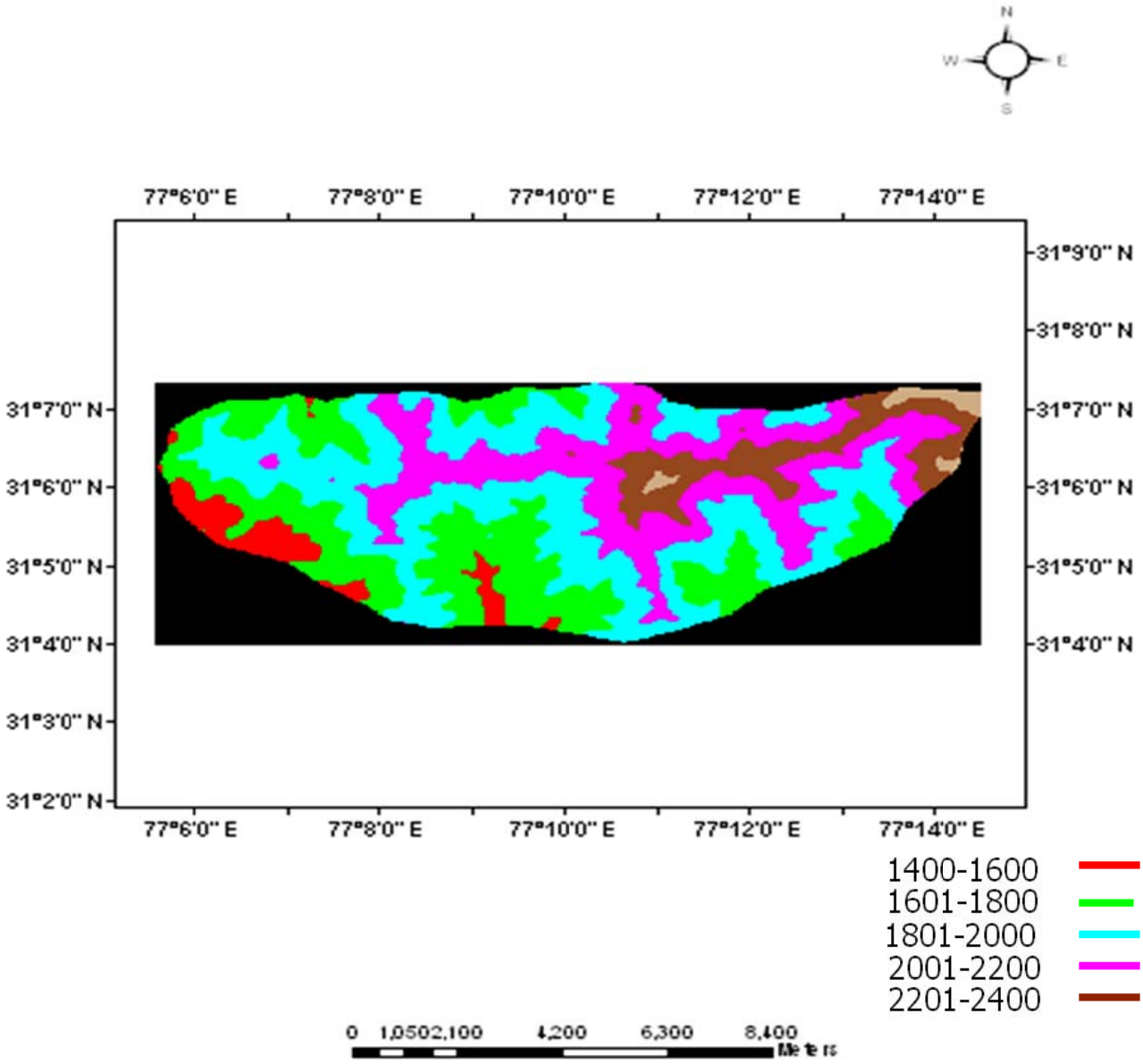


Fig. 6: Digital Elevation Model of Shimla City

5.2 Application of SewerCAD Software

SewerCAD is a powerful design and analysis tool for modeling sanitary sewage collection and pumping systems. The software can develop and compute sanitary loads, tracking and combining loads from dry-weather and wet-weather sources. We can also simulate the hydraulic response of the entire system (gravity collection and pressure force mains), observe the effects of overflows and diversions, and even automatically design selected portions of the system. Output covers everything from customizable tables and detailed reports to plan and profile sheets.

The gravity network is calculated using the built-in numerical model, which utilizes both the direct step and standard step gradually varied flow methods. Flow calculations are valid for both surcharged and varied flow situations, including hydraulic jumps, backwater, and drawdown curves.

Following parameters are required to run the software-

1. Rainfall and Run-off data for **dry weather** and **wet weather** of maximum possible year
2. Manhole
    - ID
    - Bottom elevation
    - Top elevation
    - Inflow Rate
    - Unit Load / Base Load (for both dry weather and wet weather condition)
    - Overflow
    - Upstream manhole
    - Downstream manhole

3. Out fall Data
    - Ground elevation
    - Invert elevation
    - Boundary condition type

4. Conduit Data
    - Length
    - Maximum Flow
    - Maximum Flow time
    - Shape with dimension
    - Material

5. Pump Data
    - Shutoff Discharge
    - Shutoff Head
    - Design Discharge
    - Design Head

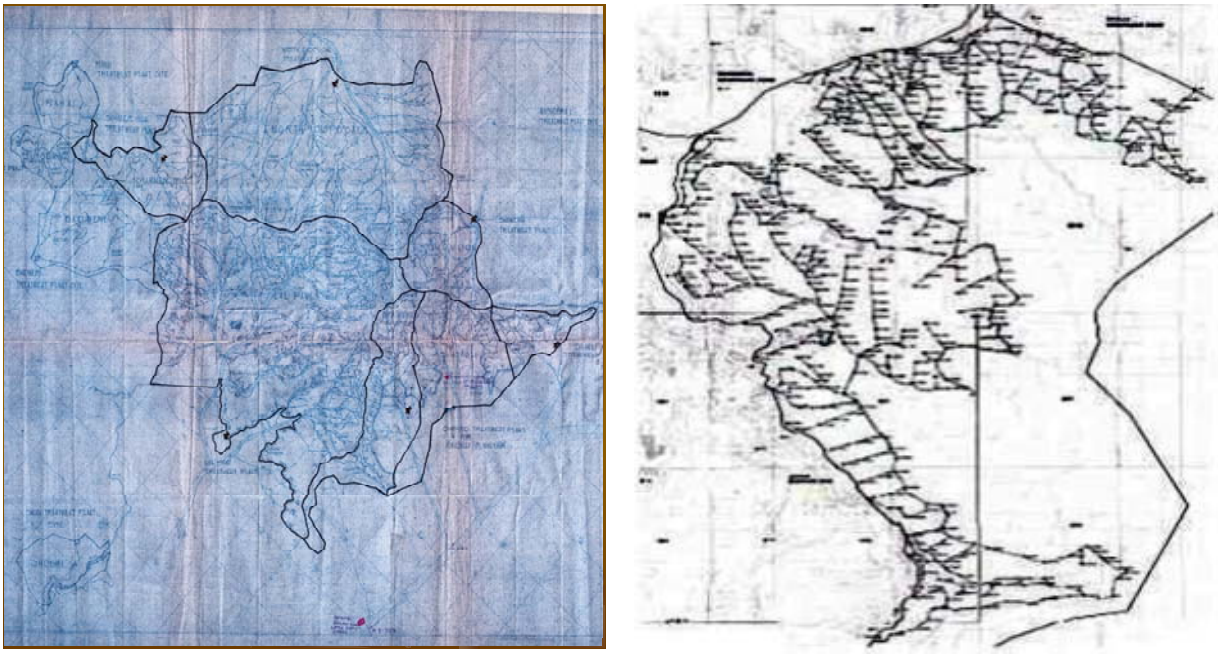
- Max. Operating discharge
- Max. Operating head

6. Wet Well
    - Base elevation
    - Min. & max. Elevation
    - Alam elevation
    - Wet well Diameter.

In this study, SewerCAD software is utilized for understanding the efficacy of the existing sewerage system and find out the faults if any. To achieve this goal, we had completed following activities-

1. Sewage Network Map of Shimla (Scale, 1:20,000) received from I&PH was scanned and merged in order to get complete digitized map for Sanjauli-Malyana region (Fig. 7, 8).

2. Following data pertaining to manholes entered (Table 18):
    - Identification number (ID)
    - Bottom elevation
    - Top elevation
    - Upstream manhole data
    - Downstream manhole data



(a) (b)

Fig. 7: Sewerage Network of Shimla City (a) and Sanjauli Malyana Region (b)

Fig. 8: Digitized Sewerage Network of Sanjauli Malyana Region

Table 18: Format of Manhole Data Input for SewerCAD Software

FlexTable: Manhole Table (Current Time: 0.000 hours) (Sanjauli_malyana_2011.swc)

	ID	Label	Elevation (Ground) (m)	Elevation (Invert) (m)	Elevation (Rim) (m)	Set Rim to Ground Elevation?	Diameter (mm)	Downstream Conduit	Hydraulic Grade Line (Out) (m)	Headloss (ft)	Energy Grade Line (In) (m)	Energy Grade Line (Out) (m)	Flow (Downstream Conduit) (m³/h)
21: SV93835...	21	SV93835701	2,174.43	2,173.38	2,174.43	☑	914.4	CO-2	2,173.39	0.00	2,173.40	2,173.40	1.20
22: SV19183...	22	SV19183201	2,148.54	2,147.49	2,148.54	☑	914.4	CO-3	2,147.51	0.00	2,147.51	2,147.51	1.21
24: SV19183...	24	SV19183204	2,093.16	2,092.11	2,093.16	☑	914.4	CO-4	2,092.13	0.00	2,092.14	2,092.14	2.41
26: SV19183...	26	SV19183102	2,056.25	2,055.20	2,056.25	☑	914.4	CO-5	2,055.22	0.00	2,055.23	2,055.23	2.42
28: SV19183...	28	SV19183103	2,037.79	2,036.74	2,037.79	☑	914.4	CO-6	2,036.77	0.00	2,036.78	2,036.78	3.62
30: ST19183...	30	ST19183001	2,010.25	2,009.20	2,010.25	☑	914.4	CO-7	2,009.23	0.00	2,009.24	2,009.24	3.63
32: SV19183...	32	SV19183003	1,982.41	1,981.36	1,982.41	☑	914.4	CO-8	1,981.39	0.00	1,981.40	1,981.40	4.25
34: SV92799...	34	SV92799601	1,938.75	1,937.70	1,938.75	☑	914.4	CO-9	1,937.73	0.00	1,937.74	1,937.74	4.26
36: SV93791...	36	SV93791201	1,930.15	1,929.10	1,930.15	☑	914.4	CO-10	1,929.13	0.00	1,929.14	1,929.14	4.89
38: ST19173...	38	ST19173901	1,927.30	1,926.25	1,927.30	☑	914.4	CO-11	1,926.35	0.00	1,926.40	1,926.40	44.10
41: ST19173...	41	ST19173802	1,897.30	1,896.25	1,897.30	☑	914.4	CO-12	1,896.35	0.00	1,896.40	1,896.40	44.10
43: SV19173...	43	SV19173804	1,880.45	1,879.35	1,880.45	☑	914.4	CO-13	1,879.44	0.00	1,879.48	1,879.48	44.11
45: SV19174...	45	SV19174703	1,862.33	1,861.08	1,862.33	☑	914.4	CO-14	1,861.18	0.00	1,861.22	1,861.22	71.34
47: SV19175...	47	SV19175601	1,825.10	1,823.80	1,825.10	☑	914.4	CO-15	1,823.90	0.00	1,823.93	1,823.93	71.37
49: SV19175...	49	SV19175502	1,824.15	1,822.85	1,824.15	☑	914.4	CO-16	1,822.95	0.00	1,822.98	1,822.98	71.40
51: SV19176...	51	SV19176502	1,822.95	1,821.65	1,822.95	☑	914.4	CO-17	1,821.75	0.00	1,821.79	1,821.79	73.39
53: SV19177...	53	SV19177502	1,821.60	1,820.30	1,821.60	☑	914.4	CO-18	1,820.40	0.00	1,820.44	1,820.44	74.72
55: SV19179...	55	SV19179501	1,819.95	1,818.65	1,819.95	☑	914.4	CO-19	1,818.81	0.00	1,818.87	1,818.87	183.02
59: SV19177...	59	SV19177503	1,837.15	1,836.10	1,837.15	☑	914.4	CO-20	1,836.11	0.00	1,836.12	1,836.12	0.95
61: SV19176...	61	SV19176601	1,856.25	1,855.20	1,856.25	☑	914.4	CO-21	1,855.21	0.00	1,855.22	1,855.22	1.00
62: SV19176...	62	SV19176603	1,841.30	1,840.25	1,841.30	☑	914.4	CO-22	1,840.26	0.00	1,840.27	1,840.27	1.00
65: SV19175...	65	SV19175704	1,853.70	1,852.65	1,853.70	☑	914.4	CO-23	1,852.65	0.00	1,852.65	1,852.65	0.00
66: SV19175...	66	SV19175604	1,839.25	1,838.20	1,839.25	☑	914.4	CO-24	1,838.20	0.00	1,838.20	1,838.20	0.01
69: SV19176...	69	SV19176801	1,892.55	1,891.50	1,892.55	☑	914.4	CO-25	1,891.52	0.00	1,891.52	1,891.52	1.20
70: SV19176...	70	SV19176803	1,883.45	1,882.40	1,883.45	☑	914.4	CO-790	1,882.42	0.00	1,882.42	1,882.42	1.20
74: SV19176...	74	SV19176706	1,871.00	1,869.95	1,871.00	☑	914.4	CO-789	1,869.97	0.00	1,869.97	1,869.97	1.20
78: SV19175...	78	SV19175801	1,869.25	1,868.20	1,869.25	☑	914.4	CO-30	1,868.22	0.00	1,868.22	1,868.22	1.21
80: SV19175...	80	SV19175703	1,866.08	1,865.03	1,866.08	☑	914.4	CO-740	1,865.06	0.00	1,865.07	1,865.07	4.28
86: SV19174...	86	SV19174704	1,863.27	1,862.22	1,863.27	☑	914.4	CO-34	1,862.25	0.00	1,862.26	1,862.26	4.29
89: SV19184...	89	SV19184201	2,172.30	2,171.25	2,172.30	☑	914.4	CO-35	2,171.27	0.00	2,171.27	2,171.27	1.20
90: SV19184...	90	SV19184203	2,135.15	2,134.10	2,135.15	☑	914.4	CO-36	2,134.12	0.00	2,134.12	2,134.12	1.20
92: SV19184...	92	SV19184103	2,087.90	2,086.85	2,087.90	☑	914.4	CO-37	2,086.87	0.00	2,086.87	2,086.87	1.21
94: SV19184...	94	SV19184001	2,063.05	2,062.00	2,063.05	☑	914.4	CO-38	2,062.02	0.00	2,062.03	2,062.03	2.41
96: ST19184...	96	ST19184002	2,028.40	2,027.35	2,028.40	☑	914.4	CO-39	2,027.37	0.00	2,027.38	2,027.38	2.42
98: SV19174...	98	SV19174901	1,994.50	1,993.45	1,994.50	☑	914.4	CO-40	1,993.47	0.00	1,993.48	1,993.48	2.42
100: SV1917...	100	SV19175802	1,931.95	1,930.90	1,931.95	☑	914.4	CO-41	1,930.93	0.00	1,930.93	1,930.93	3.06

3. Following data pertaining to conduit entered (Table 19a & 19b)):
    - Length
    - Shape with dimensions
    - Material of construction

Table 19a: Format of Conduit Data Input for SewerCAD Software

FlexTable: Conduit Table (Current Time: 0.000 hours) (Sanjauli_malyana_2011.swc)

	Label	Start Node	Invert (Start) (m)	Stop Node	Invert (Stop) (m)	Length (Unified) (m)	Diameter (mm)	Manning's n	Conduit Type	Conduit Shape	Material	Section Size	Slope (m/m)	Capacity (Full Flow) (m³/h)	Elevation Ground (Start) (m)	Elevation Ground (Stop) (m)	Length (User Defined) (m)
23: CO-2	CO-2	SV93835701	2,173.38	SV19183201	2,147.49	24.1	304.8	0.012	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.075	4,079.65	2,174.43	2,148.54	24.1
25: CO-3	CO-3	SV19183201	2,147.49	SV19183204	2,092.11	30.5	150.0	0.012	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.817	800.60	2,148.54	2,093.16	30.5
27: CO-4	CO-4	SV19183204	2,092.11	SV19183102	2,055.20	21.6	150.0	0.012	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.706	775.68	2,093.16	2,056.25	21.6
29: CO-5	CO-5	SV19183102	2,055.20	SV19183103	2,036.74	13.1	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.408	768.97	2,056.25	2,037.79	13.1
31: CO-6	CO-6	SV19183103	2,036.74	ST19183001	2,009.20	16.2	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.705	846.01	2,037.79	2,010.25	16.2
33: CO-7	CO-7	ST19183001	2,009.20	SV19183003	1,981.36	16.8	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.661	834.99	2,010.25	1,982.41	16.8
35: CO-8	CO-8	SV19183003	1,981.36	SV92799601	1,937.70	23.2	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.885	889.54	1,982.41	1,938.75	23.2
37: CO-9	CO-9	SV92799601	1,937.70	SV93791201	1,929.10	14.0	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.613	507.46	1,938.75	1,930.15	14.0
39: CO-10	CO-10	SV93791201	1,929.10	ST19173901	1,926.25	5.2	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.550	480.54	1,930.15	1,927.30	5.2
42: CO-11	CO-11	ST19173901	1,926.25	ST19173802	1,896.25	24.7	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.215	714.24	1,927.30	1,897.30	24.7
44: CO-12	CO-12	ST19173802	1,896.25	SV19173804	1,879.35	15.2	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.109	682.32	1,897.30	1,880.45	15.2
46: CO-13	CO-13	SV19173804	1,879.35	SV19174703	1,861.08	34.4	200.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.530	1,016.32	1,880.45	1,862.33	34.4
48: CO-14	CO-14	SV19174703	1,861.08	SV19175601	1,823.80	35.4	350.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.054	6,372.49	1,862.33	1,825.10	35.4
50: CO-15	CO-15	SV19175601	1,823.80	SV19175502	1,822.85	32.0	400.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.030	1,526.56	1,825.10	1,824.15	32.0
52: CO-16	CO-16	SV19175502	1,822.85	SV19176502	1,821.65	37.5	400.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.032	1,585.20	1,824.15	1,822.95	37.5
54: CO-17	CO-17	SV19176502	1,821.65	SV19177502	1,820.30	39.9	400.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.034	1,629.21	1,822.95	1,821.60	39.9
56: CO-18	CO-18	SV19177502	1,820.30	SV19179501	1,818.65	47.9	400.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.034	1,645.27	1,821.60	1,819.95	47.9
58: CO-19	CO-19	SV19179501	1,818.65	OF-1	1,815.65	18.6	400.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.161	3,559.11	1,819.95	1,817.95	18.6
60: CO-20	CO-20	SV19177503	1,836.10	SV19177502	1,820.30	24.4	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.648	521.57	1,837.15	1,821.60	24.4
63: CO-21	CO-21	SV19176601	1,855.20	SV19176603	1,840.25	22.9	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.654	523.99	1,856.25	1,841.30	22.9
64: CO-22	CO-22	SV19176603	1,840.25	SV19176502	1,821.65	19.2	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.969	637.70	1,841.30	1,822.95	19.2
67: CO-23	CO-23	SV19175704	1,852.65	SV19175604	1,838.20	22.6	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.641	518.62	1,853.70	1,839.25	22.6
68: CO-24	CO-24	SV19175604	1,838.20	SV19175502	1,822.85	18.6	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.826	588.73	1,839.25	1,824.15	18.6
71: CO-25	CO-25	SV19176801	1,891.50	SV19176803	1,882.40	14.6	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.622	511.01	1,892.55	1,883.45	14.6
81: CO-30	CO-30	SV19175801	1,868.20	SV19175703	1,865.03	17.7	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.179	274.38	1,869.25	1,866.08	17.7
88: CO-34	CO-34	SV19174704	1,862.22	SV19174703	1,861.08	15.8	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	0.072	173.77	1,863.27	1,862.33	15.8
91: CO-35	CO-35	SV19184201	2,171.25	SV19184203	2,134.10	21.9	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.693	843.03	2,172.30	2,135.15	21.9
93: CO-36	CO-36	SV19184203	2,134.10	SV19184103	2,086.85	30.5	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.550	806.73	2,135.15	2,087.90	30.5
95: CO-37	CO-37	SV19184103	2,086.85	SV19184001	2,062.00	19.5	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.274	731.31	2,087.90	2,063.05	19.5
97: CO-38	CO-38	SV19184001	2,062.00	ST19184002	2,027.35	18.9	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.834	877.37	2,063.05	2,028.40	18.9
99: CO-39	CO-39	ST19184002	2,027.35	SV19174901	1,993.45	18.9	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.794	867.83	2,028.40	1,994.50	18.9
101: CO-40	CO-40	SV19174901	1,993.45	SV19175802	1,930.90	30.5	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	2.052	928.20	1,994.50	1,931.95	30.5
103: CO-41	CO-41	SV19175802	1,930.90	SV19175804	1,884.05	22.6	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	2.077	933.83	1,931.95	1,885.10	22.6
104: CO-42	CO-42	SV19175804	1,884.05	SV19175703	1,865.03	16.8	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.135	690.17	1,885.10	1,866.08	16.8
107: CO-43	CO-43	SV89858101	2,157.14	SV90841401	2,114.60	27.7	150.0	0.011	User Defi...	Circular Pi...	Ductile Iron	12 inch	1.534	802.43	2,158.19	2,115.65	27.7

Table 19b: Summary of Conduit Data

S.No.	Conduit Description	Count	Ductile Iron (m)	All Materials (m)
1	Circular Pipe - 150.0 mm	622	12 163.3	12 163.3
2	Circular Pipe - 200.0 mm	13	334.7	334.7
3	Circular Pipe - 250.0 mm	12	317.3	317.3
4	Circular Pipe - 300.0 mm	3	71.6	71.6
5	Circular Pipe - 350.0 mm	28	618.7	618.7
6	Circular Pipe - 400.0 mm	38	897.0	897.0
	Total Length	**716**	**14 402.7**	**14 402.7**

4. Following data pertaining to outfall entered-
    - Ground elevation
    - Inver elevation
5. Boundary conditions type – Free / gravity fall
6. Manhole loading data w.r.t. population and utility entered to arrive at base / peak flow.

Software run was completed after entering the data as described above. The report of the outcome is attached as Annexure 1. The sewerage system was split in various sections and the elevation as well as engineering profile was studied as shown in Fig. 9, 10, 11, 12, & 13. The conclusions drawn from the software run are-

1. The existing sewerage network is sufficient for designed sewage load.
2. At present, only 25-30% habitation is connected to sewerage system and hence the possibility of the overflow is ruled out. Thus it can be concluded that the contamination of the drinking water
3. The elevation profile of the sewerage network indicated smooth flow of sewage.

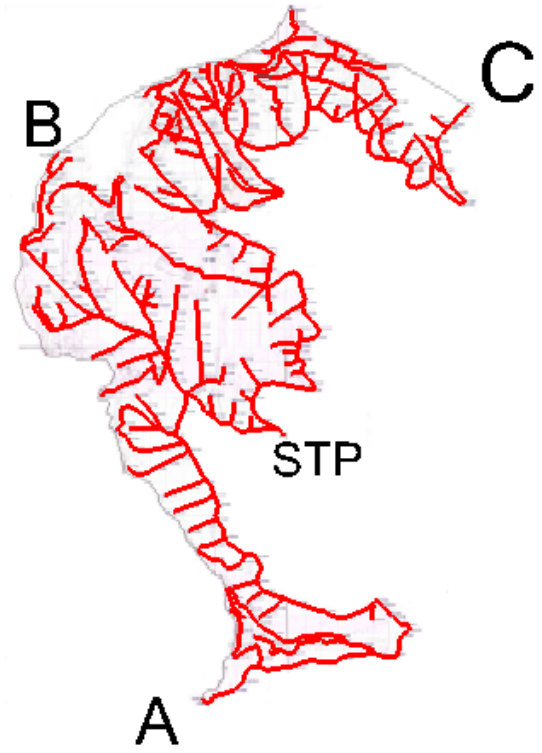


Fig. 9: Sewerage Map of Sanjauli Malyana Region Divided in Three Section

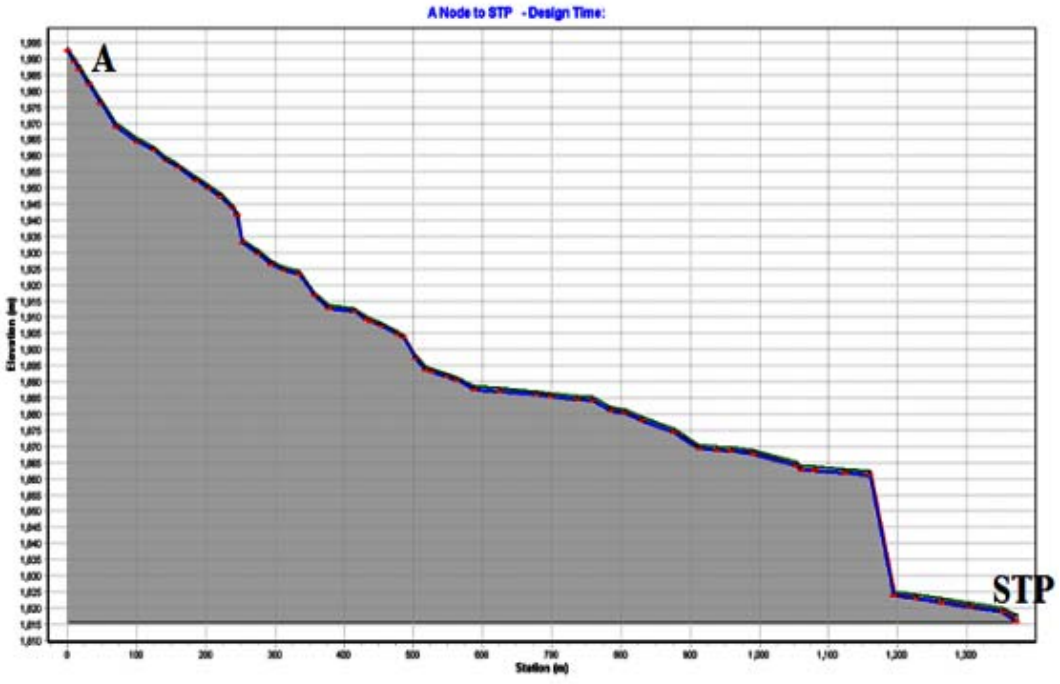


Fig. 10: Graph Showing Elevation of Different Upstream and Downstream Manhole, Conduits and Out Fall from Point A to the STP

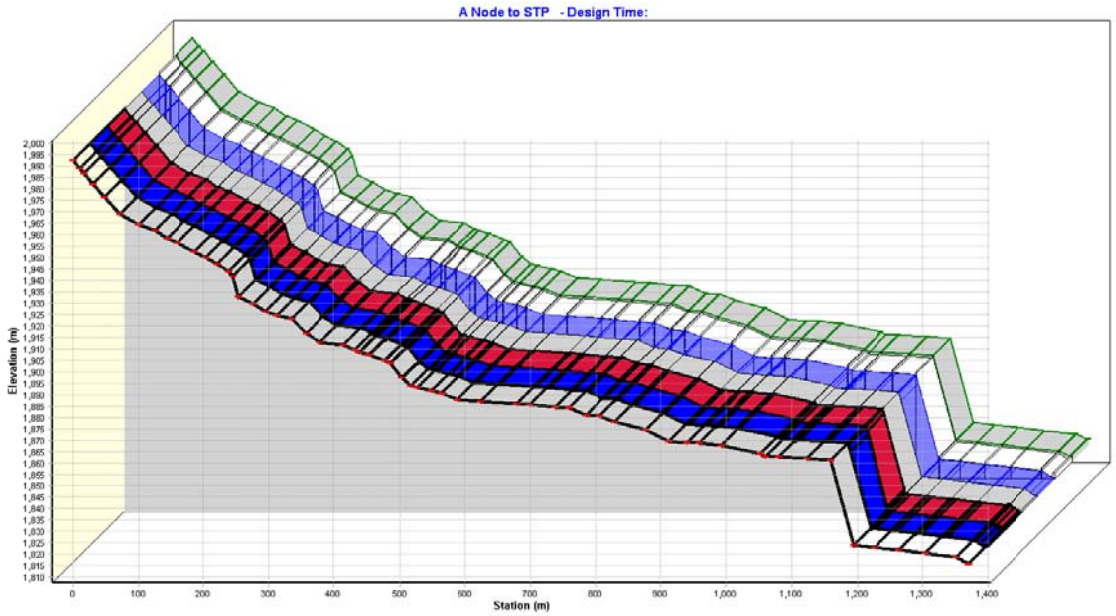


Fig. 11: A 3D View of Manhole, Conduits and Out Fall From point A to the STP

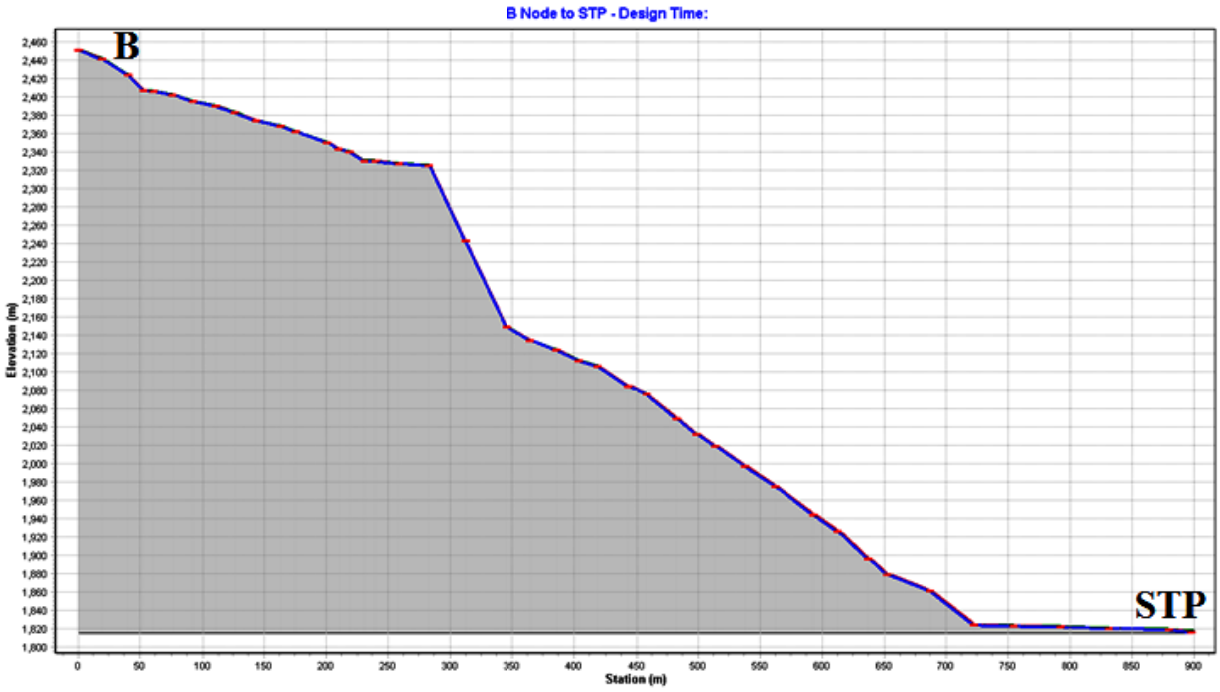


Fig. 12: Graph Showing Elevation of Manhole, Conduits and Out Fall from Point B to STP

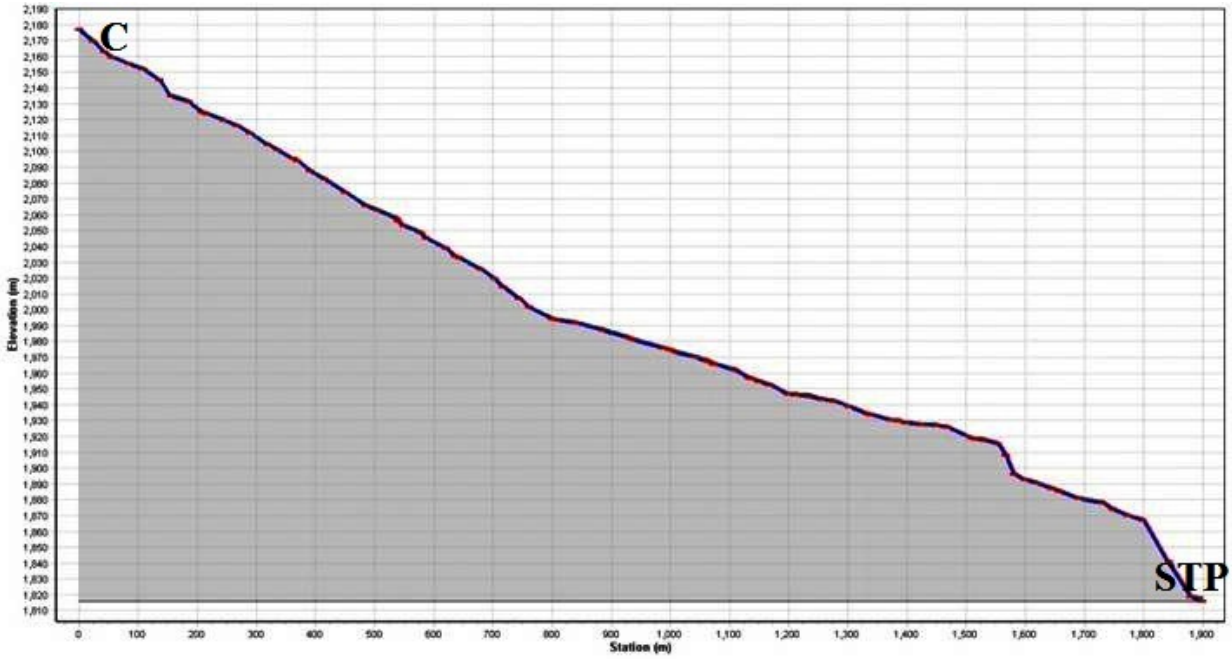


Fig. 13: Graph Showing Elevation of Manhole, Conduits and Out Fall from Point C to STP

Field observations lead us to following conclusions-

1. Some manholes were found overflowing due to blockage of pipes by poly bags / jute bags (Fig. 14), which may lead to contaminate the drinking water.
2. Leakages were observed in the drinking water supply line (Fig. 15). This leads to ingress of contaminated water in the supply line during non supply periods.
3. Temporary arrangements for arresting the leakages lead to ingress of contaminated water (Fig. 15).

Fig. 14: A view of Manhole Overflow in the Study Area

Fig. 15: Water Supply Lines Leakages and Temporary Arrangements for Arresting Leakage

5.3 Water Quality of Shimla City

Samples of groundwater, surface water, treated water from water treatment plant (WTP) and sewage treatment plant (STP) were collected in the pre as well as post monsoon season of year 2010 & 2011. Based on the results obtained in 2010-11, field observations and suggestions made by experts of PCS/TAMC, sampling from water treatment plant, sewage treatment plant, open drains, break points in water transmission lines and user points was carried out on monthly basis during 2011-12. The samples were preserved as per standard procedures and were analyzed for physico chemical as well as bacteriological parameters in the NIH water quality laboratory and I & PH Laboratory at Dhalli as per APHA 1995.

5.3.1 Ground water quality

Groundwater samples were collected from 30 locations (Fig. 16) covering entire Shimla city. The results are shown in Table 20.

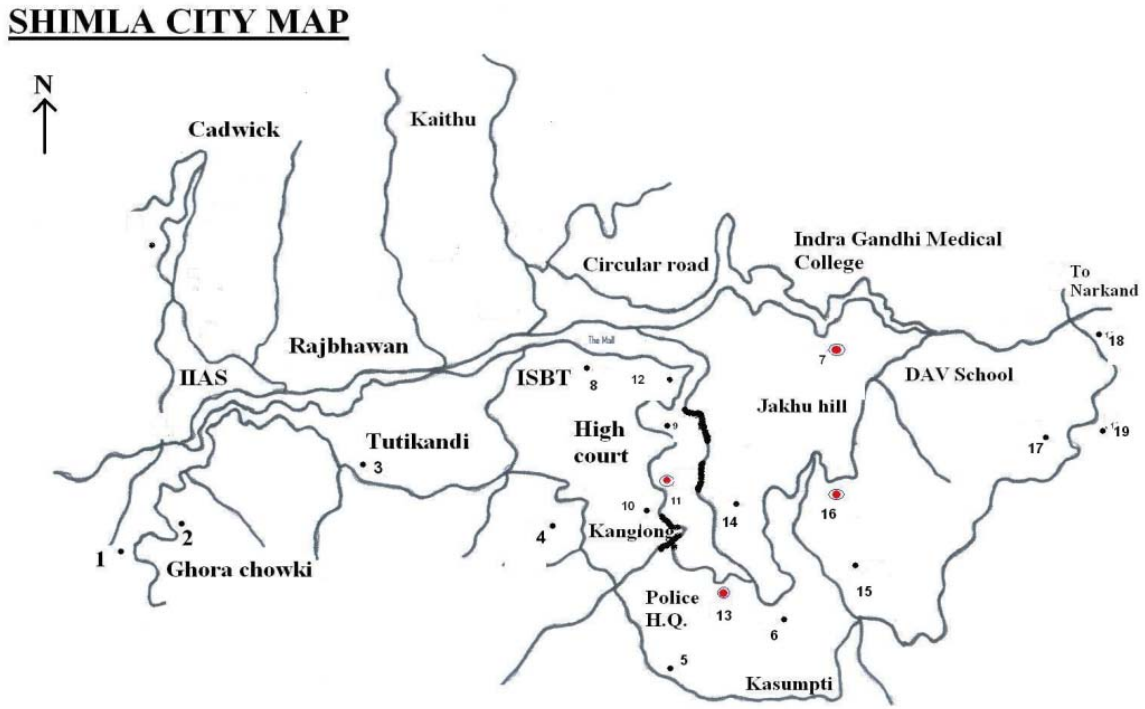


Fig. 16: Map Showing Ground Water Sampling Locations

Table 20: Physico-chemical Parameters of Groundwater

S.No.	Parameters	Unit	Min	Max	Average	BIS (Limits)	
						Desirable	Permissible
1	pH		6.65	7.64	7.29	6.5-8.5	--
2	Conductivity	µS/cm	310	1372	538.57	--	--
3	Total dissolved solids	mg/L	198	878	345	500	2000
4	Total hardness	mg/L	87	313	142	300	600
5	Total alkalinity	mg/L	58	292	119.5	200	600
6	Chloride as Cl	mg/L	4	210	45.79	250	1000
7	Sulfate as SO_4	mg/L	17	31	22.54	200	400
8	Nitrate as NO_3	mg/L	15	57	26.50	45	-
9	Phosphate as PO_4	mg/L	0.13	7.8	0.87	-	-
10	Sodium as Na	mg/L	24.7	124	47.09	--	--
11	Potassium as K	mg/L	2.9	39	8.05	--	--
12	Calcium as Ca	mg/L	20	53	32.40	75	200
13	Magnesium as Mg	mg/L	7	44	14.81	30	100
14	Ammonia as NH_3	mg/L	NIL	16.8	5.29	--	--
15	Biochemical oxygen demand	mg/L	0.59	3.29	1.46	2	--
16	Chemical oxygen demand	mg/L	25.6	141	68.14	--	--

Analysis results of groundwater samples lead to following conclusions-

1. The groundwater of Shimla city was found to be of Ca-Mg-HCO_3 type having temporary hardness (Fig. 17 & 18).

2. 25% ground water samples were high in total dissolved solids, hardness, and nitrate.

3. NO_3 concentration ranges from 0-66 mg/L in pre-monsoon samples and 0-29 mg/L in post monsoon season. Although, the NO_3 concentration in most of the ground water sample were well within the permissible limit set by Bureau of Indian Standards for drinking water but the concentration is enough to produce methamoglobinemia (blue baby syndrome) in infants. Nitrates/nitrites also lead to formation of nitrosamines which are carcinogenic. Maximum concentration limit of nitrate is 10 mg/L as per USEPA.

4. Sample from following locations were positive in E-coli

    a. Bharari (Sampling point – 13)
    b. Cart road to Mall road (Sampling point - 18)
    c. Circular road (Sampling point – 22)
    d. New Shimla - Sector 3 (Sampling point – 25)

5. Presence of nitrate and E-coli in groundwater indicates contamination with sewage. This is due to improper sanitation facilities in the city.

6. As per I&PH officials, only 25-30 % habitation is connected by sewerage lines and sewage from rest 70-75% finds its way to natural drainage / streams directly or via age old septic tanks which may be the main reason for contamination of groundwater. This clearly indicates our approach towards sewage / wastewater treatment which becomes our least priority and considered to be very expensive. This type of approach leads to contamination of natural drinking water resources leading to water borne diseases and finally more expensive treatment of drinking water. Martin has very well documented the hazards of once through water usage which is a common practice in the developing and water rich countries. He had demonstrated that once through water usage is very costly over long run (Martin and Martin, 1991).

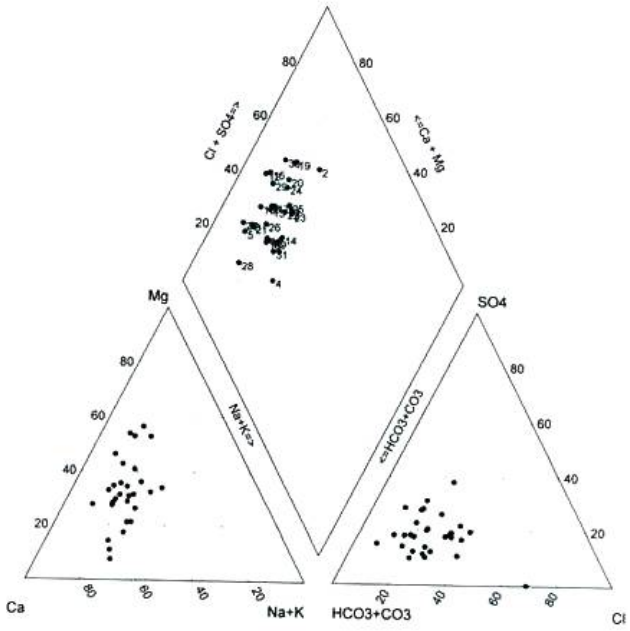


Fig. 17: Piper Trilinear Diagram for Pre-monsoon Groundwater Samples of Shimla

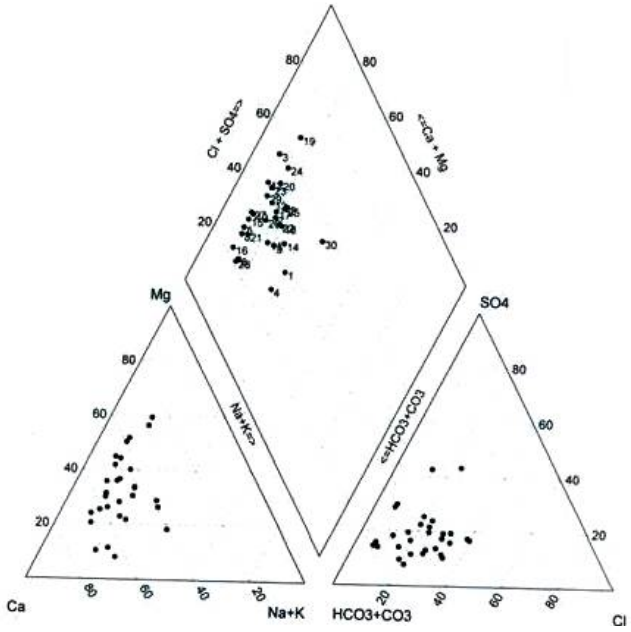


Fig. 18: Piper Trilinear Diagram for Post-monsoon Groundwater Samples of Shimla

5.3.2 Sewage treatment plant and open drains

Jaundice cases were noted mainly from the localities receiving water from Ashwani Khad water supply system. This system was installed in 1992 wherein the water is received from a natural stream. The stream water is treated by chemical coagulation, flocculation and sedimentation followed by filtration and disinfection with chlorine. The WTP also receive water from bore wells to full fill the demand. Bore well water is supplied directly after disinfection. The chlorinated water is pumped to Kawalag storage plant and then to Kusumpti tank where it is re-chlorinated and distributed.

The natural stream supplying water to Ashwani Khad WTP receives treated water from Sanjauli-Malyana STP (Fig. 19) and three natural drains (Fig. 20-22). The natural drains are also

- Housing board colony (Sanjauli) drain – Contaminated with sewage from colony
- Sanan open drain – Contaminated with sewage from Nawbhar, Chamyana, and Sanan
- Shivmandir (Malyana) drain - Contaminated with sewage

Samples from the STP as well as open drains were collected and analyzed to understand the extent of contamination. The analysis results are shown in Tables 21-24.

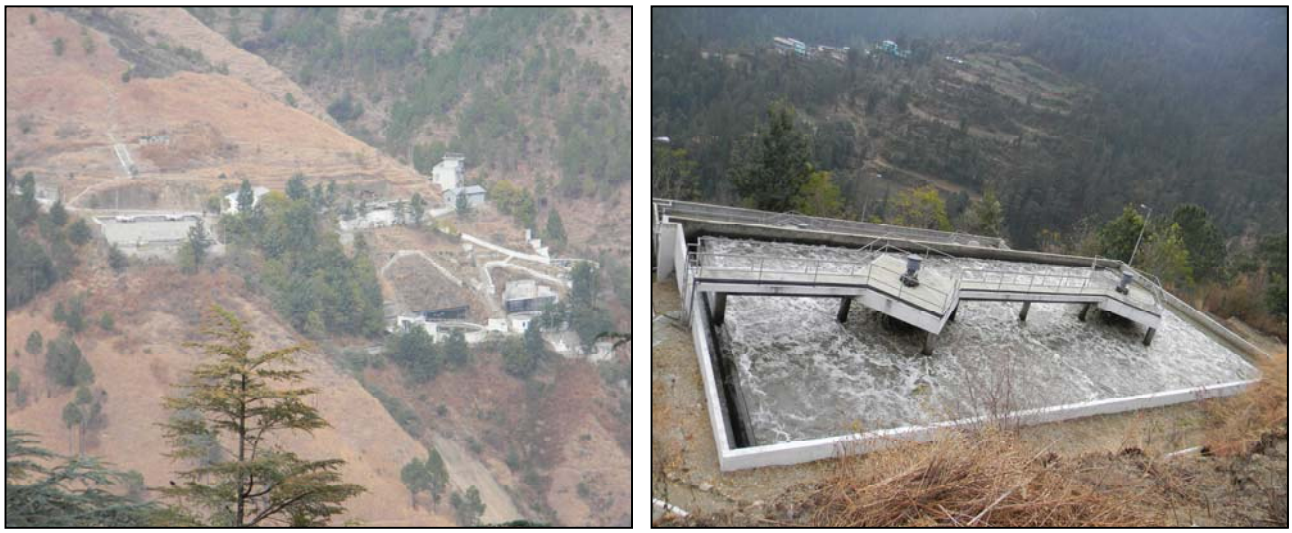


Fig. 19: A View of Sanjauli Malyana Sewage Treatment Plant

Fig. 20: A View of Housing Board Colony Open Drain

Fig. 21: A View of Sanan Open Drain in Study Area

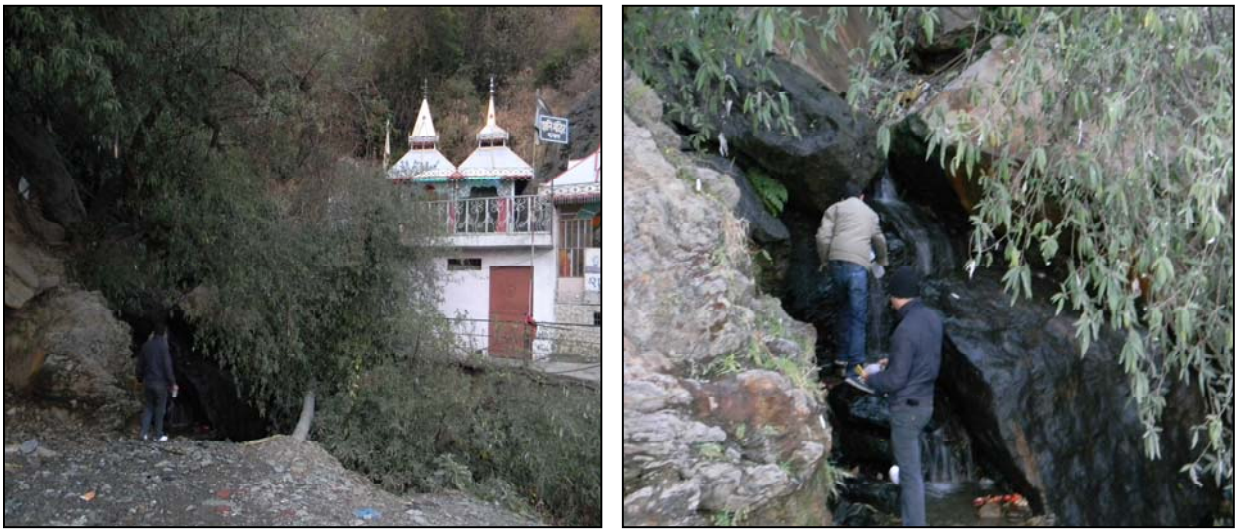


Fig. 22: A View of Shiv Mandir Open Drain

STP is based on extended activated sludge process (EASP) and the capacities of treatment units are sufficient to take care of the designed load (Fig. 23). The treatment plant consists of bar screen, grit chamber, aeration tank, secondary clarifier, solids contact clarifier,

and chlorine contact tank for disinfection. Solids contact clarifier has been provided for removal of organics by adsorption on chemical sludge escaping from the biological reactor in the winter season when activity of micro organisms is minimum. STP is designed to treat 4.4 MLD sewage with 375 mg/L BOD. The treated water from STP is expected to have BOD less than 30 mg/L and TSS less than 50 mg/L.

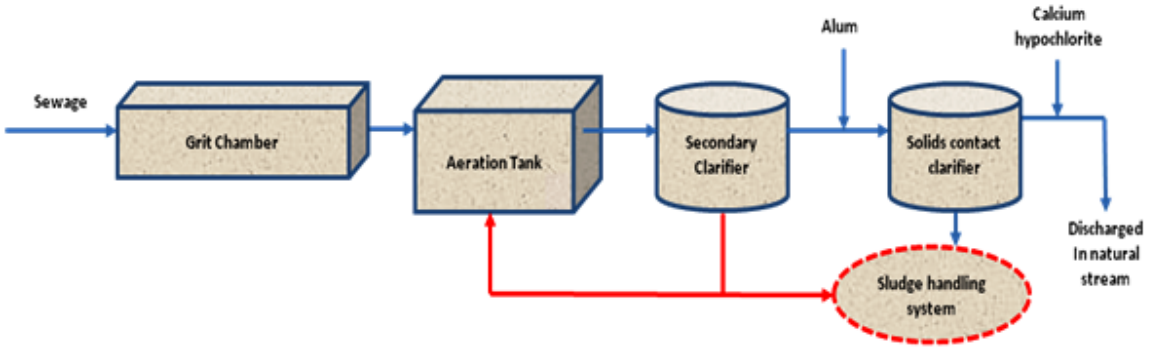


Fig. 23: Schematic View of Sewage Treatment Plant at Malyana

Analysis result of STP indicates partial treatment of sewage which is polluting the natural stream. The inferences drawn from the field observations and analysis results are-

1. Frequent cleaning (preferably after every 8 hours, which will depend on the inlet grit concentration) of grit chamber should be practiced (Fig. 24). This will help in trapping the fine grit particles and will improve the performance of downstream equipments.

Fig. 24: A View of Grit Chamber Full of Grit Particles

2. The duration and extent of settled biomass recycling aeration tank is not sufficient. This leads to septic conditions in the secondary clarifier and decay of biomass as well as production of anaerobic bacteria which reduces the performance of the system, which is evident from the floating muck and air bubbles in secondary clarifier due to de-nitrification (Fig. 25) of nitrate produced in aeration tank. The settled biomass starts floating on the surface of the clarifier when nitrogen molecules attaches to the biomass surface. The duration of the recycling the settled biomass and recirculation flow needs to be increased to prevent the septic condition in the secondary clarifier.

Fig. 25: A View of Secondary Clarifier

3. Chemical dosing in secondary clarifier is manual and hence the desired quality is not achieved (Fig. 26). Metering pumps for dosage of alum as well as polyelectrolyte should be installed along with proper chemical preparation tanks. The chemical dosage changes with the influent water quality and should be based on Jar test. Proper operation of clarifier will improve the quality of treated water by entrapping the solids / organics escaping from the secondary clarifier by sorption on the chemical sludge.

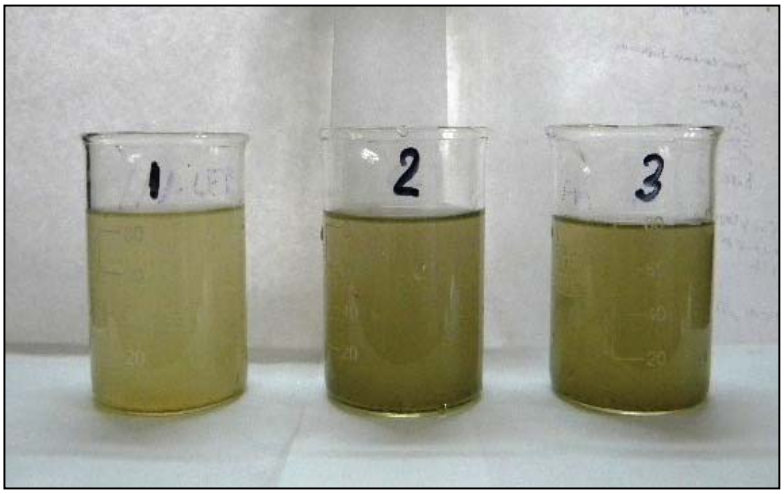


Fig. 26: Samples from STP (1), Inlet (2) and Secondary Clarifier Outlet (3) at Shimla

4. The organics as well as the biomass which is escaping from the system is oxidized by hypochlorite (Fig. 27). This leads to formation of trihalomethane (THM's) which are carcinogenic in nature. This can be avoided by compliance of step 1, 2, & 3.

Fig. 27: A View Showing Hypochlorite Dosing System

5. Proper operation of STP will minimize the disease outbreaks. This can be achieved by proper training of the operators and valuing their critical role. Lot of water borne disease outbreaks occurred in the world due to negligence or improper operation of upstream STP and mixing of untreated sewage in the drinking water source. One such instance of mass level water borne outbreak of cryptosporidiosis happened in North Battleford, Canada in year 2001 (Stirling et al., 2001). The outbreak was due to following reasons:

    a. Poor performance of the STP which was discharging the treated effluent 3 Km upstream of the drinking water intake.
    b. Underperformance of the solids contact clarifier due to absence of sludge blanket which was responsible for removing cryptosporidium oocysts.
    c. Absence of residual chlorine from the drinking water supply.

    The scenario existing in Malyana STP and Ashwani Khad WTP is similar to North Battleford. It can be said that we are on worst side as the natural stream in which the STP treated water is mixing is also contaminated.

Table 21: Physico-chemical and Bacteriological Parameters of STP

PARAMETERS	UNIT	Sanjauli Malyana STP									
		Inlet					Outlet				
		June 2010	March 2011	April 2011	June 2011	July 2011	June, 2010	March, 2011	April, 2011	June 2011	July 2011
pH	-----	6.65	6.8	6.8	7.57	6.6	7.26	7.79	7.10	6.64	7.75
Conductivity	µS/cm	1090	920	780	750	903	1372	1220	740	710	931
Total dissolved solids	mg/L	698	588	504	480	578	878	780	473	454	596
Total hardness as $CaCO_3$	mg/L	246	150	192	228	360	313	660	180	187	250
Sodium as Na	mg/L	102	54.9	54	75	80	124	57.9	65.6	36	47
Potassium as K	mg/L	23	22	22	40	36	39	32.5	23	23	13
Bicarbonate as HCO_3	mg/L	305	427	496	539	425	356	508	544	376	382
Chloride as Cl	mg/L	140	78	100	106	116	210	120	90	76	96
Sulfate as SO_4	mg/L	20	27.5	28	65	8	24	62.5	19	11	28
Nitrate as NO_3	mg/L	5	9	7	5	8	23	19	37	32	28
Phosphate as PO_4	mg/L	8	5	6	6	7	1.1	0.9	1.1	1.0	0.8
Dissolved oxygen	mg/L	ND	ND	ND	ND	ND	2.5	4.7	2.7	ND	3.6
Chemical oxygen demand	mg/L	690	710	665	562	652	460	560	490	485	320
Biochemical oxygen demand	mg/L	290	320	315	217	270	210	270	160	161	270
Total coliform	MPN/100 ml	>2400	>2400	>2400	23	750	>2400	>2400	>2400	>2400	<3
Fecal coliform	MPN/100 ml	14	ND	ND	8	ND	10	ND	ND	8	ND

Table 22: Physico-chemical and Bacteriological Parameters of STP

PARAMETERS	UNIT	Sanjauli Malyana STP					
		Inlet			Outlet		
		Sept. 2011	Oct. 2011	Jan. 2012	Sept. 2011	Oct. 2011	Jan. 2012
pH	-----	6.4	6.6	7.02	7.3	7.4	7.23
Conductivity	µS/cm	610	690	986	639	711	938
Total dissolved solids	mg/L	397	449	640	415	462	610
Total hardness as $CaCO_3$	mg/L	216	232	280	160	176	192
Sodium as Na	mg/L	13.5	57	95.6	17.5	43	55
Potassium as K	mg/L	14	40.5	3.1	11	36.5	2.6
Bicarbonate as HCO_3	mg/L	450	390	368	460	394	373
Chloride as Cl	mg/L	94	98	90	96	102	86
Sulfate as SO_4	mg/L	37	185	145	35.5	30	60
Nitrate as NO_3	mg/L	3	4	3	14	18	15
Phosphate as PO_4	mg/L	5	6	6	0.8	0.8	1.0
Dissolved oxygen	mg/L	ND	ND	ND	4.1	3.8	ND
Chemical oxygen demand	mg/L	499	498	475	320	98.3	280
Biochemical oxygen demand	mg/L	222	213	236	73.2	36.4	145
Total coliform	MPN/100 ml	>2400	>2400	>2400	<3	>2400	>2400
Fecal coliform	MPN/100 ml	>2400	>2400	>2400	ND	>2400	>2400

Table 23: Physico chemical and Bacteriological Parameters of Open Drain Samples

PARAMETERS	UNIT	Housing board				Sanan				Shivmandir		
		June 2010	March 2011	April 2011	June 2011	June 2010	March 2011	April 2011	June 2011	March 2011	April 2011	June 2011
pH	-----	7.18	7.6	6.9	7.3	7.52	7.4	7.1	6.6	7.43	7.3	7.1
Conductivity	µS/cm	528	490	330	350	572	630	410	420	410	280	300
Total dissolved solids	mg/L	338	314	211	232	366	403	262	269	262	179	192
Total hardness as $CaCO_3$	mg/L	162	180	182	200	161	182	206	247	158	132	126
Sodium as Na	mg/L	42	23.1	23	23	50	30.2	30	32	12	12	20
Potassium as K	mg/L	5.4	3.7	4	4	7.2	7.2	7	9.4	2.7	3	4
Bicarbonate as HCO_3	mg/L	117	137	142	149	149	208	285	222	108	110	129
Chloride as Cl	mg/L	40	28	24	28	42	46	42	48	22	42	20
Sulfate as SO_4	mg/L	20	45	45	28	21	35	18	35	30.5	31	25
Nitrate as NO_3	mg/L	37	28	24	33	44	34	20	26	15	14	18
Phosphate as PO_4	mg/L	1.5	1.0	2.0	1.0	0.3	0.9	1.0	0.5	1.0	0.7	1.4
Dissolved oxygen	mg/L	1.3	4.7	5.1	3.2	2.6	3.6	1.5	2.6	1.2	2.1	2.3
Chemical oxygen demand	mg/L	128	190	70	125	225	147	164	186	192	258	240
Biochemical oxygen demand	mg/L	77	69	38	46	97	63	64	61	75	110	81
Total coliform	MPN/100 ml	>2400	1100	>2400	>2400	1100	>2400	39	93	ND	>2400	460
Fecal coliform	MPN/100 ml	47.18	ND	ND	ND	9	ND	11	14	ND	ND	ND

Table 24: Physico chemical and Bacteriological Parameters of Open Drain Samples

PARAMETERS	UNIT	Housing board				Sanan				Shivmandir		
		July 2011	Sept. 2011	Oct. 2011	Jan. 2012	July 2011	Sept. 2011	Oct. 2011	Jan. 2012	July 2011	Sept. 2011	Oct. 2011
pH	-----	7.4	7.2	6.9	8.1	7.4	7.6	7.8	7.74	7.2	7.2	7.3
Conductivity	µS/cm	426	404	275	451	442	403	340	514	312	216	268
Total dissolved solids	mg/L	273	259	178	289	283	258	224	329	200	138	174
Total hardness as $CaCO_3$	mg/L	160	180	152	190	164	156	210	184	116	89	204
Sodium as Na	mg/L	23	15.1	19.9	11.7	27	19.1	20	18.7	15	8.1	12
Potassium as K	mg/L	5	3.9	5.1	3.4	5	3.7	4.9	4.8	3	2.5	6.5
Bicarbonate as HCO_3	mg/L	122	96	118	120	151	149	160	138	98	126	130
Chloride as Cl	mg/L	22	20	18	14	28	26	20	30	22	8	12
Sulfate as SO_4	mg/L	22	35	35	130	23	47	130	123	17	36	180
Nitrate as NO_3	mg/L	18	29	21	16	25	17	16	14	18	14	15
Phosphate as PO_4	mg/L	0.9	2.2	0.6	1.1	1.0	0.8	0.9	1.2	1.4	0.8	0.7
Dissolved oxygen	mg/L	1.7	1.9	1.7	1.9	2.3	2.5	1.8	0.6	1.1	1.9	1.3
Chemical oxygen demand	mg/L	96	128	140	94	160	121	92	115	158	149	116
Biochemical oxygen demand	mg/L	30	44	60	42	60	48	32	80	50	60	46
Total coliform	MPN/100 ml	40	>2400	>2400	>2400	210	>2400	>2400	>2400	11000	<3	<3
Fecal coliform	MPN/100 ml	ND	2000	>2400	ND	ND	ND	ND	2000	ND	ND	ND

Water quality analysis of open drains leads us to following conclusions-

- Presence of organics (COD: 100-400 mg/L) and nitrate (15-40 mg/L) in the open drains indicates heavy contamination with sewage. The contamination results from the human defecation in open and absence of sewerage lines in the areas like Dhingoo, Engine ghar etc (Fig. 28).

Fig. 28: Open Defecation and Septic Tanks in the Study Area

- Sewerage facility has been provided to 65-70% habitation, however only 25-30% habitation is physically connected to sewerage system. (Source: I&PH Dept., Shimla).

- Kitchen & bathroom drain (grey water) is not connected to sewage drain.

- Water quality deterioration of the open drains was also due to malpractice of throwing the garbage in the drains which slowly degrades and provides media for micro-organisms growth. All the open drains were flooded with garbage (Fig. 29).

- Although Shimla Municipal Corporation has set up a full-fledged solid waste management plant, but most of the solid is dumped without any treatment near the plant itself without any engineered structure (Fig. 30). The leachates from this facility find its way to the natural stream and contaminate it.

Fig. 29: View of Open Drains Laden with Garbage in the Study Area

Fig. 30: View of Solid Waste Dumping Site in the Study Area

5.3.3 Water treatment plants, intermediate storage reservoirs (lifting stations) and user points

Samples were collected from the inlet and outlet of water treatment plants, lifting stations, and user points to trace the location or cause of contamination during treatment and supply. Dhalli water treatment plant and Ashwani khud water treatment plant (Fig. 31) are supplying water to the affected areas and hence sampling was done from these two plants.

Dhalli WTP receives water from Churat Nalla (2 MLD) and Sayog catchment (0.1 MLD). Water from Sayog catchment which is dense forest area is expected to be pathogen free and without any contaminants. This water is treated through slow sand gravity filters followed by chlorination and is supplied for drinking. Water from Churrat nalla is chemically treated with the aid of alum and lime. The chemical sludge and sediments are settled in sedimentation tank and the clear water is filtered through rapid sand filters. The water after chlorination is supplied to consumers.

Ashwani Khud, source of WTP has six main tributeries namely – Malyana Nallah, Sanan Nallah, Housing Board Nallah, Jagroti Nallah, Koti Nallah, and Bharandi Nallah. Out of these nallah, the Malyana (STP) Nallah, Housing Board Nallah, and Sanan Nallah which originates from densely populated areas have some contamination. The water coming from these nallah has chances of being contaminated due to outflow of numerous domestic septic tanks, solid waste, and STP treated water. WTP is designed to treat 10 MLD water. The water is treated through flocculator and sedimentation tank with the aid of alum and lime. Chemically treated water is filtered through rapid sand filter. Filtered water is blended with ground water and supplied to consumers after chlorination at WTP (clear water tank) and Kusumpti reservoir. During design phase, chlorine dosing was planned at inlet which later on shifted to filter water tank (Fig. 32).

Fig. 31: A View of Ashwani Khad Water Treatment Plant in the Study Area

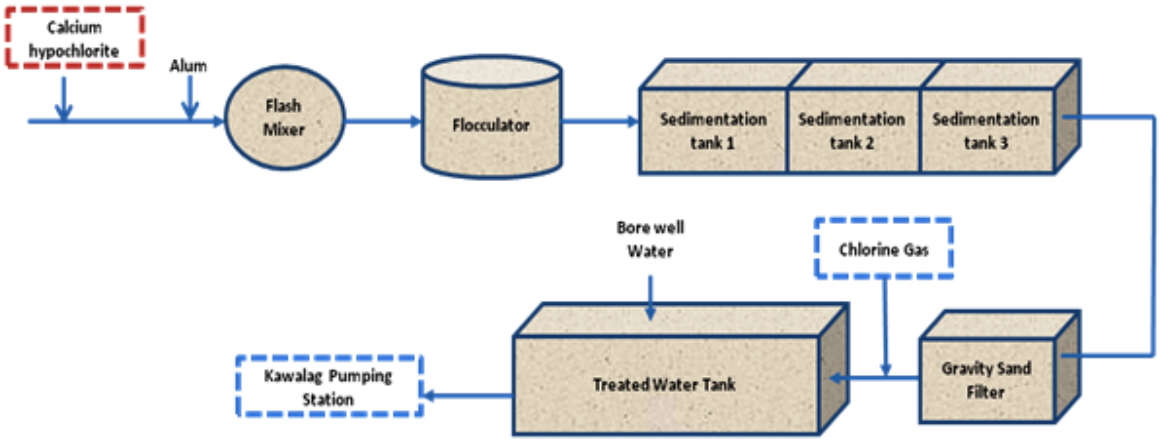


Fig. 32: Process Flow Diagram of Aswani Khad Water Treatment Plant

Results of laboratory analysis for WTP & break point in transmission are presented in Table 25- 29. Following conclusions can be drawn from the field survey and laboratory results-

1. Inlet water to Dhalli from Cherot and Jagroti as well as Ashwani Khud WTP is contaminated with organics as well as bacteria.

2. Dhalli and Ashwani Khud water treatment plants are designed for treatment of surface water with practically little contamination and for removal of turbidity. The technology needs to be upgraded for present scenario.

3. Ashwani Khud water treatment plant is treating water from Ashwani Khud which receives water from different sources namely Malyana nallah, Sanan nallah, Housing Board Nallah, Jagroti Nallah, Koti Nallah, and Bharandi Nallah. During lean period (summer), the proportion of effluent from densely populated area and STP increases in Ashwani Khud water due to general reduction of base flow making the situation worse.

4. For such type of waters (contaminated with human waste), solids contact clarifier is desired with an option for in built sludge recirculation system. A sludge blanket from metal hydroxide flocs is created in the clarification zone of the clarifier through which the water is filtered. The sludge blanket acts like a dynamic filter as well as adsorbent and if properly operated than able to remove organics as well as microbe. Treated water from this system is crystal clear and requires minimal chlorine dosing for disinfection.

5. Excess biomass removed from the system is required to be disposed of properly, so as not to find its way along surface run off and to avoid contamination of ground water.

Table 25: Water Quality Parameters of Dhalli Water Treatment Plant

PARAMETERS	UNIT	Dhalli WTP									
		Inlet					Outlet				
		June 2010	March 2011	April 2011	June 2011	July 2011	June 2010	March 2011	April 2011	June 2011	July 2011
pH	-----	7.46	7.70	6.37	7.2	7.3	7.0	7.35	7.40	7.22	7.3
Conductivity	µS/cm	370	170	200	190	128	320	210	190	220	128
Total dissolved solids	mg/L	237	108	128	122	82	205	134	121	141	82
Total hardness as $CaCO_3$	mg/L	115	158	78	78	58	96	110	84	92	58
Sodium as Na	mg/L	25	6.8	7.6	10	7	25	7.1	7.1	9	6
Potassium as K	mg/L	3.2	0.8	ND	1	1	2.9	0.6	ND	1	1
Bicarbonate as HCO_3	mg/L	128	84	74	95	72	98	72	86.4	110	72
Chloride as Cl	mg/L	6	ND	30	4	4	14	ND	20	8	7
Sulfate as SO_4	mg/L	17	14	17	19	14	18	21	8.5	16	16
Nitrate as NO_3	mg/L	8	6	6	4	5	8	6	6	4	5
Phosphate as PO_4	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dissolved oxygen	mg/L	5	6.6	5.9	7.4	6.7	7	8.9	8.7	7.8	8.1
Chemical oxygen demand	mg/L	17	12	13	4	9.2	8.4	7.6	9.2	4.8	5.6
Biochemical oxygen demand	mg/L	0.8	1.95	4.4	1	2.3	1.1	1.6	3.6	1.5	1.3
Total coliform	MPN/100 ml	150	72	<3	<3	<3	93	4	<3	<3	<3
Fecal coliform	MPN/100 ml	7	11	ND	ND	ND	ND	2	ND	ND	ND

Table 26: Water Quality Parameters of Dhalli Water Treatment Plant

PARAMETERS	UNIT	Dhalli WTP					
		Inlet			Outlet		
		Sept. 2011	Oct. 2011	Jan. 2012	Sept. 2011	Oct. 2011	Jan. 2012
pH	-----	7.2	7.3	7.52	7.05	7.1	6.91
Conductivity	µS/cm	170	199	150	118	116	137
Total dissolved solids	mg/L	110	128	98	78	75	90
Total hardness as $CaCO_3$	mg/L	139	156	168	68	94	72
Sodium as Na	mg/L	3.0	6.7	5.1	3.9	6.6	4.6
Potassium as K	mg/L	0.6	0.9	0.8	0.8	0.8	0.6
Bicarbonate as HCO_3	mg/L	94	110	87	83	90	72
Chloride as Cl	mg/L	16	12	6	8	10	8
Sulfate as SO_4	mg/L	5	5.1	19	4	9	14.5
Nitrate as NO_3	mg/L	0.4	0.3	0.1	0.5	1	ND
Phosphate as PO_4	mg/L	ND	ND	ND	ND	ND	ND
Dissolved oxygen	mg/L	6.2	7.4	7.9	5.6	4.8	7.8
Chemical oxygen demand	mg/L	25.6	31.2	21.6	8.4	5.2	6.3
Biochemical oxygen demand	mg/L	2.6	4.6	3.8	1.6	1.7	2.2
Total coliform	MPN/100 ml	1100	21	75	75	20	15
Fecal coliform	MPN/100 ml	12	9	4	17	4	ND

Table 27: Water Quality Parameters of Ashwani Khad Water Treatment Plant

PARAMETERS	UNIT	Ashwani Khad WTP									
		Inlet					Filtered Water				
		June 2010	March 2011	April 2011	June 2011	July 2011	June 2010	March 2011	April 2011	June 2011	July 2011
pH	-----	7.33	7.32	6.92	7.1	7.1	7.46	6.68	6.78	7.1	6.7
Conductivity	µS/cm	330	330	260	270	240	360	280	270	310	210
Total dissolved solids	mg/L	230	211	166	173	131	230	179	253	198	134
Total hardness as $CaCO_3$	mg/L	105	100	168	150	90	105	136	200	204	98
Sodium as Na	mg/L	21	15.7	15.7	19	11	21	15.7	16.9	20	7
Potassium as K	mg/L	3	2.1	1.4	3	1	4	1.3	1.3	3	1
Bicarbonate as HCO_3	mg/L	71	74	120	120	96	76	146	118	73	82
Chloride as Cl	mg/L	28	16	10	16	16	28	18	12	20	8
Sulfate as SO_4	mg/L	26	23.5	10.1	29	21	25	13	12.5	27	27
Nitrate as NO_3	mg/L	22	18	20	14	26	22	20	20	12	22
Phosphate as PO_4	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dissolved oxygen	mg/L	4.7	5.9	5.8	6.6	6.4	7.5	8.1	8.1	6	12.9
Chemical oxygen demand	mg/L	85	102	57.6	95	38.4	38	59	38	63	12.8
Biochemical oxygen demand	mg/L	38	21.5	13	31	10.1	15	22	26	41	4.7
Total coliform	MPN/100 ml	1100	210	43	15	<3	15	<2400	15	43	<3
Fecal coliform	MPN/100 ml	9	ND	ND	4	ND	ND	ND	5	11	ND

Table 28: Water Quality Parameters of Ashwani Khad Water Treatment Plant

PARAMETERS	UNIT	Ashwani Khad WTP					
		Inlet			Outlet		
		Sept. 2011	Oct. 2011	Jan. 2012	Sept. 2011	Oct. 2011	Jan. 2012
pH	-----	7.1	7	7.1	7	7.3	6.89
Conductivity	µS/cm	245	273	299	223	279	243
Total dissolved solids	mg/L	160	179	194	145	175	160
Total hardness as $CaCO_3$	mg/L	96	158	98	66	172	94
Sodium as Na	mg/L	4.2	6.4	7.2	8.9	10.1	6.8
Potassium as K	mg/L	1	1.4	1	1.1	4	1.1
Bicarbonate as HCO_3	mg/L	120	100	134	100	105	120
Chloride as Cl	mg/L	32	22	32	10	14	4
Sulfate as SO_4	mg/L	6	15	22	18	21	35
Nitrate as NO_3	mg/L	18	13	24	16	14	22
Phosphate as PO_4	mg/L	ND	ND	ND	ND	ND	ND
Dissolved oxygen	mg/L	5.2	6.3	6.0	9.9	7.4	8.2
Chemical oxygen demand	mg/L	70.4	32	86.4	19.2	35.6	50.4
Biochemical oxygen demand	mg/L	11.5	12.3	7.7	8.5	7.7	8.4
Total coliform	MPN/100 ml	4	4.8	4.4	4.8	6.2	6.8
Fecal coliform	MPN/100 ml	10	<3	<3	<3	<3	<3

Table 29: Water Quality Parameters of Break Points in Water Transmission

PARAMETERS	UNIT	DHINGOO PHUMP HOUSE	ASHWANI KHAD OUTLET	KUSUMPTI RESERVOIR	MC IPH TANK
pH	-----	7.0-7.5	7.0-7.5	7.0-7.5	7.0-7.5
Conductivity	µS/cm	180-220	350-450	350-450	350-450
Total dissolved solids	mg/L	110-130	200-300	200-300	200-300
Total hardness as $CaCO_3$	mg/L	80-90	80-120	80-120	80-120
Sodium as Na	mg/L	5-10	20-30	20-30	20-30
Potassium as K	mg/L	0-2	0-5	0-5	0-5
Bicarbonate as HCO_3	mg/L	50-70	110-130	90-110	90-110
Chloride as Cl	mg/L	10-20	10-20	15-30	15-30
Sulfate as SO_4	mg/L	10-20	20-30	20-30	20-30
Nitrate as NO_3	mg/L	10-25	10-25	10-25	10-25
Phosphate as PO_4	mg/L	0-0.5	0-0.5	0-0.5	0-0.5
Fluoride as F	mg/L	< 1	< 1	< 1	< 1
Dissolved oxygen	mg/L	7-8	6-7	7-8	7-8
Chemical oxygen demand	mg/L	8-20	6-50	6-46	6-38
Biochemical oxygen demand	mg/L	0.3-2.8	2-13	2-7	0.5-6
Total coliform	MPN/100 ml	< 3	< 3	< 3	< 3
Fecal coliform	MPN/100 ml	ND	ND	ND	ND

6. Presence of organics and fecal coliform requires continuous operator attention for proper disinfection. Presence of free residual chlorine is also desired in the user tap. Absence of residual at any moment from treatment to supply will lead to disaster due to presence of low molecular weight organic compound and nutrients produced by action of chlorine that can be assimilated by bacteria and promote bacterial growth (Saeed et al., 2000).

7. Installation of Ultra filtration membranes for final polishing of treated water from Ashwani Khad WTP is recommended. UF membranes are a physical barrier for bacteria, viruses, and high molecular weight organic compounds. Reduction of these components

will bring down the chlorine demand and also trihalomethanes in the treated water which are carcinogenic compounds. Installation of UF will ensure safe water for the citizens.

8. Detailed study with ozone for oxidation of organics as well as microbes is suggested. Full scale system should be installed only after six months field trials.

9. Quality of water samples from tap was similar to that of municipal distribution tank and free from bacteria due to proper chlorination at various stages.

10. During interaction with residents, it was brought to our notice that after spells of rain, the water supply is muddy. This indicates leakage in the water supply through which storm water enter during non supply period and contaminates the potable water.

User point samples were collected from the affected area based on the transmission lines as indicated by I&PH officials. Three samples were collected from each line. The results are provided in Table 30-40.

Table 30: Water Quality Parameters of User Point Samples (at Vikashnagar)

PARAMETERS	UNIT	Line 1 – 1st user F. No. 14, B. No. – C47		Line 1 – 2nd user F. No. – 4, B. No. – B3		Line 1 – 3rd user F. No. – 4, B. No. – C28	
		April 2011	July 2011	April 2011	July 2011	April 2011	July 2011
pH	-----	7.14	7.1	7.1	7.05	7.1	7.1
Conductivity	µS/cm	300	292	300	240	320	194
Total dissolved solids	mg/L	192	187	192	154	204	124
Total hardness as $CaCO_3$	mg/L	160	98	220	84	90	62
Sodium as Na	mg/L	20.3	13	18.4	13	19.9	12
Potassium as K	mg/L	1.6	1	1.3	2	1.5	2
Bicarbonate as HCO_3	mg/L	134.4	91	136.4	74	134	65
Chloride as Cl	mg/L	14	20	10	48	22	20
Sulfate as SO_4	mg/L	12.6	27	12.7	26	10.5	22
Free residual chlorine (FRC)	mg/L	1.2	1.5	0.8	1.0	0.8	1.0
Dissolved oxygen	mg/L	8.5	6	9.6	7.5	8.9	5.8
Chemical oxygen demand	mg/L	19.2	19.2	38.4	22.8	25.6	32
Biochemical oxygen demand	mg/L	0.9	3.1	2.4	5.7	2.4	5.3
Total coliform	MPN/100 ml	ND	<3	4	<3	ND	<3
Fecal coliform	MPN/100 ml	ND	ND	2	ND	ND	ND

Table 31: Water Quality Parameters of User Point Samples (at Vikashnagar)

PARAMETERS	UNIT	Line 1 – 1st user F. No. 14, B. No. – C47		Line 1 – 2nd user F. No. – 4, B. No. – B3	Line 1 – 3rd user F. No. – 4, B. No. – C28	
		Oct. 2011	Jan. 2012	Jan. 2012	Oct. 2011	Jan. 2012
pH	-----	6.7	7.13	7.08	6.6	7.23
Conductivity	µS/cm	151	293	290	162	279
Total dissolved solids	mg/L	97	191	189	104	179
Total hardness as $CaCO_3$	mg/L	126	122	108	140	98
Sodium as Na	mg/L	9	6.2	6.7	4	12
Potassium as K	mg/L	3.8	1.3	0.8	2.9	0.9
Bicarbonate as HCO_3	mg/L	78	70	82	66	62
Chloride as Cl	mg/L	20	6	10	22	16
Sulfate as SO_4	mg/L	20	30	26.5	35	11.5
Free residual chlorine (FRC)	mg/L	0.8	1.0	0.9	0.6	0.9
Dissolved oxygen	mg/L	7	7.5	8.6	6.9	7.8
Chemical oxygen demand	mg/L	25.6	38	28.8	19.2	24
Biochemical oxygen demand	mg/L	7.3	4	4.8	7	2.8
Total coliform	MPN/100 ml	<3	ND	4	<3	<ND
Fecal coliform	MPN/100 ml	ND	ND	ND	ND	ND

Table 32: Water Quality Parameters of User Point Samples (at Vikashnagar)

PARAMETERS	UNIT	Line 2 – 1st user F. No. 4, B. No. – C25		Line 2 – 2nd user F. No. – 3, B. No. – C31	Line 2 – 3rd user F. No. – 1, B. No. – C34	Line 2 – 4th user Sethi Niwas	
		April 2011	July 2011	April 2011	April 2011	Mar 2011	April 2011
pH	-----	7.2	7.0	7.1	7.2	7.4	7.1
Conductivity	µS/cm	350	295	360	310	380	270
Total dissolved solids	mg/L	224	189	230	198	243.2	172
Total hardness as $CaCO_3$	mg/L	112	84	136	120	100	184
Sodium as Na	mg/L	19.5	13	20.3	19.9	20.2	18.7
Potassium as K	mg/L	1.1	2	1.5	1.6	2.6	1.6
Bicarbonate as HCO_3	mg/L	10.8	70	177.6	235	108	146.4
Chloride as Cl	mg/L	22	14	18	16	14	16
Sulfate as SO_4	mg/L	12.5	27	12.5	12.6	27.5	10.4
Free residual chlorine (FRC)	mg/L	1.1	1.5	0.9	0.8	----	
Dissolved oxygen	mg/L	10	6.3	9.3	9.3	9.1	9.1
Chemical oxygen demand	mg/L	34	22.8	34	22.8	32	21.2
Biochemical oxygen demand	mg/L	0.8	0.1	2.4	2.2	0.2	1.6
Total coliform	MPN/100 ml	<3	<3	<3	<3	<3	ND
Fecal coliform	MPN/100 ml	ND	ND	ND	ND	ND	ND

Table 33: Water Quality Parameters of User Point Samples (at Vikashnagar)

PARAMETERS	UNIT	Line 2 – 1st user F. No. 4, B. No. – C25		Line 2 – 2nd user F. No. – 3, B. No. – C31		Line 2 – 3rd user F. No. – 1, B. No. – C34		Line 2 – 4th user Sethi Niwas
		Oct. 2011	Jan. 2012	Oct. 2011	Jan. 2012	Oct. 2011	Jan. 2012	Oct. 2011
pH	-----	6.8	7.46	7.2	7.31	7.4	7.06	7.1
Conductivity	µS/cm	295	292	191	285	232	276	226
Total dissolved solids	mg/L	192	190	125	185	151	180	147
Total hardness as $CaCO_3$	mg/L	144	92	120	90	122	102	112
Sodium as Na	mg/L	3	12.8	8.5	13.1	9.2	7.6	10.3
Potassium as K	mg/L	4.3	1	4.1	1.5	4.5	0.9	4.2
Bicarbonate as HCO_3	mg/L	60	60	90	58	54	66	62
Chloride as Cl	mg/L	12	10	10	`1	14	6	16
Sulfate as SO_4	mg/L	34	11	25	`1	13	11	5
Free residual chlorine (FRC)	mg/L	0.9	1.0	0.6	1.0	0.6	0.8	0.5
Dissolved oxygen	mg/L	5.9	6.5	6.6	6.8	8	8.2	6.9
Chemical oxygen demand	mg/L	24.8	42	19.3	40	12.8	36	19.2
Biochemical oxygen demand	mg/L	4.4	4.8	8	4.2	5.4	6.4	7
Total coliform	MPN/100 ml	<3	ND	<3	ND	<3	ND	<3
Fecal coliform	MPN/100 ml	ND	ND	ND	ND	ND	ND	ND

Table 34: Water Quality Parameters of User Point Samples (at Vikashnagar)

PARAMETERS	UNIT	Line 3 – 1st user Kamal Niwas	Line 3 – 2nd user F. No. 1, B. No. – C10			Line 3 – 3rd user Prabhat Cottage		
		July 2011	Mar. 2011	April 2011	July 2011	Mar. 2011	April 2011	July 2011
pH	-----	7.2	7.5	7.1	7.2	7.5	7.0	7.0
Conductivity	µS/cm	184	380	280	249	360	240	234
Total dissolved solids	mg/L	118	243.2	179.2	159	230	153.6	150
Total hardness as $CaCO_3$	mg/L	64	78	186	86	182	150	148
Sodium as Na	mg/L	11	28.2	21.1	13	20.2	22.4	13
Potassium as K	mg/L	1	2.2	1.4	2	2.1	1.2	2
Bicarbonate as HCO_3	mg/L	60	156	134	70	86	144	70
Chloride as Cl	mg/L	16	14	22	20	20	14	16
Sulfate as SO_4	mg/L	20	25	12.5	25	25.5	10.4	26
Free residual chlorine (FRC)	mg/L	2.0	-----	1.5	2.0	1.0	1.2	1.0
Dissolved oxygen	mg/L	7	8.6	9.1	5.7	7.7	8.4	6.3
Chemical oxygen demand	mg/L	26.4	30	32	25	26	32	22
Biochemical oxygen demand	mg/L	0.1	1.5	0.2	0.5	3.7	1.6	0.9
Total coliform	MPN/100 ml	<3	<3	<3	<3	<3	ND	<3
Fecal coliform	MPN/100 ml	ND	ND	ND	ND	ND	ND	ND

Table 35: Water Quality Parameters of User Point Samples (at Vikashnagar)

PARAMETERS	UNIT	Line 3 – 1st user Kamal Niwas	Line 3 – 2nd user F. No. 1, B. No. – C10	Line 3 – 3rd user Prabhat Cottage	
		Jan. 2012	Jan. 2012	Oct. 2011	Jan. 2012
pH	-----	6.97	7.32	6.9	7.41
Conductivity	µS/cm	297	278	251	281
Total dissolved solids	mg/L	194	178	164	183
Total hardness as $CaCO_3$	mg/L	100	96	96	92
Sodium as Na	mg/L	8.2	7.9	8.6	6.6
Potassium as K	mg/L	2.2	1	5.2	0.8
Bicarbonate as HCO_3	mg/L	64	58	70	62
Chloride as Cl	mg/L	12	8	12	10
Sulfate as SO_4	mg/L	12.5	16	20	14
Nitrate as NO_3	mg/L	4.3	4.1	2.3	4.2
Dissolved oxygen	mg/L	9.4	7.8	8.3	7.3
Chemical oxygen demand	mg/L	34	32	8.4	12
Biochemical oxygen demand	mg/L	5.4	4.6	8.4	4
Total coliform	MPN/100 ml	15	ND	<3	ND
Fecal coliform	MPN/100 ml	ND	ND	ND	ND

Table 36: Water Quality Parameters of User Point Samples (at New Shimla)

PARAMETERS	UNIT	Line 1 – 1st user MC office, Sector 2		Line 1 – 2nd user Negi Market, Sector 3		Line 1 – 3rd user Block 31, Sector 3		Sector 2 Area supply tank	
		April 2011	July 2011	April 2011	July 2011	April 2011	July 2011	April 2011	July 2011
pH	-----	7.5	6.7	7.4	7.1	7.4	7.0	7.3	7.0
Conductivity	µS/cm	340	220	330	216	230	218	350	213
Total dissolved solids	mg/L	217.6	141	267.2	138	147.2	140	225	136
Total hardness as $CaCO_3$	mg/L	120	108	88	82	96	86	100	90
Sodium as Na	mg/L	16.8	13	20.5	12	9.9	12	19.7	12
Potassium as K	mg/L	2.3	1	1.5	2	0.1	2	1.9	2
Bicarbonate as HCO_3	mg/L	151.2	79	163.2	67	96	67	117	70
Chloride as Cl	mg/L	20	14	14	16	4	22	20	12
Sulfate as SO_4	mg/L	10.3	24	10.4	26	9.6	25	12.5	26
Free residual chlorine (FRC)	mg/L	1.5	0.2	0.5	0.2	1.0	ND	1.0	1.0
Dissolved oxygen	mg/L	10.8	6.8	7.7	6.1	8.4	5.3	10.8	6.1
Chemical oxygen demand	mg/L	34.8	23	31	29	28	17	24	16
Biochemical oxygen demand	mg/L	0.6	0.1	1.0	1.3	2.6	0.1	1.2	0.3
Total coliform	MPN/100 ml	<3	<3	<3	<3	<3	<3	<3	<3
Fecal coliform	MPN/100 ml	ND	ND	ND	ND	ND	ND	ND	ND

Table 37: Water Quality Parameters of User Point Samples (at New Shimla)

PARAMETERS	UNIT	Line 1 – 1st user MC office, Sector 2			Line 1 – 2nd user Negi Market, Sector 3			Line 1 – 3rd user Block 31, Sector 3			Sector 2 Area supply tank		
		Sept. 2011	Oct. 2011	Jan. 2012	Sept. 2011	Oct. 2011	Jan. 2012	Sept. 2011	Oct. 2011	Jan. 2012	Sept. 2011	Oct. 2011	Jan. 2012
pH	-----	7.3	7.4	6.76	7.3	7.2	7.13	7.8	7.6	7.08	7.6	7.5	7.01
Conductivity	µS/cm	212	210	397	199	200	263	213	224	289	212	227	273
Total dissolved solids	mg/L	138	137	258	130	130	173	139	146	188	143	147	177
Total hardness as $CaCO_3$	mg/L	106	86	146	82	118	114	94	90	70	100	102	60
Sodium as Na	mg/L	8.4	8.4	9.2	7.2	7.8	11.6	5.9	6.2	12.4	8.1	8	8.2
Potassium as K	mg/L	1	4.1	2.2	1.1	3.2	1.5	1.2	4.3	1	1.2	2.9	1.6
Bicarbonate as HCO_3	mg/L	112	64	86	102	58	62	104	66	60	90	84	58
Chloride as Cl	mg/L	6	12	6	12	6	10	16	10	4	14	16	16
Sulfate as SO_4	mg/L	41	13	30	31	10	15.5	38	16	19	41	13	16
Free residual chlorine (FRC)	mg/L	0.9	1.2	1.5	1.2	1.0	1.5	0.8	1.0	1.0	0.8	0.8	1.0
Dissolved oxygen	mg/L	8.8	7.9	7.2	9.2	6.9	6.1	8.5	7.1	7.3	5.2	6.6	7.1
Chemical oxygen demand	mg/L	36.4	31.2	36	12.8	34.8	34	6.4	31.2	32	19.2	26.8	26
Biochemical oxygen demand	mg/L	2.4	3.3	4.2	2.6	6.8	4.8	7	4.7	5	4.4	6	4.6
Total coliform	MPN/100 ml	<3	<3	ND	<3	<3	ND	<3	<3	ND	<3	<3	ND
Fecal coliform	MPN/100 ml	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 38: Water Quality Parameters of User Point Samples (at New Shimla)

PARAMETERS	UNIT	Line 2 – 1st user Phase 3, Part 1, Vodafone	Line 2 – 2nd user Phase 3, Part 1, F. No. – 10, B. No. – 4		Line 2 – 3rd user Phase 3, Part 2, F. No. – 1, B. No. – 3	
		July 2011	April 2011	July 2011	April 2011	July 2011
pH	-----	7.11	6.81	7.0	7.27	6.9
Conductivity	µS/cm	216	230	272	340	246
Total dissolved solids	mg/L	138	147	174	217	157
Total hardness as $CaCO_3$	mg/L	116	148	112	140	176
Sodium as Na	mg/L	12	22.8	18	19	14
Potassium as K	mg/L	2	2.1	2	2	2
Bicarbonate as HCO_3	mg/L	24	184	84	108	72
Chloride as Cl	mg/L	14	14	48	20	20
Sulfate as SO_4	mg/L	25	12.6	30	12.5	25
Free residual chlorine (FRC)	mg/L	0.5	1.0	ND	0.8	0.5
Dissolved oxygen	mg/L	5.7	9.2	6.3	7	5.9
Chemical oxygen demand	mg/L	12.8	27.6	6.4	21.2	12.8
Biochemical oxygen demand	mg/L	0.1	0.8	0.1	0.8	0.5
Total coliform	MPN/100 ml	<3	<3	<3	<3	<3
Fecal coliform	MPN/100 ml	ND	ND	ND	ND	ND

Table 39: Water Quality Parameters of User Point Samples (at New Shimla)

PARAMETERS	UNIT	Line 2 – 1st user Phase 3, Part 1, Vodafone		Line 2 – 2nd user Phase 3, Part 1, F. No. – 10, B. No. – 4,			Line 2 – 3rd user Phase 3, Part 2, F. No. – 1, B. No. – 3,	
		Sept. 2011	Oct. 2011	Sept. 2011	Oct. 2011	Jan. 2012	Sept. 2011	Jan. 2012
pH	-----	6.9	6.8	7.1	6.9	7.08	7.2	6.91
Conductivity	µS/cm	200	196	186	224	283	199	297
Total dissolved solids	mg/L	130	128	121	146	184	129	192
Total hardness as $CaCO_3$	mg/L	84	92	86	130	126	64	104
Sodium as Na	mg/L	5.7	6	5.2	6.4	15.3	5.9	10.7
Potassium as K	mg/L	1.2	4.2	1.1	3.6	1.7	1.1	1.4
Bicarbonate as HCO_3	mg/L	80	40	84	68	62	78	68
Chloride as Cl	mg/L	8	10	20	16	4	28	28
Sulfate as SO_4	mg/L	40	11	33	26	1.5	30	22
Free residual chlorine (FRC)	mg/L	1.2	1.2	0.5	0.5	0.5	0.6	0.6
Dissolved oxygen	mg/L	11	8.3	9.5	6.1	7.9	9.3	6.7
Chemical oxygen demand	mg/L	40.4	38.4	38.5	37.4	35	25.6	32
Biochemical oxygen demand	mg/L	4.2	4.8	8	11.3	5.2	5.4	5
Total coliform	MPN/100 ml	<3	<3	<3	<3	ND	<3	ND
Fecal coliform	MPN/100 ml	ND	ND	ND	ND	ND	ND	ND

Table 40: Water Quality Parameters of Bawdi – Vikashnager & New Shimla

PARAMETERS	UNIT	Anji Village (Vikashnagar)		Dinu Bhojanalaya (New Shimla) B. No. 3, Phase 3, Part 2				
		Oct. 2011	Jan. 2012	April 2011	July 2011	Sept. 2011	Oct. 2012	Jan. 2012
pH	-----	7	7.2	7.12	6.93	7.4	7.2	7.0
Conductivity	µS/cm	226	286	320	463	476	527	410
Total dissolved solids	mg/L	147	185	204	296	309	343	267
Total hardness as $CaCO_3$	mg/L	90	90	148	164	170	96	160
Sodium as Na	mg/L	9.8	4	20.8	17	10.2	10	16
Potassium as K	mg/L	2.5	2	0.5	2	1.8	3	3
Bicarbonate as HCO_3	mg/L	114	60	132	55	82	56	86
Chloride as Cl	mg/L	18	8	36	42	46	38	64
Sulfate as SO_4	mg/L	13	11	17.8	38	31	40	36
Dissolved oxygen	mg/L	5.6	6.9	7.8	6	8.2	5.9	7.5
Chemical oxygen demand	mg/L	44	24	53.2	19.2	44.8	13	42
Biochemical oxygen demand	mg/L	6.4	6	1.8	0.1	8	6	5
Total coliform	MPN/100 ml	<3	ND	23	20	<3	<3	20
Fecal coliform	MPN/100 ml	ND	ND	8	ND	ND	ND	ND

Following conclusions can be drawn from the water analysis and field observations-

- The profile of free residual chlorine from water treatment plant to user point (reduces from 25 mg/L at WTP to 1 mg/L at user point) clearly indicates high chlorine demand of water due to presence of organics (Fig. 33).

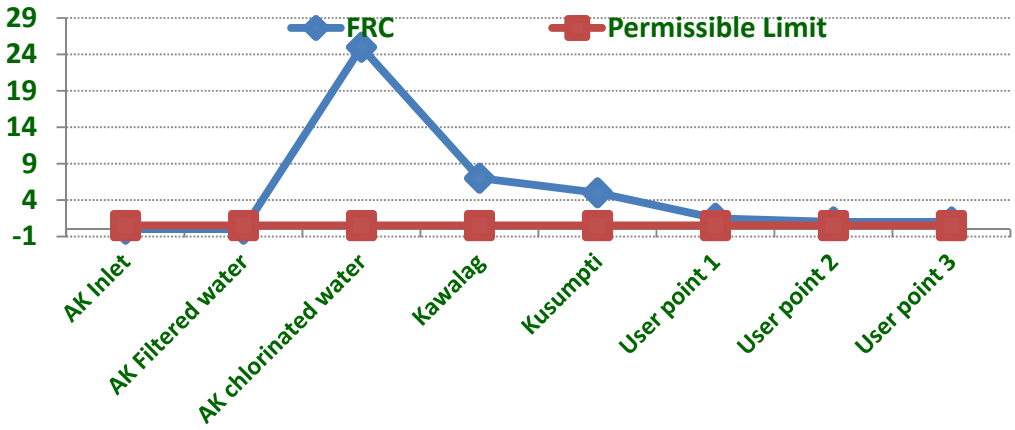


Fig. 33: Free Residual Chlorine Profile from WTP to User Point

- Reduction in COD from 35-50 mg/L (filtered water) to 15-25 mg/L (after chlorination) indicates approx. 50 mg/L consumption of chlorine at WTP. If we add 25 mg/L residual, chlorine dosage comes out 65-75 mg/L. Although, this high dosage results in pathogen free water, it also leads to formation of organic halides which was confirmed by IR Spectra (Fig. 34).

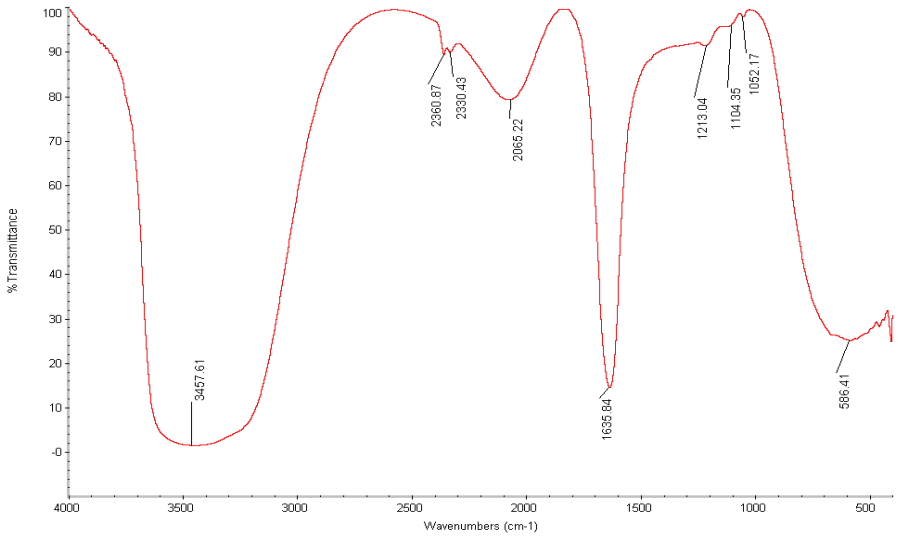


Fig. 34: IR Spectra of User Point Sample

- Qualities of water samples from taps were similar to that of municipal distribution tank and free from bacteria due to very high dosage of chlorine at various stages.

- Samples collected from Dinu Bhojnalaya (New Shimla-Phase 3, Part 2) which receives water from untreated Bawadi water were found to be contaminated with organics as well as fecal coliform indicating immediate need to isolate such sources.

- Samples from Anji village Bawadi (Fig. 35) was contaminated with organics but free from pathogens.

Fig. 35: A View of Bawadi at Village Anji

6.0 CONCLUSIONS AND RECOMMENDATIONS

1. Sewerage network installed in Sanjauli Malyana region is sufficient for designed sewage load and elevation profile indicates smooth flow of sewage.
2. Contamination of natural stream supplying water to Ashwani Khad WTP is due to-
   a. Poor connectivity of habitation with the sewerage network.
   b. Discharge of kitchen and bathroom drain (grey water) to natural streams.
   c. Human defecation in open
   d. Malpractice of throwing garbage in drains
   e. Dumping of solid waste without any engineered structure
   f. Reduced efficiency of Malyana STP. This may be due to less recycling of settled biomass from secondary clarifier to aeration tank.
3. Ashwani Khad WTP is designed to treat water free of organics and pathogens. It is designed to remove suspended solids. The WTP needs modification to provide safe water.
4. It is recommended to install solids contact type Clarifier / Actiflow to get rid of organics and microbes during pretreatment.
5. WTP should also consider installation of physical barrier such as ultra filtration membrane which guarantees 99.9% removal of bacteria and viruses. This will also help in removal of organics.
6. I&PH should explore the possibility of using ozone for destruction of organics present in Ashwani Khad WTP outlet. Piloting for a minimum of six months at site is required before installation of full scale plant.
7. Response time for attending leakage in supply line needs to be reduced and temporary arrangement for arrest of leakage should be avoided.
8. Presence of free residual chlorine at the user end should be ensured.
9. The sludge handling system of STP and WTP should be improved to prevent chances of biological and chemical sludge being disposed of in the natural open drains.
10. Shimla Municipal Corporation should ensure that 100% habitation is connected with sewerage system.
11. Facility for transportation of sludge in the septic tank does not exist and hence it finds its way to open drains in the monsoon season. In view of this aspect, Septic tank system should be discouraged and sewerage facility should be provided.
12. Civil equipment sizing of Malyana STP is sufficient to take care of designed load. A separate detailed study is required to understand the reasons behind the underperformance of the STP and the measure for improvement. The study will involve-
    a. DO profiling in aeration tank and secondary clarifier
    b. Mixed liquor SVI and zone settling velocity study
    c. Specific oxygen uptake rate
    d. Identification of mixed liquor fauna
13. Anoxic tank for removal of nitrate should be considered in order to reduce the nitrate concentration in drinking water supplied from Ashwani Khad WTP.
14. Minimum 1 mg/L dissolved oxygen is required in the treated water from secondary clarifier. To achieve this, it is recommend to continuously recycle the settled sludge along with periodic removal of biomass from the system. This will improve the performance of the system as well as clarity of the treated water and chlorine demand.

15. STP treated water quality can be improved by operating the clarifier in proper way, so that the organics and microbes escaping from the secondary clarifier are entrapped here by sorption on the chemical sludge.
16. Proper operation of WTP & STP will minimize the disease outbreaks. This can be achieved by proper training of the operators and valuing their critical role.
17. Performance evaluation / audit of WTPs as well as STPs should be done in order to improve the performance.

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ANNEXURE I

Scenario Summary Report
Scenario: Design

Scenario Summary

ID	1693
Label	Design
Notes	
Active Topology	Base Active Topology
Physical	Base Physical
Design	Auto Size
Headloss	Base Headloss
Boundary Condition	Base Boundary Condition
Initial Settings	Base Initial Settings
Sanitary Loading	Base Sanitary Loading
Infiltration and Inflow	Base Infiltration and Inflow
System Flows	Base System Flows
Operational	Base Operational
User Data Extensions	Base User Data Extensions
GVF/Pressure Engine Calculation Options	Auto Design

General Calculation Options

Calculation Type	Analysis	Extreme Flow Setup	Extreme Flow Setup - 1

Gravity Calculation Options

Flow Profile Method	Backwater Analysis	Hydraulic Grade Convergence Test	0.00 m
Average Velocity Method	Actual Uniform Flow Velocity	Number of Flow Profile Steps	5

Pressure Hydraulics

Trials	40	Use Linear Interpolation For Multipoint Pumps?	False
Accuracy	0.001	Wet Well Increment	0.0 m
Use Controls During Steady State?	True	Use Pumped Flows?	True

Project Inventory: Sanjauli_malyana_2011.swc

Title	
Engineer	
Company	
Date	10/14/2010
Notes	

Scenario Summary

ID	1693
Label	Design
Notes	
Active Topology	Base Active Topology
Physical	Base Physical
Design	Auto Size
Headloss	Base Headloss
Boundary Condition	Base Boundary Condition
Initial Settings	Base Initial Settings
Sanitary Loading	Base Sanitary Loading
Infiltration and Inflow	Base Infiltration and Inflow
System Flows	Base System Flows
Operational	Base Operational
User Data Extensions	Base User Data Extensions
GVF/Pressure Engine Calculation Options	Auto Design

Network Inventory

Conduits	716	-Standard Extended	0
-Circular Pipe	716	-Custom Extended	0
-Box Pipe	0	-Design Point (1 Point)	0
-Elliptical Pipe	0	-Multiple Point	0
-Virtual	0	-Constant Power	0
-Irregular Channel	0	Variable Speed Pump Batteries	0
-Trapezoidal Channel	0	-Standard (3 Point)	0
-Triangular Channel	0	-Standard Extended	0
-Rectangular Channel	0	-Custom Extended	0
Pressure Pipes	0	-Design Point (1 Point)	0
Wet Wells	0	-Multiple Point	0
-Circular	0	-Constant Power	0
-Non-Circular	0	Manholes	715
Pressure Junctions	0	Transitions	0
Pumps	0	Outfalls	1
-Standard (3 Point)	0	Air Valves	0

Circular Pipe Inventory

Circular Pipe - 150.0 mm	12,163.3 m	Circular Pipe - 350.0 mm	618.7 m
Circular Pipe - 200.0 mm	334.7 m	Circular Pipe - 400.0 mm	897.0 m
Circular Pipe - 250.0 mm	317.3 m	Total Length	14,402.7 m
Circular Pipe - 304.8 mm	71.6 m		

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Executive Summary

Scenario	
Label	Design

Computation Results
Subnetwork Results Number of Gravity Subnetworks: 1 Number of Pressure Subnetworks: 0 >>>> Info: Gravity subnetwork draining to: OF-1 >>>> Info: Convergence was achieved.

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Calculation Options

Element Details

Label	Auto Design

Gravity Hydraulics

Flow Profile Method	Backwater Analysis	Minimum Structure Headloss	0.00 ft
Number of Flow Profile Steps	5	Average Velocity Method	Actual Uniform Flow Velocity
Hydraulic Grade Convergence Test	0.00 m		

Headloss Options (HEC-22)

Elevations Considered Equal Within	0.15 m	Depressed Unsubmerged	1.000
Non-Piped Flow Adjustment, Cn	1.300	Half Bench Submerged	0.950
Flat Submerged	1.000	Half Bench Unsubmerged	0.150
Flat Unsubmerged	1.000	Full Bench Submerged	0.750
Depressed Submerged	1.000	Full Bench Unsubmerged	0.070

Headloss Options (AASHTO)

Expansion, Ke	0.350	Shaping Adjustment, Cs	0.500
Contraction, Kc	0.250	Consider Non-Piped Plunging Flow	False

Bend Angle (degrees)	Bend Loss Coefficient, Kb
0.00	0.000
15.00	0.190
30.00	0.350
45.00	0.470
60.00	0.560
75.00	0.640
90.00	0.700

Headloss Options (Generic)

Governing Upstream Pipe Selection Method	Pipe with Maximum QV

Convex Routing

Peak Flow Ratio	75.0 %

Steady State Loading

Steady State Hydrograph Equivalent	Minimum

Pressure Hydraulics

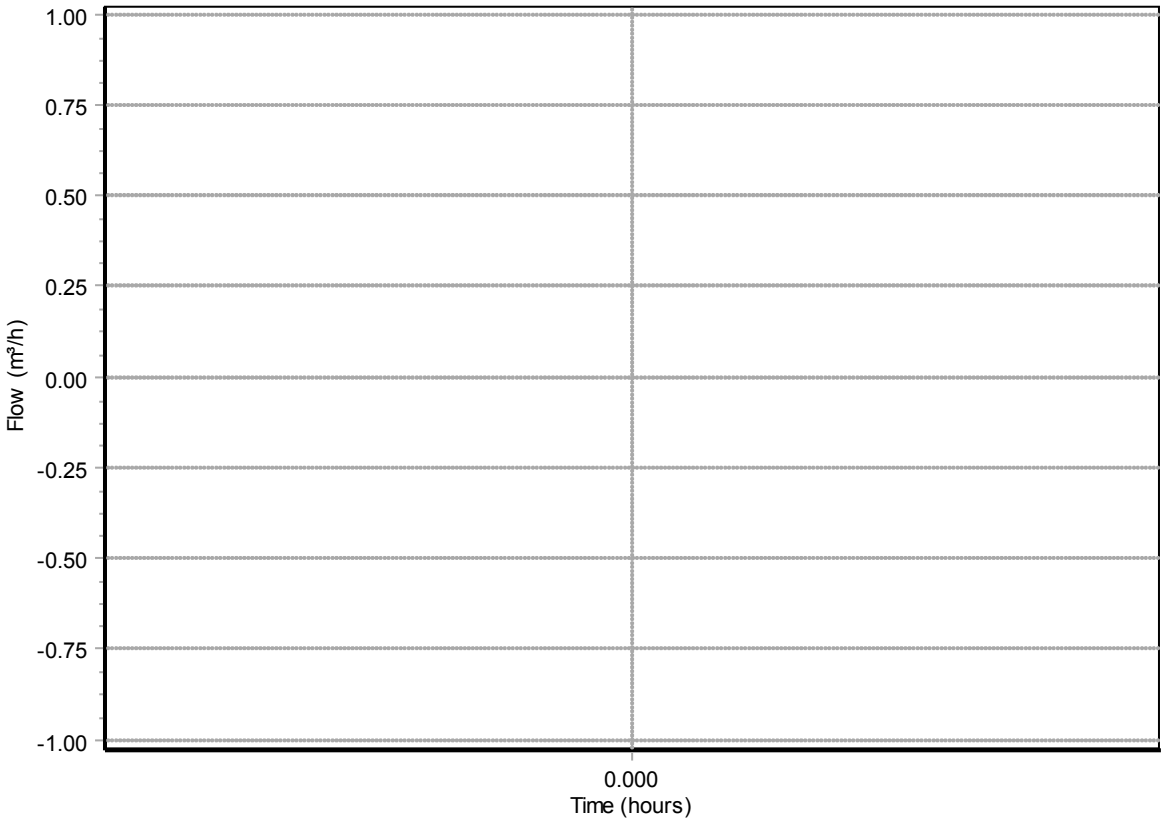
Use Controls During Steady State?	True	Use Pumped Flows?	True

Pressure Hydraulics	
Wet Well Increment	0.0 m

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Calculation Summary (1693: Design)

Time (hours)	Balanced?	Trials	Relative Flow Change



Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Subnetwork Summary	
Subnetwork	Gravity Subnetwork

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m^3/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-2	0.000	1.21	1.72	4.9
CO-3	0.000	1.22	2.25	13.0
CO-4	0.000	2.42	2.80	15.3
CO-5	0.000	2.43	2.78	17.0
CO-6	0.000	3.63	3.35	18.7
CO-7	0.000	3.63	3.25	19.6
CO-8	0.000	4.26	3.59	20.4
CO-9	0.000	4.27	2.41	21.2
CO-10	0.000	4.89	2.42	45.1
CO-11	0.000	44.10	6.23	68.4
CO-12	0.000	44.11	6.04	42.8
CO-13	0.000	44.12	4.50	49.1
CO-14	0.000	71.37	6.13	18.3
CO-15	0.000	71.39	1.72	24.6
CO-16	0.000	71.43	1.77	24.8
CO-17	0.000	73.42	1.82	25.0
CO-18	0.000	74.76	1.84	32.6
CO-19	0.000	183.03	4.13	27.7
CO-20	0.000	0.96	1.60	38.3
CO-21	0.000	1.00	1.63	9.8
CO-22	0.000	1.01	1.81	38.1
CO-23	0.000	0.01	0.36	0.9
CO-24	0.000	0.01	0.38	33.3
CO-25	0.000	1.20	1.65	10.7
CO-30	0.000	1.22	1.09	15.6
CO-34	0.000	4.29	1.15	44.3
CO-35	0.000	1.20	2.34	10.7
CO-36	0.000	1.21	2.26	10.8
CO-37	0.000	1.22	2.09	13.0
CO-38	0.000	2.42	2.98	15.3
CO-39	0.000	2.42	2.95	15.3
CO-40	0.000	2.43	3.11	16.3
CO-41	0.000	3.06	3.40	17.2
CO-42	0.000	3.07	2.75	18.9
CO-43	0.000	1.05	2.19	6.4
CO-44	0.000	1.05	1.89	6.5
CO-45	0.000	1.06	1.77	12.8
CO-46	0.000	2.48	2.70	16.5
CO-47	0.000	3.16	2.83	20.9
CO-48	0.000	6.01	2.95	25.1
CO-49	0.000	6.75	3.49	16.4
CO-54	0.000	2.30	2.13	15.5
CO-55	0.000	1.92	2.69	14.3
CO-56	0.000	1.54	1.76	12.9

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-57	0.000	1.15	1.82	11.3
CO-58	0.000	0.77	1.32	9.5
CO-59	0.000	0.38	1.82	7.3
CO-60	0.000	0.01	0.30	3.5
CO-61	0.000	0.40	1.11	6.2
CO-62	0.000	0.40	0.73	6.2
CO-64	0.000	0.42	1.03	8.4
CO-65	0.000	1.17	1.08	12.1
CO-66	0.000	1.92	3.25	13.6
CO-67	0.000	1.92	3.01	37.8
CO-69	0.000	0.35	0.59	8.2
CO-70	0.000	0.39	0.46	6.1
CO-71	0.000	0.40	0.49	9.9
CO-72	0.000	1.02	2.11	9.8
CO-73	0.000	1.02	2.12	11.3
CO-74	0.000	1.70	2.45	13.7
CO-75	0.000	2.25	2.65	14.7
CO-76	0.000	2.25	2.65	34.1
CO-77	0.000	27.47	4.90	56.7
CO-78	0.000	3.05	0.81	17.2
CO-79	0.000	3.06	1.38	20.0
CO-80	0.000	5.28	1.78	22.8
CO-82	0.000	2.93	1.90	19.8
CO-83	0.000	5.30	4.51	28.8
CO-84	0.000	11.99	4.20	35.7
CO-85	0.000	13.40	4.19	36.8
CO-86	0.000	13.40	2.61	36.8
CO-87	0.000	13.41	4.31	41.3
CO-88	0.000	20.38	3.85	48.4
CO-89	0.000	25.20	5.04	32.2
CO-90	0.000	25.20	4.52	51.1
CO-91	0.000	25.21	4.67	51.1
CO-92	0.000	25.21	4.78	52.3
CO-93	0.000	2.23	0.77	15.7
CO-94	0.000	0.01	0.23	11.8
CO-100	0.000	5.30	3.16	28.8
CO-101	0.000	1.39	0.48	11.5
CO-102	0.000	1.40	0.80	11.6
CO-105	0.000	3.41	1.79	18.2
CO-106	0.000	3.42	1.80	19.1
CO-107	0.000	4.10	1.90	13.7
CO-108	0.000	4.10	1.43	14.5
CO-109	0.000	4.11	2.05	13.6
CO-110	0.000	4.11	2.93	20.8
CO-111	0.000	4.80	2.80	21.6
CO-113	0.000	4.81	2.95	36.4
CO-114	0.000	0.68	0.87	14.8
CO-115	0.000	6.21	1.65	25.1
CO-116	0.000	6.56	1.39	25.8

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-117	0.000	6.93	4.77	26.2
CO-118	0.000	6.94	4.76	26.2
CO-119	0.000	6.94	3.05	26.2
CO-120	0.000	6.95	2.63	26.2
CO-121	0.000	6.96	2.93	26.2
CO-122	0.000	6.96	2.44	26.3
CO-123	0.000	6.97	3.22	36.0
CO-124	0.000	1.41	2.48	11.6
CO-125	0.000	1.42	2.55	13.6
CO-126	0.000	1.05	2.44	6.3
CO-127	0.000	1.05	2.28	12.1
CO-128	0.000	2.11	3.13	15.4
CO-129	0.000	2.84	3.22	20.4
CO-130	0.000	1.05	2.47	6.2
CO-131	0.000	1.05	2.61	12.1
CO-132	0.000	0.01	0.34	8.7
CO-134	0.000	0.68	1.24	10.3
CO-135	0.000	1.62	1.50	12.5
CO-136	0.000	1.63	1.24	12.5
CO-137	0.000	1.63	1.46	13.5
CO-138	0.000	2.18	1.57	15.3
CO-139	0.000	2.72	1.68	16.2
CO-140	0.000	2.72	1.68	16.7
CO-141	0.000	3.06	1.99	17.7
CO-142	0.000	1.48	0.90	11.9
CO-143	0.000	1.49	0.85	18.3
CO-144	0.000	6.23	1.36	25.3
CO-145	0.000	6.77	2.01	25.9
CO-146	0.000	4.03	1.93	13.6
CO-147	0.000	4.04	2.47	13.0
CO-148	0.000	4.04	2.35	19.8
CO-149	0.000	4.05	1.56	14.2
CO-150	0.000	4.05	2.44	13.1
CO-151	0.000	4.06	2.16	22.3
CO-154	0.000	0.68	2.22	8.1
CO-155	0.000	0.68	2.27	9.5
CO-156	0.000	1.23	2.61	10.8
CO-157	0.000	1.23	2.58	11.4
CO-158	0.000	1.51	2.49	12.0
CO-159	0.000	1.51	2.47	12.0
CO-161	0.000	1.52	2.32	12.1
CO-162	0.000	1.52	2.38	22.5
CO-163	0.000	0.01	0.82	3.3
CO-164	0.000	0.35	1.20	17.4
CO-165	0.000	8.42	3.68	29.2
CO-166	0.000	8.77	3.59	31.2
CO-168	0.000	5.61	3.34	24.4
CO-169	0.000	6.50	3.57	26.1
CO-170	0.000	7.38	3.88	27.6

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-171	0.000	8.06	3.80	28.2
CO-172	0.000	8.06	3.72	28.2
CO-173	0.000	8.07	3.11	28.6
CO-174	0.000	0.54	1.71	8.2
CO-175	0.000	0.88	3.33	17.2
CO-176	0.000	1.22	2.04	12.6
CO-177	0.000	2.17	2.47	22.3
CO-178	0.000	9.21	4.27	30.3
CO-179	0.000	9.21	4.14	30.3
CO-180	0.000	9.22	4.28	31.7
CO-181	0.000	10.99	4.12	59.0
CO-182	0.000	69.32	4.21	85.0
CO-183	0.000	69.94	2.99	85.2
CO-184	0.000	70.48	3.77	59.4
CO-185	0.000	82.06	3.31	31.4
CO-186	0.000	82.07	3.05	22.3
CO-187	0.000	82.09	2.94	26.4
CO-188	0.000	82.11	3.46	26.4
CO-189	0.000	82.14	2.11	26.4
CO-190	0.000	82.16	1.85	26.4
CO-191	0.000	82.45	2.71	26.5
CO-192	0.000	82.46	2.13	26.5
CO-193	0.000	82.74	3.02	26.6
CO-194	0.000	83.82	3.23	27.7
CO-195	0.000	95.97	2.49	28.6
CO-196	0.000	96.25	2.91	32.0
CO-197	0.000	96.52	2.45	76.8
CO-198	0.000	96.53	2.97	28.7
CO-199	0.000	96.81	2.03	28.7
CO-200	0.000	96.83	1.93	28.8
CO-201	0.000	97.73	2.24	28.9
CO-202	0.000	97.76	3.46	29.0
CO-203	0.000	98.91	2.98	29.2
CO-204	0.000	100.06	2.49	32.4
CO-205	0.000	100.93	3.09	73.1
CO-206	0.000	101.52	5.14	29.5
CO-207	0.000	102.68	6.41	29.7
CO-208	0.000	102.99	3.74	32.8
CO-210	0.000	105.61	3.23	30.1
CO-211	0.000	105.76	3.30	30.1
CO-212	0.000	105.78	3.40	33.0
CO-214	0.000	105.82	3.46	33.1
CO-215	0.000	107.28	3.28	73.6
CO-216	0.000	108.12	5.66	30.4
CO-217	0.000	108.15	5.55	35.2
CO-218	0.000	9.24	1.22	8.7
CO-219	0.000	9.25	1.33	10.0
CO-220	0.000	9.26	1.70	30.4
CO-221	0.000	9.27	0.91	30.4

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-222	0.000	9.28	0.86	30.4
CO-223	0.000	9.29	1.05	25.0
CO-224	0.000	10.08	1.02	22.4
CO-226	0.000	10.87	0.78	23.2
CO-227	0.000	11.65	1.78	17.2
CO-228	0.000	11.82	1.09	17.9
CO-229	0.000	11.83	1.66	18.9
CO-230	0.000	14.69	1.59	20.3
CO-231	0.000	15.75	2.01	20.9
CO-232	0.000	16.54	1.07	21.2
CO-233	0.000	16.55	0.81	21.5
CO-234	0.000	17.35	1.13	21.8
CO-235	0.000	17.41	1.54	22.2
CO-236	0.000	18.81	2.42	23.2
CO-237	0.000	20.00	0.62	26.3
CO-238	0.000	0.35	0.72	3.2
CO-239	0.000	0.52	0.82	3.6
CO-240	0.000	1.28	2.24	11.1
CO-241	0.000	1.29	2.29	11.9
CO-242	0.000	1.68	2.56	12.7
CO-243	0.000	1.69	2.56	12.7
CO-244	0.000	1.71	2.91	14.2
CO-245	0.000	2.52	3.21	15.6
CO-246	0.000	2.52	3.24	31.9
CO-247	0.000	22.54	1.06	48.2
CO-248	0.000	22.55	1.23	58.1
CO-249	0.000	0.78	1.79	3.0
CO-250	0.000	0.80	1.80	3.4
CO-251	0.000	0.80	2.05	12.2
CO-252	0.000	0.00	0.27	5.2
CO-253	0.000	0.98	1.26	10.3
CO-254	0.000	1.26	1.36	11.0
CO-255	0.000	1.27	1.36	11.3
CO-256	0.000	1.39	1.07	11.8
CO-257	0.000	1.50	0.95	12.2
CO-258	0.000	1.61	1.19	15.7
CO-259	0.000	3.69	1.30	20.1
CO-260	0.000	4.65	1.54	21.3
CO-261	0.000	4.65	1.51	22.3
CO-262	0.000	5.53	1.62	23.2
CO-263	0.000	5.53	1.78	23.3
CO-265	0.000	5.54	1.57	23.4
CO-266	0.000	5.70	1.71	23.6
CO-267	0.000	5.71	1.42	23.6
CO-268	0.000	5.71	1.17	26.5
CO-269	0.000	8.72	2.34	29.4
CO-270	0.000	8.73	2.01	29.5
CO-271	0.000	8.74	1.00	29.5
CO-272	0.000	8.75	1.82	29.5

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-273	0.000	8.75	1.75	29.5
CO-274	0.000	8.76	1.64	29.5
CO-275	0.000	8.76	1.76	29.5
CO-276	0.000	8.77	2.50	29.5
CO-277	0.000	8.77	2.20	29.5
CO-278	0.000	8.77	1.45	22.3
CO-279	0.000	0.45	0.93	14.9
CO-281	0.000	1.04	0.63	10.3
CO-282	0.000	1.20	1.50	10.7
CO-283	0.000	1.20	1.48	10.7
CO-284	0.000	1.21	1.59	10.8
CO-285	0.000	1.22	1.37	13.4
CO-286	0.000	2.69	3.18	16.1
CO-287	0.000	2.69	1.84	16.4
CO-288	0.000	2.85	2.30	16.6
CO-289	0.000	2.85	2.64	23.0
CO-290	0.000	0.54	0.89	7.2
CO-291	0.000	0.54	0.80	7.6
CO-292	0.000	0.70	1.22	8.6
CO-295	0.000	0.48	1.27	6.7
CO-296	0.000	0.49	0.70	6.8
CO-297	0.000	0.49	0.75	6.8
CO-298	0.000	0.49	0.81	6.9
CO-299	0.000	0.50	0.88	6.9
CO-300	0.000	0.50	0.62	8.1
CO-301	0.000	0.89	1.20	9.2
CO-302	0.000	0.90	1.16	9.3
CO-303	0.000	0.90	0.41	9.3
CO-304	0.000	0.91	1.08	10.2
CO-305	0.000	1.30	1.59	11.1
CO-306	0.000	1.30	1.63	11.2
CO-307	0.000	1.31	1.42	11.5
CO-308	0.000	1.47	1.06	14.0
CO-309	0.000	0.31	0.80	7.2
CO-310	0.000	0.85	0.97	9.0
CO-311	0.000	0.86	1.04	9.1
CO-312	0.000	0.86	1.46	9.1
CO-313	0.000	0.87	1.78	10.4
CO-314	0.000	1.41	0.90	11.6
CO-315	0.000	1.41	0.50	12.9
CO-316	0.000	2.07	2.67	14.1
CO-318	0.000	2.07	2.67	16.5
CO-319	0.000	0.76	2.33	8.6
CO-320	0.000	0.77	2.20	8.6
CO-321	0.000	0.78	2.21	18.9
CO-322	0.000	0.76	2.40	8.6
CO-323	0.000	0.77	2.44	8.6
CO-324	0.000	0.78	2.53	19.5
CO-325	0.000	0.76	2.57	8.6

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-326	0.000	0.77	2.41	8.6
CO-327	0.000	0.78	2.38	8.6
CO-328	0.000	0.78	0.41	20.0
CO-329	0.000	0.99	1.22	10.9
CO-330	0.000	1.52	1.47	12.1
CO-331	0.000	1.52	1.31	14.5
CO-332	0.000	2.95	1.34	17.7
CO-333	0.000	3.48	1.35	18.4
CO-334	0.000	3.49	1.65	18.5
CO-335	0.000	3.52	2.18	18.5
CO-336	0.000	3.53	1.29	18.5
CO-337	0.000	3.53	1.77	18.6
CO-338	0.000	3.54	1.30	18.6
CO-339	0.000	3.54	1.38	18.6
CO-340	0.000	3.55	1.37	18.6
CO-341	0.000	3.56	1.61	18.6
CO-342	0.000	3.57	1.67	18.7
CO-343	0.000	3.58	1.63	18.7
CO-344	0.000	3.59	1.58	13.2
CO-345	0.000	3.59	1.33	12.9
CO-346	0.000	3.61	1.75	13.9
CO-347	0.000	4.67	1.65	16.1
CO-348	0.000	6.43	1.87	17.6
CO-349	0.000	6.66	1.92	21.5
CO-350	0.000	13.31	2.07	25.5
CO-351	0.000	13.71	2.08	27.7
CO-353	0.000	21.72	2.42	32.5
CO-354	0.000	21.83	3.05	22.0
CO-355	0.000	23.57	2.41	16.8
CO-356	0.000	24.90	2.92	17.3
CO-357	0.000	26.58	2.53	17.7
CO-358	0.000	27.39	2.53	18.0
CO-359	0.000	28.03	2.79	18.1
CO-360	0.000	28.30	3.23	21.4
CO-364	0.000	31.67	3.22	19.2
CO-365	0.000	31.69	2.66	22.2
CO-367	0.000	48.18	2.27	27.3
CO-368	0.000	48.72	2.03	56.1
CO-369	0.000	49.09	2.45	24.1
CO-370	0.000	49.12	2.46	26.4
CO-371	0.000	57.12	3.37	43.5
CO-372	0.000	57.48	2.75	57.2
CO-373	0.000	57.69	2.54	29.9
CO-375	0.000	58.12	2.67	26.3
CO-377	0.000	58.12	2.47	31.3
CO-378	0.000	0.62	0.83	3.0
CO-379	0.000	0.62	1.16	7.7
CO-380	0.000	0.97	0.94	3.3
CO-381	0.000	0.98	0.80	6.5

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-382	0.000	7.98	3.11	9.6
CO-383	0.000	8.00	3.15	19.2
CO-384	0.000	1.02	2.50	12.8
CO-385	0.000	1.56	0.24	14.0
CO-386	0.000	1.57	2.04	22.7
CO-387	0.000	0.62	0.96	7.8
CO-388	0.000	0.63	0.95	5.6
CO-389	0.000	0.64	0.92	11.5
CO-390	0.000	2.40	1.39	15.2
CO-391	0.000	2.40	1.42	16.9
CO-392	0.000	3.53	1.62	18.9
CO-393	0.000	3.84	1.03	19.6
CO-394	0.000	4.03	0.82	20.0
CO-395	0.000	4.14	1.80	20.1
CO-396	0.000	4.14	2.75	20.3
CO-397	0.000	4.25	1.25	20.5
CO-399	0.000	4.37	0.93	22.8
CO-400	0.000	6.33	1.19	25.2
CO-401	0.000	6.59	2.06	26.0
CO-402	0.000	7.17	3.29	26.6
CO-403	0.000	7.18	3.28	27.1
CO-404	0.000	7.76	3.25	27.9
CO-405	0.000	8.02	3.43	28.2
CO-406	0.000	8.03	2.62	29.8
CO-407	0.000	9.85	3.70	31.4
CO-410	0.000	14.40	4.89	46.9
CO-411	0.000	0.78	1.55	10.0
CO-412	0.000	1.36	2.00	11.9
CO-413	0.000	1.63	2.04	12.5
CO-414	0.000	1.63	2.10	12.5
CO-415	0.000	1.64	2.24	12.5
CO-416	0.000	1.64	2.59	14.1
CO-417	0.000	2.54	2.91	16.1
CO-418	0.000	2.80	2.68	16.5
CO-419	0.000	2.81	2.69	16.5
CO-420	0.000	2.81	2.88	37.0
CO-421	0.000	0.37	0.71	10.8
CO-422	0.000	0.79	1.80	8.7
CO-423	0.000	0.79	1.82	10.5
CO-424	0.000	1.58	2.13	26.7
CO-425	0.000	1.05	2.31	6.3
CO-426	0.000	1.05	1.99	6.4
CO-427	0.000	1.05	1.62	24.9
CO-428	0.000	1.05	0.97	24.3
CO-430	0.000	0.00	0.44	0.9
CO-431	0.000	0.01	0.41	1.4
CO-432	0.000	0.03	0.58	6.8
CO-433	0.000	1.48	1.19	14.6
CO-434	0.000	3.06	1.46	18.1

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-435	0.000	3.72	1.70	19.7
CO-436	0.000	4.30	1.93	21.7
CO-438	0.000	0.37	0.77	8.9
CO-440	0.000	1.05	0.97	17.6
CO-441	0.000	6.38	4.05	25.1
CO-442	0.000	6.39	3.67	29.4
CO-443	0.000	5.36	3.62	23.0
CO-445	0.000	1.48	2.53	11.9
CO-446	0.000	1.48	2.51	25.8
CO-447	0.000	1.05	2.21	6.3
CO-448	0.000	1.05	2.25	16.5
CO-449	0.000	0.79	2.18	8.7
CO-450	0.000	0.79	2.03	13.0
CO-451	0.000	0.66	1.88	7.9
CO-452	0.000	0.66	1.89	9.9
CO-453	0.000	0.31	0.65	7.0
CO-455	0.000	0.31	1.45	12.0
CO-456	0.000	0.75	0.72	8.9
CO-457	0.000	0.89	1.52	9.2
CO-458	0.000	0.89	1.88	12.2
CO-459	0.000	0.44	0.74	7.0
CO-460	0.000	0.60	1.01	9.8
CO-461	0.000	1.53	1.53	12.5
CO-462	0.000	1.73	1.46	13.2
CO-463	0.000	1.93	1.33	13.7
CO-464	0.000	1.94	1.24	13.7
CO-465	0.000	1.96	1.94	19.4
CO-466	0.000	0.00	0.24	0.7
CO-467	0.000	0.01	0.16	0.9
CO-468	0.000	0.01	0.25	1.1
CO-469	0.000	0.02	0.27	6.7
CO-470	0.000	0.40	0.86	6.2
CO-471	0.000	0.40	0.87	6.2
CO-472	0.000	0.40	0.87	7.2
CO-473	0.000	0.70	1.01	8.7
CO-474	0.000	0.90	1.51	9.3
CO-475	0.000	0.90	1.65	10.7
CO-476	0.000	0.01	0.39	1.0
CO-477	0.000	0.01	0.42	1.4
CO-478	0.000	0.00	0.27	3.8
CO-479	0.000	0.53	1.85	7.9
CO-480	0.000	0.80	1.86	9.4
CO-481	0.000	1.06	2.09	10.1
CO-482	0.000	1.07	2.32	34.4
CO-483	0.000	0.01	0.34	6.2
CO-484	0.000	1.42	2.44	12.4
CO-485	0.000	1.79	2.55	13.8
CO-486	0.000	2.16	2.71	16.9
CO-487	0.000	3.85	3.23	20.2

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-488	0.000	4.53	3.37	29.6
CO-489	0.000	0.01	0.45	10.1
CO-490	0.000	0.58	2.00	7.4
CO-491	0.000	0.58	2.00	8.2
CO-492	0.000	0.85	1.59	10.8
CO-493	0.000	1.67	2.39	16.0
CO-494	0.000	0.54	1.78	8.0
CO-495	0.000	0.82	1.97	10.7
CO-496	0.000	0.01	0.15	2.7
CO-497	0.000	0.22	0.90	4.6
CO-498	0.000	0.22	0.90	5.5
CO-499	0.000	0.43	1.11	6.4
CO-500	0.000	0.43	1.11	6.4
CO-501	0.000	0.44	1.12	7.6
CO-502	0.000	0.80	1.11	11.1
CO-503	0.000	1.85	1.23	13.4
CO-504	0.000	1.85	1.08	14.5
CO-505	0.000	2.54	2.01	15.7
CO-506	0.000	2.54	2.70	16.3
CO-507	0.000	2.91	2.81	17.3
CO-508	0.000	3.27	2.93	17.8
CO-511	0.000	3.91	3.06	20.3
CO-512	0.000	4.59	3.11	21.1
CO-513	0.000	4.60	2.78	22.1
CO-514	0.000	5.41	2.81	23.0
CO-515	0.000	5.41	1.55	23.1
CO-516	0.000	5.55	4.07	23.9
CO-517	0.000	6.10	2.27	24.8
CO-518	0.000	6.44	2.20	25.2
CO-519	0.000	6.44	1.71	18.1
CO-520	0.000	0.73	1.34	8.4
CO-521	0.000	0.74	1.47	9.8
CO-522	0.000	1.30	2.20	11.2
CO-523	0.000	1.31	2.17	12.5
CO-524	0.000	1.99	2.52	13.8
CO-525	0.000	1.99	2.65	18.9
CO-526	0.000	5.82	3.48	27.1
CO-527	0.000	0.54	1.60	7.2
CO-529	0.000	1.29	2.06	11.7
CO-530	0.000	1.56	2.15	15.3
CO-531	0.000	3.48	2.80	18.4
CO-532	0.000	3.49	2.80	21.2
CO-535	0.000	0.96	1.79	9.5
CO-537	0.000	0.00	0.48	2.9
CO-538	0.000	0.28	1.33	11.8
CO-539	0.000	0.00	0.23	0.9
CO-540	0.000	0.01	0.38	1.2
CO-541	0.000	0.02	0.51	1.4
CO-542	0.000	0.02	0.37	6.3

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-543	0.000	0.34	0.83	6.5
CO-544	0.000	0.56	1.30	7.9
CO-545	0.000	0.77	1.63	12.3
CO-546	0.000	2.69	2.32	16.6
CO-547	0.000	3.04	2.45	17.9
CO-548	0.000	3.58	2.47	19.1
CO-549	0.000	3.92	2.68	20.3
CO-552	0.000	0.54	1.00	7.8
CO-553	0.000	0.75	1.24	10.4
CO-554	0.000	1.59	1.47	14.2
CO-555	0.000	0.00	0.13	0.7
CO-556	0.000	0.01	0.31	1.1
CO-557	0.000	0.01	0.31	5.7
CO-558	0.000	1.08	1.00	10.2
CO-559	0.000	1.08	1.22	10.9
CO-560	0.000	1.43	1.55	12.3
CO-561	0.000	1.72	1.44	12.8
CO-562	0.000	1.72	1.59	12.8
CO-563	0.000	1.73	1.69	12.8
CO-564	0.000	1.73	1.45	12.9
CO-565	0.000	1.74	1.74	12.9
CO-566	0.000	1.74	1.69	12.9
CO-567	0.000	1.75	2.00	12.9
CO-568	0.000	1.75	1.62	12.9
CO-569	0.000	1.75	1.98	18.1
CO-570	0.000	5.51	1.12	24.0
CO-571	0.000	0.36	0.69	16.0
CO-572	0.000	6.78	2.62	25.9
CO-573	0.000	6.78	2.13	25.9
CO-574	0.000	6.79	1.66	25.9
CO-575	0.000	6.79	1.80	25.9
CO-577	0.000	6.81	2.62	25.9
CO-578	0.000	6.81	2.77	26.5
CO-579	0.000	7.44	3.91	27.1
CO-580	0.000	7.45	4.20	28.4
CO-581	0.000	8.86	4.33	29.7
CO-582	0.000	8.87	4.17	30.2
CO-583	0.000	9.44	4.72	30.7
CO-584	0.000	9.45	4.68	53.5
CO-585	0.000	1.20	1.21	12.0
CO-586	0.000	1.84	2.50	13.3
CO-587	0.000	1.84	1.88	13.4
CO-588	0.000	1.85	1.47	44.8
CO-589	0.000	0.58	1.75	8.2
CO-590	0.000	0.85	1.93	42.6
CO-591	0.000	0.94	1.31	10.9
CO-592	0.000	1.55	1.39	13.0
CO-593	0.000	1.96	0.98	13.7
CO-594	0.000	1.96	1.33	9.8

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-595	0.000	1.97	1.11	6.4
CO-596	0.000	2.18	1.12	10.7
CO-598	0.000	2.25	1.35	15.3
CO-599	0.000	2.59	2.24	16.8
CO-600	0.000	3.27	1.45	18.5
CO-601	0.000	3.81	1.68	19.5
CO-602	0.000	4.02	1.15	19.8
CO-603	0.000	4.02	1.19	19.8
CO-604	0.000	4.03	2.18	19.8
CO-605	0.000	4.03	1.63	14.0
CO-606	0.000	4.03	1.92	13.6
CO-607	0.000	2.08	1.45	14.7
CO-608	0.000	2.36	1.28	10.9
CO-609	0.000	2.37	1.19	15.1
CO-610	0.000	2.37	1.27	19.2
CO-611	0.000	0.89	1.52	9.2
CO-612	0.000	0.89	1.45	13.1
CO-613	0.000	0.01	0.16	9.6
CO-614	0.000	0.01	0.17	1.0
CO-615	0.000	0.01	0.15	1.3
CO-616	0.000	0.02	0.54	1.5
CO-617	0.000	0.03	0.63	10.0
CO-618	0.000	0.68	1.95	8.1
CO-619	0.000	0.69	1.96	13.9
CO-620	0.000	0.99	2.22	9.7
CO-621	0.000	1.00	2.29	9.8
CO-622	0.000	1.01	1.27	10.4
CO-623	0.000	1.28	1.34	11.5
CO-624	0.000	1.49	1.38	17.6
CO-625	0.000	0.66	1.50	10.0
CO-626	0.000	1.55	1.94	14.0
CO-627	0.000	2.59	0.95	16.8
CO-628	0.000	3.25	1.57	18.6
CO-629	0.000	3.90	1.08	20.0
CO-630	0.000	4.27	2.08	20.7
CO-631	0.000	4.54	3.04	21.3
CO-632	0.000	4.76	3.64	23.3
CO-634	0.000	0.58	1.71	7.4
CO-635	0.000	0.58	1.71	7.5
CO-637	0.000	0.59	1.72	9.9
CO-638	0.000	1.55	2.14	21.8
CO-639	0.000	0.58	1.65	8.5
CO-640	0.000	0.95	1.83	10.8
CO-641	0.000	0.83	2.36	10.3
CO-642	0.000	0.01	0.35	1.1
CO-643	0.000	0.02	0.45	4.4
CO-644	0.000	0.59	1.39	7.6
CO-645	0.000	0.60	1.41	42.3
CO-646	0.000	0.01	0.31	39.7

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-647	0.000	0.58	1.39	7.5
CO-648	0.000	0.59	1.34	43.3
CO-649	0.000	0.01	0.32	40.0
CO-650	0.000	0.87	1.85	52.4
CO-651	0.000	0.87	1.80	44.6
CO-653	0.000	0.87	1.98	10.4
CO-654	0.000	1.44	2.39	11.8
CO-655	0.000	1.45	1.79	53.9
CO-656	0.000	0.81	0.72	2.9
CO-657	0.000	0.81	0.75	45.0
CO-658	0.000	10.83	2.05	53.0
CO-659	0.000	0.00	0.30	0.8
CO-660	0.000	0.01	0.31	35.7
CO-661	0.000	0.01	0.18	1.0
CO-662	0.000	0.01	0.26	35.8
CO-663	0.000	0.01	0.17	1.0
CO-664	0.000	0.01	0.27	35.9
CO-665	0.000	0.01	0.53	0.9
CO-666	0.000	0.01	0.44	1.2
CO-667	0.000	0.02	0.61	7.1
CO-668	0.000	0.77	1.27	8.6
CO-669	0.000	0.77	1.77	9.5
CO-670	0.000	1.16	1.99	10.5
CO-671	0.000	1.16	2.27	10.5
CO-672	0.000	1.17	2.23	10.6
CO-673	0.000	1.17	2.25	10.6
CO-674	0.000	1.18	2.55	10.6
CO-675	0.000	1.19	2.02	25.1
CO-676	0.000	0.76	2.02	8.6
CO-677	0.000	0.77	2.18	10.0
CO-678	0.000	1.37	2.41	11.4
CO-679	0.000	1.37	2.30	11.5
CO-680	0.000	1.38	2.19	11.5
CO-681	0.000	1.39	2.12	24.7
CO-682	0.000	0.01	0.62	0.9
CO-683	0.000	0.01	0.41	1.1
CO-684	0.000	0.02	0.80	1.3
CO-685	0.000	0.02	0.63	1.4
CO-687	0.000	0.03	0.65	1.6
CO-688	0.000	0.03	0.70	19.0
CO-689	0.000	0.77	2.30	8.6
CO-690	0.000	0.77	1.96	8.6
CO-691	0.000	0.78	2.27	8.6
CO-692	0.000	0.78	2.22	8.7
CO-693	0.000	0.79	2.30	22.5
CO-694	0.000	0.77	2.40	8.6
CO-695	0.000	0.77	2.23	8.6
CO-696	0.000	0.78	2.45	8.6
CO-697	0.000	0.78	2.40	22.0

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-698	0.000	1.02	2.60	6.1
CO-699	0.000	1.03	2.59	6.1
CO-700	0.000	1.03	2.64	6.1
CO-701	0.000	1.04	0.40	22.2
CO-702	0.000	1.41	1.84	11.6
CO-703	0.000	1.42	1.76	13.1
CO-704	0.000	2.20	2.73	15.5
CO-705	0.000	2.83	1.68	16.5
CO-706	0.000	2.84	2.27	16.6
CO-707	0.000	2.84	3.60	25.0
CO-708	0.000	0.01	0.23	3.1
CO-709	0.000	0.32	0.64	5.4
CO-710	0.000	0.32	0.95	5.5
CO-712	0.000	0.01	0.47	9.8
CO-713	0.000	0.01	0.64	0.9
CO-714	0.000	0.01	0.43	9.1
CO-715	0.000	1.10	2.40	10.3
CO-716	0.000	1.10	2.35	11.1
CO-717	0.000	0.01	0.30	1.1
CO-720	0.000	0.70	1.31	9.1
CO-722	0.000	0.79	0.96	8.7
CO-723	0.000	0.79	1.04	39.9
CO-724	0.000	0.00	0.26	5.2
CO-725	0.000	0.01	0.39	16.1
CO-726	0.000	0.41	1.57	6.3
CO-727	0.000	0.41	1.42	6.2
CO-728	0.000	1.40	0.84	24.2
CO-730	0.000	1.06	1.82	3.4
CO-731	0.000	1.05	1.81	6.5
CO-734	0.000	1.21	1.57	10.8
CO-735	0.000	4.60	2.81	21.2
CO-736	0.000	4.60	2.78	22.3
CO-737	0.000	34.24	5.38	61.0
CO-738	0.000	36.51	5.37	65.2
CO-739	0.000	2.69	3.73	42.3
CO-740	0.000	4.29	1.52	20.5
CO-741	0.000	9.86	4.78	34.8
CO-742	0.000	14.39	4.78	38.1
CO-743	0.000	5.36	3.45	34.8
CO-744	0.000	15.59	3.22	43.1
CO-745	0.000	21.06	3.13	31.4
CO-749	0.000	4.35	1.10	20.6
CO-750	0.000	4.36	1.10	20.7
CO-751	0.000	57.89	3.46	54.6
CO-752	0.000	57.90	2.74	57.5
CO-753	0.000	6.80	1.69	25.9
CO-754	0.000	6.80	1.73	25.9
CO-755	0.000	6.76	2.74	9.9
CO-756	0.000	6.76	2.53	42.9

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Pipe Report

Label	Time (Maximum Flow) (hours)	Flow (Maximum) (m³/h)	Velocity (Maximum Calculated) (m/s)	Depth (Average End) / Rise (Maximum) (%)
CO-757	0.000	105.80	2.86	95.9
CO-758	0.000	105.80	4.49	67.8
CO-761	0.000	104.44	3.44	71.9
CO-762	0.000	0.85	2.66	5.6
CO-763	0.000	0.88	0.70	3.7
CO-764	0.000	0.01	0.25	1.8
CO-765	0.000	0.32	0.68	6.1
CO-766	0.000	5.53	2.14	23.3
CO-767	0.000	5.54	3.11	23.3
CO-768	0.000	8.75	1.51	29.5
CO-769	0.000	0.04	0.34	2.4
CO-771	0.000	2.25	0.95	4.9
CO-772	0.000	2.19	1.17	4.2
CO-773	0.000	5.29	3.16	22.8
CO-774	0.000	0.00	0.38	8.7
CO-775	0.000	3.40	1.79	18.2
CO-776	0.000	3.41	1.80	18.2
CO-777	0.000	4.80	3.00	21.7
CO-778	0.000	4.80	2.95	21.7
CO-779	0.000	0.00	0.29	0.6
CO-780	0.000	0.68	1.68	8.8
CO-781	0.000	0.95	1.80	9.5
CO-782	0.000	0.96	1.80	14.0
CO-783	0.000	0.34	1.18	6.9
CO-784	0.000	0.54	1.60	8.7
CO-785	0.000	1.08	1.90	10.6
CO-786	0.000	0.00	0.50	13.7
CO-787	0.000	0.58	1.72	7.5
CO-788	0.000	0.59	1.71	7.5
CO-789	0.000	1.21	0.78	10.8
CO-790	0.000	1.20	1.58	10.7
CO-791	0.000	31.66	2.90	40.2
CO-792	0.000	32.76	2.24	43.3
CO-794	0.000	3.29	2.27	18.7
CO-796	(N/A)	(N/A)	(N/A)	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Node Report

Subnetwork Summary	
Subnetwork	Gravity Subnetwork

Node Report

Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV93835701	0.000	2,173.39	0.04	(N/A)
SV19183201	0.000	2,147.51	0.05	(N/A)
SV19183204	0.000	2,092.13	0.08	(N/A)
SV19183102	0.000	2,055.22	0.08	(N/A)
SV19183103	0.000	2,036.77	0.09	(N/A)
ST19183001	0.000	2,009.23	0.09	(N/A)
SV19183003	0.000	1,981.39	0.10	(N/A)
SV92799601	0.000	1,937.73	0.10	(N/A)
SV93791201	0.000	1,929.13	0.11	(N/A)
ST19173901	0.000	1,926.35	0.34	(N/A)
ST19173802	0.000	1,896.35	0.34	(N/A)
SV19173804	0.000	1,879.44	0.31	(N/A)
SV19174703	0.000	1,861.18	0.34	(N/A)
SV19175601	0.000	1,823.90	0.32	(N/A)
SV19175502	0.000	1,822.95	0.32	(N/A)
SV19176502	0.000	1,821.75	0.33	(N/A)
SV19177502	0.000	1,820.40	0.33	(N/A)
SV19179501	0.000	1,818.81	0.53	(N/A)
SV19177503	0.000	1,836.11	0.05	(N/A)
SV19176601	0.000	1,855.21	0.05	(N/A)
SV19176603	0.000	1,840.26	0.05	(N/A)
SV19175704	0.000	1,852.65	0.00	(N/A)
SV19175604	0.000	1,838.20	0.00	(N/A)
SV19176801	0.000	1,891.52	0.05	(N/A)
SV19176803	0.000	1,882.42	0.05	(N/A)
SV19176706	0.000	1,869.97	0.05	(N/A)
SV19175801	0.000	1,868.22	0.05	(N/A)
SV19175703	0.000	1,865.06	0.10	(N/A)
SV19174704	0.000	1,862.25	0.10	(N/A)
SV19184201	0.000	2,171.27	0.05	(N/A)
SV19184203	0.000	2,134.12	0.05	(N/A)
SV19184103	0.000	2,086.87	0.05	(N/A)
SV19184001	0.000	2,062.02	0.08	(N/A)
ST19184002	0.000	2,027.37	0.08	(N/A)
SV19174901	0.000	1,993.47	0.08	(N/A)
SV19175802	0.000	1,930.93	0.08	(N/A)
SV19175804	0.000	1,884.08	0.08	(N/A)
SV89858101	0.000	2,157.16	0.05	(N/A)
SV90841401	0.000	2,114.62	0.05	(N/A)
ST19180301	0.000	2,093.34	0.05	(N/A)
SV90839201	0.000	2,072.08	0.08	(N/A)
SV91822801	0.000	2,050.82	0.09	(N/A)
SV91825301	0.000	2,029.57	0.12	(N/A)
SV91816901	0.000	2,018.93	0.13	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Node Report

Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV92810501	0.000	1,997.65	0.10	(N/A)
SV92802501	0.000	1,974.80	0.30	(N/A)
SV92798101	0.000	1,993.22	0.08	(N/A)
SV92789602	0.000	2,003.12	0.07	(N/A)
SV92788601	0.000	2,008.75	0.07	(N/A)
SV92788301	0.000	2,015.20	0.06	(N/A)
SV92787301	0.000	2,019.11	0.05	(N/A)
SV92776901	0.000	2,025.41	0.04	(N/A)
SV92773901	0.000	2,050.96	0.03	(N/A)
SV89761901	0.000	2,137.00	0.00	(N/A)
SV89777301	0.000	2,113.02	0.03	(N/A)
SV19170703	0.000	2,100.40	0.03	(N/A)
SV90778801	0.000	2,098.23	0.03	(N/A)
ST19171801	0.000	2,054.25	0.03	(N/A)
SV92782701	0.000	2,048.09	0.05	(N/A)
SV19171903	0.000	2,043.37	0.07	(N/A)
SV19172902	0.000	1,979.34	0.07	(N/A)
SV19172903	0.000	1,944.54	0.31	(N/A)
SV92783001	0.000	2,050.39	0.03	(N/A)
SV19170801	0.000	2,046.06	0.03	(N/A)
ST19170902	0.000	2,044.86	0.03	(N/A)
SV88795401	0.000	2,158.26	0.05	(N/A)
SV89791601	0.000	2,129.38	0.05	(N/A)
SV89797801	0.000	2,097.62	0.06	(N/A)
SV90804301	0.000	2,057.66	0.07	(N/A)
SV91800601	0.000	2,026.85	0.07	(N/A)
SV19181002	0.000	1,997.07	0.26	(N/A)
SV18185301	0.000	2,224.55	0.08	(N/A)
SV18185302	0.000	2,224.19	0.08	(N/A)
SV18185202	0.000	2,220.59	0.11	(N/A)
SV18185203	0.000	2,217.98	0.11	(N/A)
ST18185101	0.000	2,214.27	0.08	(N/A)
SV18186106	0.000	2,203.58	0.11	(N/A)
SV86813001	0.000	2,162.88	0.17	(N/A)
SV18186104	0.000	2,143.93	0.18	(N/A)
SV18187102	0.000	2,110.06	0.18	(N/A)
ST18188101	0.000	2,104.61	0.18	(N/A)
SV88817801	0.000	2,084.62	0.23	(N/A)
SV18189101	0.000	2,075.89	0.25	(N/A)
SV18189104	0.000	2,049.61	0.25	(N/A)
SV19180102	0.000	2,032.10	0.25	(N/A)
ST19180102	0.000	2,019.39	0.25	(N/A)
SV85821401	0.000	2,215.49	0.07	(N/A)
SV85816601	0.000	2,209.43	0.00	(N/A)
SV18185204	0.000	2,217.25	0.00	(N/A)
SV85819701	0.000	2,193.25	0.11	(N/A)
SV18186201	0.000	2,147.37	0.06	(N/A)
SV18186202	0.000	2,147.22	0.06	(N/A)
SV18187103	0.000	2,145.72	0.06	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Node Report

Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV88862801	0.000	2,179.23	0.09	(N/A)
SV88861401	0.000	2,174.48	0.09	(N/A)
SV87858801	0.000	2,168.16	0.10	(N/A)
SV18187501	0.000	2,160.88	0.10	(N/A)
SV18188405	0.000	2,158.17	0.10	(N/A)
SV18188301	0.000	2,151.14	0.10	(N/A)
SV18188303	0.000	2,131.50	0.11	(N/A)
SV88826901	0.000	2,119.63	0.11	(N/A)
SV89820201	0.000	2,092.54	0.11	(N/A)
SV87838601	0.000	2,134.56	0.04	(N/A)
SV18184501	0.000	2,329.85	0.12	(N/A)
SV18185505	0.000	2,327.09	0.13	(N/A)
SV18185402	0.000	2,325.06	0.13	(N/A)
ST18186401	0.000	2,242.70	0.13	(N/A)
SV18186301	0.000	2,148.82	0.13	(N/A)
SV18186303	0.000	2,134.50	0.13	(N/A)
SV18187302	0.000	2,124.17	0.13	(N/A)
SV18187202	0.000	2,111.84	0.13	(N/A)
SV18187203	0.000	2,105.68	0.13	(N/A)
SV91845301	0.000	2,157.31	0.06	(N/A)
SV91831701	0.000	2,114.69	0.06	(N/A)
SV91849001	0.000	2,161.49	0.05	(N/A)
SV91838401	0.000	2,117.50	0.05	(N/A)
SV91826801	0.000	2,073.53	0.07	(N/A)
SV91826601	0.000	2,051.54	0.08	(N/A)
SV92833301	0.000	2,157.57	0.05	(N/A)
SV19181301	0.000	2,115.55	0.05	(N/A)
SV92824401	0.000	2,059.45	0.00	(N/A)
SV91868501	0.000	2,232.34	0.13	(N/A)
SV19181602	0.000	2,235.83	0.04	(N/A)
SV9180604	0.000	2,225.38	0.06	(N/A)
SV18189601	0.000	2,217.07	0.06	(N/A)
SV89856701	0.000	2,213.70	0.06	(N/A)
SV89853701	0.000	2,211.27	0.07	(N/A)
SV89862401	0.000	2,204.57	0.08	(N/A)
SV88867801	0.000	2,198.36	0.08	(N/A)
SV88875201	0.000	2,194.29	0.08	(N/A)
SV8871701	0.000	2,188.27	0.09	(N/A)
SV18189701	0.000	2,243.60	0.06	(N/A)
SV18189703	0.000	2,241.97	0.06	(N/A)
SV191880601	0.000	2,240.40	0.12	(N/A)
SV19180602	0.000	2,239.40	0.13	(N/A)
SV19190001	0.000	2,290.63	0.10	(N/A)
SV19180903	0.000	2,287.83	0.10	(N/A)
SV19180905	0.000	2,277.34	0.10	(N/A)
SV19180907	0.000	2,269.38	0.10	(N/A)
SV19180803	0.000	2,264.80	0.10	(N/A)
SV19180701	0.000	2,252.58	0.10	(N/A)
SV19181901	0.000	2,242.50	0.04	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Node Report

Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV19181903	0.000	2,199.99	0.04	(N/A)
SV19181905	0.000	2,157.49	0.05	(N/A)
SV19182802	0.000	2,114.98	0.05	(N/A)
SV19182804	0.000	2,072.47	0.06	(N/A)
SV19183801	0.000	2,039.73	0.06	(N/A)
SV19183803	0.000	2,007.00	0.06	(N/A)
SV19184802	0.000	1,984.27	0.06	(N/A)
SV19184806	0.000	1,957.92	0.16	(N/A)
SV19182902	0.000	2,044.45	0.00	(N/A)
SV19183907	0.000	2,015.16	0.03	(N/A)
SV19183905	0.000	2,001.19	0.14	(N/A)
SV19184803	0.000	1,980.55	0.15	(N/A)
SV91914701	0.000	2,146.47	0.12	(N/A)
SV19192101	0.000	2,114.76	0.12	(N/A)
SV19192001	0.000	2,095.69	0.13	(N/A)
SV19192003	0.000	2,071.19	0.14	(N/A)
SV19183901	0.000	2,033.39	0.14	(N/A)
SV19183903	0.000	2,014.22	0.14	(N/A)
SV91919701	0.000	2,154.45	0.04	(N/A)
SV92910601	0.000	2,149.07	0.05	(N/A)
SV19193101	0.000	2,147.07	0.05	(N/A)
SV19194103	0.000	2,113.05	0.07	(N/A)
SV19195102	0.000	2,079.07	0.15	(N/A)
SV19196002	0.000	2,041.58	0.15	(N/A)
SV19195005	0.000	2,004.04	0.15	(N/A)
SV19185903	0.000	1,979.03	0.16	(N/A)
SV19186902	0.000	1,966.86	0.42	(N/A)
SV19185901	0.000	1,965.58	0.42	(N/A)
SV19185802	0.000	1,961.82	0.42	(N/A)
SV19184801	0.000	1,957.02	0.36	(N/A)
SV19184701	0.000	1,956.24	0.36	(N/A)
SV19185701	0.000	1,954.68	0.35	(N/A)
SV19185702	0.000	1,952.42	0.35	(N/A)
SV19186604	0.000	1,946.74	0.35	(N/A)
SV19187601	0.000	1,945.93	0.35	(N/A)
SV19187602	0.000	1,945.30	0.35	(N/A)
ST19188501	0.000	1,943.26	0.35	(N/A)
SV19189501	0.000	1,942.31	0.35	(N/A)
SV19189401	0.000	1,938.89	0.35	(N/A)
SV19188310	0.000	1,934.11	0.38	(N/A)
SV19189301	0.000	1,933.81	0.38	(N/A)
SV19189402	0.000	1,930.36	0.46	(N/A)
SV20180401	0.000	1,929.53	0.38	(N/A)
SV20180402	0.000	1,928.51	0.38	(N/A)
SV20180301	0.000	1,927.54	0.38	(N/A)
SV20181202	0.000	1,926.73	0.38	(N/A)
SV20181204	0.000	1,925.81	0.38	(N/A)
SV20181102	0.000	1,919.03	0.38	(N/A)
SV20182001	0.000	1,918.38	0.38	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Node Report

Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV20181001	0.000	1,917.49	0.47	(N/A)
SV20180001	0.000	1,915.38	0.39	(N/A)
SV20180003	0.000	1,908.27	0.39	(N/A)
SV20170902	0.000	1,896.37	0.39	(N/A)
SV20170904	0.000	1,892.83	0.47	(N/A)
SV20170801	0.000	1,890.22	0.39	(N/A)
SV20171701	0.000	1,887.08	0.39	(N/A)
SV20171703	0.000	1,885.27	0.40	(N/A)
SV20170701	0.000	1,880.75	0.47	(N/A)
SV19179701	0.000	1,873.74	0.40	(N/A)
SV19178703	0.000	1,870.08	0.47	(N/A)
SV19178601	0.000	1,867.34	0.40	(N/A)
SV19178502	0.000	1,840.74	0.40	(N/A)
SV20165405	0.000	1,893.01	0.11	(N/A)
SV20164402	0.000	1,891.66	0.11	(N/A)
ST20164401	0.000	1,890.50	0.15	(N/A)
SV20163301	0.000	1,887.64	0.15	(N/A)
SV20162403	0.000	1,886.95	0.15	(N/A)
SV201160402	0.000	1,886.05	0.15	(N/A)
SV19169501	0.000	1,885.45	0.14	(N/A)
SV19168504	0.000	1,884.42	0.15	(N/A)
SV19168506	0.000	1,884.16	0.15	(N/A)
SV19168602	0.000	1,881.06	0.15	(N/A)
SV19168702	0.000	1,880.41	0.15	(N/A)
SV19167702	0.000	1,877.94	0.16	(N/A)
SV19166803	0.000	1,874.38	0.17	(N/A)
SV19165903	0.000	1,869.40	0.17	(N/A)
SV19176001	0.000	1,868.80	0.17	(N/A)
SV19175101	0.000	1,868.60	0.18	(N/A)
SV19175201	0.000	1,867.80	0.18	(N/A)
SV19174304	0.000	1,864.11	0.19	(N/A)
SV19174402	0.000	1,862.61	0.19	(N/A)
SV19173403	0.000	1,862.54	0.24	(N/A)
SV19170502	0.000	2,083.16	0.02	(N/A)
SV19170505	0.000	2,079.78	0.03	(N/A)
SV19170602	0.000	2,073.57	0.05	(N/A)
SV90768401	0.000	2,044.10	0.05	(N/A)
SV91765001	0.000	2,004.80	0.06	(N/A)
SV92750601	0.000	1,968.19	0.06	(N/A)
SV92754101	0.000	1,936.42	0.06	(N/A)
SV92756101	0.000	1,918.71	0.08	(N/A)
SV19173406	0.000	1,872.69	0.08	(N/A)
SV19173401	0.000	1,861.92	0.24	(N/A)
SV91771101	0.000	2,054.11	0.03	(N/A)
ST19171602	0.000	2,010.25	0.03	(N/A)
SV92752901	0.000	1,965.85	0.04	(N/A)
SV95583701	0.000	1,986.74	0.05	(N/A)
SV19155901	0.000	1,982.11	0.05	(N/A)
SV19156901	0.000	1,976.40	0.05	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

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Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV19156905	0.000	1,968.89	0.06	(N/A)
SV19167002	0.000	1,964.27	0.06	(N/A)
SV19167005	0.000	1,961.69	0.06	(N/A)
SV19168002	0.000	1,958.32	0.09	(N/A)
SV19168004	0.000	1,956.40	0.10	(N/A)
SV19169003	0.000	1,952.39	0.10	(N/A)
SV20160101	0.000	1,949.85	0.11	(N/A)
SV20160106	0.000	1,947.23	0.11	(N/A)
SV20161102	0.000	1,943.83	0.11	(N/A)
SV20162105	0.000	1,932.88	0.11	(N/A)
SV20163101	0.000	1,929.77	0.12	(N/A)
SV20163103	0.000	1,926.45	0.12	(N/A)
ST20164101	0.000	1,924.59	0.12	(N/A)
SV20165101	0.000	1,923.29	0.14	(N/A)
SV20165103	0.000	1,916.75	0.14	(N/A)
SV20166102	0.000	1,912.73	0.14	(N/A)
SV20166204	0.000	1,911.76	0.15	(N/A)
SV20167301	0.000	1,909.41	0.15	(N/A)
SV20167302	0.000	1,908.59	0.15	(N/A)
SV20166306	0.000	1,907.24	0.14	(N/A)
SV20166305	0.000	1,904.79	0.14	(N/A)
SV20165401	0.000	1,903.67	0.15	(N/A)
ST20165401	0.000	1,897.22	0.15	(N/A)
SV20165404	0.000	1,893.76	0.15	(N/A)
SV05630701	0.000	1,901.53	0.03	(N/A)
SV98619801	0.000	2,028.19	0.00	(N/A)
SV00613701	0.000	2,022.61	0.05	(N/A)
SV20160204	0.000	2,021.63	0.05	(N/A)
SV20161205	0.000	2,009.63	0.05	(N/A)
SV02620601	0.000	2,001.46	0.05	(N/A)
SV20162202	0.000	1,995.34	0.05	(N/A)
SV20163201	0.000	1,980.87	0.05	(N/A)
SV20163203	0.000	1,975.79	0.08	(N/A)
SV20163207	0.000	1,964.49	0.08	(N/A)
SV20164202	0.000	1,954.50	0.08	(N/A)
SV20164204	0.000	1,939.75	0.08	(N/A)
SV19168206	0.000	2,052.73	0.03	(N/A)
SV19168207	0.000	2,048.50	0.04	(N/A)
SV19169201	0.000	2,045.35	0.04	(N/A)
SV19169105	0.000	2,041.39	0.04	(N/A)
SV19167405	0.000	2,040.21	0.03	(N/A)
SV19166506	0.000	2,053.08	0.03	(N/A)
SV19166508	0.000	2,042.41	0.03	(N/A)
SV97647301	0.000	2,037.70	0.03	(N/A)
SV97648001	0.000	2,036.03	0.03	(N/A)
SV19168303	0.000	2,030.98	0.03	(N/A)
SV19168311	0.000	2,030.40	0.05	(N/A)
SV19169301	0.000	2,023.82	0.05	(N/A)
SV19169205	0.000	2,016.36	0.05	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

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Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV20160202	0.000	2,016.10	0.05	(N/A)
SV20160206	0.000	2,011.37	0.05	(N/A)
SV20161203	0.000	1,996.77	0.05	(N/A)
SV20162205	0.000	1,985.72	0.06	(N/A)
SV20163208	0.000	1,977.87	0.06	(N/A)
SV19166404	0.000	2,066.21	0.03	(N/A)
SV97641001	0.000	2,061.43	0.04	(N/A)
SV19167303	0.000	2,057.16	0.04	(N/A)
SV19167203	0.000	2,050.65	0.04	(N/A)
SV96618601	0.000	2,037.38	0.04	(N/A)
SV19167101	0.000	2,029.68	0.06	(N/A)
SV19167103	0.000	2,027.70	0.06	(N/A)
SV19168202	0.000	2,027.37	0.07	(N/A)
SV98614401	0.000	1,982.90	0.07	(N/A)
SV19168306	0.000	2,035.57	0.04	(N/A)
ST19168401	0.000	1,987.86	0.04	(N/A)
SV19169401	0.000	1,945.51	0.04	(N/A)
SV19167409	0.000	2,040.19	0.04	(N/A)
SV19167501	0.000	2,001.26	0.04	(N/A)
SV19168501	0.000	1,962.33	0.04	(N/A)
SV19166509	0.000	2,043.21	0.04	(N/A)
SV19167502	0.000	1,979.59	0.04	(N/A)
SV19167503	0.000	1,947.78	0.04	(N/A)
SV19168603	0.000	1,884.26	0.04	(N/A)
SV21190401	0.000	2,176.81	0.05	(N/A)
SV21190302	0.000	2,169.58	0.06	(N/A)
SV20199301	0.000	2,162.53	0.06	(N/A)
SV20199303	0.000	2,159.54	0.08	(N/A)
SV20198201	0.000	2,155.21	0.09	(N/A)
SV20199101	0.000	2,151.96	0.09	(N/A)
SV20199001	0.000	2,144.91	0.09	(N/A)
SV20199002	0.000	2,134.81	0.09	(N/A)
SV20189902	0.000	2,131.39	0.09	(N/A)
SV21180801	0.000	2,124.54	0.09	(N/A)
SV21180802	0.000	2,123.53	0.09	(N/A)
ST20189901	0.000	2,119.56	0.09	(N/A)
SV20189903	0.000	2,116.43	0.09	(N/A)
SV20188902	0.000	2,111.80	0.09	(N/A)
SV20187901	0.000	2,104.36	0.09	(N/A)
SV20187902	0.000	2,100.67	0.09	(N/A)
SV20197001	0.000	2,095.43	0.08	(N/A)
SV20197002	0.000	2,094.25	0.09	(N/A)
SV20196101	0.000	2,087.55	0.10	(N/A)
SV20196102	0.000	2,082.54	0.11	(N/A)
SV20194101	0.000	2,074.30	0.12	(N/A)
SV20194203	0.000	2,065.63	0.17	(N/A)
SV20194205	0.000	2,062.58	0.17	(N/A)
SV20194303	0.000	2,057.42	0.20	(N/A)
SV20193402	0.000	2,053.15	0.21	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

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Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV20193302	0.000	2,048.28	0.21	(N/A)
SV20192301	0.000	2,045.22	0.19	(N/A)
SV20191401	0.000	2,039.03	0.20	(N/A)
SV20191402	0.000	2,033.83	0.20	(N/A)
SV20191403	0.000	2,032.51	0.21	(N/A)
SV20191201	0.000	2,025.74	0.21	(N/A)
SV20190202	0.000	2,019.44	0.21	(N/A)
SV20190204	0.000	2,014.36	0.28	(N/A)
SV191998101	0.000	2,007.24	0.22	(N/A)
SV19198102	0.000	2,001.59	0.22	(N/A)
SV19197202	0.000	1,994.27	0.29	(N/A)
SV19197203	0.000	1,993.78	0.27	(N/A)
SV19197204	0.000	1,993.28	0.35	(N/A)
SV19197103	0.000	1,991.75	0.28	(N/A)
SV19188901	0.000	1,986.85	0.28	(N/A)
SV19189902	0.000	1,982.36	0.33	(N/A)
SV19189903	0.000	1,981.14	0.38	(N/A)
SV19188802	0.000	1,975.85	0.30	(N/A)
SV19187801	0.000	1,974.66	0.39	(N/A)
SV19186802	0.000	1,969.82	0.30	(N/A)
SV19186903	0.000	1,967.50	0.30	(N/A)
SV19196008	0.000	2,050.32	0.03	(N/A)
SV19196010	0.000	2,047.00	0.04	(N/A)
SV19187903	0.000	2,040.01	0.04	(N/A)
SV19187905	0.000	2,036.38	0.04	(N/A)
SV19188903	0.000	2,033.91	0.11	(N/A)
SV19188906	0.000	2,008.20	0.11	(N/A)
SV19195104	0.000	2,069.48	0.05	(N/A)
SV19196002	0.000	2,004.25	0.08	(N/A)
ST19196002	0.000	2,004.22	0.06	(N/A)
SV05968701	0.000	2,273.06	0.04	(N/A)
SV05961601	0.000	2,268.23	0.04	(N/A)
SV04963901	0.000	2,262.62	0.04	(N/A)
SV03966801	0.000	2,258.42	0.08	(N/A)
SV03971001	0.000	2,254.72	0.08	(N/A)
SV20192704	0.000	2,251.46	0.09	(N/A)
SV20191701	0.000	2,246.00	0.10	(N/A)
SV20191703	0.000	2,244.67	0.10	(N/A)
SV20190702	0.000	2,243.97	0.10	(N/A)
SV19199709	0.000	2,238.86	0.10	(N/A)
SV19199710	0.000	2,230.84	0.10	(N/A)
SV19199603	0.000	2,228.48	0.10	(N/A)
SV19198606	0.000	2,226.33	0.10	(N/A)
SV19197605	0.000	2,225.24	0.12	(N/A)
SV19196701	0.000	2,223.82	0.13	(N/A)
ST19196601	0.000	2,221.62	0.13	(N/A)
SV97960501	0.000	2,205.32	0.13	(N/A)
SV19197602	0.000	2,191.31	0.14	(N/A)
SV19197503	0.000	2,167.54	0.14	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

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Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV96949901	0.000	2,150.69	0.14	(N/A)
SV19196406	0.000	2,136.47	0.15	(N/A)
SV96944101	0.000	2,122.09	0.15	(N/A)
SV96926901	0.000	2,045.36	0.19	(N/A)
SV98962201	0.000	2,229.06	0.04	(N/A)
SV98952801	0.000	2,220.16	0.06	(N/A)
SV19199501	0.000	2,191.79	0.06	(N/A)
SV19199502	0.000	2,184.17	0.06	(N/A)
SV19199401	0.000	2,160.29	0.06	(N/A)
SV19199403	0.000	2,144.37	0.06	(N/A)
SV19199405	0.000	2,117.87	0.08	(N/A)
SV19199302	0.000	2,091.37	0.08	(N/A)
SV19199304	0.000	2,072.13	0.08	(N/A)
SV20190206	0.000	2,043.87	0.08	(N/A)
SV19199406	0.000	2,120.26	0.03	(N/A)
SV20190610	0.000	2,101.06	0.04	(N/A)
SV20191505	0.000	2,075.87	0.04	(N/A)
SV20191404	0.000	2,058.98	0.06	(N/A)
SV20192506	0.000	2,101.37	0.05	(N/A)
SV20182508	0.000	2,069.84	0.05	(N/A)
SV20191407	0.000	2,046.21	0.05	(N/A)
SV20193403	0.000	2,049.33	0.05	(N/A)
SV19199605	0.000	2,207.55	0.00	(N/A)
SV19199607	0.000	2,193.22	0.01	(N/A)
SV00965301	0.000	2,171.26	0.01	(N/A)
SV20190605	0.000	2,160.87	0.06	(N/A)
SV20191502	0.000	2,155.33	0.09	(N/A)
SV20192504	0.000	2,149.78	0.09	(N/A)
SV20193503	0.000	2,144.23	0.10	(N/A)
SV20194501	0.000	2,138.68	0.11	(N/A)
SV20194502	0.000	2,119.26	0.03	(N/A)
SV20194407	0.000	2,114.17	0.06	(N/A)
SV20194406	0.000	2,129.46	0.05	(N/A)
SV20195306	0.000	2,125.62	0.12	(N/A)
SV20195312	0.000	2,089.65	0.12	(N/A)
ST20194502	0.000	2,079.58	0.11	(N/A)
SV20194409	0.000	2,076.34	0.06	(N/A)
SV20194605	0.000	2,199.07	0.05	(N/A)
SV20194504	0.000	2,153.77	0.05	(N/A)
SV201992710	0.000	2,244.16	0.04	(N/A)
SV20192603	0.000	2,190.85	0.04	(N/A)
SV20190704	0.000	2,217.16	0.04	(N/A)
SV20191603	0.000	2,183.38	0.04	(N/A)
SV20192801	0.000	2,301.83	0.03	(N/A)
SV20192707	0.000	2,298.72	0.04	(N/A)
SV20192709	0.000	2,279.86	0.03	(N/A)
SV20193703	0.000	2,296.86	0.05	(N/A)
SV04971401	0.000	2,284.52	0.05	(N/A)
SV01986301	0.000	2,294.67	0.03	(N/A)

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Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV20190804	0.000	2,290.81	0.04	(N/A)
SV19199801	0.000	2,282.12	0.06	(N/A)
SV99972501	0.000	2,271.62	0.06	(N/A)
SV19199708	0.000	2,263.58	0.07	(N/A)
SV19198601	0.000	2,258.97	0.07	(N/A)
SV19198604	0.000	2,251.98	0.07	(N/A)
SV98977501	0.000	2,292.11	0.00	(N/A)
SV98979501	0.000	2,289.46	0.00	(N/A)
SV98979501	0.000	2,288.46	0.00	(N/A)
ST19199702	0.000	2,284.35	0.01	(N/A)
SV00002001	0.000	2,318.87	0.03	(N/A)
SV00993301	0.000	2,313.57	0.03	(N/A)
SV00992101	0.000	2,311.60	0.03	(N/A)
SV00993001	0.000	2,310.62	0.04	(N/A)
SV00996101	0.000	2,308.58	0.05	(N/A)
SV00983401	0.000	2,295.75	0.05	(N/A)
SV19199710	0.000	2,230.81	0.00	(N/A)
SV20190607	0.000	2,189.55	0.01	(N/A)
SV19197403	0.000	2,134.85	0.00	(N/A)
SV19197404	0.000	2,122.08	0.04	(N/A)
SV19197301	0.000	2,071.08	0.04	(N/A)
SV19197303	0.000	2,045.42	0.05	(N/A)
SV19197206	0.000	2,019.86	0.05	(N/A)
SV19195602	0.000	2,243.27	0.00	(N/A)
SV19195604	0.000	2,233.08	0.06	(N/A)
SV95957401	0.000	2,188.23	0.06	(N/A)
SV95948701	0.000	2,150.67	0.07	(N/A)
SV95948401	0.000	2,132.95	0.10	(N/A)
SV96931901	0.000	2,104.26	0.10	(N/A)
SV96933601	0.000	2,085.00	0.19	(N/A)
SV94946901	0.000	2,196.35	0.00	(N/A)
SV94965001	0.000	2,236.15	0.04	(N/A)
SV94957601	0.000	2,209.98	0.04	(N/A)
SV19195503	0.000	2,169.66	0.04	(N/A)
SV95945701	0.000	2,153.97	0.06	(N/A)
SV93959101	0.000	2,232.23	0.04	(N/A)
SV94946901	0.000	2,196.36	0.04	(N/A)
SV19191401	0.000	2,281.51	0.00	(N/A)
SV19192501	0.000	2,279.49	0.02	(N/A)
SV92956501	0.000	2,271.41	0.02	(N/A)
SV93951601	0.000	2,264.35	0.03	(N/A)
SV93966001	0.000	2,254.97	0.03	(N/A)
SV94960401	0.000	2,246.18	0.03	(N/A)
SV19194601	0.000	2,244.59	0.04	(N/A)
SV19194602	0.000	2,242.69	0.07	(N/A)
SV19194501	0.000	2,238.32	0.07	(N/A)
SV19193504	0.000	2,235.64	0.08	(N/A)
SV94941601	0.000	2,224.37	0.08	(N/A)
SV19194404	0.000	2,204.91	0.08	(N/A)

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Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV94944201	0.000	2,192.63	0.09	(N/A)
SV94947001	0.000	2,178.23	0.09	(N/A)
SV95931401	0.000	2,145.21	0.10	(N/A)
SV19195302	0.000	2,133.78	0.10	(N/A)
SV19195204	0.000	2,114.58	0.10	(N/A)
SV19196102	0.000	2,092.64	0.11	(N/A)
SV19196104	0.000	2,074.08	0.11	(N/A)
SV19196005	0.000	2,071.52	0.11	(N/A)
SV19196006	0.000	2,051.70	0.12	(N/A)
SV19197003	0.000	2,041.52	0.12	(N/A)
SV19187902	0.000	2,036.25	0.12	(N/A)
SV19193501	0.000	2,243.22	0.04	(N/A)
ST19193402	0.000	2,234.86	0.04	(N/A)
SV19193403	0.000	2,223.77	0.06	(N/A)
SV19194301	0.000	2,200.89	0.05	(N/A)
SV19194303	0.000	2,178.01	0.07	(N/A)
SV19194201	0.000	2,154.07	0.07	(N/A)
SV19194204	0.000	2,116.57	0.12	(N/A)
SV93946101	0.000	2,222.53	0.04	(N/A)
SV93936601	0.000	2,205.19	0.04	(N/A)
SV93936201	0.000	2,187.17	0.05	(N/A)
SV93938001	0.000	2,177.99	0.06	(N/A)
SV93926501	0.000	2,161.00	0.09	(N/A)
SV94920401	0.000	2,147.14	0.09	(N/A)
SV93933601	0.000	2,214.48	0.03	(N/A)
SV92929801	0.000	2,188.59	0.05	(N/A)
SV93920601	0.000	2,182.63	0.05	(N/A)
SV93921501	0.000	2,191.19	0.00	(N/A)
SV93925201	0.000	2,173.07	0.03	(N/A)
SV92956401	0.000	2,264.54	0.00	(N/A)
SV92944801	0.000	2,261.66	0.01	(N/A)
SV92948801	0.000	2,244.21	0.01	(N/A)
SV93946301	0.000	2,225.30	0.01	(N/A)
SV19192401	0.000	2,244.11	0.03	(N/A)
SV19192403	0.000	2,239.62	0.04	(N/A)
SV92931201	0.000	2,221.70	0.04	(N/A)
SV92927801	0.000	2,202.85	0.08	(N/A)
SV92927601	0.000	2,198.55	0.08	(N/A)
SV19192205	0.000	2,184.54	0.09	(N/A)
SV19192207	0.000	2,171.21	0.10	(N/A)
SV91917701	0.000	2,157.99	0.10	(N/A)
SV92935801	0.000	2,222.19	0.04	(N/A)
SV93932701	0.000	2,215.74	0.04	(N/A)
SV92939001	0.000	2,207.03	0.06	(N/A)
SV18197101	0.000	2,417.16	0.00	(N/A)
SV18197102	0.000	2,416.65	0.00	(N/A)
SV86905501	0.000	2,410.05	0.01	(N/A)
SV18196006	0.000	2,407.50	0.05	(N/A)
SV18196007	0.000	2,406.29	0.05	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Node Report

Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV18185906	0.000	2,402.13	0.06	(N/A)
SV18185905	0.000	2,395.23	0.06	(N/A)
SV18185802	0.000	2,389.74	0.06	(N/A)
ST18185801	0.000	2,382.64	0.06	(N/A)
SV85876501	0.000	2,374.57	0.06	(N/A)
SV85864901	0.000	2,368.47	0.06	(N/A)
SV85860801	0.000	2,362.37	0.06	(N/A)
SV84864401	0.000	2,350.20	0.06	(N/A)
SV84866401	0.000	2,343.53	0.06	(N/A)
SV18184607	0.000	2,339.81	0.06	(N/A)
SV18184503	0.000	2,330.33	0.11	(N/A)
SV18185503	0.000	2,329.56	0.03	(N/A)
SV19182602	0.000	2,218.86	0.13	(N/A)
ST19182502	0.000	2,214.19	0.13	(N/A)
SV19183504	0.000	2,212.13	0.13	(N/A)
SV19185401	0.000	2,209.59	0.13	(N/A)
SV19184402	0.000	2,205.39	0.13	(N/A)
SV19185401	0.000	2,192.81	0.13	(N/A)
SV19185402	0.000	2,187.81	0.13	(N/A)
SV19185404	0.000	2,149.69	0.13	(N/A)
SV19186402	0.000	2,102.18	0.15	(N/A)
ST19187401	0.000	2,064.57	0.15	(N/A)
SV19187301	0.000	2,030.93	0.15	(N/A)
SV19188303	0.000	1,983.42	0.15	(N/A)
SV19186101	0.000	2,003.26	0.05	(N/A)
SV19187202	0.000	1,996.47	0.07	(N/A)
SV19188305	0.000	1,954.09	0.07	(N/A)
SV19188307	0.000	1,943.14	0.07	(N/A)
SV19189201	0.000	2,001.49	0.04	(N/A)
SV19188308	0.000	1,963.25	0.04	(N/A)
SV18186703	0.000	2,346.60	0.05	(N/A)
SV18185809	0.000	2,341.82	0.06	(N/A)
SV18186805	0.000	2,340.13	0.07	(N/A)
SV18186806	0.000	2,339.52	0.07	(N/A)
SV18186901	0.000	2,337.02	0.06	(N/A)
SV18186904	0.000	2,334.05	0.07	(N/A)
SV18187901	0.000	2,331.81	0.06	(N/A)
SV18188910	0.000	2,326.94	0.07	(N/A)
SV18188909	0.000	2,323.23	0.08	(N/A)
SV18189801	0.000	2,311.66	0.09	(N/A)
SV18189803	0.000	2,308.58	0.09	(N/A)
SV18189804	0.000	2,307.18	0.10	(N/A)
SV18189806	0.000	2,306.28	0.10	(N/A)
SV18189902	0.000	2,305.20	0.10	(N/A)
SV18189905	0.000	2,295.34	0.10	(N/A)
SV19180902	0.000	2,293.48	0.10	(N/A)
SV18186701	0.000	2,344.09	0.07	(N/A)
SV18185701	0.000	2,339.85	0.07	(N/A)
SV85866401	0.000	2,336.47	0.07	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

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Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV18184614	0.000	2,332.72	0.07	(N/A)
SV20198301	0.000	2,178.96	0.05	(N/A)
SV201198304	0.000	2,169.24	0.05	(N/A)
SV20198204	0.000	2,157.51	0.00	(N/A)
SV20197204	0.000	2,180.31	0.00	(N/A)
SV20198103	0.000	2,178.70	0.01	(N/A)
SV20198105	0.000	2,177.94	0.01	(N/A)
SV20198006	0.000	2,159.57	0.01	(N/A)
SV20197201	0.000	2,161.36	0.04	(N/A)
SV20197101	0.000	2,114.46	0.04	(N/A)
SV20196301	0.000	2,179.36	0.05	(N/A)
SV20196303	0.000	2,147.26	0.05	(N/A)
SV20195203	0.000	2,099.26	0.05	(N/A)
SV20195206	0.000	2,093.01	0.05	(N/A)
SV20195104	0.000	2,086.75	0.06	(N/A)
SV20193604	0.000	2,251.58	0.04	(N/A)
SV20194608	0.000	2,228.37	0.06	(N/A)
SV20194610	0.000	2,214.04	0.08	(N/A)
SV20195606	0.000	2,212.83	0.09	(N/A)
SV20195505	0.000	2,207.54	0.10	(N/A)
SV20195404	0.000	2,206.51	0.10	(N/A)
SV20196403	0.000	2,199.31	0.10	(N/A)
SV20195405	0.000	2,169.38	0.11	(N/A)
SV95968801	0.000	2,239.11	0.04	(N/A)
SV95969401	0.000	2,223.01	0.04	(N/A)
SV95959801	0.000	2,198.26	0.04	(N/A)
SV96952201	0.000	2,170.76	0.04	(N/A)
SV19196405	0.000	2,145.63	0.06	(N/A)
SV19196604	0.000	2,199.36	0.04	(N/A)
SV19196502	0.000	2,172.39	0.05	(N/A)
SV94968601	0.000	2,243.25	0.04	(N/A)
SV19188101	0.000	2,013.45	0.00	(N/A)
ST19189101	0.000	1,980.35	0.01	(N/A)
SV20180201	0.000	1,949.46	0.04	(N/A)
SV20180202	0.000	1,939.96	0.04	(N/A)
SV20180101	0.000	1,936.20	0.00	(N/A)
SV19189001	0.000	1,942.76	0.04	(N/A)
SV19189004	0.000	1,924.31	0.04	(N/A)
SV19179901	0.000	1,926.00	0.00	(N/A)
SV19179902	0.000	1,921.76	0.04	(N/A)
SV20170803	0.000	1,916.06	0.05	(N/A)
SV19177901	0.000	1,948.56	0.04	(N/A)
SV19177802	0.000	1,909.22	0.06	(N/A)
SV19178802	0.000	1,879.02	0.06	(N/A)
SV19177703	0.000	1,870.12	0.03	(N/A)
SV19177705	0.000	1,868.46	0.04	(N/A)
SV19185603	0.000	1,968.03	0.00	(N/A)
SV19185707	0.000	1,964.64	0.01	(N/A)
SV19185501	0.000	1,953.44	0.00	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

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Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV19185602	0.000	1,950.64	0.01	(N/A)
SV19186501	0.000	1,951.25	0.00	(N/A)
SV19187503	0.000	1,948.34	0.01	(N/A)
SV19170501	0.000	2,078.01	0.00	(N/A)
SV191752101	0.000	2,039.07	0.00	(N/A)
SV91756101	0.000	1,999.24	0.01	(N/A)
SV19170401	0.000	2,083.90	0.04	(N/A)
SV90746601	0.000	2,072.96	0.04	(N/A)
SV19170404	0.000	2,049.73	0.05	(N/A)
SV19171301	0.000	2,037.84	0.05	(N/A)
ST19171302	0.000	2,004.26	0.05	(N/A)
SV19172304	0.000	1,972.19	0.05	(N/A)
SV19172401	0.000	1,950.30	0.05	(N/A)
SV19173404	0.000	1,906.47	0.05	(N/A)
SV19170201	0.000	2,074.24	0.04	(N/A)
SV19171201	0.000	2,041.06	0.04	(N/A)
SV19171205	0.000	2,007.90	0.06	(N/A)
SV19172203	0.000	1,963.68	0.06	(N/A)
SV19172302	0.000	1,919.45	0.06	(N/A)
ST19173302	0.000	1,889.45	0.06	(N/A)
SV19172101	0.000	2,074.09	0.00	(N/A)
ST19173013	0.000	2,024.40	0.01	(N/A)
ST19173102	0.000	2,000.25	0.01	(N/A)
SV19174101	0.000	1,956.23	0.01	(N/A)
SV19174101	0.000	1,926.77	0.01	(N/A)
SV19174103	0.000	1,897.31	0.01	(N/A)
SV19173001	0.000	2,068.99	0.04	(N/A)
SV19174001	0.000	2,002.21	0.04	(N/A)
SV19174002	0.000	1,979.90	0.04	(N/A)
ST19175001	0.000	1,935.43	0.04	(N/A)
SV19175005	0.000	1,913.17	0.04	(N/A)
SV19164901	0.000	2,059.11	0.04	(N/A)
ST19164902	0.000	2,000.19	0.04	(N/A)
SV19165901	0.000	1,964.28	0.04	(N/A)
SV19165902	0.000	1,901.06	0.04	(N/A)
SV19164801	0.000	2,037.77	0.05	(N/A)
SV19166804	0.000	1,977.61	0.05	(N/A)
ST19165802	0.000	1,939.59	0.05	(N/A)
SV19166804	0.000	1,874.47	0.05	(N/A)
SV19164701	0.000	2,036.79	0.06	(N/A)
SV19165703	0.000	2,014.62	0.06	(N/A)
SV19166704	0.000	2,004.62	0.07	(N/A)
SV19166603	0.000	1,969.90	0.08	(N/A)
SV19166602	0.000	1,967.53	0.08	(N/A)
SV97674201	0.000	1,949.25	0.08	(N/A)
SV19167307	0.000	2,069.35	0.00	(N/A)
SV19166404	0.000	2,062.92	0.03	(N/A)
SV19166503	0.000	2,060.08	0.03	(N/A)
SV19166505	0.000	2,054.05	0.03	(N/A)

Detailed Calculation Summary (Sanjauli_malyana_2011.swc, Design)

Node Report

Label	Time (Maximum Hydraulic Grade Line) (hours)	Hydraulic Grade Line (Maximum) (m)	Depth (Maximum) (ft)	Pressure (Maximum) (psi)
SV20198004	0.000	2,139.27	0.00	(N/A)
SV20198102	0.000	2,159.05	0.00	(N/A)
SV20197003	0.000	2,115.86	0.00	(N/A)
SV20195501	0.000	2,186.77	0.05	(N/A)
SV20195402	0.000	2,150.47	0.05	(N/A)
SV18188904	0.000	2,345.86	0.00	(N/A)
SV18188904	0.000	2,340.40	0.01	(N/A)
SV18196101	0.000	2,451.58	0.04	(N/A)
SV18196104	0.000	2,441.60	0.05	(N/A)
SV19187402	0.000	1,945.34	0.04	(N/A)
SV19188404	0.000	1,941.00	0.04	(N/A)
SV20196308	0.000	2,104.55	0.00	(N/A)
SV96948501	0.000	2,138.60	0.00	(N/A)
OF-1	0.000	1,815.71	0.20	(N/A)
SV19171801	0.000	2,080.32	0.03	(N/A)
SV86905001	0.000	2,423.94	0.04	(N/A)
SV91914801	0.000	2,150.40	0.10	(N/A)
SV20194401	0.000	2,055.79	0.23	(N/A)
SV19198605	0.000	2,227.19	0.10	(N/A)
SV19187802	0.000	1,973.18	0.39	(N/A)
SV93849901	0.000	2,207.05	0.13	(N/A)
SV92802801	0.000	1,979.24	0.13	(N/A)
SV19179703	0.000	1,877.69	0.47	(N/A)
SV19169103	0.000	2,024.82	0.04	(N/A)
SV20161104	0.000	1,941.58	0.11	(N/A)
SV18187903	0.000	2,329.92	0.06	(N/A)
SV88870601	0.000	2,187.20	0.09	(N/A)
SV88836001	0.000	2,117.11	0.11	(N/A)
SV94589901	0.000	1,992.40	0.00	(N/A)
SV95581608	0.000	1,989.10	0.00	(N/A)
SV93932201	0.000	2,205.85	0.04	(N/A)
SV93933201	0.000	2,203.34	0.05	(N/A)
SV93937501	0.000	2,200.10	0.05	(N/A)
SV19196506	0.000	2,240.73	0.00	(N/A)
SV96951701	0.000	2,191.58	0.04	(N/A)

Conduit and Pressure Pipe Inventory

Conduit Inventory

Conduit Description	Count	Ductile Iron (m)	All Materials (m)
Circular Pipe - 150.0 mm	622	12,163.3	12,163.3
Circular Pipe - 200.0 mm	13	334.7	334.7
Circular Pipe - 250.0 mm	12	317.3	317.3
Circular Pipe - 304.8 mm	3	71.6	71.6
Circular Pipe - 350.0 mm	28	618.7	618.7
Circular Pipe - 400.0 mm	38	897.0	897.0
Total Length	716	14,402.7	14,402.7

Pressure Pipes Inventory

Diameter (mm)	All Materials (m)	Volume (MG)
All Diameters	0.0	0.00

Manhole Data

ID	Label	Elevation (Ground) (m)	Elevation (Invert) (m)	Elevation (Rim) (m)	Downstream Conduit	Hydraulic Grade Line (Out) (m)	Energy Grade Line (In) (m)	Energy Grade Line (Out) (m)	Flow (Downstream Conduit) (gpm)
21	SV93835701	2,174.43	2,173.38	2,174.43	CO-2	2,173.40	2,173.40	2,173.40	7.67
22	SV19183201	2,148.54	2,147.49	2,148.54	CO-3	2,147.51	2,147.52	2,147.52	7.73
24	SV19183204	2,093.16	2,092.11	2,093.16	CO-4	2,092.14	2,092.15	2,092.15	15.43
26	SV19183102	2,056.25	2,055.20	2,056.25	CO-5	2,055.23	2,055.24	2,055.24	15.46
28	SV19183103	2,037.79	2,036.74	2,037.79	CO-6	2,036.77	2,036.79	2,036.79	23.15
30	ST19183001	2,010.25	2,009.20	2,010.25	CO-7	2,009.23	2,009.25	2,009.25	23.17
32	SV19183003	1,982.41	1,981.36	1,982.41	CO-8	1,981.40	1,981.41	1,981.41	27.19
34	SV92799601	1,938.75	1,937.70	1,938.75	CO-9	1,937.74	1,937.75	1,937.75	27.22
36	SV93791201	1,930.15	1,929.10	1,930.15	CO-10	1,929.14	1,929.15	1,929.15	31.23
38	ST19173901	1,927.30	1,926.25	1,927.30	CO-11	1,926.37	1,926.44	1,926.44	281.22
41	ST19173802	1,897.30	1,896.25	1,897.30	CO-12	1,896.37	1,896.44	1,896.44	281.25
43	SV19173804	1,880.45	1,879.35	1,880.45	CO-13	1,879.46	1,879.51	1,879.51	281.27
45	SV19174703	1,862.33	1,861.08	1,862.33	CO-14	1,861.20	1,861.25	1,861.25	453.47
47	SV19175601	1,825.10	1,823.80	1,825.10	CO-15	1,823.92	1,823.96	1,823.96	453.57
49	SV19175502	1,824.15	1,822.85	1,824.15	CO-16	1,822.97	1,823.01	1,823.01	453.73
51	SV19176502	1,822.95	1,821.65	1,822.95	CO-17	1,821.77	1,821.81	1,821.81	466.39
53	SV19177502	1,821.60	1,820.30	1,821.60	CO-18	1,820.42	1,820.47	1,820.47	474.83
55	SV19179501	1,819.95	1,818.65	1,819.95	CO-19	1,818.84	1,818.92	1,818.92	1,163.31
59	SV19177503	1,837.15	1,836.10	1,837.15	CO-20	1,836.12	1,836.12	1,836.12	6.08
61	SV19176601	1,856.25	1,855.20	1,856.25	CO-21	1,855.22	1,855.22	1,855.22	6.39
62	SV19176603	1,841.30	1,840.25	1,841.30	CO-22	1,840.27	1,840.27	1,840.27	6.42
65	SV19175704	1,853.70	1,852.65	1,853.70	CO-23	1,852.65	1,852.65	1,852.65	0
66	SV19175604	1,839.25	1,838.20	1,839.25	CO-24	1,838.20	1,838.20	1,838.20	0.03
69	SV19176801	1,892.55	1,891.50	1,892.55	CO-25	1,891.52	1,891.53	1,891.53	7.67
70	SV19176803	1,883.45	1,882.40	1,883.45	CO-790	1,882.42	1,882.43	1,882.43	7.69
74	SV19176706	1,871.00	1,869.95	1,871.00	CO-789	1,869.97	1,869.98	1,869.98	7.71
78	SV19175801	1,869.25	1,868.20	1,869.25	CO-30	1,868.22	1,868.23	1,868.23	7.73
80	SV19175703	1,866.08	1,865.03	1,866.08	CO-740	1,865.07	1,865.08	1,865.08	27.31
86	SV19174704	1,863.27	1,862.22	1,863.27	CO-34	1,862.26	1,862.27	1,862.27	27.34
89	SV19184201	2,172.30	2,171.25	2,172.30	CO-35	2,171.27	2,171.28	2,171.28	7.67
90	SV19184203	2,135.15	2,134.10	2,135.15	CO-36	2,134.12	2,134.13	2,134.13	7.69
92	SV19184103	2,087.90	2,086.85	2,087.90	CO-37	2,086.87	2,086.88	2,086.88	7.73
94	SV19184001	2,063.05	2,062.00	2,063.05	CO-38	2,062.03	2,062.04	2,062.04	15.42
96	ST19184002	2,028.40	2,027.35	2,028.40	CO-39	2,027.38	2,027.39	2,027.39	15.45
98	SV19174901	1,994.50	1,993.45	1,994.50	CO-40	1,993.48	1,993.49	1,993.49	15.47
100	SV19175802	1,931.95	1,930.90	1,931.95	CO-41	1,930.93	1,930.94	1,930.94	19.51
102	SV19175804	1,885.10	1,884.05	1,885.10	CO-42	1,884.08	1,884.09	1,884.09	19.54
105	SV89858101	2,158.19	2,157.14	2,158.19	CO-43	2,157.16	2,157.16	2,157.16	6.67
106	SV90841401	2,115.65	2,114.60	2,115.65	CO-44	2,114.62	2,114.62	2,114.62	6.7
108	ST19180301	2,094.38	2,093.33	2,094.38	CO-45	2,093.35	2,093.35	2,093.35	6.73
110	SV90839201	2,073.11	2,072.06	2,073.11	CO-46	2,072.09	2,072.10	2,072.10	15.82
112	SV91822801	2,051.84	2,050.79	2,051.84	CO-47	2,050.82	2,050.83	2,050.83	20.17
114	SV91825301	2,030.58	2,029.53	2,030.58	CO-48	2,029.57	2,029.59	2,029.59	38.36
116	SV91816901	2,019.94	2,018.89	2,019.94	CO-49	2,018.94	2,018.95	2,018.95	43.04
118	SV92810501	1,998.67	1,997.62	1,998.67	CO-755	1,997.66	1,997.67	1,997.67	43.07
120	SV92802501	1,975.76	1,974.71	1,975.76	CO-737	1,974.82	1,974.87	1,974.87	218.34
125	SV92798101	1,994.25	1,993.20	1,994.25	CO-739	1,993.23	1,993.24	1,993.24	17.18

127	SV92789602	2,004.15	2,003.10	2,004.15	CO-54	2,003.13	2,003.14	2,003.14	14.72
129	SV92788601	2,009.78	2,008.73	2,009.78	CO-55	2,008.75	2,008.76	2,008.76	12.27
131	SV92788301	2,016.23	2,015.18	2,016.23	CO-56	2,015.20	2,015.21	2,015.21	9.82
133	SV92787301	2,020.14	2,019.09	2,020.14	CO-57	2,019.11	2,019.12	2,019.12	7.37
135	SV92776901	2,026.45	2,025.40	2,026.45	CO-58	2,025.42	2,025.42	2,025.42	4.9
137	SV92773901	2,052.00	2,050.95	2,052.00	CO-59	2,050.96	2,050.96	2,050.96	2.44
139	SV89761901	2,138.05	2,137.00	2,138.05	CO-60	2,137.00	2,137.00	2,137.00	0
140	SV89777301	2,114.06	2,113.01	2,114.06	CO-61	2,113.02	2,113.02	2,113.02	2.48
142	SV19170703	2,101.44	2,100.39	2,101.44	CO-62	2,100.40	2,100.40	2,100.40	2.51
144	SV90778801	2,099.27	2,098.22	2,099.27	CO-727	2,098.23	2,098.23	2,098.23	2.53
146	ST19171801	2,055.29	2,054.24	2,055.29	CO-64	2,054.25	2,054.25	2,054.25	2.57
148	SV92782701	2,049.12	2,048.07	2,049.12	CO-65	2,048.09	2,048.10	2,048.10	7.37
150	SV19171903	2,044.40	2,043.35	2,044.40	CO-66	2,043.37	2,043.38	2,043.38	12.12
152	SV19172902	1,980.37	1,979.32	1,980.37	CO-67	1,979.34	1,979.35	1,979.35	12.15
154	SV19172903	1,945.50	1,944.45	1,945.50	CO-738	1,944.56	1,944.62	1,944.62	232.74
158	SV92783001	2,051.43	2,050.38	2,051.43	CO-69	2,050.39	2,050.39	2,050.39	2.19
160	SV19170801	2,047.10	2,046.05	2,047.10	CO-70	2,046.06	2,046.06	2,046.06	2.44
161	ST19170902	2,045.90	2,044.85	2,045.90	CO-71	2,044.86	2,044.86	2,044.86	2.48
164	SV88795401	2,159.30	2,158.25	2,159.30	CO-72	2,158.27	2,158.27	2,158.27	6.47
165	SV89791601	2,130.42	2,129.37	2,130.42	CO-73	2,129.39	2,129.39	2,129.39	6.5
167	SV89797801	2,098.65	2,097.60	2,098.65	CO-74	2,097.62	2,097.63	2,097.63	10.83
169	SV90804301	2,058.69	2,057.64	2,058.69	CO-75	2,057.67	2,057.68	2,057.68	14.31
171	SV91800601	2,027.89	2,026.82	2,027.89	CO-76	2,026.85	2,026.86	2,026.86	14.34
173	SV19181002	1,998.04	1,996.99	1,998.04	CO-77	1,997.09	1,997.13	1,997.13	175.17
176	SV18185301	2,225.57	2,224.52	2,225.57	CO-78	2,224.55	2,224.56	2,224.56	19.56
177	SV18185302	2,225.21	2,224.16	2,225.21	CO-79	2,224.19	2,224.20	2,224.20	19.57
179	SV18185202	2,221.61	2,220.56	2,221.61	CO-80	2,220.60	2,220.62	2,220.62	33.82
181	SV18185203	2,219.00	2,217.95	2,219.00	CO-773	2,217.99	2,218.01	2,218.01	33.83
183	ST18185101	2,215.29	2,214.24	2,215.29	CO-82	2,214.27	2,214.28	2,214.28	18.72
185	SV18186106	2,204.60	2,203.55	2,204.60	CO-83	2,203.59	2,203.61	2,203.61	33.9
187	SV86813001	2,163.88	2,162.83	2,163.88	CO-84	2,162.89	2,162.92	2,162.92	76.7
189	SV18186104	2,144.92	2,143.87	2,144.92	CO-85	2,143.94	2,143.96	2,143.96	85.68
191	SV18187102	2,120.64	2,110.00	2,120.64	CO-86	2,110.07	2,110.09	2,110.09	85.72
193	ST18188101	2,105.60	2,104.55	2,105.60	CO-87	2,104.62	2,104.64	2,104.64	85.74
195	SV88817801	2,085.60	2,084.55	2,085.60	CO-88	2,084.63	2,084.67	2,084.67	130.06
197	SV18189101	2,076.86	2,075.81	2,076.86	CO-89	2,075.90	2,075.94	2,075.94	160.7
199	SV18189104	2,050.58	2,049.53	2,050.58	CO-90	2,049.62	2,049.66	2,049.66	160.73
201	SV19180102	2,033.07	2,032.02	2,033.07	CO-91	2,032.11	2,032.15	2,032.15	160.75
203	ST19180102	2,020.36	2,019.31	2,020.36	CO-92	2,019.40	2,019.44	2,019.44	160.77
206	SV85821401	2,216.52	2,215.47	2,216.52	CO-93	2,215.50	2,215.51	2,215.51	14.22
208	SV85816601	2,210.48	2,209.43	2,210.48	CO-94	2,209.43	2,209.43	2,209.43	0
210	SV18185204	2,218.30	2,217.25	2,218.30	CO-774	2,217.25	2,217.25	2,217.25	0
213	SV85819701	2,194.27	2,193.22	2,194.27	CO-100	2,193.26	2,193.28	2,193.28	33.86
219	SV18186201	2,148.30	2,147.35	2,148.30	CO-101	2,147.37	2,147.38	2,147.38	8.89
220	SV18186202	2,148.25	2,147.20	2,148.25	CO-102	2,147.22	2,147.23	2,147.23	8.9
222	SV18187103	2,146.75	2,145.70	2,146.75	CO-728	2,145.72	2,145.73	2,145.73	8.93
227	SV88862801	2,180.25	2,179.20	2,180.25	CO-105	2,179.23	2,179.24	2,179.24	21.76
229	SV88861401	2,175.50	2,174.45	2,175.50	CO-106	2,174.48	2,174.49	2,174.49	21.78
231	SV87858801	2,169.18	2,168.13	2,169.18	CO-107	2,168.17	2,168.18	2,168.18	26.11
233	SV18187501	2,161.90	2,160.85	2,161.90	CO-108	2,160.89	2,160.90	2,160.90	26.14
235	SV18188405	2,159.19	2,158.14	2,159.19	CO-109	2,158.18	2,158.19	2,158.19	26.17
237	SV18188301	2,152.16	2,151.11	2,152.16	CO-110	2,151.15	2,151.16	2,151.16	26.19
239	SV18188303	2,132.52	2,131.47	2,132.52	CO-111	2,131.51	2,131.52	2,131.52	30.54
241	SV88826901	2,120.65	2,119.60	2,120.65	CO-777	2,119.64	2,119.65	2,119.65	30.56
243	SV89820201	2,093.56	2,092.51	2,093.56	CO-113	2,092.55	2,092.56	2,092.56	30.6
246	SV87838601	2,135.60	2,134.55	2,135.60	CO-114	2,134.56	2,134.57	2,134.57	4.31

248	SV18184501	2,330.86	2,329.81	2,330.86	CO-115	2,329.85	2,329.87	2,329.87	39.55
249	SV18185505	2,328.10	2,327.05	2,328.10	CO-116	2,327.10	2,327.11	2,327.11	41.8
251	SV18185402	2,326.07	2,325.02	2,326.07	CO-117	2,325.07	2,325.08	2,325.08	44.09
253	ST18186401	2,243.71	2,242.66	2,243.71	CO-118	2,242.71	2,242.72	2,242.72	44.13
255	SV18186301	2,149.83	2,148.78	2,149.83	CO-119	2,148.83	2,148.84	2,148.84	44.17
257	SV18186303	2,135.51	2,134.46	2,135.51	CO-120	2,134.51	2,134.52	2,134.52	44.2
259	SV18187302	2,125.18	2,124.13	2,125.18	CO-121	2,124.18	2,124.19	2,124.19	44.22
261	SV18187202	2,112.85	2,111.80	2,112.85	CO-122	2,111.85	2,111.86	2,111.86	44.25
263	SV18187203	2,106.69	2,105.64	2,106.69	CO-123	2,105.69	2,105.70	2,105.70	44.27
266	SV91845301	2,158.34	2,157.29	2,158.34	CO-124	2,157.31	2,157.32	2,157.32	9
267	SV91831701	2,115.72	2,114.67	2,115.72	CO-125	2,114.69	2,114.70	2,114.70	9.03
270	SV91849001	2,162.52	2,161.47	2,162.52	CO-126	2,161.49	2,161.49	2,161.49	6.67
271	SV91838401	2,118.54	2,117.49	2,118.54	CO-127	2,117.51	2,117.51	2,117.51	6.69
273	SV91826801	2,074.56	2,073.51	2,074.56	CO-128	2,073.54	2,073.54	2,073.54	13.44
275	SV91826601	2,052.57	2,051.52	2,052.57	CO-129	2,051.55	2,051.56	2,051.56	18.15
278	SV92833301	2,158.60	2,157.55	2,158.60	CO-130	2,157.57	2,157.57	2,157.57	6.67
279	SV19181301	2,116.58	2,115.53	2,116.58	CO-131	2,115.55	2,115.55	2,115.55	6.69
282	SV92824401	2,060.50	2,059.45	2,060.50	CO-132	2,059.45	2,059.45	2,059.45	0
284	SV91868501	2,233.35	2,232.30	2,233.35	CO-572	2,232.35	2,232.36	2,232.36	43.05
285	SV19181602	2,236.87	2,235.82	2,236.87	CO-134	2,235.83	2,235.84	2,235.84	4.31
287	SV9180604	2,226.41	2,225.36	2,226.41	CO-135	2,225.38	2,225.39	2,225.39	10.36
289	SV18189601	2,218.10	2,217.05	2,218.10	CO-136	2,217.07	2,217.08	2,217.08	10.39
291	SV89856701	2,214.73	2,213.68	2,214.73	CO-137	2,213.70	2,213.71	2,213.71	10.41
293	SV89853701	2,212.30	2,211.25	2,212.30	CO-138	2,211.28	2,211.29	2,211.29	13.87
295	SV89862401	2,205.60	2,204.55	2,205.60	CO-139	2,204.58	2,204.59	2,204.59	17.34
297	SV88867801	2,199.39	2,198.34	2,199.39	CO-140	2,198.37	2,198.38	2,198.38	17.36
299	SV88875201	2,195.31	2,194.26	2,195.31	CO-141	2,194.29	2,194.30	2,194.30	19.54
301	SV8871701	2,189.29	2,188.24	2,189.29	CO-775	2,188.27	2,188.28	2,188.28	21.73
303	SV18189701	2,244.63	2,243.58	2,244.63	CO-142	2,243.60	2,243.61	2,243.61	9.47
304	SV18189703	2,243.00	2,241.95	2,243.00	CO-143	2,241.97	2,241.98	2,241.98	9.5
306	SV191880601	2,241.41	2,240.36	2,241.41	CO-144	2,240.40	2,240.42	2,240.42	39.55
308	SV19180602	2,240.41	2,239.36	2,240.41	CO-145	2,239.41	2,239.42	2,239.42	43.01
311	SV19190001	2,291.65	2,290.60	2,291.65	CO-146	2,290.64	2,290.65	2,290.65	25.59
312	SV19180903	2,288.85	2,287.80	2,288.85	CO-147	2,287.84	2,287.85	2,287.85	25.6
314	SV19180905	2,278.36	2,277.31	2,278.36	CO-148	2,277.35	2,277.36	2,277.36	25.62
316	SV19180907	2,270.40	2,269.35	2,270.40	CO-149	2,269.39	2,269.40	2,269.40	25.63
318	SV19180803	2,265.82	2,264.77	2,265.82	CO-150	2,264.81	2,264.82	2,264.82	25.67
320	SV19180701	2,253.60	2,252.55	2,253.60	CO-151	2,252.59	2,252.60	2,252.60	25.69
328	SV19181901	2,243.54	2,242.49	2,243.54	CO-154	2,242.50	2,242.51	2,242.51	4.31
329	SV19181903	2,201.03	2,199.98	2,201.03	CO-155	2,199.99	2,200.00	2,200.00	4.33
331	SV19181905	2,158.52	2,157.47	2,158.52	CO-156	2,157.49	2,157.50	2,157.50	7.8
333	SV19182802	2,116.01	2,114.96	2,116.01	CO-157	2,114.98	2,114.99	2,114.99	7.82
335	SV19182804	2,073.50	2,072.45	2,073.50	CO-158	2,072.47	2,072.48	2,072.48	9.57
337	SV19183801	2,040.76	2,039.71	2,040.76	CO-159	2,039.73	2,039.74	2,039.74	9.59
339	SV19183803	2,008.03	2,006.98	2,008.03	CO-161	2,007.00	2,007.01	2,007.01	9.62
343	SV19184802	1,985.30	1,984.25	1,985.30	CO-162	1,984.27	1,984.28	1,984.28	9.64
345	SV19184806	1,958.92	1,957.87	1,958.92	CO-658	1,957.93	1,957.95	1,957.95	69.09
347	SV19182902	2,045.50	2,044.45	2,045.50	CO-163	2,044.45	2,044.45	2,044.45	0
348	SV19183907	2,016.20	2,015.15	2,016.20	CO-164	2,015.16	2,015.16	2,015.16	2.2
350	SV19183905	2,002.20	2,001.15	2,002.20	CO-165	2,001.20	2,001.22	2,001.22	53.75
352	SV19184803	1,981.56	1,980.51	1,981.56	CO-166	1,980.56	1,980.58	1,980.58	55.94
357	SV91914701	2,147.48	2,146.43	2,147.48	CO-168	2,146.47	2,146.49	2,146.49	35.83
358	SV19192101	2,115.77	2,114.72	2,115.77	CO-169	2,114.77	2,114.78	2,114.78	41.49
360	SV19192001	2,096.70	2,095.65	2,096.70	CO-170	2,095.70	2,095.72	2,095.72	47.12
362	SV19192003	2,072.20	2,071.15	2,072.20	CO-171	2,071.20	2,071.22	2,071.22	51.44
364	SV19183901	2,034.40	2,033.35	2,034.40	CO-172	2,033.40	2,033.42	2,033.42	51.48

366	SV19183903	2,015.23	2,014.18	2,015.23	CO-173	2,014.23	2,014.25	2,014.25	51.5
369	SV91919701	2,155.49	2,154.44	2,155.49	CO-174	2,154.45	2,154.46	2,154.46	3.44
370	SV92910601	2,150.11	2,149.06	2,150.11	CO-175	2,149.08	2,149.08	2,149.08	5.62
373	SV19193101	2,148.10	2,147.05	2,148.10	CO-176	2,147.07	2,147.08	2,147.08	7.75
374	SV19194103	2,114.08	2,113.03	2,114.08	CO-177	2,113.06	2,113.07	2,113.07	13.81
376	SV19195102	2,080.07	2,079.02	2,080.07	CO-178	2,079.08	2,079.10	2,079.10	58.7
378	SV19196002	2,042.58	2,041.53	2,042.58	CO-179	2,041.59	2,041.61	2,041.61	58.73
380	SV19195005	2,005.04	2,003.99	2,005.04	CO-180	2,004.05	2,004.07	2,004.07	58.76
382	SV19185903	1,980.03	1,978.98	1,980.03	CO-181	1,979.04	1,979.06	1,979.06	70.1
384	SV19186902	1,967.52	1,966.73	1,967.52	CO-182	1,966.87	1,967.00	1,967.00	441
386	SV19185901	1,966.70	1,965.45	1,966.70	CO-183	1,965.59	1,965.73	1,965.73	444.89
388	SV19185802	1,962.94	1,961.69	1,962.94	CO-184	1,961.83	1,961.97	1,961.97	448.38
390	SV19184801	1,958.21	1,956.91	1,958.21	CO-185	1,957.04	1,957.09	1,957.09	522.26
392	SV19184701	1,957.43	1,956.13	1,957.43	CO-186	1,956.26	1,956.31	1,956.31	522.27
394	SV19185701	1,955.87	1,954.57	1,955.87	CO-187	1,954.70	1,954.74	1,954.74	522.35
396	SV19185702	1,953.61	1,952.31	1,953.61	CO-188	1,952.44	1,952.48	1,952.48	522.42
398	SV19186604	1,947.93	1,946.63	1,947.93	CO-189	1,946.76	1,946.80	1,946.80	522.58
400	SV19187601	1,947.12	1,945.82	1,947.12	CO-190	1,945.95	1,945.99	1,945.99	522.64
402	SV19187602	1,946.49	1,945.19	1,946.49	CO-191	1,945.32	1,945.36	1,945.36	524.43
404	ST19188501	1,944.45	1,943.15	1,944.45	CO-192	1,943.28	1,943.32	1,943.32	524.5
406	SV19189501	1,943.50	1,942.20	1,943.50	CO-193	1,942.33	1,942.37	1,942.37	526.24
408	SV19189401	1,939.88	1,938.78	1,939.88	CO-194	1,938.91	1,938.96	1,938.96	533.03
410	SV19188310	1,935.30	1,934.00	1,935.30	CO-195	1,934.14	1,934.19	1,934.19	610.4
412	SV19189301	1,935.00	1,933.70	1,935.00	CO-196	1,933.84	1,933.89	1,933.89	612.09
414	SV19189402	1,931.52	1,930.22	1,931.52	CO-197	1,930.37	1,930.61	1,930.61	613.87
416	SV20180401	1,930.72	1,929.42	1,930.72	CO-198	1,929.56	1,929.61	1,929.61	613.89
418	SV20180402	1,929.70	1,928.40	1,929.70	CO-199	1,928.54	1,928.59	1,928.59	615.59
420	SV20180301	1,928.73	1,927.43	1,928.73	CO-200	1,927.57	1,927.62	1,927.62	615.68
422	SV20181202	1,927.91	1,926.61	1,927.91	CO-201	1,926.75	1,926.80	1,926.80	621.39
424	SV20181204	1,926.99	1,925.69	1,926.99	CO-202	1,925.83	1,925.88	1,925.88	621.45
426	SV20181102	1,920.21	1,918.91	1,920.21	CO-203	1,919.05	1,919.10	1,919.10	628.92
428	SV20182001	1,919.56	1,918.26	1,919.56	CO-204	1,918.40	1,918.45	1,918.45	636.28
430	SV20181001	1,918.65	1,917.35	1,918.65	CO-205	1,917.50	1,917.77	1,917.77	641.83
432	SV20180001	1,916.56	1,915.26	1,916.56	CO-206	1,915.40	1,915.46	1,915.46	645.55
434	SV20180003	1,909.45	1,908.15	1,909.45	CO-207	1,908.29	1,908.35	1,908.35	653
436	SV20170902	1,897.55	1,896.25	1,897.55	CO-208	1,896.39	1,896.45	1,896.45	654.91
438	SV20170904	1,893.99	1,892.69	1,893.99	CO-761	1,892.84	1,893.13	1,893.13	664.17
440	SV20170801	1,891.40	1,890.10	1,891.40	CO-210	1,890.25	1,890.30	1,890.30	671.56
442	SV20171701	1,888.26	1,886.96	1,888.26	CO-211	1,887.11	1,887.16	1,887.16	672.56
444	SV20171703	1,886.45	1,885.15	1,886.45	CO-212	1,885.30	1,885.35	1,885.35	672.61
446	SV20170701	1,881.91	1,880.61	1,881.91	CO-757	1,880.76	1,881.05	1,881.05	672.71
448	SV19179701	1,874.92	1,873.62	1,874.92	CO-214	1,873.77	1,873.82	1,873.82	672.79
450	SV19178703	1,871.24	1,869.94	1,871.24	CO-215	1,870.09	1,870.39	1,870.39	682.12
452	SV19178601	1,868.52	1,867.22	1,868.52	CO-216	1,867.37	1,867.42	1,867.42	687.32
454	SV19178502	1,841.92	1,840.62	1,841.92	CO-217	1,840.77	1,840.82	1,840.82	687.47
457	SV20165405	1,894.03	1,892.98	1,894.03	CO-218	1,893.02	1,893.04	1,893.04	58.28
458	SV20164402	1,892.68	1,891.63	1,892.68	CO-219	1,891.67	1,891.69	1,891.69	58.35
460	ST20164401	1,891.50	1,890.45	1,891.50	CO-220	1,890.50	1,890.53	1,890.53	58.4
462	SV20163301	1,888.69	1,887.59	1,888.69	CO-221	1,887.65	1,887.67	1,887.67	58.43
464	SV20162403	1,888.00	1,886.90	1,888.00	CO-222	1,886.96	1,886.98	1,886.98	58.48
466	SV201160402	1,887.10	1,886.00	1,887.10	CO-223	1,886.05	1,886.08	1,886.08	58.55
468	SV19169501	1,886.51	1,885.41	1,886.51	CO-224	1,885.46	1,885.48	1,885.48	63.53
470	SV19168504	1,885.52	1,884.37	1,885.52	CO-226	1,884.42	1,884.44	1,884.44	68.53
474	SV19168506	1,885.26	1,884.11	1,885.26	CO-227	1,884.17	1,884.19	1,884.19	73.52
476	SV19168602	1,882.17	1,881.02	1,882.17	CO-228	1,881.07	1,881.09	1,881.09	74.53
478	SV19168702	1,881.52	1,880.37	1,881.52	CO-229	1,880.42	1,880.44	1,880.44	74.58

480	SV19167702	1,879.04	1,877.89	1,879.04	CO-230	1,877.95	1,877.97	1,877.97	92.79
482	SV19166803	1,875.48	1,874.33	1,875.48	CO-231	1,874.39	1,874.41	1,874.41	99.49
484	SV19165903	1,870.50	1,869.35	1,870.50	CO-232	1,869.41	1,869.44	1,869.44	104.52
486	SV19176001	1,869.90	1,868.75	1,869.90	CO-233	1,868.81	1,868.84	1,868.84	104.58
488	SV19175101	1,869.70	1,868.55	1,869.70	CO-234	1,868.62	1,868.64	1,868.64	109.61
490	SV19175201	1,868.90	1,867.75	1,868.90	CO-235	1,867.82	1,867.84	1,867.84	109.81
492	SV19174304	1,865.20	1,864.05	1,865.20	CO-236	1,864.12	1,864.14	1,864.14	118.76
494	SV19174402	1,863.80	1,862.55	1,863.80	CO-237	1,862.62	1,862.65	1,862.65	126.3
496	SV19173403	1,863.72	1,862.47	1,863.72	CO-247	1,862.56	1,862.59	1,862.59	142.24
498	SV19170502	2,084.20	2,083.15	2,084.20	CO-238	2,083.16	2,083.16	2,083.16	2.19
499	SV19170505	2,080.82	2,079.77	2,080.82	CO-239	2,079.78	2,079.78	2,079.78	3.2
501	SV19170602	2,074.60	2,073.55	2,074.60	CO-240	2,073.57	2,073.58	2,073.58	8.14
503	SV90768401	2,045.13	2,044.08	2,045.13	CO-241	2,044.10	2,044.11	2,044.11	8.17
505	SV91765001	2,005.83	2,004.78	2,005.83	CO-242	2,004.80	2,004.81	2,004.81	10.65
507	SV92750601	1,969.22	1,968.17	1,969.22	CO-243	1,968.19	1,968.20	1,968.20	10.67
509	SV92754101	1,937.45	1,936.40	1,937.45	CO-244	1,936.42	1,936.43	1,936.43	10.78
511	SV92756101	1,919.74	1,918.69	1,919.74	CO-245	1,918.72	1,918.73	1,918.73	15.86
513	SV19173406	1,873.72	1,872.67	1,873.72	CO-246	1,872.70	1,872.71	1,872.71	15.89
516	SV19173401	1,863.10	1,861.85	1,863.10	CO-248	1,861.94	1,861.97	1,861.97	142.29
519	SV91771101	2,055.15	2,054.10	2,055.15	CO-249	2,054.11	2,054.12	2,054.12	4.86
520	ST19171602	2,011.29	2,010.24	2,011.29	CO-250	2,010.25	2,010.26	2,010.26	4.94
522	SV92752901	1,966.89	1,965.84	1,966.89	CO-251	1,965.86	1,965.86	1,965.86	5.03
526	SV95583701	1,987.78	1,986.73	1,987.78	CO-253	1,986.75	1,986.75	1,986.75	6.27
528	SV19155901	1,983.14	1,982.09	1,983.14	CO-254	1,982.11	1,982.12	1,982.12	8.04
530	SV19156901	1,977.43	1,976.38	1,977.43	CO-255	1,976.40	1,976.41	1,976.41	8.06
532	SV19156905	1,969.92	1,968.87	1,969.92	CO-256	1,968.89	1,968.90	1,968.90	8.78
534	SV19167002	1,965.30	1,964.25	1,965.30	CO-257	1,964.27	1,964.28	1,964.28	9.52
536	SV19167005	1,962.72	1,961.67	1,962.72	CO-258	1,961.69	1,961.70	1,961.70	10.24
538	SV19168002	1,959.34	1,958.29	1,959.34	CO-259	1,958.32	1,958.34	1,958.34	23.43
540	SV19168004	1,957.42	1,956.37	1,957.42	CO-260	1,956.41	1,956.42	1,956.42	29.53
542	SV19169003	1,953.41	1,952.36	1,953.41	CO-261	1,952.40	1,952.41	1,952.41	29.56
544	SV20160101	1,950.87	1,949.82	1,950.87	CO-262	1,949.86	1,949.88	1,949.88	35.17
546	SV20160106	1,948.25	1,947.20	1,948.25	CO-263	1,947.24	1,947.26	1,947.26	35.19
548	SV20161102	1,944.85	1,943.80	1,944.85	CO-766	1,943.84	1,943.86	1,943.86	35.21
550	SV20162105	1,933.90	1,932.85	1,933.90	CO-265	1,932.89	1,932.91	1,932.91	35.23
552	SV20163101	1,930.78	1,929.73	1,930.78	CO-266	1,929.77	1,929.79	1,929.79	36.23
554	SV20163103	1,927.46	1,926.41	1,927.46	CO-267	1,926.45	1,926.47	1,926.47	36.26
556	ST20164101	1,925.60	1,924.55	1,925.60	CO-268	1,924.59	1,924.61	1,924.61	36.28
558	SV20165101	1,924.30	1,923.25	1,924.30	CO-269	1,923.30	1,923.32	1,923.32	55.19
560	SV20165103	1,917.76	1,916.71	1,917.76	CO-270	1,916.76	1,916.78	1,916.78	55.22
562	SV20166102	1,913.74	1,912.69	1,913.74	CO-271	1,912.74	1,912.76	1,912.76	55.25
564	SV20166204	1,912.77	1,911.72	1,912.77	CO-272	1,911.77	1,911.79	1,911.79	55.29
566	SV20167301	1,910.42	1,909.37	1,910.42	CO-273	1,909.42	1,909.44	1,909.44	55.31
568	SV20167302	1,909.60	1,908.55	1,909.60	CO-768	1,908.60	1,908.62	1,908.62	55.32
570	SV20166306	1,908.25	1,907.20	1,908.25	CO-274	1,907.25	1,907.27	1,907.27	55.34
571	SV20166305	1,905.80	1,904.75	1,905.80	CO-275	1,904.80	1,904.82	1,904.82	55.37
573	SV20165401	1,904.68	1,903.63	1,904.68	CO-276	1,903.68	1,903.70	1,903.70	55.38
575	ST20165401	1,898.23	1,897.18	1,898.23	CO-277	1,897.23	1,897.25	1,897.25	55.41
577	SV20165404	1,894.77	1,893.72	1,894.77	CO-278	1,893.77	1,893.79	1,893.79	55.42
580	SV05630701	1,902.57	1,901.52	1,902.57	CO-279	1,901.53	1,901.54	1,901.54	2.81
582	SV98619801	2,029.24	2,028.19	2,029.24	CO-764	2,028.19	2,028.19	2,028.19	0
583	SV00613701	2,023.64	2,022.59	2,023.64	CO-281	2,022.61	2,022.61	2,022.61	6.53
585	SV20160204	2,022.66	2,021.61	2,022.66	CO-282	2,021.63	2,021.64	2,021.64	7.53
587	SV20161205	2,010.66	2,009.61	2,010.66	CO-283	2,009.63	2,009.64	2,009.64	7.56
589	SV02620601	2,002.49	2,001.44	2,002.49	CO-734	2,001.46	2,001.47	2,001.47	7.59
591	SV20162202	1,996.37	1,995.32	1,996.37	CO-284	1,995.34	1,995.35	1,995.35	7.6

592	SV20163201	1,981.90	1,980.85	1,981.90	CO-285	1,980.87	1,980.88	1,980.88	7.64
594	SV20163203	1,976.82	1,975.77	1,976.82	CO-286	1,975.80	1,975.81	1,975.81	16.86
596	SV20163207	1,965.52	1,964.47	1,965.52	CO-287	1,964.50	1,964.51	1,964.51	16.86
598	SV20164202	1,955.53	1,954.48	1,955.53	CO-288	1,954.51	1,954.52	1,954.52	17.87
600	SV20164204	1,940.78	1,939.73	1,940.78	CO-289	1,939.76	1,939.77	1,939.77	17.89
603	SV19168206	2,053.77	2,052.72	2,053.77	CO-290	2,052.73	2,052.74	2,052.74	3.42
604	SV19168207	2,049.54	2,048.49	2,049.54	CO-291	2,048.50	2,048.51	2,048.51	3.44
606	SV19169201	2,046.39	2,045.34	2,046.39	CO-292	2,045.35	2,045.36	2,045.36	4.44
608	SV19169105	2,042.43	2,041.38	2,042.43	CO-762	2,041.40	2,041.40	2,041.40	5.42
612	SV19167405	2,041.25	2,040.20	2,041.25	CO-297	2,040.21	2,040.22	2,040.22	3.05
614	SV19166506	2,054.12	2,053.07	2,054.12	CO-295	2,053.08	2,053.09	2,053.09	3
615	SV19166508	2,043.45	2,042.40	2,043.45	CO-296	2,042.41	2,042.42	2,042.42	3.03
618	SV97647301	2,038.74	2,037.69	2,038.74	CO-298	2,037.70	2,037.71	2,037.71	3.08
620	SV97648001	2,037.07	2,036.02	2,037.07	CO-299	2,036.03	2,036.04	2,036.04	3.09
622	SV19168303	2,032.02	2,030.97	2,032.02	CO-300	2,030.98	2,030.99	2,030.99	3.12
624	SV19168311	2,031.44	2,030.39	2,031.44	CO-301	2,030.41	2,030.41	2,030.41	5.57
626	SV19169301	2,024.86	2,023.81	2,024.86	CO-302	2,023.83	2,023.83	2,023.83	5.6
628	SV19169205	2,017.40	2,016.35	2,017.40	CO-303	2,016.37	2,016.37	2,016.37	5.63
630	SV20160202	2,017.14	2,016.09	2,017.14	CO-304	2,016.11	2,016.11	2,016.11	5.65
632	SV20160206	2,012.40	2,011.35	2,012.40	CO-305	2,011.37	2,011.38	2,011.38	8.12
634	SV20161203	1,997.80	1,996.75	1,997.80	CO-306	1,996.77	1,996.78	1,996.78	8.16
636	SV20162205	1,986.75	1,985.70	1,986.75	CO-307	1,985.72	1,985.73	1,985.73	8.18
638	SV20163208	1,978.90	1,977.85	1,978.90	CO-308	1,977.87	1,977.88	1,977.88	9.18
641	SV19166404	2,067.25	2,066.20	2,067.25	CO-309	2,066.21	2,066.21	2,066.21	1.94
642	SV97641001	2,062.47	2,061.42	2,062.47	CO-310	2,061.44	2,061.44	2,061.44	5.39
644	SV19167303	2,058.20	2,057.15	2,058.20	CO-311	2,057.17	2,057.17	2,057.17	5.42
646	SV19167203	2,051.69	2,050.64	2,051.69	CO-312	2,050.66	2,050.66	2,050.66	5.46
648	SV96618601	2,038.42	2,037.37	2,038.42	CO-313	2,037.39	2,037.39	2,037.39	5.49
650	SV19167101	2,030.71	2,029.66	2,030.71	CO-314	2,029.68	2,029.69	2,029.69	8.91
652	SV19167103	2,028.73	2,027.68	2,028.73	CO-315	2,027.70	2,027.71	2,027.71	8.94
654	SV19168202	2,028.40	2,027.35	2,028.40	CO-316	2,027.38	2,027.38	2,027.38	13.1
656	SV98614401	1,983.93	1,982.88	1,983.93	CO-318	1,982.91	1,982.91	1,982.91	13.14
661	SV19168306	2,036.61	2,035.56	2,036.61	CO-319	2,035.58	2,035.58	2,035.58	4.86
662	ST19168401	1,988.90	1,987.85	1,988.90	CO-320	1,987.87	1,987.87	1,987.87	4.89
664	SV19169401	1,946.55	1,945.50	1,946.55	CO-321	1,945.52	1,945.52	1,945.52	4.92
667	SV19167409	2,041.23	2,040.18	2,041.23	CO-322	2,040.20	2,040.20	2,040.20	4.86
668	SV19167501	2,002.30	2,001.25	2,002.30	CO-323	2,001.27	2,001.27	2,001.27	4.88
670	SV19168501	1,963.37	1,962.32	1,963.37	CO-324	1,962.34	1,962.34	1,962.34	4.9
673	SV19166509	2,044.25	2,043.20	2,044.25	CO-325	2,043.22	2,043.22	2,043.22	4.86
674	SV19167502	1,980.63	1,979.58	1,980.63	CO-326	1,979.60	1,979.60	1,979.60	4.89
676	SV19167503	1,948.82	1,947.77	1,948.82	CO-327	1,947.79	1,947.79	1,947.79	4.9
678	SV19168603	1,885.30	1,884.25	1,885.30	CO-328	1,884.27	1,884.27	1,884.27	4.94
681	SV21190401	2,177.85	2,176.80	2,177.85	CO-329	2,176.82	2,176.82	2,176.82	6.33
682	SV21190302	2,170.61	2,169.56	2,170.61	CO-330	2,169.58	2,169.59	2,169.59	9.7
684	SV20199301	2,163.56	2,162.51	2,163.56	CO-331	2,162.53	2,162.54	2,162.54	9.72
686	SV20199303	2,160.56	2,159.51	2,160.56	CO-332	2,159.54	2,159.55	2,159.55	18.78
688	SV20198201	2,156.23	2,155.18	2,156.23	CO-333	2,155.21	2,155.23	2,155.23	22.18
690	SV20199101	2,152.98	2,151.93	2,152.98	CO-334	2,151.96	2,151.98	2,151.98	22.21
692	SV20199001	2,145.93	2,144.88	2,145.93	CO-335	2,144.91	2,144.93	2,144.93	22.36
694	SV20199002	2,135.83	2,134.78	2,135.83	CO-336	2,134.81	2,134.83	2,134.83	22.38
696	SV20189902	2,132.41	2,131.36	2,132.41	CO-337	2,131.39	2,131.41	2,131.41	22.42
698	SV21180801	2,125.56	2,124.51	2,125.56	CO-338	2,124.54	2,124.56	2,124.56	22.45
700	SV21180802	2,124.55	2,123.50	2,124.55	CO-339	2,123.53	2,123.55	2,123.55	22.46
702	ST20189901	2,120.58	2,119.53	2,120.58	CO-340	2,119.56	2,119.58	2,119.58	22.49
704	SV20189903	2,117.45	2,116.40	2,117.45	CO-341	2,116.43	2,116.45	2,116.45	22.52
706	SV20188902	2,112.82	2,111.77	2,112.82	CO-342	2,111.80	2,111.82	2,111.82	22.59

708	SV20187901	2,105.43	2,104.33	2,105.43	CO-343	2,104.36	2,104.38	2,104.38	22.62
710	SV20187902	2,101.74	2,100.64	2,101.74	CO-344	2,100.67	2,100.69	2,100.69	22.65
712	SV20197001	2,096.50	2,095.40	2,096.50	CO-345	2,095.43	2,095.44	2,095.44	22.68
714	SV20197002	2,095.32	2,094.22	2,095.32	CO-346	2,094.25	2,094.26	2,094.26	22.73
716	SV20196101	2,088.62	2,087.52	2,088.62	CO-347	2,087.56	2,087.57	2,087.57	29.5
718	SV20196102	2,083.61	2,082.51	2,083.61	CO-348	2,082.55	2,082.57	2,082.57	40.69
720	SV20194101	2,075.36	2,074.26	2,075.36	CO-349	2,074.30	2,074.32	2,074.32	42.08
722	SV20194203	2,066.68	2,065.58	2,066.68	CO-350	2,065.64	2,065.66	2,065.66	84.61
724	SV20194205	2,063.63	2,062.53	2,063.63	CO-351	2,062.59	2,062.61	2,062.61	87.14
726	SV20194303	2,058.46	2,057.36	2,058.46	CO-744	2,057.43	2,057.46	2,057.46	99.15
728	SV20193402	2,054.23	2,053.08	2,054.23	CO-353	2,053.16	2,053.19	2,053.19	138.16
730	SV20193302	2,049.36	2,048.21	2,049.36	CO-354	2,048.29	2,048.32	2,048.32	138.88
732	SV20192301	2,046.31	2,045.16	2,046.31	CO-355	2,045.23	2,045.25	2,045.25	149.93
734	SV20191401	2,040.12	2,038.97	2,040.12	CO-356	2,039.04	2,039.07	2,039.07	158.42
736	SV20191402	2,034.92	2,033.77	2,034.92	CO-357	2,033.84	2,033.87	2,033.87	169.21
738	SV20191403	2,033.60	2,032.45	2,033.60	CO-358	2,032.53	2,032.55	2,032.55	174.23
740	SV20191201	2,026.83	2,025.68	2,026.83	CO-359	2,025.76	2,025.78	2,025.78	178.34
742	SV20190202	2,020.53	2,019.38	2,020.53	CO-360	2,019.46	2,019.48	2,019.48	180.08
744	SV20190204	2,015.42	2,014.27	2,015.42	CO-791	2,014.37	2,014.42	2,014.42	201.49
750	SV191998101	2,008.32	2,007.17	2,008.32	CO-364	2,007.25	2,007.28	2,007.28	201.52
752	SV19198102	2,002.67	2,001.52	2,002.67	CO-365	2,001.60	2,001.63	2,001.63	201.57
754	SV19197202	1,995.33	1,994.18	1,995.33	CO-792	1,994.29	1,994.34	1,994.34	208.47
756	SV19197203	1,994.90	1,993.70	1,994.90	CO-367	1,993.80	1,993.84	1,993.84	306.43
758	SV19197204	1,994.42	1,993.17	1,994.42	CO-368	1,993.30	1,993.37	1,993.37	309.89
760	SV19197103	1,992.92	1,991.67	1,992.92	CO-369	1,991.77	1,991.81	1,991.81	312.09
762	SV19188901	1,988.02	1,986.77	1,988.02	CO-370	1,986.87	1,986.91	1,986.91	312.23
764	SV19189902	1,983.51	1,982.26	1,983.51	CO-371	1,982.38	1,982.43	1,982.43	363.25
766	SV19189903	1,982.27	1,981.02	1,982.27	CO-372	1,981.16	1,981.25	1,981.25	365.43
768	SV19188802	1,977.01	1,975.76	1,977.01	CO-373	1,975.87	1,975.91	1,975.91	366.8
770	SV19187801	1,975.79	1,974.54	1,975.79	CO-751	1,974.68	1,974.77	1,974.77	368.14
772	SV19186802	1,970.98	1,969.73	1,970.98	CO-375	1,969.84	1,969.88	1,969.88	369.5
774	SV19186903	1,968.66	1,967.41	1,968.66	CO-377	1,967.52	1,967.56	1,967.56	369.56
779	SV19196008	2,051.36	2,050.31	2,051.36	CO-378	2,050.32	2,050.32	2,050.32	3.89
780	SV19196010	2,048.04	2,046.99	2,048.04	CO-379	2,047.00	2,047.01	2,047.01	3.93
782	SV19187903	2,041.05	2,040.00	2,041.05	CO-380	2,040.01	2,040.02	2,040.02	6.12
784	SV19187905	2,037.42	2,036.37	2,037.42	CO-381	2,036.38	2,036.39	2,036.39	6.17
786	SV19188903	2,034.93	2,033.88	2,034.93	CO-382	2,033.92	2,033.93	2,033.93	50.74
788	SV19188906	2,009.22	2,008.17	2,009.22	CO-383	2,008.21	2,008.22	2,008.22	50.82
791	SV19195104	2,070.52	2,069.47	2,070.52	CO-384	2,069.49	2,069.49	2,069.49	6.47
792	SV19196002	2,005.28	2,004.23	2,005.28	CO-385	2,004.26	2,004.26	2,004.26	9.95
794	ST19196002	2,005.25	2,004.20	2,005.25	CO-386	2,004.22	2,004.23	2,004.23	9.98
797	SV05968701	2,274.10	2,273.05	2,274.10	CO-387	2,273.06	2,273.07	2,273.07	3.94
798	SV05961601	2,269.27	2,268.22	2,269.27	CO-388	2,268.23	2,268.24	2,268.24	3.97
800	SV04963901	2,263.66	2,262.61	2,263.66	CO-389	2,262.62	2,262.63	2,262.63	4.01
802	SV03966801	2,259.49	2,258.40	2,259.49	CO-390	2,258.43	2,258.44	2,258.44	15.26
804	SV03971001	2,255.75	2,254.70	2,255.75	CO-391	2,254.73	2,254.74	2,254.74	15.28
806	SV20192704	2,252.48	2,251.43	2,252.48	CO-392	2,251.46	2,251.48	2,251.48	22.44
808	SV20191701	2,247.02	2,245.97	2,247.02	CO-393	2,246.00	2,246.02	2,246.02	24.44
810	SV20191703	2,245.69	2,244.64	2,245.69	CO-394	2,244.68	2,244.69	2,244.69	25.66
812	SV20190702	2,244.99	2,243.94	2,244.99	CO-395	2,243.98	2,243.99	2,243.99	26.33
814	SV19199709	2,239.88	2,238.83	2,239.88	CO-396	2,238.87	2,238.88	2,238.88	26.36
816	SV19199710	2,231.86	2,230.81	2,231.86	CO-397	2,230.85	2,230.86	2,230.86	27.01
818	SV19199603	2,229.50	2,228.45	2,229.50	CO-749	2,228.49	2,228.50	2,228.50	27.68
820	SV19198606	2,227.35	2,226.30	2,227.35	CO-399	2,226.34	2,226.35	2,226.35	27.72
822	SV19197605	2,226.25	2,225.20	2,226.25	CO-400	2,225.25	2,225.26	2,225.26	40.09
824	SV19196701	2,224.83	2,223.78	2,224.83	CO-401	2,223.83	2,223.84	2,223.84	41.79

826	ST19196601	2,222.63	2,221.58	2,222.63	CO-402	2,221.63	2,221.65	2,221.65	45.49
828	SV97960501	2,206.33	2,205.28	2,206.33	CO-403	2,205.33	2,205.35	2,205.35	45.51
830	SV19197602	2,192.32	2,191.27	2,192.32	CO-404	2,191.32	2,191.34	2,191.34	49.2
832	SV19197503	2,168.55	2,167.50	2,168.55	CO-405	2,167.55	2,167.57	2,167.57	50.9
834	SV96949901	2,153.66	2,150.65	2,153.66	CO-406	2,150.70	2,150.72	2,150.72	50.93
836	SV19196406	2,137.47	2,136.42	2,137.47	CO-407	2,136.48	2,136.50	2,136.50	62.47
838	SV96944101	2,123.09	2,122.04	2,123.09	CO-741	2,122.10	2,122.12	2,122.12	62.52
842	SV96926901	2,046.35	2,045.30	2,046.35	CO-410	2,045.37	2,045.40	2,045.40	91.44
845	SV98962201	2,230.10	2,229.05	2,230.10	CO-411	2,229.07	2,229.07	2,229.07	5
846	SV98952801	2,221.19	2,220.14	2,221.19	CO-412	2,220.16	2,220.17	2,220.17	8.68
848	SV19199501	2,192.82	2,191.77	2,192.82	CO-413	2,191.79	2,191.80	2,191.80	10.39
850	SV19199502	2,185.20	2,184.15	2,185.20	CO-414	2,184.17	2,184.18	2,184.18	10.4
852	SV19199401	2,161.32	2,160.27	2,161.32	CO-415	2,160.29	2,160.30	2,160.30	10.43
854	SV19199403	2,145.40	2,144.35	2,145.40	CO-416	2,144.37	2,144.38	2,144.38	10.45
856	SV19199405	2,118.90	2,117.85	2,118.90	CO-417	2,117.88	2,117.89	2,117.89	16.15
858	SV19199302	2,092.40	2,091.35	2,092.40	CO-418	2,091.38	2,091.39	2,091.39	17.84
860	SV19199304	2,073.16	2,072.11	2,073.16	CO-419	2,072.14	2,072.15	2,072.15	17.86
862	SV20190206	2,044.90	2,043.85	2,044.90	CO-420	2,043.88	2,043.89	2,043.89	17.89
865	SV19199406	2,121.30	2,120.25	2,121.30	CO-421	2,120.26	2,120.26	2,120.26	2.33
867	SV20190610	2,102.10	2,101.05	2,102.10	CO-422	2,101.07	2,101.07	2,101.07	5
868	SV20191505	2,076.91	2,075.86	2,076.91	CO-423	2,075.88	2,075.88	2,075.88	5.03
870	SV20191404	2,060.01	2,058.96	2,060.01	CO-424	2,058.98	2,058.99	2,058.99	10.05
873	SV20192506	2,102.40	2,101.35	2,102.40	CO-425	2,101.37	2,101.37	2,101.37	6.67
874	SV20182508	2,070.87	2,069.82	2,070.87	CO-426	2,069.84	2,069.84	2,069.84	6.69
876	SV20191407	2,047.25	2,046.20	2,047.25	CO-427	2,046.22	2,046.22	2,046.22	6.71
879	SV20193403	2,050.36	2,049.31	2,050.36	CO-428	2,049.33	2,049.33	2,049.33	6.67
881	SV19199605	2,208.60	2,207.55	2,208.60	CO-430	2,207.55	2,207.55	2,207.55	0
883	SV19199607	2,194.27	2,193.22	2,194.27	CO-431	2,193.22	2,193.22	2,193.22	0.02
885	SV00965301	2,172.31	2,171.26	2,172.31	CO-432	2,171.26	2,171.26	2,171.26	0.12
887	SV20190605	2,161.90	2,160.85	2,161.90	CO-433	2,160.87	2,160.88	2,160.88	9.35
889	SV20191502	2,156.35	2,155.30	2,156.35	CO-434	2,155.33	2,155.34	2,155.34	19.45
891	SV20192504	2,150.80	2,149.75	2,150.80	CO-435	2,149.78	2,149.80	2,149.80	23.66
893	SV20193503	2,145.25	2,144.20	2,145.25	CO-436	2,144.24	2,144.25	2,144.25	27.35
895	SV20194501	2,139.70	2,138.65	2,139.70	CO-443	2,138.69	2,138.71	2,138.71	34.09
897	SV20194502	2,120.30	2,119.25	2,120.30	CO-438	2,119.26	2,119.26	2,119.26	2.33
899	SV20194407	2,115.20	2,114.15	2,115.20	CO-445	2,114.17	2,114.18	2,114.18	9.42
901	SV20194406	2,130.50	2,129.45	2,130.50	CO-440	2,129.47	2,129.47	2,129.47	6.67
903	SV20195306	2,126.63	2,125.58	2,126.63	CO-441	2,125.63	2,125.64	2,125.64	40.76
905	SV20195312	2,090.66	2,089.61	2,090.66	CO-442	2,089.66	2,089.67	2,089.67	40.78
908	ST20194502	2,080.60	2,079.55	2,080.60	CO-743	2,079.59	2,079.61	2,079.61	34.14
911	SV20194409	2,077.37	2,076.32	2,077.37	CO-446	2,076.34	2,076.35	2,076.35	9.44
914	SV20194605	2,200.10	2,199.05	2,200.10	CO-447	2,199.07	2,199.07	2,199.07	6.67
915	SV20194504	2,154.80	2,153.75	2,154.80	CO-448	2,153.77	2,153.77	2,153.77	6.7
918	SV201992710	2,245.20	2,244.15	2,245.20	CO-449	2,244.17	2,244.17	2,244.17	5
919	SV20192603	2,191.89	2,190.84	2,191.89	CO-450	2,190.86	2,190.86	2,190.86	5.04
922	SV20190704	2,218.20	2,217.15	2,218.20	CO-451	2,217.16	2,217.17	2,217.17	4.17
923	SV20191603	2,184.42	2,183.37	2,184.42	CO-452	2,183.38	2,183.39	2,183.39	4.2
926	SV20192801	2,302.87	2,301.82	2,302.87	CO-453	2,301.83	2,301.83	2,301.83	1.97
927	SV20192707	2,299.76	2,298.71	2,299.76	CO-456	2,298.73	2,298.73	2,298.73	4.78
929	SV20192709	2,280.90	2,279.85	2,280.90	CO-455	2,279.86	2,279.86	2,279.86	1.97
932	SV20193703	2,297.90	2,296.85	2,297.90	CO-457	2,296.87	2,296.87	2,296.87	5.61
934	SV04971401	2,285.56	2,284.51	2,285.56	CO-458	2,284.53	2,284.53	2,284.53	5.64
937	SV01986301	2,295.71	2,294.66	2,295.71	CO-459	2,294.67	2,294.68	2,294.68	2.81
938	SV20190804	2,291.85	2,290.80	2,291.85	CO-460	2,290.81	2,290.82	2,290.82	3.78
940	SV19199801	2,283.15	2,282.10	2,283.15	CO-461	2,282.12	2,282.13	2,282.13	9.64
942	SV99972501	2,272.65	2,271.60	2,272.65	CO-462	2,271.62	2,271.63	2,271.63	10.92

944	SV19199708	2,264.61	2,263.56	2,264.61	CO-463	2,263.58	2,263.59	2,263.59	12.2
946	SV19198601	2,260.00	2,258.95	2,260.00	CO-464	2,258.97	2,258.98	2,258.98	12.23
948	SV19198604	2,253.01	2,251.96	2,253.01	CO-465	2,251.98	2,251.99	2,251.99	12.28
951	SV98977501	2,293.16	2,292.11	2,293.16	CO-466	2,292.11	2,292.11	2,292.11	0
952	SV98979501	2,290.51	2,289.46	2,290.51	CO-467	2,289.46	2,289.46	2,289.46	0.01
954	SV98979501	2,289.51	2,288.46	2,289.51	CO-468	2,288.46	2,288.46	2,288.46	0.03
956	ST19199702	2,285.40	2,284.35	2,285.40	CO-469	2,284.35	2,284.35	2,284.35	0.05
959	SV00002001	2,319.91	2,318.86	2,319.91	CO-470	2,318.87	2,318.87	2,318.87	2.5
960	SV00993301	2,314.61	2,313.56	2,314.61	CO-471	2,313.57	2,313.57	2,313.57	2.53
962	SV00992101	2,312.64	2,311.59	2,312.64	CO-472	2,311.60	2,311.60	2,311.60	2.54
964	SV00993001	2,311.66	2,310.61	2,311.66	CO-473	2,310.62	2,310.63	2,310.63	4.43
966	SV00996101	2,309.62	2,308.57	2,309.62	CO-474	2,308.59	2,308.59	2,308.59	5.69
968	SV00983401	2,296.79	2,295.74	2,296.79	CO-475	2,295.76	2,295.76	2,295.76	5.72
971	SV19199710	2,231.86	2,230.81	2,231.86	CO-476	2,230.81	2,230.81	2,230.81	0
972	SV20190607	2,190.60	2,189.55	2,190.60	CO-477	2,189.55	2,189.55	2,189.55	0.03
975	SV19197403	2,135.90	2,134.85	2,135.90	CO-478	2,134.85	2,134.85	2,134.85	0
976	SV19197404	2,123.12	2,122.07	2,123.12	CO-479	2,122.08	2,122.09	2,122.09	3.34
978	SV19197301	2,072.12	2,071.07	2,072.12	CO-480	2,071.09	2,071.09	2,071.09	5.05
980	SV19197303	2,046.45	2,045.40	2,046.45	CO-481	2,045.42	2,045.42	2,045.42	6.74
982	SV19197206	2,020.89	2,019.84	2,020.89	CO-482	2,019.86	2,019.86	2,019.86	6.77
985	SV19195602	2,244.32	2,243.27	2,244.32	CO-483	2,243.27	2,243.27	2,243.27	0
986	SV19195604	2,234.11	2,233.06	2,234.11	CO-484	2,233.08	2,233.09	2,233.09	9.03
988	SV95957401	2,189.26	2,188.21	2,189.26	CO-485	2,188.23	2,188.24	2,188.24	11.4
990	SV95948701	2,151.70	2,150.65	2,151.70	CO-486	2,150.68	2,150.69	2,150.69	13.77
992	SV95948401	2,133.97	2,132.92	2,133.97	CO-487	2,132.95	2,132.97	2,132.97	24.49
994	SV96931901	2,105.28	2,104.23	2,105.28	CO-488	2,104.27	2,104.28	2,104.28	28.84
996	SV96933601	2,085.99	2,084.94	2,085.99	CO-742	2,085.01	2,085.04	2,085.04	91.41
998	SV94946901	2,197.40	2,196.35	2,197.40	CO-489	2,196.35	2,196.35	2,196.35	0
1000	SV94965001	2,237.19	2,236.14	2,237.19	CO-490	2,236.15	2,236.16	2,236.16	3.67
1001	SV94957601	2,211.02	2,209.97	2,211.02	CO-491	2,209.98	2,209.99	2,209.99	3.68
1003	SV19195503	2,170.70	2,169.65	2,170.70	CO-492	2,169.67	2,169.67	2,169.67	5.38
1005	SV95945701	2,155.00	2,153.95	2,155.00	CO-493	2,153.97	2,153.98	2,153.98	10.64
1008	SV93959101	2,233.27	2,232.22	2,233.27	CO-494	2,232.23	2,232.24	2,232.24	3.44
1009	SV94946901	2,197.40	2,196.35	2,197.40	CO-495	2,196.37	2,196.37	2,196.37	5.2
1012	SV19191401	2,282.56	2,281.51	2,282.56	CO-496	2,281.51	2,281.51	2,281.51	0
1013	SV19192501	2,280.53	2,279.48	2,280.53	CO-497	2,279.49	2,279.49	2,279.49	1.33
1015	SV92956501	2,272.45	2,271.40	2,272.45	CO-498	2,271.41	2,271.41	2,271.41	1.36
1017	SV93951601	2,265.39	2,264.34	2,265.39	CO-499	2,264.35	2,264.36	2,264.36	2.68
1019	SV93966001	2,256.01	2,254.96	2,256.01	CO-500	2,254.97	2,254.98	2,254.98	2.71
1021	SV94960401	2,247.22	2,246.17	2,247.22	CO-501	2,246.18	2,246.19	2,246.19	2.73
1023	SV19194601	2,245.63	2,244.58	2,245.63	CO-502	2,244.60	2,244.60	2,244.60	5.07
1025	SV19194602	2,243.72	2,242.67	2,243.72	CO-503	2,242.69	2,242.70	2,242.70	11.74
1027	SV19194501	2,239.35	2,238.30	2,239.35	CO-504	2,238.32	2,238.33	2,238.33	11.77
1029	SV19193504	2,236.67	2,235.62	2,236.67	CO-505	2,235.65	2,235.66	2,235.66	16.14
1031	SV94941601	2,225.40	2,224.35	2,225.40	CO-506	2,224.38	2,224.39	2,224.39	16.16
1033	SV19194404	2,205.93	2,204.88	2,205.93	CO-507	2,204.91	2,204.92	2,204.92	18.51
1035	SV94944201	2,193.65	2,192.60	2,193.65	CO-508	2,192.63	2,192.64	2,192.64	20.86
1037	SV94947001	2,179.25	2,178.20	2,179.25	CO-794	2,178.23	2,178.24	2,178.24	20.87
1039	SV95931401	2,146.23	2,145.18	2,146.23	CO-511	2,145.22	2,145.23	2,145.23	24.92
1043	SV19195302	2,134.80	2,133.75	2,134.80	CO-512	2,133.79	2,133.80	2,133.80	29.24
1045	SV19195204	2,115.60	2,114.55	2,115.60	CO-513	2,114.59	2,114.60	2,114.60	29.26
1047	SV19196102	2,093.66	2,092.61	2,093.66	CO-514	2,092.65	2,092.67	2,092.67	34.46
1049	SV19196104	2,075.10	2,074.05	2,075.10	CO-515	2,074.09	2,074.11	2,074.11	34.49
1051	SV19196005	2,072.53	2,071.48	2,072.53	CO-516	2,071.52	2,071.54	2,071.54	35.37
1053	SV19196006	2,052.71	2,051.66	2,052.71	CO-517	2,051.70	2,051.72	2,051.72	38.83
1055	SV19197003	2,042.53	2,041.48	2,042.53	CO-518	2,041.53	2,041.54	2,041.54	41.03

1057	SV19187902	2,037.26	2,036.21	2,037.26	CO-519	2,036.26	2,036.27	2,036.27	41.05
1060	SV19193501	2,244.26	2,243.21	2,244.26	CO-520	2,243.23	2,243.23	2,243.23	4.67
1061	ST19193402	2,235.90	2,234.85	2,235.90	CO-521	2,234.87	2,234.87	2,234.87	4.69
1063	SV19193403	2,224.80	2,223.75	2,224.80	CO-522	2,223.77	2,223.78	2,223.78	8.25
1065	SV19194301	2,201.92	2,200.87	2,201.92	CO-523	2,200.89	2,200.90	2,200.90	8.28
1067	SV19194303	2,179.04	2,177.99	2,179.04	CO-524	2,178.01	2,178.02	2,178.02	12.61
1069	SV19194201	2,155.10	2,154.05	2,155.10	CO-525	2,154.08	2,154.08	2,154.08	12.63
1071	SV19194204	2,117.58	2,116.53	2,117.58	CO-526	2,116.57	2,116.59	2,116.59	37.06
1074	SV93946101	2,223.57	2,222.52	2,223.57	CO-527	2,222.53	2,222.54	2,222.54	3.44
1075	SV93936601	2,206.23	2,205.18	2,206.23	CO-784	2,205.19	2,205.20	2,205.20	3.47
1077	SV93936201	2,188.22	2,187.15	2,188.22	CO-529	2,187.17	2,187.18	2,187.18	8.24
1079	SV93938001	2,179.02	2,177.97	2,179.02	CO-530	2,177.99	2,178.00	2,178.00	9.97
1081	SV93926501	2,162.02	2,160.97	2,162.02	CO-531	2,161.00	2,161.02	2,161.02	22.18
1083	SV94920401	2,148.16	2,147.11	2,148.16	CO-532	2,147.14	2,147.16	2,147.16	22.2
1086	SV93933601	2,215.52	2,214.47	2,215.52	CO-783	2,214.48	2,214.48	2,214.48	2.17
1089	SV92929801	2,189.63	2,188.58	2,189.63	CO-535	2,188.60	2,188.60	2,188.60	6.09
1091	SV93920601	2,183.67	2,182.62	2,183.67	CO-782	2,182.64	2,182.64	2,182.64	6.1
1093	SV93921501	2,192.24	2,191.19	2,192.24	CO-537	2,191.19	2,191.19	2,191.19	0
1095	SV93925201	2,174.11	2,173.06	2,174.11	CO-538	2,173.07	2,173.07	2,173.07	1.74
1098	SV92956401	2,265.59	2,264.54	2,265.59	CO-539	2,264.54	2,264.54	2,264.54	0
1099	SV92944801	2,262.71	2,261.66	2,262.71	CO-540	2,261.66	2,261.66	2,261.66	0.02
1101	SV92948801	2,245.26	2,244.21	2,245.26	CO-541	2,244.21	2,244.21	2,244.21	0.06
1103	SV93946301	2,226.35	2,225.30	2,226.35	CO-542	2,225.30	2,225.30	2,225.30	0.09
1106	SV19192401	2,245.15	2,244.10	2,245.15	CO-543	2,244.11	2,244.11	2,244.11	2.17
1107	SV19192403	2,240.66	2,239.61	2,240.66	CO-544	2,239.62	2,239.63	2,239.63	3.5
1109	SV92931201	2,222.74	2,221.69	2,222.74	CO-545	2,221.71	2,221.71	2,221.71	4.84
1111	SV92927801	2,203.88	2,202.83	2,203.88	CO-546	2,202.86	2,202.87	2,202.87	17.19
1113	SV92927601	2,199.57	2,198.52	2,199.57	CO-547	2,198.55	2,198.56	2,198.56	19.36
1115	SV19192205	2,185.56	2,184.51	2,185.56	CO-548	2,184.54	2,184.56	2,184.56	22.83
1117	SV19192207	2,172.23	2,171.18	2,172.23	CO-549	2,171.22	2,171.23	2,171.23	25.02
1119	SV91917701	2,159.01	2,157.96	2,159.01	CO-735	2,158.00	2,158.01	2,158.01	29.34
1124	SV92935801	2,223.23	2,222.18	2,223.23	CO-552	2,222.19	2,222.20	2,222.20	3.44
1125	SV93932701	2,216.78	2,215.73	2,216.78	CO-553	2,215.75	2,215.75	2,215.75	4.78
1127	SV92939001	2,208.06	2,207.01	2,208.06	CO-554	2,207.03	2,207.04	2,207.04	10.14
1130	SV18197101	2,418.21	2,417.16	2,418.21	CO-555	2,417.16	2,417.16	2,417.16	0
1131	SV18197102	2,417.70	2,416.65	2,417.70	CO-556	2,416.65	2,416.65	2,416.65	0.01
1133	SV86905501	2,411.10	2,410.05	2,411.10	CO-557	2,410.05	2,410.05	2,410.05	0.05
1135	SV18196006	2,408.53	2,407.48	2,408.53	CO-558	2,407.50	2,407.50	2,407.50	6.82
1137	SV18196007	2,407.32	2,406.27	2,407.32	CO-559	2,406.29	2,406.29	2,406.29	6.84
1139	SV18185906	2,403.16	2,402.11	2,403.16	CO-560	2,402.13	2,402.14	2,402.14	9.08
1141	SV18185905	2,396.26	2,395.21	2,396.26	CO-561	2,395.23	2,395.24	2,395.24	10.88
1143	SV18185802	2,390.77	2,389.72	2,390.77	CO-562	2,389.74	2,389.75	2,389.75	10.9
1145	ST18185801	2,383.67	2,382.62	2,383.67	CO-563	2,382.64	2,382.65	2,382.65	10.92
1147	SV85876501	2,375.60	2,374.55	2,375.60	CO-564	2,374.57	2,374.58	2,374.58	10.94
1149	SV85864901	2,369.50	2,368.45	2,369.50	CO-565	2,368.47	2,368.48	2,368.48	10.97
1151	SV85860801	2,363.40	2,362.35	2,363.40	CO-566	2,362.37	2,362.38	2,362.38	10.98
1153	SV84864401	2,351.23	2,350.18	2,351.23	CO-567	2,350.20	2,350.21	2,350.21	11.01
1155	SV84866401	2,344.56	2,343.51	2,344.56	CO-568	2,343.53	2,343.54	2,343.54	11.03
1157	SV18184607	2,340.84	2,339.79	2,340.84	CO-569	2,339.81	2,339.82	2,339.82	11.04
1159	SV18184503	2,331.35	2,330.30	2,331.35	CO-570	2,330.34	2,330.36	2,330.36	35.1
1162	SV18185503	2,330.60	2,329.55	2,330.60	CO-571	2,329.56	2,329.56	2,329.56	2.22
1164	SV19182602	2,219.87	2,218.82	2,219.87	CO-573	2,218.87	2,218.88	2,218.88	43.08
1166	ST19182502	2,215.20	2,214.15	2,215.20	CO-574	2,214.20	2,214.21	2,214.21	43.1
1168	SV19183504	2,213.14	2,212.09	2,213.14	CO-575	2,212.14	2,212.15	2,212.15	43.12
1170	SV19185401	2,210.60	2,209.55	2,210.60	CO-753	2,209.60	2,209.61	2,209.61	43.14
1172	SV19184402	2,206.40	2,205.35	2,206.40	CO-577	2,205.40	2,205.41	2,205.41	43.18

1174	SV19185401	2,193.82	2,192.77	2,193.82	CO-578	2,192.82	2,192.83	2,192.83	43.21
1176	SV19185402	2,188.82	2,187.77	2,188.82	CO-579	2,187.82	2,187.84	2,187.84	47.22
1178	SV19185404	2,150.70	2,149.65	2,150.70	CO-580	2,149.70	2,149.72	2,149.72	47.25
1180	SV19186402	2,103.19	2,102.14	2,103.19	CO-581	2,102.19	2,102.21	2,102.21	56.28
1182	ST19187401	2,065.58	2,064.53	2,065.58	CO-582	2,064.58	2,064.60	2,064.60	56.31
1184	SV19187301	2,031.93	2,030.88	2,031.93	CO-583	2,030.94	2,030.96	2,030.96	60
1186	SV19188303	1,984.42	1,983.37	1,984.42	CO-584	1,983.43	1,983.45	1,983.45	60.03
1189	SV19186101	2,004.29	2,003.24	2,004.29	CO-585	2,003.26	2,003.27	2,003.27	7.67
1190	SV19187202	1,997.50	1,996.45	1,997.50	CO-586	1,996.47	1,996.48	1,996.48	11.7
1192	SV19188305	1,955.12	1,954.07	1,955.12	CO-587	1,954.09	1,954.10	1,954.10	11.74
1194	SV19188307	1,944.17	1,943.12	1,944.17	CO-588	1,943.14	1,943.15	1,943.15	11.76
1197	SV19189201	2,002.53	2,001.48	2,002.53	CO-589	2,001.49	2,001.50	2,001.50	3.67
1198	SV19188308	1,964.29	1,963.24	1,964.29	CO-590	1,963.26	1,963.26	1,963.26	5.37
1201	SV18186703	2,347.64	2,346.59	2,347.64	CO-591	2,346.61	2,346.61	2,346.61	6.03
1202	SV18185809	2,342.85	2,341.80	2,342.85	CO-592	2,341.82	2,341.83	2,341.83	9.93
1204	SV18186805	2,341.16	2,340.11	2,341.16	CO-593	2,340.13	2,340.14	2,340.14	12.52
1206	SV18186806	2,340.55	2,339.50	2,340.55	CO-594	2,339.52	2,339.53	2,339.53	12.53
1208	SV18186901	2,338.05	2,337.00	2,338.05	CO-595	2,337.02	2,337.03	2,337.03	12.55
1210	SV18186904	2,335.08	2,334.03	2,335.08	CO-596	2,334.06	2,334.07	2,334.07	13.9
1212	SV18187901	2,332.84	2,331.79	2,332.84	CO-772	2,331.81	2,331.82	2,331.82	13.92
1214	SV18188910	2,327.97	2,326.92	2,327.97	CO-598	2,326.95	2,326.96	2,326.96	14.21
1216	SV18188909	2,324.26	2,323.21	2,324.26	CO-599	2,323.24	2,323.25	2,323.25	16.4
1218	SV18189801	2,312.68	2,311.63	2,312.68	CO-600	2,311.66	2,311.67	2,311.67	20.72
1220	SV18189803	2,309.60	2,308.55	2,309.60	CO-601	2,308.58	2,308.60	2,308.60	24.19
1222	SV18189804	2,308.20	2,307.15	2,308.20	CO-602	2,307.19	2,307.20	2,307.20	25.51
1224	SV18189806	2,307.30	2,306.25	2,307.30	CO-603	2,306.29	2,306.30	2,306.30	25.52
1226	SV18189902	2,306.22	2,305.17	2,306.22	CO-604	2,305.21	2,305.22	2,305.22	25.54
1228	SV18189905	2,296.36	2,295.31	2,296.36	CO-605	2,295.35	2,295.36	2,295.36	25.56
1230	SV19180902	2,294.50	2,293.45	2,294.50	CO-606	2,293.49	2,293.50	2,293.50	25.57
1233	SV18186701	2,345.12	2,344.07	2,345.12	CO-607	2,344.10	2,344.10	2,344.10	13.28
1234	SV18185701	2,340.88	2,339.83	2,340.88	CO-608	2,339.86	2,339.87	2,339.87	15.08
1236	SV85866401	2,337.50	2,336.45	2,337.50	CO-609	2,336.48	2,336.49	2,336.49	15.1
1238	SV18184614	2,333.75	2,332.70	2,333.75	CO-610	2,332.73	2,332.74	2,332.74	15.14
1241	SV20198301	2,180.00	2,178.95	2,180.00	CO-611	2,178.97	2,178.97	2,178.97	5.67
1242	SV201198304	2,170.28	2,169.23	2,170.28	CO-612	2,169.25	2,169.25	2,169.25	5.69
1245	SV20198204	2,158.56	2,157.51	2,158.56	CO-613	2,157.51	2,157.51	2,157.51	0
1247	SV20197204	2,181.36	2,180.31	2,181.36	CO-614	2,180.31	2,180.31	2,180.31	0
1248	SV20198103	2,179.75	2,178.70	2,179.75	CO-615	2,178.70	2,178.70	2,178.70	0.04
1250	SV20198105	2,178.99	2,177.94	2,178.99	CO-616	2,177.94	2,177.94	2,177.94	0.07
1252	SV20198006	2,160.62	2,159.57	2,160.62	CO-617	2,159.57	2,159.57	2,159.57	0.1
1255	SV20197201	2,162.40	2,161.35	2,162.40	CO-618	2,161.36	2,161.37	2,161.37	4.33
1256	SV20197101	2,115.50	2,114.45	2,115.50	CO-619	2,114.46	2,114.47	2,114.47	4.37
1259	SV20196301	2,180.40	2,179.35	2,180.40	CO-620	2,179.37	2,179.37	2,179.37	6.33
1260	SV20196303	2,148.30	2,147.25	2,148.30	CO-621	2,147.27	2,147.27	2,147.27	6.36
1262	SV20195203	2,100.30	2,099.25	2,100.30	CO-622	2,099.27	2,099.27	2,099.27	6.41
1264	SV20195206	2,094.04	2,092.99	2,094.04	CO-623	2,093.01	2,093.02	2,093.02	8.1
1266	SV20195104	2,087.78	2,086.73	2,087.78	CO-624	2,086.75	2,086.76	2,086.76	9.46
1269	SV20193604	2,252.62	2,251.57	2,252.62	CO-625	2,251.58	2,251.59	2,251.59	4.17
1270	SV20194608	2,229.40	2,228.35	2,229.40	CO-626	2,228.37	2,228.38	2,228.38	9.87
1272	SV20194610	2,215.07	2,214.02	2,215.07	CO-627	2,214.05	2,214.06	2,214.06	16.56
1274	SV20195606	2,213.85	2,212.80	2,213.85	CO-628	2,212.83	2,212.84	2,212.84	20.75
1276	SV20195505	2,208.56	2,207.51	2,208.56	CO-629	2,207.55	2,207.56	2,207.56	24.95
1278	SV20195404	2,207.53	2,206.48	2,207.53	CO-630	2,206.52	2,206.53	2,206.53	27.3
1280	SV20196403	2,200.33	2,199.28	2,200.33	CO-631	2,199.32	2,199.33	2,199.33	28.99
1282	SV20195405	2,170.40	2,169.35	2,170.40	CO-632	2,169.39	2,169.40	2,169.40	30.36
1285	SV95968801	2,240.15	2,239.10	2,240.15	CO-634	2,239.11	2,239.12	2,239.12	3.67

1287	SV95969401	2,224.05	2,223.00	2,224.05	CO-635	2,223.01	2,223.02	2,223.02	3.68
1289	SV95959801	2,199.30	2,198.25	2,199.30	CO-787	2,198.26	2,198.27	2,198.27	3.71
1291	SV96952201	2,171.80	2,170.75	2,171.80	CO-637	2,170.76	2,170.77	2,170.77	3.74
1293	SV19196405	2,146.66	2,145.61	2,146.66	CO-638	2,145.63	2,145.64	2,145.64	9.83
1296	SV19196604	2,200.40	2,199.35	2,200.40	CO-639	2,199.36	2,199.37	2,199.37	3.67
1297	SV19196502	2,173.43	2,172.38	2,173.43	CO-640	2,172.40	2,172.40	2,172.40	6.03
1300	SV94968601	2,244.29	2,243.24	2,244.29	CO-641	2,243.26	2,243.26	2,243.26	5.33
1302	SV19188101	2,014.50	2,013.45	2,014.50	CO-642	2,013.45	2,013.45	2,013.45	0
1303	ST19189101	1,981.40	1,980.35	1,981.40	CO-643	1,980.35	1,980.35	1,980.35	0.03
1305	SV20180201	1,950.50	1,949.45	1,950.50	CO-644	1,949.46	1,949.47	1,949.47	3.74
1307	SV20180202	1,941.00	1,939.95	1,941.00	CO-645	1,939.96	1,939.97	1,939.97	3.76
1310	SV20180101	1,937.25	1,936.20	1,937.25	CO-646	1,936.20	1,936.20	1,936.20	0
1312	SV19189001	1,943.80	1,942.75	1,943.80	CO-647	1,942.76	1,942.77	1,942.77	3.67
1313	SV19189004	1,925.35	1,924.30	1,925.35	CO-648	1,924.31	1,924.32	1,924.32	3.7
1316	SV19179901	1,927.05	1,926.00	1,927.05	CO-649	1,926.00	1,926.00	1,926.00	0
1318	SV19179902	1,922.80	1,921.75	1,922.80	CO-650	1,921.77	1,921.77	1,921.77	5.5
1320	SV20170803	1,917.10	1,916.05	1,917.10	CO-651	1,916.07	1,916.07	1,916.07	5.5
1324	SV19177901	1,949.60	1,948.55	1,949.60	CO-653	1,948.57	1,948.57	1,948.57	5.5
1325	SV19177802	1,910.25	1,909.20	1,910.25	CO-654	1,909.22	1,909.23	1,909.23	9.2
1327	SV19178802	1,880.05	1,879.00	1,880.05	CO-655	1,879.02	1,879.03	1,879.03	9.23
1330	SV19177703	1,871.16	1,870.11	1,871.16	CO-656	1,870.12	1,870.13	1,870.13	5.11
1331	SV19177705	1,869.50	1,868.45	1,869.50	CO-657	1,868.47	1,868.47	1,868.47	5.16
1335	SV19185603	1,969.08	1,968.03	1,969.08	CO-659	1,968.03	1,968.03	1,968.03	0
1336	SV19185707	1,965.69	1,964.64	1,965.69	CO-660	1,964.64	1,964.64	1,964.64	0.01
1339	SV19185501	1,954.49	1,953.44	1,954.49	CO-661	1,953.44	1,953.44	1,953.44	0
1340	SV19185602	1,951.69	1,950.64	1,951.69	CO-662	1,950.64	1,950.64	1,950.64	0.03
1343	SV19186501	1,952.30	1,951.25	1,952.30	CO-663	1,951.25	1,951.25	1,951.25	0
1344	SV19187503	1,949.39	1,948.34	1,949.39	CO-664	1,948.34	1,948.34	1,948.34	0.03
1348	SV19170501	2,079.06	2,078.01	2,079.06	CO-665	2,078.01	2,078.01	2,078.01	0
1349	SV191752101	2,040.12	2,039.07	2,040.12	CO-666	2,039.07	2,039.07	2,039.07	0.02
1351	SV91756101	2,000.29	1,999.24	2,000.29	CO-667	1,999.24	1,999.24	1,999.24	0.05
1354	SV19170401	2,084.94	2,083.89	2,084.94	CO-668	2,083.91	2,083.91	2,083.91	4.86
1355	SV90746601	2,074.00	2,072.95	2,074.00	CO-669	2,072.97	2,072.97	2,072.97	4.9
1357	SV19170404	2,050.76	2,049.71	2,050.76	CO-670	2,049.73	2,049.74	2,049.74	7.37
1359	SV19171301	2,038.87	2,037.82	2,038.87	CO-671	2,037.84	2,037.85	2,037.85	7.38
1361	ST19171302	2,005.29	2,004.24	2,005.29	CO-672	2,004.26	2,004.27	2,004.27	7.41
1363	SV19172304	1,973.22	1,972.17	1,973.22	CO-673	1,972.19	1,972.20	1,972.20	7.43
1365	SV19172401	1,951.33	1,950.28	1,951.33	CO-674	1,950.30	1,950.31	1,950.31	7.45
1367	SV19173404	1,907.50	1,906.45	1,907.50	CO-675	1,906.47	1,906.48	1,906.48	7.48
1370	SV19170201	2,075.28	2,074.23	2,075.28	CO-676	2,074.25	2,074.25	2,074.25	4.86
1371	SV19171201	2,042.10	2,041.05	2,042.10	CO-677	2,041.07	2,041.07	2,041.07	4.89
1373	SV19171205	2,008.93	2,007.88	2,008.93	CO-678	2,007.90	2,007.91	2,007.91	8.69
1375	SV19172203	1,964.71	1,963.66	1,964.71	CO-679	1,963.68	1,963.69	1,963.69	8.72
1377	SV19172302	1,920.48	1,919.43	1,920.48	CO-680	1,919.45	1,919.46	1,919.46	8.76
1379	ST19173302	1,890.48	1,889.43	1,890.48	CO-681	1,889.45	1,889.46	1,889.46	8.79
1382	SV19172101	2,075.14	2,074.09	2,075.14	CO-682	2,074.09	2,074.09	2,074.09	0
1383	ST19173013	2,025.45	2,024.40	2,025.45	CO-683	2,024.40	2,024.40	2,024.40	0.03
1385	ST19173102	2,001.30	2,000.25	2,001.30	CO-684	2,000.25	2,000.25	2,000.25	0.04
1387	SV19174101	1,957.28	1,956.23	1,957.28	CO-685	1,956.23	1,956.23	1,956.23	0.07
1389	SV19174101	1,927.82	1,926.77	1,927.82	CO-687	1,926.77	1,926.77	1,926.77	0.09
1393	SV19174103	1,898.36	1,897.31	1,898.36	CO-688	1,897.31	1,897.31	1,897.31	0.11
1396	SV19173001	2,070.03	2,068.98	2,070.03	CO-689	2,069.00	2,069.00	2,069.00	4.86
1397	SV19174001	2,003.25	2,002.20	2,003.25	CO-690	2,002.22	2,002.22	2,002.22	4.9
1399	SV19174002	1,980.94	1,979.89	1,980.94	CO-691	1,979.91	1,979.91	1,979.91	4.92
1401	ST19175001	1,936.47	1,935.42	1,936.47	CO-692	1,935.44	1,935.44	1,935.44	4.95
1403	SV19175005	1,914.21	1,913.16	1,914.21	CO-693	1,913.18	1,913.18	1,913.18	4.96

1406	SV19164901	2,960.15	2,059.10	2,960.15	CO-694	2,059.12	2,059.12	2,059.12	4.86
1407	ST19164902	2,001.23	2,000.18	2,001.23	CO-695	2,000.20	2,000.20	2,000.20	4.89
1409	SV19165901	1,965.32	1,964.27	1,965.32	CO-696	1,964.29	1,964.29	1,964.29	4.91
1411	SV19165902	1,902.10	1,901.05	1,902.10	CO-697	1,901.07	1,901.07	1,901.07	4.95
1414	SV19164801	2,038.81	2,037.76	2,038.81	CO-698	2,037.78	2,037.78	2,037.78	6.5
1415	SV19166804	1,978.65	1,977.60	1,978.65	CO-699	1,977.62	1,977.62	1,977.62	6.53
1417	ST19165802	1,940.63	1,939.58	1,940.63	CO-700	1,939.60	1,939.60	1,939.60	6.55
1419	SV19166804	1,875.51	1,874.46	1,875.51	CO-701	1,874.48	1,874.48	1,874.48	6.58
1422	SV19164701	2,037.82	2,036.77	2,037.82	CO-702	2,036.79	2,036.80	2,036.80	9
1423	SV19165703	2,015.65	2,014.60	2,015.65	CO-703	2,014.62	2,014.63	2,014.63	9.04
1425	SV19166704	2,055.65	2,004.60	2,055.65	CO-704	2,004.63	2,004.64	2,004.64	14.06
1427	SV19166603	1,970.93	1,969.88	1,970.93	CO-705	1,969.91	1,969.92	1,969.92	18.09
1429	SV19166602	1,968.56	1,967.51	1,968.56	CO-706	1,967.54	1,967.55	1,967.55	18.1
1431	SV97674201	1,950.28	1,949.23	1,950.28	CO-707	1,949.26	1,949.27	1,949.27	18.13
1434	SV19167307	2,070.40	2,069.35	2,070.40	CO-708	2,069.35	2,069.35	2,069.35	0
1435	SV19166404	2,063.96	2,062.91	2,063.96	CO-709	2,062.92	2,062.92	2,062.92	1.98
1437	SV19166503	2,061.12	2,060.07	2,061.12	CO-710	2,060.08	2,060.08	2,060.08	2
1439	SV19166505	2,055.09	2,054.04	2,055.09	CO-765	2,054.05	2,054.05	2,054.05	2.02
1442	SV20198004	2,140.32	2,139.27	2,140.32	CO-712	2,139.27	2,139.27	2,139.27	0
1444	SV20198102	2,160.10	2,159.05	2,160.10	CO-713	2,159.05	2,159.05	2,159.05	0
1445	SV20197003	2,116.91	2,115.86	2,116.91	CO-714	2,115.86	2,115.86	2,115.86	0.03
1448	SV20195501	2,187.80	2,186.75	2,187.80	CO-715	2,186.77	2,186.77	2,186.77	7
1449	SV20195402	2,151.50	2,150.45	2,151.50	CO-716	2,150.47	2,150.48	2,150.48	7.02
1452	SV18188904	2,346.91	2,345.86	2,346.91	CO-717	2,345.86	2,345.86	2,345.86	0
1453	SV18188904	2,341.45	2,340.40	2,341.45	CO-769	2,340.40	2,340.40	2,340.40	0.03
1458	SV18196101	2,452.62	2,451.57	2,452.62	CO-720	2,451.58	2,451.59	2,451.59	4.44
1459	SV18196104	2,442.63	2,441.58	2,442.63	CO-731	2,441.60	2,441.60	2,441.60	6.69
1462	SV19187402	1,946.38	1,945.33	1,946.38	CO-722	1,945.35	1,945.35	1,945.35	5
1463	SV19188404	1,942.04	1,940.99	1,942.04	CO-723	1,941.01	1,941.01	1,941.01	5.03
1466	SV20196308	2,105.60	2,104.55	2,105.60	CO-724	2,104.55	2,104.55	2,104.55	0
1468	SV96948501	2,139.65	2,138.60	2,139.65	CO-725	2,138.60	2,138.60	2,138.60	0
1471	SV19171801	2,081.36	2,080.31	2,081.36	CO-726	2,080.32	2,080.32	2,080.32	2.55
1476	SV86905001	2,424.98	2,423.93	2,424.98	CO-730	2,423.94	2,423.95	2,423.95	6.72
1484	SV91914801	2,151.42	2,150.37	2,151.42	CO-736	2,150.41	2,150.42	2,150.42	29.35
1496	SV20194401	2,056.82	2,055.72	2,056.82	CO-745	2,055.80	2,055.84	2,055.84	133.98
1503	SV19198605	2,228.21	2,227.16	2,228.21	CO-750	2,227.20	2,227.21	2,227.21	27.71
1509	SV19187802	1,974.34	1,973.06	1,974.34	CO-752	1,973.20	1,973.29	1,973.29	368.15
1510	SV93849901	2,208.06	2,207.01	2,208.06	CO-754	2,207.06	2,207.07	2,207.07	43.16
1513	SV92802801	1,980.25	1,979.20	1,980.25	CO-756	1,979.25	1,979.26	1,979.26	43.13
1516	SV19179703	1,878.85	1,877.55	1,878.85	CO-758	1,877.70	1,877.99	1,877.99	672.77
1523	SV19169103	2,025.86	2,024.81	2,025.86	CO-763	2,024.82	2,024.83	2,024.83	5.49
1529	SV20161104	1,942.60	1,941.55	1,942.60	CO-767	1,941.59	1,941.61	1,941.61	35.22
1533	SV18187903	2,330.95	2,329.90	2,330.95	CO-771	2,329.92	2,329.93	2,329.93	14.12
1540	SV88870601	2,188.22	2,187.17	2,188.22	CO-776	2,187.20	2,187.21	2,187.21	21.73
1543	SV88836001	2,118.13	2,117.08	2,118.13	CO-778	2,117.12	2,117.13	2,117.13	30.56
1546	SV94589901	1,993.45	1,992.40	1,993.45	CO-779	1,992.40	1,992.40	1,992.40	0
1547	SV95581608	1,990.15	1,989.10	1,990.15	CO-252	1,989.10	1,989.10	1,989.10	0.01
1550	SV93932201	2,206.89	2,205.84	2,206.89	CO-780	2,205.85	2,205.86	2,205.86	4.35
1554	SV93933201	2,204.38	2,203.33	2,204.38	CO-781	2,203.35	2,203.35	2,203.35	6.08
1559	SV93937501	2,201.13	2,200.08	2,201.13	CO-785	2,200.10	2,200.10	2,200.10	6.92
1562	SV19196506	2,241.78	2,240.73	2,241.78	CO-786	2,240.73	2,240.73	2,240.73	0
1564	SV96951701	2,192.62	2,191.57	2,192.62	CO-788	2,191.58	2,191.59	2,191.59	3.72

Conduit Data

Label	Start Node	Invert (Start) (m)	Stop Node	Invert (Stop) (m)	Length (Unified) (ft)	Diameter (mm)	Manning's n	Conduit Shape
CO-2	SV93835701	2,173.38	SV19183201	2,147.49	79	304.8	0.012	Circular Pipe
CO-3	SV19183201	2,147.49	SV19183204	2,092.11	100	150	0.012	Circular Pipe
CO-4	SV19183204	2,092.11	SV19183102	2,055.20	71	150	0.012	Circular Pipe
CO-5	SV19183102	2,055.20	SV19183103	2,036.74	43	150	0.011	Circular Pipe
CO-6	SV19183103	2,036.74	ST19183001	2,009.20	53	150	0.011	Circular Pipe
CO-7	ST19183001	2,009.20	SV19183003	1,981.36	55	150	0.011	Circular Pipe
CO-8	SV19183003	1,981.36	SV92799601	1,937.70	76	150	0.011	Circular Pipe
CO-9	SV92799601	1,937.70	SV93791201	1,929.10	46	150	0.011	Circular Pipe
CO-10	SV93791201	1,929.10	ST19173901	1,926.25	17	150	0.011	Circular Pipe
CO-11	ST19173901	1,926.25	ST19173802	1,896.25	81	150	0.011	Circular Pipe
CO-12	ST19173802	1,896.25	SV19173804	1,879.35	50	150	0.011	Circular Pipe
CO-13	SV19173804	1,879.35	SV19174703	1,861.08	113	200	0.011	Circular Pipe
CO-14	SV19174703	1,861.08	SV19175601	1,823.80	116	350	0.011	Circular Pipe
CO-15	SV19175601	1,823.80	SV19175502	1,822.85	105	400	0.011	Circular Pipe
CO-16	SV19175502	1,822.85	SV19176502	1,821.65	123	400	0.011	Circular Pipe
CO-17	SV19176502	1,821.65	SV19177502	1,820.30	131	400	0.011	Circular Pipe
CO-18	SV19177502	1,820.30	SV19179501	1,818.65	157	400	0.011	Circular Pipe
CO-19	SV19179501	1,818.65	OF-1	1,815.65	61	400	0.011	Circular Pipe
CO-20	SV19177503	1,836.10	SV19177502	1,820.30	80	150	0.011	Circular Pipe
CO-21	SV19176601	1,855.20	SV19176603	1,840.25	75	150	0.011	Circular Pipe
CO-22	SV19176603	1,840.25	SV19176502	1,821.65	63	150	0.011	Circular Pipe
CO-23	SV19175704	1,852.65	SV19175604	1,838.20	74	150	0.011	Circular Pipe
CO-24	SV19175604	1,838.20	SV19175502	1,822.85	61	150	0.011	Circular Pipe
CO-25	SV19176801	1,891.50	SV19176803	1,882.40	48	150	0.011	Circular Pipe
CO-30	SV19175801	1,868.20	SV19175703	1,865.03	58	150	0.011	Circular Pipe
CO-34	SV19174704	1,862.22	SV19174703	1,861.08	52	150	0.011	Circular Pipe
CO-35	SV19184201	2,171.25	SV19184203	2,134.10	72	150	0.011	Circular Pipe
CO-36	SV19184203	2,134.10	SV19184103	2,086.85	100	150	0.011	Circular Pipe
CO-37	SV19184103	2,086.85	SV19184001	2,062.00	64	150	0.011	Circular Pipe
CO-38	SV19184001	2,062.00	ST19184002	2,027.35	62	150	0.011	Circular Pipe
CO-39	ST19184002	2,027.35	SV19174901	1,993.45	62	150	0.011	Circular Pipe
CO-40	SV19174901	1,993.45	SV19175802	1,930.90	100	150	0.011	Circular Pipe
CO-41	SV19175802	1,930.90	SV19175804	1,884.05	74	150	0.011	Circular Pipe
CO-42	SV19175804	1,884.05	SV19175703	1,865.03	55	150	0.011	Circular Pipe
CO-43	SV89858101	2,157.14	SV90841401	2,114.60	91	150	0.011	Circular Pipe
CO-44	SV90841401	2,114.60	ST19180301	2,093.33	66	150	0.011	Circular Pipe
CO-45	ST19180301	2,093.33	SV90839201	2,072.06	89	150	0.011	Circular Pipe
CO-46	SV90839201	2,072.06	SV91822801	2,050.79	54	150	0.011	Circular Pipe
CO-47	SV91822801	2,050.79	SV91825301	2,029.53	58	150	0.011	Circular Pipe
CO-48	SV91825301	2,029.53	SV91816901	2,018.89	43	150	0.011	Circular Pipe
CO-49	SV91816901	2,018.89	SV92810501	1,997.62	59	150	0.011	Circular Pipe
CO-54	SV92789602	2,003.10	SV92798101	1,993.20	47	150	0.011	Circular Pipe
CO-55	SV92788601	2,008.73	SV92789602	2,003.10	11	150	0.011	Circular Pipe
CO-56	SV92788301	2,015.18	SV92788601	2,008.73	34	150	0.011	Circular Pipe
CO-57	SV92787301	2,019.09	SV92788301	2,015.18	16	150	0.011	Circular Pipe
CO-58	SV92776901	2,025.40	SV92787301	2,019.09	41	150	0.011	Circular Pipe
CO-59	SV92773901	2,050.95	SV92776901	2,025.40	41	150	0.011	Circular Pipe
CO-60	SV89761901	2,137.00	SV89777301	2,113.01	81	150	0.011	Circular Pipe
CO-61	SV89777301	2,113.01	SV19170703	2,100.39	84	150	0.011	Circular Pipe

CO-62	SV19170703	2,100.39	SV90778801	2,098.22	45	150	0.011	Circular Pipe
CO-64	ST19171801	2,054.24	SV92782701	2,048.07	52	150	0.011	Circular Pipe
CO-65	SV92782701	2,048.07	SV19171903	2,043.35	80	150	0.011	Circular Pipe
CO-66	SV19171903	2,043.35	SV19172902	1,979.32	78	150	0.011	Circular Pipe
CO-67	SV19172902	1,979.32	SV19172903	1,944.45	52	150	0.011	Circular Pipe
CO-69	SV92783001	2,050.38	SV92782701	2,048.07	75	150	0.011	Circular Pipe
CO-70	SV19170801	2,046.05	ST19170902	2,044.85	93	150	0.011	Circular Pipe
CO-71	ST19170902	2,044.85	SV19171903	2,043.35	99	150	0.011	Circular Pipe
CO-72	SV88795401	2,158.25	SV89791601	2,129.37	67	150	0.011	Circular Pipe
CO-73	SV89791601	2,129.37	SV89797801	2,097.60	73	150	0.011	Circular Pipe
CO-74	SV89797801	2,097.60	SV90804301	2,057.64	92	150	0.011	Circular Pipe
CO-75	SV90804301	2,057.64	SV91800601	2,026.82	71	150	0.011	Circular Pipe
CO-76	SV91800601	2,026.82	SV19181002	1,996.99	69	150	0.011	Circular Pipe
CO-77	SV19181002	1,996.99	SV92802501	1,974.71	81	150	0.011	Circular Pipe
CO-78	SV18185301	2,224.52	SV18185302	2,224.16	34	150	0.011	Circular Pipe
CO-79	SV18185302	2,224.16	SV18185202	2,220.56	75	150	0.011	Circular Pipe
CO-80	SV18185202	2,220.56	SV18185203	2,217.95	30	150	0.013	Circular Pipe
CO-82	ST18185101	2,214.24	SV18186106	2,203.55	82	150	0.011	Circular Pipe
CO-83	SV18186106	2,203.55	SV86813001	2,162.83	44	150	0.011	Circular Pipe
CO-84	SV86813001	2,162.83	SV18186104	2,143.87	52	150	0.011	Circular Pipe
CO-85	SV18186104	2,143.87	SV18187102	2,110.00	101	150	0.011	Circular Pipe
CO-86	SV18187102	2,110.00	ST18188101	2,104.55	64	150	0.011	Circular Pipe
CO-87	ST18188101	2,104.55	SV88817801	2,084.55	57	150	0.011	Circular Pipe
CO-88	SV88817801	2,084.55	SV18189101	2,075.81	49	150	0.011	Circular Pipe
CO-89	SV18189101	2,075.81	SV18189104	2,049.53	81	150	0.011	Circular Pipe
CO-90	SV18189104	2,049.53	SV19180102	2,032.02	53	150	0.013	Circular Pipe
CO-91	SV19180102	2,032.02	ST19180102	2,019.31	49	150	0.011	Circular Pipe
CO-92	ST19180102	2,019.31	SV19181002	1,996.99	79	150	0.011	Circular Pipe
CO-93	SV85821401	2,215.47	ST18185101	2,214.24	100	150	0.011	Circular Pipe
CO-94	SV85816601	2,209.43	SV18186106	2,203.55	83	150	0.011	Circular Pipe
CO-100	SV85819701	2,193.22	SV86813001	2,162.83	91	150	0.011	Circular Pipe
CO-101	SV18186201	2,147.35	SV18186202	2,147.20	31	150	0.011	Circular Pipe
CO-102	SV18186202	2,147.20	SV18187103	2,145.70	73	150	0.011	Circular Pipe
CO-105	SV88862801	2,179.20	SV88861401	2,174.45	49	150	0.011	Circular Pipe
CO-106	SV88861401	2,174.45	SV87858801	2,168.13	65	150	0.011	Circular Pipe
CO-107	SV87858801	2,168.13	SV18187501	2,160.85	75	150	0.011	Circular Pipe
CO-108	SV18187501	2,160.85	SV18188405	2,158.14	64	150	0.011	Circular Pipe
CO-109	SV18188405	2,158.14	SV18188301	2,151.11	58	150	0.011	Circular Pipe
CO-110	SV18188301	2,151.11	SV18188303	2,131.47	59	150	0.011	Circular Pipe
CO-111	SV18188303	2,131.47	SV88826901	2,119.60	46	150	0.011	Circular Pipe
CO-113	SV89820201	2,092.51	SV18189101	2,075.81	56	150	0.011	Circular Pipe
CO-114	SV87838601	2,134.55	SV18188303	2,131.47	62	150	0.011	Circular Pipe
CO-115	SV18184501	2,329.81	SV18185505	2,327.05	62	150	0.011	Circular Pipe
CO-116	SV18185505	2,327.05	SV18185402	2,325.02	79	150	0.011	Circular Pipe
CO-117	SV18185402	2,325.02	ST18186401	2,242.66	96	150	0.011	Circular Pipe
CO-118	ST18186401	2,242.66	SV18186301	2,148.78	110	150	0.011	Circular Pipe
CO-119	SV18186301	2,148.78	SV18186303	2,134.46	62	150	0.011	Circular Pipe
CO-120	SV18186303	2,134.46	SV18187302	2,124.13	68	150	0.011	Circular Pipe
CO-121	SV18187302	2,124.13	SV18187202	2,111.80	60	150	0.011	Circular Pipe
CO-122	SV18187202	2,111.80	SV18187203	2,105.64	50	150	0.011	Circular Pipe
CO-123	SV18187203	2,105.64	SV88817801	2,084.55	79	150	0.011	Circular Pipe
CO-124	SV91845301	2,157.29	SV91831701	2,114.67	77	150	0.011	Circular Pipe
CO-125	SV91831701	2,114.67	SV90839201	2,072.06	72	150	0.011	Circular Pipe
CO-126	SV91849001	2,161.47	SV91838401	2,117.49	69	150	0.011	Circular Pipe
CO-127	SV91838401	2,117.49	SV91826801	2,073.51	84	150	0.011	Circular Pipe
CO-128	SV91826801	2,073.51	SV91826601	2,051.52	30	150	0.011	Circular Pipe

CO-129	SV91826601	2,051.52	SV91825301	2,029.53	35	150	0.011	Circular Pipe
CO-130	SV92833301	2,157.55	SV19181301	2,115.53	64	150	0.011	Circular Pipe
CO-131	SV19181301	2,115.53	SV91826801	2,073.51	55	150	0.011	Circular Pipe
CO-132	SV92824401	2,059.45	SV91826601	2,051.52	80	150	0.011	Circular Pipe
CO-134	SV19181602	2,235.82	SV9180604	2,225.36	74	150	0.011	Circular Pipe
CO-135	SV9180604	2,225.36	SV18189601	2,217.05	73	150	0.011	Circular Pipe
CO-136	SV18189601	2,217.05	SV89856701	2,213.68	53	150	0.011	Circular Pipe
CO-137	SV89856701	2,213.68	SV89853701	2,211.25	25	150	0.011	Circular Pipe
CO-138	SV89853701	2,211.25	SV89862401	2,204.55	69	150	0.011	Circular Pipe
CO-139	SV89862401	2,204.55	SV88867801	2,198.34	64	150	0.011	Circular Pipe
CO-140	SV88867801	2,198.34	SV88875201	2,194.26	42	150	0.011	Circular Pipe
CO-141	SV88875201	2,194.26	SV8871701	2,188.24	42	150	0.011	Circular Pipe
CO-142	SV18189701	2,243.58	SV18189703	2,241.95	59	150	0.011	Circular Pipe
CO-143	SV18189703	2,241.95	SV19188060	2,240.36	69	150	0.011	Circular Pipe
CO-144	SV191880601	2,240.36	SV19180602	2,239.36	39	150	0.011	Circular Pipe
CO-145	SV19180602	2,239.36	SV91868501	2,232.30	97	150	0.011	Circular Pipe
CO-146	SV19190001	2,290.60	SV19180903	2,287.80	27	150	0.011	Circular Pipe
CO-147	SV19180903	2,287.80	SV19180905	2,277.31	50	150	0.011	Circular Pipe
CO-148	SV19180905	2,277.31	SV19180907	2,269.35	44	150	0.011	Circular Pipe
CO-149	SV19180907	2,269.35	SV19180803	2,264.77	84	150	0.011	Circular Pipe
CO-150	SV19180803	2,264.77	SV19180701	2,252.55	61	150	0.011	Circular Pipe
CO-151	SV19180701	2,252.55	SV19188060	2,240.36	86	150	0.011	Circular Pipe
CO-154	SV19181901	2,242.49	SV19181903	2,199.98	65	150	0.011	Circular Pipe
CO-155	SV19181903	2,199.98	SV19181905	2,157.47	60	150	0.011	Circular Pipe
CO-156	SV19181905	2,157.47	SV19182802	2,114.96	63	150	0.011	Circular Pipe
CO-157	SV19182802	2,114.96	SV19182804	2,072.45	65	150	0.011	Circular Pipe
CO-158	SV19182804	2,072.45	SV19183801	2,039.71	61	150	0.011	Circular Pipe
CO-159	SV19183801	2,039.71	SV19183803	2,006.98	71	150	0.011	Circular Pipe
CO-161	SV19183803	2,006.98	SV19184802	1,984.25	58	150	0.011	Circular Pipe
CO-162	SV19184802	1,984.25	SV19184806	1,957.87	63	150	0.011	Circular Pipe
CO-163	SV19182902	2,044.45	SV19183907	2,015.15	92	150	0.011	Circular Pipe
CO-164	SV19183907	2,015.15	SV19183905	2,001.15	69	150	0.011	Circular Pipe
CO-165	SV19183905	2,001.15	SV19184803	1,980.51	62	150	0.011	Circular Pipe
CO-166	SV19184803	1,980.51	SV19184806	1,957.87	75	150	0.011	Circular Pipe
CO-168	SV91914701	2,146.43	SV19192101	2,114.72	85	150	0.011	Circular Pipe
CO-169	SV19192101	2,114.72	SV19192001	2,095.65	48	150	0.011	Circular Pipe
CO-170	SV19192001	2,095.65	SV19192003	2,071.15	54	150	0.011	Circular Pipe
CO-171	SV19192003	2,071.15	SV19183901	2,033.35	96	150	0.011	Circular Pipe
CO-172	SV19183901	2,033.35	SV19183903	2,014.18	54	150	0.011	Circular Pipe
CO-173	SV19183903	2,014.18	SV19183905	2,001.15	60	150	0.011	Circular Pipe
CO-174	SV91919701	2,154.44	SV92910601	2,149.06	14	150	0.011	Circular Pipe
CO-175	SV92910601	2,149.06	SV19192101	2,114.72	19	150	0.011	Circular Pipe
CO-176	SV19193101	2,147.05	SV19194103	2,113.03	94	150	0.011	Circular Pipe
CO-177	SV19194103	2,113.03	SV19195102	2,079.02	92	150	0.011	Circular Pipe
CO-178	SV19195102	2,079.02	SV19196002	2,041.53	80	150	0.011	Circular Pipe
CO-179	SV19196002	2,041.53	SV19195005	2,003.99	87	150	0.011	Circular Pipe
CO-180	SV19195005	2,003.99	SV19185903	1,978.98	53	150	0.011	Circular Pipe
CO-181	SV19185903	1,978.98	SV19186902	1,966.73	33	150	0.011	Circular Pipe
CO-182	SV19186902	1,966.73	SV19185901	1,965.45	15	150	0.011	Circular Pipe
CO-183	SV19185901	1,965.45	SV19185802	1,961.69	116	150	0.011	Circular Pipe
CO-184	SV19185802	1,961.69	SV19184801	1,956.91	78	150	0.011	Circular Pipe
CO-185	SV19184801	1,956.91	SV19184701	1,956.13	16	350	0.011	Circular Pipe
CO-186	SV19184701	1,956.13	SV19185701	1,954.57	40	350	0.011	Circular Pipe
CO-187	SV19185701	1,954.57	SV19185702	1,952.31	61	400	0.011	Circular Pipe
CO-188	SV19185702	1,952.31	SV19186604	1,946.63	97	400	0.011	Circular Pipe
CO-189	SV19186604	1,946.63	SV19187601	1,945.82	57	400	0.011	Circular Pipe

CO-190	SV19187601	1,945.82	SV19187602	1,945.19	64	400	0.011	Circular Pipe
CO-191	SV19187602	1,945.19	ST19188501	1,943.15	70	400	0.011	Circular Pipe
CO-192	ST19188501	1,943.15	SV19189501	1,942.20	65	400	0.011	Circular Pipe
CO-193	SV19189501	1,942.20	SV19189401	1,938.78	86	400	0.011	Circular Pipe
CO-194	SV19189401	1,938.78	SV19188310	1,934.00	101	400	0.011	Circular Pipe
CO-195	SV19188310	1,934.00	SV19189301	1,933.70	15	400	0.011	Circular Pipe
CO-196	SV19189301	1,933.70	SV19189402	1,930.22	112	400	0.011	Circular Pipe
CO-197	SV19189402	1,930.22	SV20180401	1,929.42	52	150	0.011	Circular Pipe
CO-198	SV20180401	1,929.42	SV20180402	1,928.40	31	400	0.011	Circular Pipe
CO-199	SV20180402	1,928.40	SV20180301	1,927.43	87	400	0.011	Circular Pipe
CO-200	SV20180301	1,927.43	SV20181202	1,926.61	85	400	0.011	Circular Pipe
CO-201	SV20181202	1,926.61	SV20181204	1,925.69	63	400	0.011	Circular Pipe
CO-202	SV20181204	1,925.69	SV20181102	1,918.91	134	400	0.011	Circular Pipe
CO-203	SV20181102	1,918.91	SV20182001	1,918.26	20	400	0.011	Circular Pipe
CO-204	SV20182001	1,918.26	SV20181001	1,917.35	47	400	0.011	Circular Pipe
CO-205	SV20181001	1,917.35	SV20180001	1,915.26	76	150	0.011	Circular Pipe
CO-206	SV20180001	1,915.26	SV20180003	1,908.15	47	400	0.011	Circular Pipe
CO-207	SV20180003	1,908.15	SV20170902	1,896.25	42	400	0.011	Circular Pipe
CO-208	SV20170902	1,896.25	SV20170904	1,892.69	59	400	0.011	Circular Pipe
CO-210	SV20170801	1,890.10	SV20171701	1,886.96	81	400	0.011	Circular Pipe
CO-211	SV20171701	1,886.96	SV20171703	1,885.15	44	400	0.011	Circular Pipe
CO-212	SV20171703	1,885.15	SV20170701	1,880.61	102	400	0.011	Circular Pipe
CO-214	SV19179701	1,873.62	SV19178703	1,869.94	78	400	0.011	Circular Pipe
CO-215	SV19178703	1,869.94	SV19178601	1,867.22	88	150	0.011	Circular Pipe
CO-216	SV19178601	1,867.22	SV19178502	1,840.62	141	400	0.011	Circular Pipe
CO-217	SV19178502	1,840.62	SV19179501	1,818.65	123	400	0.011	Circular Pipe
CO-218	SV20165405	1,892.98	SV20164402	1,891.63	69	400	0.011	Circular Pipe
CO-219	SV20164402	1,891.63	ST20164401	1,890.45	47	400	0.011	Circular Pipe
CO-220	ST20164401	1,890.45	SV20163301	1,887.59	84	150	0.011	Circular Pipe
CO-221	SV20163301	1,887.59	SV20162403	1,886.90	120	150	0.011	Circular Pipe
CO-222	SV20162403	1,886.90	SV20116040	1,886.00	178	150	0.011	Circular Pipe
CO-223	SV201160402	1,886.00	SV19169501	1,885.41	67	150	0.011	Circular Pipe
CO-224	SV19169501	1,885.41	SV19168504	1,884.37	125	200	0.011	Circular Pipe
CO-226	SV19168504	1,884.37	SV19168506	1,884.11	71	200	0.011	Circular Pipe
CO-227	SV19168506	1,884.11	SV19168602	1,881.02	86	200	0.011	Circular Pipe
CO-228	SV19168602	1,881.02	SV19168702	1,880.37	68	250	0.011	Circular Pipe
CO-229	SV19168702	1,880.37	SV19167702	1,877.89	79	250	0.011	Circular Pipe
CO-230	SV19167702	1,877.89	SV19166803	1,874.33	153	250	0.011	Circular Pipe
CO-231	SV19166803	1,874.33	SV19165903	1,869.35	117	250	0.011	Circular Pipe
CO-232	SV19165903	1,869.35	SV19176001	1,868.75	88	250	0.011	Circular Pipe
CO-233	SV19176001	1,868.75	SV19175101	1,868.55	65	250	0.011	Circular Pipe
CO-234	SV19175101	1,868.55	SV19175201	1,867.75	107	250	0.011	Circular Pipe
CO-235	SV19175201	1,867.75	SV19174304	1,864.05	203	250	0.011	Circular Pipe
CO-236	SV19174304	1,864.05	SV19174402	1,862.55	24	250	0.011	Circular Pipe
CO-237	SV19174402	1,862.55	SV19173403	1,862.47	64	250	0.011	Circular Pipe
CO-238	SV19170502	2,083.15	SV19170505	2,079.77	53	250	0.011	Circular Pipe
CO-239	SV19170505	2,079.77	SV19170602	2,073.55	89	350	0.011	Circular Pipe
CO-240	SV19170602	2,073.55	SV90768401	2,044.08	66	150	0.011	Circular Pipe
CO-241	SV90768401	2,044.08	SV91765001	2,004.78	83	150	0.011	Circular Pipe
CO-242	SV91765001	2,004.78	SV92750601	1,968.17	77	150	0.011	Circular Pipe
CO-243	SV92750601	1,968.17	SV92754101	1,936.40	67	150	0.011	Circular Pipe
CO-244	SV92754101	1,936.40	SV92756101	1,918.69	27	150	0.011	Circular Pipe
CO-245	SV92756101	1,918.69	SV19173406	1,872.67	69	150	0.011	Circular Pipe
CO-246	SV19173406	1,872.67	SV19173403	1,862.47	15	150	0.011	Circular Pipe
CO-247	SV19173403	1,862.47	SV19173401	1,861.85	142	150	0.011	Circular Pipe
CO-248	SV19173401	1,861.85	SV19174703	1,861.08	117	150	0.011	Circular Pipe

CO-249	SV91771101	2,054.10	ST19171602	2,010.24	91	350	0.011	Circular Pipe
CO-250	ST19171602	2,010.24	SV92752901	1,965.84	92	350	0.011	Circular Pipe
CO-251	SV92752901	1,965.84	SV92756101	1,918.69	98	150	0.011	Circular Pipe
CO-252	SV95581608	1,989.10	SV95583701	1,986.73	23	150	0.011	Circular Pipe
CO-253	SV95583701	1,986.73	SV19155901	1,982.09	45	150	0.011	Circular Pipe
CO-254	SV19155901	1,982.09	SV19156901	1,976.38	57	150	0.011	Circular Pipe
CO-255	SV19156901	1,976.38	SV19156905	1,968.87	75	150	0.011	Circular Pipe
CO-256	SV19156905	1,968.87	SV19167002	1,964.25	98	150	0.011	Circular Pipe
CO-257	SV19167002	1,964.25	SV19167005	1,961.67	80	150	0.011	Circular Pipe
CO-258	SV19167005	1,961.67	SV19168002	1,958.29	60	150	0.011	Circular Pipe
CO-259	SV19168002	1,958.29	SV19168004	1,956.37	54	150	0.011	Circular Pipe
CO-260	SV19168004	1,956.37	SV19169003	1,952.36	86	150	0.011	Circular Pipe
CO-261	SV19169003	1,952.36	SV20160101	1,949.82	58	150	0.011	Circular Pipe
CO-262	SV20160101	1,949.82	SV20160106	1,947.20	56	150	0.011	Circular Pipe
CO-263	SV20160106	1,947.20	SV20161102	1,943.80	57	150	0.011	Circular Pipe
CO-265	SV20162105	1,932.85	SV20163101	1,929.73	73	150	0.011	Circular Pipe
CO-266	SV20163101	1,929.73	SV20163103	1,926.41	62	150	0.011	Circular Pipe
CO-267	SV20163103	1,926.41	ST20164101	1,924.55	59	150	0.011	Circular Pipe
CO-268	ST20164101	1,924.55	SV20165101	1,923.25	73	150	0.011	Circular Pipe
CO-269	SV20165101	1,923.25	SV20165103	1,916.71	72	150	0.011	Circular Pipe
CO-270	SV20165103	1,916.71	SV20166102	1,912.69	69	150	0.011	Circular Pipe
CO-271	SV20166102	1,912.69	SV20166204	1,911.72	122	150	0.011	Circular Pipe
CO-272	SV20166204	1,911.72	SV20167301	1,909.37	54	150	0.011	Circular Pipe
CO-273	SV20167301	1,909.37	SV20167302	1,908.55	21	150	0.011	Circular Pipe
CO-274	SV20166306	1,907.20	SV20166305	1,904.75	76	150	0.011	Circular Pipe
CO-275	SV20166305	1,904.75	SV20165401	1,903.63	28	150	0.011	Circular Pipe
CO-276	SV20165401	1,903.63	ST20165401	1,897.18	59	150	0.011	Circular Pipe
CO-277	ST20165401	1,897.18	SV20165404	1,893.72	46	150	0.011	Circular Pipe
CO-278	SV20165404	1,893.72	SV20165405	1,892.98	32	150	0.011	Circular Pipe
CO-279	SV05630701	1,901.52	SV20165405	1,892.98	100	150	0.011	Circular Pipe
CO-281	SV00613701	2,022.59	SV20160204	2,021.61	71	150	0.011	Circular Pipe
CO-282	SV20160204	2,021.61	SV20161205	2,009.61	84	150	0.011	Circular Pipe
CO-283	SV20161205	2,009.61	SV02620601	2,001.44	59	150	0.011	Circular Pipe
CO-284	SV20162202	1,995.32	SV20163201	1,980.85	87	150	0.011	Circular Pipe
CO-285	SV20163201	1,980.85	SV20163203	1,975.77	45	150	0.011	Circular Pipe
CO-286	SV20163203	1,975.77	SV20163207	1,964.47	18	150	0.011	Circular Pipe
CO-287	SV20163207	1,964.47	SV20164202	1,954.48	79	150	0.011	Circular Pipe
CO-288	SV20164202	1,954.48	SV20164204	1,939.73	65	150	0.011	Circular Pipe
CO-289	SV20164204	1,939.73	SV20165101	1,923.25	49	150	0.011	Circular Pipe
CO-290	SV19168206	2,052.72	SV19168207	2,048.49	61	150	0.011	Circular Pipe
CO-291	SV19168207	2,048.49	SV19169201	2,045.34	67	150	0.011	Circular Pipe
CO-292	SV19169201	2,045.34	SV19169105	2,041.38	30	150	0.011	Circular Pipe
CO-295	SV19166506	2,053.07	SV19166508	2,042.40	57	150	0.011	Circular Pipe
CO-296	SV19166508	2,042.40	SV19167405	2,040.20	62	150	0.011	Circular Pipe
CO-297	SV19167405	2,040.20	SV97647301	2,037.69	62	150	0.011	Circular Pipe
CO-298	SV97647301	2,037.69	SV97648001	2,036.02	33	150	0.011	Circular Pipe
CO-299	SV97648001	2,036.02	SV19168303	2,030.97	73	150	0.011	Circular Pipe
CO-300	SV19168303	2,030.97	SV19168311	2,030.39	24	150	0.011	Circular Pipe
CO-301	SV19168311	2,030.39	SV19169301	2,023.81	67	150	0.011	Circular Pipe
CO-302	SV19169301	2,023.81	SV19169205	2,016.35	86	150	0.011	Circular Pipe
CO-303	SV19169205	2,016.35	SV20160202	2,016.09	60	150	0.011	Circular Pipe
CO-304	SV20160202	2,016.09	SV20160206	2,011.35	66	150	0.011	Circular Pipe
CO-305	SV20160206	2,011.35	SV20161203	1,996.75	92	150	0.011	Circular Pipe
CO-306	SV20161203	1,996.75	SV20162205	1,985.70	66	150	0.011	Circular Pipe
CO-307	SV20162205	1,985.70	SV20163208	1,977.85	72	150	0.011	Circular Pipe
CO-308	SV20163208	1,977.85	SV20163203	1,975.77	47	150	0.011	Circular Pipe

CO-309	SV19166404	2,066.20	SV97641001	2,061.42	65	150	0.011	Circular Pipe
CO-310	SV97641001	2,061.42	SV19167303	2,057.15	82	150	0.011	Circular Pipe
CO-311	SV19167303	2,057.15	SV19167203	2,050.64	97	150	0.011	Circular Pipe
CO-312	SV19167203	2,050.64	SV96618601	2,037.37	80	150	0.011	Circular Pipe
CO-313	SV96618601	2,037.37	SV19167101	2,029.66	25	150	0.011	Circular Pipe
CO-314	SV19167101	2,029.66	SV19167103	2,027.68	68	150	0.011	Circular Pipe
CO-315	SV19167103	2,027.68	SV19168202	2,027.35	63	150	0.011	Circular Pipe
CO-316	SV19168202	2,027.35	SV98614401	1,982.88	96	150	0.011	Circular Pipe
CO-318	SV98614401	1,982.88	SV19168002	1,958.29	53	150	0.011	Circular Pipe
CO-319	SV19168306	2,035.56	ST19168401	1,987.85	69	150	0.011	Circular Pipe
CO-320	ST19168401	1,987.85	SV19169401	1,945.50	71	150	0.011	Circular Pipe
CO-321	SV19169401	1,945.50	SV19169501	1,885.41	101	150	0.011	Circular Pipe
CO-322	SV19167409	2,040.18	SV19167501	2,001.25	52	150	0.011	Circular Pipe
CO-323	SV19167501	2,001.25	SV19168501	1,962.32	50	150	0.011	Circular Pipe
CO-324	SV19168501	1,962.32	SV19168504	1,884.37	92	150	0.011	Circular Pipe
CO-325	SV19166509	2,043.20	SV19167502	1,979.58	69	150	0.011	Circular Pipe
CO-326	SV19167502	1,979.58	SV19167503	1,947.77	42	150	0.011	Circular Pipe
CO-327	SV19167503	1,947.77	SV19168603	1,884.25	87	150	0.011	Circular Pipe
CO-328	SV19168603	1,884.25	SV19168506	1,884.11	27	150	0.011	Circular Pipe
CO-329	SV21190401	2,176.80	SV21190302	2,169.56	77	150	0.011	Circular Pipe
CO-330	SV21190302	2,169.56	SV20199301	2,162.51	65	150	0.011	Circular Pipe
CO-331	SV20199301	2,162.51	SV20199303	2,159.51	38	150	0.011	Circular Pipe
CO-332	SV20199303	2,159.51	SV20198201	2,155.18	95	150	0.011	Circular Pipe
CO-333	SV20198201	2,155.18	SV20199101	2,151.93	79	150	0.011	Circular Pipe
CO-334	SV20199101	2,151.93	SV20199001	2,144.88	94	150	0.011	Circular Pipe
CO-335	SV20199001	2,144.88	SV20199002	2,134.78	61	150	0.011	Circular Pipe
CO-336	SV20199002	2,134.78	SV20189902	2,131.36	95	150	0.011	Circular Pipe
CO-337	SV20189902	2,131.36	SV21180801	2,124.51	76	150	0.011	Circular Pipe
CO-338	SV21180801	2,124.51	SV21180802	2,123.50	28	150	0.011	Circular Pipe
CO-339	SV21180802	2,123.50	ST20189901	2,119.53	92	150	0.011	Circular Pipe
CO-340	ST20189901	2,119.53	SV20189903	2,116.40	74	150	0.011	Circular Pipe
CO-341	SV20189903	2,116.40	SV20188902	2,111.77	71	150	0.011	Circular Pipe
CO-342	SV20188902	2,111.77	SV20187901	2,104.33	99	150	0.011	Circular Pipe
CO-343	SV20187901	2,104.33	SV20187902	2,100.64	55	150	0.011	Circular Pipe
CO-344	SV20187902	2,100.64	SV20197001	2,095.40	85	150	0.011	Circular Pipe
CO-345	SV20197001	2,095.40	SV20197002	2,094.22	27	200	0.011	Circular Pipe
CO-346	SV20197002	2,094.22	SV20196101	2,087.52	71	200	0.011	Circular Pipe
CO-347	SV20196101	2,087.52	SV20196102	2,082.51	77	200	0.011	Circular Pipe
CO-348	SV20196102	2,082.51	SV20194101	2,074.26	116	200	0.011	Circular Pipe
CO-349	SV20194101	2,074.26	SV20194203	2,065.58	118	200	0.011	Circular Pipe
CO-350	SV20194203	2,065.58	SV20194205	2,062.53	62	200	0.011	Circular Pipe
CO-351	SV20194205	2,062.53	SV20194303	2,057.36	105	200	0.011	Circular Pipe
CO-353	SV20193402	2,053.08	SV20193302	2,048.21	96	200	0.011	Circular Pipe
CO-354	SV20193302	2,048.21	SV20192301	2,045.16	31	200	0.011	Circular Pipe
CO-355	SV20192301	2,045.16	SV20191401	2,038.97	107	350	0.011	Circular Pipe
CO-356	SV20191401	2,038.97	SV20191402	2,033.77	53	350	0.011	Circular Pipe
CO-357	SV20191402	2,033.77	SV20191403	2,032.45	22	350	0.011	Circular Pipe
CO-358	SV20191403	2,032.45	SV20191201	2,025.68	116	350	0.011	Circular Pipe
CO-359	SV20191201	2,025.68	SV20190202	2,019.38	83	350	0.011	Circular Pipe
CO-360	SV20190202	2,019.38	SV20190204	2,014.27	45	350	0.011	Circular Pipe
CO-364	SV19199810	2,007.17	SV19198102	2,001.52	55	350	0.011	Circular Pipe
CO-365	SV19198102	2,001.52	SV19197202	1,994.18	123	350	0.011	Circular Pipe
CO-367	SV19197203	1,993.70	SV19197204	1,993.17	20	350	0.011	Circular Pipe
CO-368	SV19197204	1,993.17	SV19197103	1,991.67	102	150	0.011	Circular Pipe
CO-369	SV19197103	1,991.67	SV19188901	1,986.77	152	350	0.011	Circular Pipe
CO-370	SV19188901	1,986.77	SV19189902	1,982.26	137	350	0.011	Circular Pipe

CO-371	SV19189902	1,982.26	SV19189903	1,981.02	20	250	0.011	Circular Pipe
CO-372	SV19189903	1,981.02	SV19188802	1,975.76	176	150	0.011	Circular Pipe
CO-373	SV19188802	1,975.76	SV19187801	1,974.54	39	350	0.011	Circular Pipe
CO-375	SV19186802	1,969.73	SV19186903	1,967.41	65	350	0.011	Circular Pipe
CO-377	SV19186903	1,967.41	SV19186902	1,966.73	24	350	0.011	Circular Pipe
CO-378	SV19196008	2,050.31	SV19196010	2,046.99	47	350	0.011	Circular Pipe
CO-379	SV19196010	2,046.99	SV19187903	2,040.00	56	150	0.011	Circular Pipe
CO-380	SV19187903	2,040.00	SV19187905	2,036.37	57	350	0.011	Circular Pipe
CO-381	SV19187905	2,036.37	SV19188903	2,033.88	60	350	0.011	Circular Pipe
CO-382	SV19188903	2,033.88	SV19188906	2,008.17	83	350	0.011	Circular Pipe
CO-383	SV19188906	2,008.17	SV19189902	1,982.26	81	350	0.011	Circular Pipe
CO-384	SV19195104	2,069.47	SV19196002	2,004.23	94	150	0.011	Circular Pipe
CO-385	SV19196002	2,004.23	ST19196002	2,004.20	59	150	0.01	Circular Pipe
CO-386	ST19196002	2,004.20	SV19185903	1,978.98	92	150	0.011	Circular Pipe
CO-387	SV05968701	2,273.05	SV05961601	2,268.22	71	150	0.011	Circular Pipe
CO-388	SV05961601	2,268.22	SV04963901	2,262.61	85	150	0.011	Circular Pipe
CO-389	SV04963901	2,262.61	SV03966801	2,258.40	68	150	0.011	Circular Pipe
CO-390	SV03966801	2,258.40	SV03971001	2,254.70	59	150	0.011	Circular Pipe
CO-391	SV03971001	2,254.70	SV20192704	2,251.43	49	150	0.011	Circular Pipe
CO-392	SV20192704	2,251.43	SV20191701	2,245.97	77	150	0.011	Circular Pipe
CO-393	SV20191701	2,245.97	SV20191703	2,244.64	76	150	0.011	Circular Pipe
CO-394	SV20191703	2,244.64	SV20190702	2,243.94	81	150	0.011	Circular Pipe
CO-395	SV20190702	2,243.94	SV19199709	2,238.83	64	150	0.011	Circular Pipe
CO-396	SV19199709	2,238.83	SV19199710	2,230.81	29	150	0.011	Circular Pipe
CO-397	SV19199710	2,230.81	SV19199603	2,228.45	85	150	0.011	Circular Pipe
CO-399	SV19198606	2,226.30	SV19197605	2,225.20	93	150	0.011	Circular Pipe
CO-400	SV19197605	2,225.20	SV19196701	2,223.78	84	150	0.011	Circular Pipe
CO-401	SV19196701	2,223.78	ST19196601	2,221.58	27	150	0.011	Circular Pipe
CO-402	ST19196601	2,221.58	SV97960501	2,205.28	59	150	0.011	Circular Pipe
CO-403	SV97960501	2,205.28	SV19197602	2,191.27	51	150	0.011	Circular Pipe
CO-404	SV19197602	2,191.27	SV19197503	2,167.50	94	150	0.011	Circular Pipe
CO-405	SV19197503	2,167.50	SV96949901	2,150.65	59	150	0.011	Circular Pipe
CO-406	SV96949901	2,150.65	SV19196406	2,136.42	105	150	0.011	Circular Pipe
CO-407	SV19196406	2,136.42	SV96944101	2,122.04	48	150	0.011	Circular Pipe
CO-410	SV96926901	2,045.30	SV19197203	1,993.70	105	150	0.011	Circular Pipe
CO-411	SV98962201	2,229.05	SV98952801	2,220.14	39	150	0.011	Circular Pipe
CO-412	SV98952801	2,220.14	SV19199501	2,191.77	96	150	0.011	Circular Pipe
CO-413	SV19199501	2,191.77	SV19199502	2,184.15	29	150	0.011	Circular Pipe
CO-414	SV19199502	2,184.15	SV19199401	2,160.27	83	150	0.011	Circular Pipe
CO-415	SV19199401	2,160.27	SV19199403	2,144.35	46	150	0.011	Circular Pipe
CO-416	SV19199403	2,144.35	SV19199405	2,117.85	53	150	0.011	Circular Pipe
CO-417	SV19199405	2,117.85	SV19199302	2,091.35	56	150	0.011	Circular Pipe
CO-418	SV19199302	2,091.35	SV19199304	2,072.11	54	150	0.011	Circular Pipe
CO-419	SV19199304	2,072.11	SV20190206	2,043.85	78	150	0.011	Circular Pipe
CO-420	SV20190206	2,043.85	SV20190204	2,014.27	68	150	0.011	Circular Pipe
CO-421	SV19199406	2,120.25	SV19199405	2,117.85	50	150	0.011	Circular Pipe
CO-422	SV20190610	2,101.05	SV20191505	2,075.86	74	150	0.011	Circular Pipe
CO-423	SV20191505	2,075.86	SV20191404	2,058.96	48	150	0.011	Circular Pipe
CO-424	SV20191404	2,058.96	SV20191402	2,033.77	82	150	0.011	Circular Pipe
CO-425	SV20192506	2,101.35	SV20182508	2,069.82	58	150	0.011	Circular Pipe
CO-426	SV20182508	2,069.82	SV20191407	2,046.20	64	150	0.011	Circular Pipe
CO-427	SV20191407	2,046.20	SV20191401	2,038.97	38	150	0.011	Circular Pipe
CO-428	SV20193403	2,049.31	SV20192301	2,045.16	89	150	0.011	Circular Pipe
CO-430	SV19199605	2,207.55	SV19199607	2,193.22	49	150	0.011	Circular Pipe
CO-431	SV19199607	2,193.22	SV00965301	2,171.26	100	150	0.011	Circular Pipe
CO-432	SV00965301	2,171.26	SV20190605	2,160.85	51	150	0.011	Circular Pipe

CO-433	SV20190605	2,160.85	SV20191502	2,155.30	91	150	0.011	Circular Pipe
CO-434	SV20191502	2,155.30	SV20192504	2,149.75	94	150	0.011	Circular Pipe
CO-435	SV20192504	2,149.75	SV20193503	2,144.20	76	150	0.011	Circular Pipe
CO-436	SV20193503	2,144.20	SV20194501	2,138.65	59	150	0.011	Circular Pipe
CO-438	SV20194502	2,119.25	SV20194407	2,114.15	87	150	0.011	Circular Pipe
CO-440	SV20194406	2,129.45	SV20195306	2,125.58	81	150	0.011	Circular Pipe
CO-441	SV20195306	2,125.58	SV20195312	2,089.61	62	150	0.011	Circular Pipe
CO-442	SV20195312	2,089.61	SV20194203	2,065.58	55	150	0.011	Circular Pipe
CO-443	SV20194501	2,138.65	ST20194502	2,079.55	121	150	0.011	Circular Pipe
CO-445	SV20194407	2,114.15	SV20194409	2,076.32	67	150	0.011	Circular Pipe
CO-446	SV20194409	2,076.32	SV20194303	2,057.36	39	150	0.011	Circular Pipe
CO-447	SV20194605	2,199.05	SV20194504	2,153.75	94	150	0.011	Circular Pipe
CO-448	SV20194504	2,153.75	SV20194501	2,138.65	30	150	0.011	Circular Pipe
CO-449	SV201992710	2,244.15	SV20192603	2,190.84	93	150	0.011	Circular Pipe
CO-450	SV20192603	2,190.84	SV20191502	2,155.30	76	150	0.011	Circular Pipe
CO-451	SV20190704	2,217.15	SV20191603	2,183.37	78	150	0.011	Circular Pipe
CO-452	SV20191603	2,183.37	SV20190605	2,160.85	51	150	0.011	Circular Pipe
CO-453	SV20192801	2,301.82	SV20192707	2,298.71	76	150	0.011	Circular Pipe
CO-455	SV20192709	2,279.85	SV20192704	2,251.43	73	150	0.011	Circular Pipe
CO-456	SV20192707	2,298.71	SV20193703	2,296.85	71	150	0.011	Circular Pipe
CO-457	SV20193703	2,296.85	SV04971401	2,284.51	68	150	0.011	Circular Pipe
CO-458	SV04971401	2,284.51	SV03966801	2,258.40	75	150	0.011	Circular Pipe
CO-459	SV01986301	2,294.66	SV20190804	2,290.80	82	150	0.011	Circular Pipe
CO-460	SV20190804	2,290.80	SV19199801	2,282.10	97	150	0.011	Circular Pipe
CO-461	SV19199801	2,282.10	SV99972501	2,271.60	87	150	0.011	Circular Pipe
CO-462	SV99972501	2,271.60	SV19199708	2,263.56	84	150	0.011	Circular Pipe
CO-463	SV19199708	2,263.56	SV19198601	2,258.95	69	150	0.011	Circular Pipe
CO-464	SV19198601	2,258.95	SV19198604	2,251.96	127	150	0.011	Circular Pipe
CO-465	SV19198604	2,251.96	SV19197605	2,225.20	138	150	0.011	Circular Pipe
CO-466	SV98977501	2,292.11	SV98979501	2,289.46	27	150	0.011	Circular Pipe
CO-467	SV98979501	2,289.46	SV98979501	2,288.46	52	150	0.011	Circular Pipe
CO-468	SV98979501	2,288.46	ST19199702	2,284.35	52	150	0.011	Circular Pipe
CO-469	ST19199702	2,284.35	SV19199801	2,282.10	61	150	0.011	Circular Pipe
CO-470	SV00002001	2,318.86	SV00993301	2,313.56	70	150	0.011	Circular Pipe
CO-471	SV00993301	2,313.56	SV00992101	2,311.59	26	150	0.011	Circular Pipe
CO-472	SV00992101	2,311.59	SV00993001	2,310.61	13	150	0.011	Circular Pipe
CO-473	SV00993001	2,310.61	SV00996101	2,308.57	27	150	0.011	Circular Pipe
CO-474	SV00996101	2,308.57	SV00983401	2,295.74	73	150	0.011	Circular Pipe
CO-475	SV00983401	2,295.74	SV19199801	2,282.10	55	150	0.011	Circular Pipe
CO-476	SV19199710	2,230.81	SV20190607	2,189.55	85	150	0.011	Circular Pipe
CO-477	SV20190607	2,189.55	SV00965301	2,171.26	64	150	0.011	Circular Pipe
CO-478	SV19197403	2,134.85	SV19197404	2,122.07	30	150	0.011	Circular Pipe
CO-479	SV19197404	2,122.07	SV19197301	2,071.07	101	150	0.011	Circular Pipe
CO-480	SV19197301	2,071.07	SV19197303	2,045.40	70	150	0.011	Circular Pipe
CO-481	SV19197303	2,045.40	SV19197206	2,019.84	62	150	0.011	Circular Pipe
CO-482	SV19197206	2,019.84	SV19197202	1,994.18	47	150	0.011	Circular Pipe
CO-483	SV19195602	2,243.27	SV19195604	2,233.06	71	150	0.011	Circular Pipe
CO-484	SV19195604	2,233.06	SV95957401	2,188.21	97	150	0.011	Circular Pipe
CO-485	SV95957401	2,188.21	SV95948701	2,150.65	81	150	0.011	Circular Pipe
CO-486	SV95948701	2,150.65	SV95948401	2,132.92	38	150	0.011	Circular Pipe
CO-487	SV95948401	2,132.92	SV96931901	2,104.23	62	150	0.011	Circular Pipe
CO-488	SV96931901	2,104.23	SV96933601	2,084.94	42	150	0.011	Circular Pipe
CO-489	SV94946901	2,196.35	SV95948401	2,132.92	100	150	0.011	Circular Pipe
CO-490	SV94965001	2,236.14	SV94957601	2,209.97	45	150	0.011	Circular Pipe
CO-491	SV94957601	2,209.97	SV19195503	2,169.65	70	150	0.011	Circular Pipe
CO-492	SV19195503	2,169.65	SV95945701	2,153.95	67	150	0.011	Circular Pipe

CO-493	SV95945701	2,153.95	SV95948401	2,132.92	51	150	0.011	Circular Pipe
CO-494	SV93959101	2,232.22	SV94946901	2,196.35	85	150	0.011	Circular Pipe
CO-495	SV94946901	2,196.35	SV95945701	2,153.95	100	150	0.011	Circular Pipe
CO-496	SV19191401	2,281.51	SV19192501	2,279.48	75	150	0.011	Circular Pipe
CO-497	SV19192501	2,279.48	SV92956501	2,271.40	57	150	0.011	Circular Pipe
CO-498	SV92956501	2,271.40	SV93951601	2,264.34	50	150	0.011	Circular Pipe
CO-499	SV93951601	2,264.34	SV93966001	2,254.96	66	150	0.011	Circular Pipe
CO-500	SV93966001	2,254.96	SV94960401	2,246.17	62	150	0.011	Circular Pipe
CO-501	SV94960401	2,246.17	SV19194601	2,244.58	11	150	0.011	Circular Pipe
CO-502	SV19194601	2,244.58	SV19194602	2,242.67	22	150	0.011	Circular Pipe
CO-503	SV19194602	2,242.67	SV19194501	2,238.30	79	150	0.011	Circular Pipe
CO-504	SV19194501	2,238.30	SV19193504	2,235.62	70	150	0.011	Circular Pipe
CO-505	SV19193504	2,235.62	SV94941601	2,224.35	66	150	0.011	Circular Pipe
CO-506	SV94941601	2,224.35	SV19194404	2,204.88	50	150	0.011	Circular Pipe
CO-507	SV19194404	2,204.88	SV94944201	2,192.60	31	150	0.011	Circular Pipe
CO-508	SV94944201	2,192.60	SV94947001	2,178.20	37	150	0.011	Circular Pipe
CO-511	SV95931401	2,145.18	SV19195302	2,133.75	29	150	0.011	Circular Pipe
CO-512	SV19195302	2,133.75	SV19195204	2,114.55	53	150	0.011	Circular Pipe
CO-513	SV19195204	2,114.55	SV19196102	2,092.61	84	150	0.011	Circular Pipe
CO-514	SV19196102	2,092.61	SV19196104	2,074.05	79	150	0.011	Circular Pipe
CO-515	SV19196104	2,074.05	SV19196005	2,071.48	61	150	0.011	Circular Pipe
CO-516	SV19196005	2,071.48	SV19196006	2,051.66	30	150	0.011	Circular Pipe
CO-517	SV19196006	2,051.66	SV19197003	2,041.48	91	150	0.011	Circular Pipe
CO-518	SV19197003	2,041.48	SV19187902	2,036.21	55	150	0.011	Circular Pipe
CO-519	SV19187902	2,036.21	SV19188903	2,033.88	49	150	0.011	Circular Pipe
CO-520	SV19193501	2,243.21	ST19193402	2,234.85	51	150	0.011	Circular Pipe
CO-521	ST19193402	2,234.85	SV19193403	2,223.75	54	150	0.011	Circular Pipe
CO-522	SV19193403	2,223.75	SV19194301	2,200.87	61	150	0.011	Circular Pipe
CO-523	SV19194301	2,200.87	SV19194303	2,177.99	56	150	0.011	Circular Pipe
CO-524	SV19194303	2,177.99	SV19194201	2,154.05	59	150	0.011	Circular Pipe
CO-525	SV19194201	2,154.05	SV19194204	2,116.53	80	150	0.011	Circular Pipe
CO-526	SV19194204	2,116.53	SV19195102	2,079.02	92	150	0.011	Circular Pipe
CO-527	SV93946101	2,222.52	SV93936601	2,205.18	54	150	0.011	Circular Pipe
CO-529	SV93936201	2,187.15	SV93938001	2,177.97	29	150	0.011	Circular Pipe
CO-530	SV93938001	2,177.97	SV93926501	2,160.97	53	150	0.011	Circular Pipe
CO-531	SV93926501	2,160.97	SV94920401	2,147.11	41	150	0.011	Circular Pipe
CO-532	SV94920401	2,147.11	SV19194204	2,116.53	91	150	0.011	Circular Pipe
CO-535	SV92929801	2,188.58	SV93920601	2,182.62	20	150	0.011	Circular Pipe
CO-537	SV93921501	2,191.19	SV93925201	2,173.06	54	150	0.011	Circular Pipe
CO-538	SV93925201	2,173.06	SV93926501	2,160.97	36	150	0.011	Circular Pipe
CO-539	SV92956401	2,264.54	SV92944801	2,261.66	52	150	0.011	Circular Pipe
CO-540	SV92944801	2,261.66	SV92948801	2,244.21	95	150	0.011	Circular Pipe
CO-541	SV92948801	2,244.21	SV93946301	2,225.30	95	150	0.011	Circular Pipe
CO-542	SV93946301	2,225.30	SV19193403	2,223.75	22	150	0.011	Circular Pipe
CO-543	SV19192401	2,244.10	SV19192403	2,239.61	59	150	0.011	Circular Pipe
CO-544	SV19192403	2,239.61	SV92931201	2,221.69	99	150	0.011	Circular Pipe
CO-545	SV92931201	2,221.69	SV92927801	2,202.83	72	150	0.011	Circular Pipe
CO-546	SV92927801	2,202.83	SV92927601	2,198.52	17	150	0.011	Circular Pipe
CO-547	SV92927601	2,198.52	SV19192205	2,184.51	54	150	0.011	Circular Pipe
CO-548	SV19192205	2,184.51	SV19192207	2,171.18	58	150	0.011	Circular Pipe
CO-549	SV19192207	2,171.18	SV91917701	2,157.96	49	150	0.011	Circular Pipe
CO-552	SV92935801	2,222.18	SV93932701	2,215.73	70	150	0.011	Circular Pipe
CO-553	SV93932701	2,215.73	SV92939001	2,207.01	74	150	0.011	Circular Pipe
CO-554	SV92939001	2,207.01	SV92927801	2,202.83	40	150	0.011	Circular Pipe
CO-555	SV18197101	2,417.16	SV18197102	2,416.65	29	150	0.011	Circular Pipe
CO-556	SV18197102	2,416.65	SV86905501	2,410.05	96	150	0.011	Circular Pipe

CO-557	SV86905501	2,410.05	SV18196006	2,407.48	44	150	0.011	Circular Pipe
CO-558	SV18196006	2,407.48	SV18196007	2,406.27	26	150	0.011	Circular Pipe
CO-559	SV18196007	2,406.27	SV18185906	2,402.11	51	150	0.011	Circular Pipe
CO-560	SV18185906	2,402.11	SV18185905	2,395.21	53	150	0.011	Circular Pipe
CO-561	SV18185905	2,395.21	SV18185802	2,389.72	59	150	0.011	Circular Pipe
CO-562	SV18185802	2,389.72	ST18185801	2,382.62	53	150	0.011	Circular Pipe
CO-563	ST18185801	2,382.62	SV85876501	2,374.55	56	150	0.011	Circular Pipe
CO-564	SV85876501	2,374.55	SV85864901	2,368.45	65	150	0.011	Circular Pipe
CO-565	SV85864901	2,368.45	SV85860801	2,362.35	39	150	0.011	Circular Pipe
CO-566	SV85860801	2,362.35	SV84864401	2,350.18	85	150	0.011	Circular Pipe
CO-567	SV84864401	2,350.18	SV84866401	2,343.51	30	150	0.011	Circular Pipe
CO-568	SV84866401	2,343.51	SV18184607	2,339.79	28	150	0.011	Circular Pipe
CO-569	SV18184607	2,339.79	SV18184503	2,330.30	40	150	0.011	Circular Pipe
CO-570	SV18184503	2,330.30	SV18184501	2,329.81	30	150	0.011	Circular Pipe
CO-571	SV18185503	2,329.55	SV18185402	2,325.02	100	150	0.011	Circular Pipe
CO-572	SV91868501	2,232.30	SV19182602	2,218.82	88	150	0.011	Circular Pipe
CO-573	SV19182602	2,218.82	ST19182502	2,214.15	54	150	0.011	Circular Pipe
CO-574	ST19182502	2,214.15	SV19183504	2,212.09	49	150	0.011	Circular Pipe
CO-575	SV19183504	2,212.09	SV19185401	2,209.55	48	150	0.011	Circular Pipe
CO-577	SV19184402	2,205.35	SV19185401	2,192.77	82	150	0.011	Circular Pipe
CO-578	SV19185401	2,192.77	SV19185402	2,187.77	28	150	0.011	Circular Pipe
CO-579	SV19185402	2,187.77	SV19185404	2,149.65	83	150	0.011	Circular Pipe
CO-580	SV19185404	2,149.65	SV19186402	2,102.14	84	150	0.011	Circular Pipe
CO-581	SV19186402	2,102.14	ST19187401	2,064.53	71	150	0.011	Circular Pipe
CO-582	ST19187401	2,064.53	SV19187301	2,030.88	71	150	0.011	Circular Pipe
CO-583	SV19187301	2,030.88	SV19188303	1,983.37	74	150	0.011	Circular Pipe
CO-584	SV19188303	1,983.37	SV19188310	1,934.00	79	150	0.011	Circular Pipe
CO-585	SV19186101	2,003.24	SV19187202	1,996.45	89	150	0.011	Circular Pipe
CO-586	SV19187202	1,996.45	SV19188305	1,954.07	99	150	0.011	Circular Pipe
CO-587	SV19188305	1,954.07	SV19188307	1,943.12	59	150	0.011	Circular Pipe
CO-588	SV19188307	1,943.12	SV19188310	1,934.00	99	150	0.011	Circular Pipe
CO-589	SV19189201	2,001.48	SV19188308	1,963.24	99	150	0.011	Circular Pipe
CO-590	SV19188308	1,963.24	SV19188310	1,934.00	75	150	0.011	Circular Pipe
CO-591	SV18186703	2,346.59	SV18185809	2,341.80	40	150	0.011	Circular Pipe
CO-592	SV18185809	2,341.80	SV18186805	2,340.11	18	150	0.011	Circular Pipe
CO-593	SV18186805	2,340.11	SV18186806	2,339.50	22	150	0.011	Circular Pipe
CO-594	SV18186806	2,339.50	SV18186901	2,337.00	38	150	0.011	Circular Pipe
CO-595	SV18186901	2,337.00	SV18186904	2,334.03	58	304.8	0.011	Circular Pipe
CO-596	SV18186904	2,334.03	SV18187901	2,331.79	60	150	0.011	Circular Pipe
CO-598	SV18188910	2,326.92	SV18188909	2,323.21	60	150	0.011	Circular Pipe
CO-599	SV18188909	2,323.21	SV18189801	2,311.63	49	150	0.011	Circular Pipe
CO-600	SV18189801	2,311.63	SV18189803	2,308.55	59	150	0.011	Circular Pipe
CO-601	SV18189803	2,308.55	SV18189804	2,307.15	20	150	0.011	Circular Pipe
CO-602	SV18189804	2,307.15	SV18189806	2,306.25	39	150	0.011	Circular Pipe
CO-603	SV18189806	2,306.25	SV18189902	2,305.17	42	150	0.011	Circular Pipe
CO-604	SV18189902	2,305.17	SV18189905	2,295.31	67	150	0.011	Circular Pipe
CO-605	SV18189905	2,295.31	SV19180902	2,293.45	30	150	0.011	Circular Pipe
CO-606	SV19180902	2,293.45	SV19190001	2,290.60	28	150	0.011	Circular Pipe
CO-607	SV18186701	2,344.07	SV18185701	2,339.83	53	150	0.011	Circular Pipe
CO-608	SV18185701	2,339.83	SV85866401	2,336.45	67	150	0.011	Circular Pipe
CO-609	SV85866401	2,336.45	SV18184614	2,332.70	92	150	0.011	Circular Pipe
CO-610	SV18184614	2,332.70	SV18184503	2,330.30	49	150	0.011	Circular Pipe
CO-611	SV20198301	2,178.95	SV201198304	2,169.23	54	150	0.011	Circular Pipe
CO-612	SV201198304	2,169.23	SV20199303	2,159.51	61	150	0.011	Circular Pipe
CO-613	SV20198204	2,157.51	SV20198201	2,155.18	67	150	0.011	Circular Pipe
CO-614	SV20197204	2,180.31	SV20198103	2,178.70	94	150	0.011	Circular Pipe

CO-615	SV20198103	2,178.70	SV20198105	2,177.94	75	150	0.011	Circular Pipe
CO-616	SV20198105	2,177.94	SV20198006	2,159.57	87	150	0.011	Circular Pipe
CO-617	SV20198006	2,159.57	SV20199001	2,144.88	29	150	0.011	Circular Pipe
CO-618	SV20197201	2,161.35	SV20197101	2,114.45	101	150	0.011	Circular Pipe
CO-619	SV20197101	2,114.45	SV20196101	2,087.52	57	150	0.011	Circular Pipe
CO-620	SV20196301	2,179.35	SV20196303	2,147.25	63	150	0.011	Circular Pipe
CO-621	SV20196303	2,147.25	SV20195203	2,099.25	87	150	0.011	Circular Pipe
CO-622	SV20195203	2,099.25	SV20195206	2,092.99	61	150	0.011	Circular Pipe
CO-623	SV20195206	2,092.99	SV20195104	2,086.73	66	150	0.011	Circular Pipe
CO-624	SV20195104	2,086.73	SV20196102	2,082.51	48	150	0.011	Circular Pipe
CO-625	SV20193604	2,251.57	SV20194608	2,228.35	98	150	0.011	Circular Pipe
CO-626	SV20194608	2,228.35	SV20194610	2,214.02	60	150	0.011	Circular Pipe
CO-627	SV20194610	2,214.02	SV20195606	2,212.80	62	150	0.011	Circular Pipe
CO-628	SV20195606	2,212.80	SV20195505	2,207.51	77	150	0.011	Circular Pipe
CO-629	SV20195505	2,207.51	SV20195404	2,206.48	52	150	0.011	Circular Pipe
CO-630	SV20195404	2,206.48	SV20196403	2,199.28	59	150	0.011	Circular Pipe
CO-631	SV20196403	2,199.28	SV20195405	2,169.35	88	150	0.011	Circular Pipe
CO-632	SV20195405	2,169.35	SV20195306	2,125.58	80	150	0.011	Circular Pipe
CO-634	SV95968801	2,239.10	SV95969401	2,223.00	44	150	0.011	Circular Pipe
CO-635	SV95969401	2,223.00	SV95959801	2,198.25	68	150	0.011	Circular Pipe
CO-637	SV96952201	2,170.75	SV19196405	2,145.61	69	150	0.011	Circular Pipe
CO-638	SV19196405	2,145.61	SV19196406	2,136.42	29	150	0.011	Circular Pipe
CO-639	SV19196604	2,199.35	SV19196502	2,172.38	81	150	0.011	Circular Pipe
CO-640	SV19196502	2,172.38	SV19196405	2,145.61	85	150	0.011	Circular Pipe
CO-641	SV94968601	2,243.24	SV19195604	2,233.06	15	150	0.011	Circular Pipe
CO-642	SV19188101	2,013.45	ST19189101	1,980.35	82	150	0.011	Circular Pipe
CO-643	ST19189101	1,980.35	SV20180201	1,949.45	118	150	0.011	Circular Pipe
CO-644	SV20180201	1,949.45	SV20180202	1,939.95	46	150	0.011	Circular Pipe
CO-645	SV20180202	1,939.95	SV20181202	1,926.61	63	150	0.011	Circular Pipe
CO-646	SV20180101	1,936.20	SV20180001	1,915.26	63	150	0.011	Circular Pipe
CO-647	SV19189001	1,942.75	SV19189004	1,924.30	88	150	0.011	Circular Pipe
CO-648	SV19189004	1,924.30	SV20180003	1,908.15	85	150	0.011	Circular Pipe
CO-649	SV19179901	1,926.00	SV20170902	1,896.25	86	150	0.011	Circular Pipe
CO-650	SV19179902	1,921.75	SV20170904	1,892.69	85	150	0.011	Circular Pipe
CO-651	SV20170803	1,916.05	SV20170801	1,890.10	82	150	0.011	Circular Pipe
CO-653	SV19177901	1,948.55	SV19177802	1,909.20	95	150	0.011	Circular Pipe
CO-654	SV19177802	1,909.20	SV19178802	1,879.00	69	150	0.011	Circular Pipe
CO-655	SV19178802	1,879.00	SV19178703	1,869.94	45	150	0.011	Circular Pipe
CO-656	SV19177703	1,870.11	SV19177705	1,868.45	44	400	0.011	Circular Pipe
CO-657	SV19177705	1,868.45	SV19178601	1,867.22	42	150	0.011	Circular Pipe
CO-658	SV19184806	1,957.87	SV19184801	1,956.91	19	150	0.011	Circular Pipe
CO-659	SV19185603	1,968.03	SV19185707	1,964.64	34	150	0.011	Circular Pipe
CO-660	SV19185707	1,964.64	SV19185701	1,954.57	78	150	0.011	Circular Pipe
CO-661	SV19185501	1,953.44	SV19185602	1,950.64	68	150	0.011	Circular Pipe
CO-662	SV19185602	1,950.64	SV19186604	1,946.63	97	150	0.011	Circular Pipe
CO-663	SV19186501	1,951.25	SV19187503	1,948.34	77	150	0.011	Circular Pipe
CO-664	SV19187503	1,948.34	SV19187602	1,945.19	68	150	0.011	Circular Pipe
CO-665	SV19170501	2,078.01	SV19175210	2,039.07	59	150	0.011	Circular Pipe
CO-666	SV191752101	2,039.07	SV91756101	1,999.24	60	150	0.011	Circular Pipe
CO-667	SV91756101	1,999.24	SV92754101	1,936.40	95	150	0.011	Circular Pipe
CO-668	SV19170401	2,083.89	SV90746601	2,072.95	88	150	0.011	Circular Pipe
CO-669	SV90746601	2,072.95	SV19170404	2,049.71	70	150	0.011	Circular Pipe
CO-670	SV19170404	2,049.71	SV19171301	2,037.82	34	150	0.011	Circular Pipe
CO-671	SV19171301	2,037.82	ST19171302	2,004.24	69	150	0.011	Circular Pipe
CO-672	ST19171302	2,004.24	SV19172304	1,972.17	69	150	0.011	Circular Pipe
CO-673	SV19172304	1,972.17	SV19172401	1,950.28	46	150	0.011	Circular Pipe

CO-674	SV19172401	1,950.28	SV19173404	1,906.45	67	150	0.011	Circular Pipe
CO-675	SV19173404	1,906.45	SV19174402	1,862.55	123	150	0.011	Circular Pipe
CO-676	SV19170201	2,074.23	SV19171201	2,041.05	70	150	0.011	Circular Pipe
CO-677	SV19171201	2,041.05	SV19171205	2,007.88	57	150	0.011	Circular Pipe
CO-678	SV19171205	2,007.88	SV19172203	1,963.66	85	150	0.011	Circular Pipe
CO-679	SV19172203	1,963.66	SV19172302	1,919.43	96	150	0.011	Circular Pipe
CO-680	SV19172302	1,919.43	ST19173302	1,889.43	84	150	0.011	Circular Pipe
CO-681	ST19173302	1,889.43	SV19174304	1,864.05	78	150	0.011	Circular Pipe
CO-682	SV19172101	2,074.09	ST19173013	2,024.40	70	150	0.011	Circular Pipe
CO-683	ST19173013	2,024.40	ST19173102	2,000.25	43	150	0.011	Circular Pipe
CO-684	ST19173102	2,000.25	SV19174101	1,956.23	65	150	0.011	Circular Pipe
CO-685	SV19174101	1,956.23	SV19174101	1,926.77	52	150	0.011	Circular Pipe
CO-687	SV19174101	1,926.77	SV19174103	1,897.31	55	150	0.011	Circular Pipe
CO-688	SV19174103	1,897.31	SV19175201	1,867.75	47	150	0.011	Circular Pipe
CO-689	SV19173001	2,068.98	SV19174001	2,002.20	100	150	0.011	Circular Pipe
CO-690	SV19174001	2,002.20	SV19174002	1,979.89	51	150	0.011	Circular Pipe
CO-691	SV19174002	1,979.89	ST19175001	1,935.42	69	150	0.011	Circular Pipe
CO-692	ST19175001	1,935.42	SV19175005	1,913.16	37	150	0.011	Circular Pipe
CO-693	SV19175005	1,913.16	SV19175101	1,868.55	68	150	0.011	Circular Pipe
CO-694	SV19164901	2,059.10	ST19164902	2,000.18	79	150	0.011	Circular Pipe
CO-695	ST19164902	2,000.18	SV19165901	1,964.27	58	150	0.011	Circular Pipe
CO-696	SV19165901	1,964.27	SV19165902	1,901.05	81	150	0.011	Circular Pipe
CO-697	SV19165902	1,901.05	SV19165903	1,869.35	43	150	0.011	Circular Pipe
CO-698	SV19164801	2,037.76	SV19166804	1,977.60	78	150	0.011	Circular Pipe
CO-699	SV19166804	1,977.60	ST19165802	1,939.58	50	150	0.011	Circular Pipe
CO-700	ST19165802	1,939.58	SV19166804	1,874.46	82	150	0.011	Circular Pipe
CO-701	SV19166804	1,874.46	SV19166803	1,874.33	36	150	0.011	Circular Pipe
CO-702	SV19164701	2,036.77	SV19165703	2,014.60	100	150	0.011	Circular Pipe
CO-703	SV19165703	2,014.60	SV19166704	2,004.60	51	150	0.011	Circular Pipe
CO-704	SV19166704	2,004.60	SV19166603	1,969.88	74	150	0.011	Circular Pipe
CO-705	SV19166603	1,969.88	SV19166602	1,967.51	25	150	0.011	Circular Pipe
CO-706	SV19166602	1,967.51	SV97674201	1,949.23	83	150	0.011	Circular Pipe
CO-707	SV97674201	1,949.23	SV19167702	1,877.89	86	150	0.011	Circular Pipe
CO-708	SV19167307	2,069.35	SV19166404	2,062.91	81	150	0.011	Circular Pipe
CO-709	SV19166404	2,062.91	SV19166503	2,060.07	71	150	0.011	Circular Pipe
CO-710	SV19166503	2,060.07	SV19166505	2,054.04	54	150	0.011	Circular Pipe
CO-712	SV20198004	2,139.27	SV20188902	2,111.77	96	150	0.011	Circular Pipe
CO-713	SV20198102	2,159.05	SV20197003	2,115.86	72	150	0.011	Circular Pipe
CO-714	SV20197003	2,115.86	SV20197002	2,094.22	36	150	0.011	Circular Pipe
CO-715	SV20195501	2,186.75	SV20195402	2,150.45	62	150	0.011	Circular Pipe
CO-716	SV20195402	2,150.45	SV20194407	2,114.15	66	150	0.011	Circular Pipe
CO-717	SV18188904	2,345.86	SV18188904	2,340.40	69	150	0.011	Circular Pipe
CO-720	SV18196101	2,451.57	SV18196104	2,441.58	63	150	0.011	Circular Pipe
CO-722	SV19187402	1,945.33	SV19188404	1,940.99	76	150	0.011	Circular Pipe
CO-723	SV19188404	1,940.99	SV19189401	1,938.78	31	150	0.011	Circular Pipe
CO-724	SV20196308	2,104.55	SV20195203	2,099.25	54	150	0.011	Circular Pipe
CO-725	SV96948501	2,138.60	SV96944101	2,122.04	80	150	0.011	Circular Pipe
CO-726	SV19171801	2,080.31	ST19171801	2,054.24	64	150	0.011	Circular Pipe
CO-727	SV90778801	2,098.22	SV19171801	2,080.31	60	150	0.011	Circular Pipe
CO-728	SV18187103	2,145.70	SV18186104	2,143.87	77	150	0.011	Circular Pipe
CO-730	SV86905001	2,423.93	SV18196006	2,407.48	40	400	0.011	Circular Pipe
CO-731	SV18196104	2,441.58	SV86905001	2,423.93	69	150	0.011	Circular Pipe
CO-734	SV02620601	2,001.44	SV20162202	1,995.32	38	150	0.011	Circular Pipe
CO-735	SV91917701	2,157.96	SV91914801	2,150.37	28	150	0.011	Circular Pipe
CO-736	SV91914801	2,150.37	SV91914701	2,146.43	15	150	0.011	Circular Pipe
CO-737	SV92802501	1,974.71	SV19172903	1,944.45	100	150	0.011	Circular Pipe

CO-738	SV19172903	1,944.45	ST19173901	1,926.25	64	150	0.011	Circular Pipe
CO-739	SV92798101	1,993.20	ST19173901	1,926.25	69	150	0.011	Circular Pipe
CO-740	SV19175703	1,865.03	SV19174704	1,862.22	58	150	0.011	Circular Pipe
CO-741	SV96944101	2,122.04	SV96933601	2,084.94	58	150	0.011	Circular Pipe
CO-742	SV96933601	2,084.94	SV96926901	2,045.30	86	150	0.011	Circular Pipe
CO-743	ST20194502	2,079.55	SV20194401	2,055.72	56	150	0.011	Circular Pipe
CO-744	SV20194303	2,057.36	SV20194401	2,055.72	12	150	0.011	Circular Pipe
CO-745	SV20194401	2,055.72	SV20193402	2,053.08	27	150	0.011	Circular Pipe
CO-749	SV19199603	2,228.45	SV19198605	2,227.16	68	150	0.011	Circular Pipe
CO-750	SV19198605	2,227.16	SV19198606	2,226.30	45	150	0.011	Circular Pipe
CO-751	SV19187801	1,974.54	SV19187802	1,973.06	26	150	0.011	Circular Pipe
CO-752	SV19187802	1,973.06	SV19186802	1,969.73	113	150	0.011	Circular Pipe
CO-753	SV19185401	2,209.55	SV93849901	2,207.01	57	150	0.011	Circular Pipe
CO-754	SV93849901	2,207.01	SV19184402	2,205.35	35	150	0.011	Circular Pipe
CO-755	SV92810501	1,997.62	SV92802801	1,979.20	74	350	0.011	Circular Pipe
CO-756	SV92802801	1,979.20	SV92802501	1,974.71	32	150	0.011	Circular Pipe
CO-757	SV20170701	1,880.61	SV19179703	1,877.55	140	150	0.011	Circular Pipe
CO-758	SV19179703	1,877.55	SV19179701	1,873.62	54	150	0.011	Circular Pipe
CO-761	SV20170904	1,892.69	SV20170801	1,890.10	72	150	0.011	Circular Pipe
CO-762	SV19169105	2,041.38	SV19169103	2,024.81	18	150	0.011	Circular Pipe
CO-763	SV19169103	2,024.81	SV00613701	2,022.59	72	350	0.011	Circular Pipe
CO-764	SV98619801	2,028.19	SV19169103	2,024.81	71	350	0.011	Circular Pipe
CO-765	SV19166505	2,054.04	SV19166506	2,053.07	21	150	0.011	Circular Pipe
CO-766	SV20161102	1,943.80	SV20161104	1,941.55	21.8	150	0.011	Circular Pipe
CO-767	SV20161104	1,941.55	SV20162105	1,932.85	28.2	150	0.011	Circular Pipe
CO-768	SV20167302	1,908.55	SV20166306	1,907.20	52	150	0.011	Circular Pipe
CO-769	SV18188904	2,340.40	SV18187903	2,329.90	133	400	0.011	Circular Pipe
CO-771	SV18187903	2,329.90	SV18188910	2,326.92	90	400	0.011	Circular Pipe
CO-772	SV18187901	2,331.79	SV18187903	2,329.90	31	400	0.011	Circular Pipe
CO-773	SV18185203	2,217.95	SV85819701	2,193.22	74	150	0.011	Circular Pipe
CO-774	SV18185204	2,217.25	ST18185101	2,214.24	43	150	0.011	Circular Pipe
CO-775	SV8871701	2,188.24	SV88870601	2,187.17	11	150	0.011	Circular Pipe
CO-776	SV88870601	2,187.17	SV88862801	2,179.20	82	150	0.011	Circular Pipe
CO-777	SV88826901	2,119.60	SV88836001	2,117.08	8	150	0.011	Circular Pipe
CO-778	SV88836001	2,117.08	SV89820201	2,092.51	82	150	0.011	Circular Pipe
CO-779	SV94589901	1,992.40	SV95581608	1,989.10	32	150	0.011	Circular Pipe
CO-780	SV93932201	2,205.84	SV93933201	2,203.33	8	150	0.011	Circular Pipe
CO-781	SV93933201	2,203.33	SV92929801	2,188.58	49	150	0.011	Circular Pipe
CO-782	SV93920601	2,182.62	SV93926501	2,160.97	72	150	0.011	Circular Pipe
CO-783	SV93933601	2,214.47	SV93932201	2,205.84	43	150	0.011	Circular Pipe
CO-784	SV93936601	2,205.18	SV93937501	2,200.08	16	150	0.011	Circular Pipe
CO-785	SV93937501	2,200.08	SV93936201	2,187.15	40	150	0.011	Circular Pipe
CO-786	SV19196506	2,240.73	ST19196601	2,221.58	56	150	0.011	Circular Pipe
CO-787	SV95959801	2,198.25	SV96951701	2,191.57	18	150	0.011	Circular Pipe
CO-788	SV96951701	2,191.57	SV96952201	2,170.75	57	150	0.011	Circular Pipe
CO-789	SV19176706	1,869.95	SV19175801	1,868.20	58	150	0.013	Circular Pipe
CO-790	SV19176803	1,882.40	SV19176706	1,869.95	54	150	0.013	Circular Pipe
CO-791	SV20190204	2,014.27	SV19199810	2,007.17	90	150	0.013	Circular Pipe
CO-792	SV19197202	1,994.18	SV19197203	1,993.70	13	150	0.013	Circular Pipe
CO-794	SV94947001	2,178.20	SV95931401	2,145.18	121	150	0.013	Circular Pipe
CO-796	SV98962201	2,229.05	SV19199605	2,207.55	98	304.8	0.013	Circular Pipe

Conduit Data

Label	Start Node	Material	Section Size	Slope (ft/ft)	Capacity (Full Flow) (gpm)	Elevation Ground (Start) (m)	Elevation Ground (Stop) (m)	Length (User Defined) (ft)
CO-2	SV93835701	Ductile Iron	12 inch	1.075	17,962.16	2,174.43	2,148.54	79
CO-3	SV19183201	Ductile Iron	12 inch	1.817	3,524.95	2,148.54	2,093.16	100
CO-4	SV19183204	Ductile Iron	12 inch	1.706	3,415.22	2,093.16	2,056.25	71
CO-5	SV19183102	Ductile Iron	12 inch	1.408	3,385.68	2,056.25	2,037.79	43
CO-6	SV19183103	Ductile Iron	12 inch	1.705	3,724.85	2,037.79	2,010.25	53
CO-7	ST19183001	Ductile Iron	12 inch	1.661	3,676.36	2,010.25	1,982.41	55
CO-8	SV19183003	Ductile Iron	12 inch	1.885	3,916.51	1,982.41	1,938.75	76
CO-9	SV92799601	Ductile Iron	12 inch	0.613	2,234.27	1,938.75	1,930.15	46
CO-10	SV93791201	Ductile Iron	12 inch	0.55	2,115.74	1,930.15	1,927.30	17
CO-11	ST19173901	Ductile Iron	12 inch	1.215	3,144.73	1,927.30	1,897.30	81
CO-12	ST19173802	Ductile Iron	12 inch	1.109	3,004.16	1,897.30	1,880.45	50
CO-13	SV19173804	Ductile Iron	12 inch	0.53	4,474.71	1,880.45	1,862.33	113
CO-14	SV19174703	Ductile Iron	12 inch	1.054	28,057.25	1,862.33	1,825.10	116
CO-15	SV19175601	Ductile Iron	12 inch	0.03	6,721.22	1,825.10	1,824.15	105
CO-16	SV19175502	Ductile Iron	12 inch	0.032	6,979.42	1,824.15	1,822.95	123
CO-17	SV19176502	Ductile Iron	12 inch	0.034	7,173.19	1,822.95	1,821.60	131
CO-18	SV19177502	Ductile Iron	12 inch	0.034	7,243.92	1,821.60	1,819.95	157
CO-19	SV19179501	Ductile Iron	12 inch	0.161	15,670.29	1,819.95	1,817.95	61
CO-20	SV19177503	Ductile Iron	12 inch	0.648	2,296.40	1,837.15	1,821.60	80
CO-21	SV19176601	Ductile Iron	12 inch	0.654	2,307.04	1,856.25	1,841.30	75
CO-22	SV19176603	Ductile Iron	12 inch	0.969	2,807.70	1,841.30	1,822.95	63
CO-23	SV19175704	Ductile Iron	12 inch	0.641	2,283.40	1,853.70	1,839.25	74
CO-24	SV19175604	Ductile Iron	12 inch	0.826	2,592.11	1,839.25	1,824.15	61
CO-25	SV19176801	Ductile Iron	12 inch	0.622	2,249.91	1,892.55	1,883.45	48
CO-30	SV19175801	Ductile Iron	12 inch	0.179	1,208.04	1,869.25	1,866.08	58
CO-34	SV19174704	Ductile Iron	12 inch	0.072	765.1	1,863.27	1,862.33	52
CO-35	SV19184201	Ductile Iron	12 inch	1.693	3,711.74	2,172.30	2,135.15	72
CO-36	SV19184203	Ductile Iron	12 inch	1.55	3,551.94	2,135.15	2,087.90	100
CO-37	SV19184103	Ductile Iron	12 inch	1.274	3,219.87	2,087.90	2,063.05	64
CO-38	SV19184001	Ductile Iron	12 inch	1.834	3,862.96	2,063.05	2,028.40	62
CO-39	ST19184002	Ductile Iron	12 inch	1.794	3,820.93	2,028.40	1,994.50	62
CO-40	SV19174901	Ductile Iron	12 inch	2.052	4,086.75	1,994.50	1,931.95	100
CO-41	SV19175802	Ductile Iron	12 inch	2.077	4,111.53	1,931.95	1,885.10	74
CO-42	SV19175804	Ductile Iron	12 inch	1.135	3,038.71	1,885.10	1,866.08	55
CO-43	SV89858101	Ductile Iron	12 inch	1.534	3,532.99	2,158.19	2,115.65	91
CO-44	SV90841401	Ductile Iron	12 inch	1.057	2,933.43	2,115.65	2,094.38	66
CO-45	ST19180301	Ductile Iron	12 inch	0.784	2,526.12	2,094.38	2,073.11	89
CO-46	SV90839201	Ductile Iron	12 inch	1.292	3,243.03	2,073.11	2,051.84	54
CO-47	SV91822801	Ductile Iron	12 inch	1.203	3,128.47	2,051.84	2,030.58	58
CO-48	SV91825301	Ductile Iron	12 inch	0.812	2,570.40	2,030.58	2,019.94	43
CO-49	SV91816901	Ductile Iron	12 inch	1.183	3,102.58	2,019.94	1,998.67	59
CO-54	SV92789602	Ductile Iron	12 inch	0.691	2,371.56	2,004.15	1,994.25	47
CO-55	SV92788601	Ductile Iron	12 inch	1.679	3,696.77	2,009.78	2,004.15	11
CO-56	SV92788301	Ductile Iron	12 inch	0.622	2,250.63	2,016.23	2,009.78	34
CO-57	SV92787301	Ductile Iron	12 inch	0.802	2,554.42	2,020.14	2,016.23	16
CO-58	SV92776901	Ductile Iron	12 inch	0.505	2,027.16	2,026.45	2,020.14	41
CO-59	SV92773901	Ductile Iron	12 inch	2.045	4,079.14	2,052.00	2,026.45	0
CO-60	SV89761901	Ductile Iron	12 inch	0.972	2,812.14	2,138.05	2,114.06	81
CO-61	SV89777301	Ductile Iron	12 inch	0.493	2,002.88	2,114.06	2,101.44	84

CO-62	SV19170703	Ductile Iron	12 inch	0.158	1,134.72	2,101.44	2,099.27	45
CO-64	ST19171801	Ductile Iron	12 inch	0.389	1,779.94	2,055.29	2,049.12	52
CO-65	SV92782701	Ductile Iron	12 inch	0.194	1,255.14	2,049.12	2,044.40	80
CO-66	SV19171903	Ductile Iron	12 inch	2.693	4,681.76	2,044.40	1,980.37	78
CO-67	SV19172902	Ductile Iron	12 inch	2.2	4,231.45	1,980.37	1,945.50	52
CO-69	SV92783001	Ductile Iron	12 inch	0.101	906.86	2,051.43	2,049.12	75
CO-70	SV19170801	Ductile Iron	12 inch	0.042	586.97	2,047.10	2,045.90	93
CO-71	ST19170902	Ductile Iron	12 inch	0.05	636.05	2,045.90	2,044.40	99
CO-72	SV88795401	Ductile Iron	12 inch	1.414	3,392.55	2,159.30	2,130.42	67
CO-73	SV89791601	Ductile Iron	12 inch	1.428	3,408.88	2,130.42	2,098.65	73
CO-74	SV89797801	Ductile Iron	12 inch	1.425	3,405.52	2,098.65	2,058.69	92
CO-75	SV90804301	Ductile Iron	12 inch	1.424	3,404.27	2,058.69	2,027.89	71
CO-76	SV91800601	Ductile Iron	12 inch	1.419	3,397.78	2,027.89	1,998.04	69
CO-77	SV19181002	Ductile Iron	12 inch	0.902	2,710.07	1,998.04	1,975.76	81
CO-78	SV18185301	Ductile Iron	12 inch	0.035	531.71	2,225.57	2,225.21	34
CO-79	SV18185302	Ductile Iron	12 inch	0.157	1,132.10	2,225.21	2,221.61	75
CO-80	SV18185202	Ductile Iron	12 inch	0.285	1,289.66	2,221.61	2,219.00	30
CO-82	ST18185101	Ductile Iron	12 inch	0.428	1,865.72	2,215.29	2,204.60	82
CO-83	SV18186106	Ductile Iron	12 inch	3.036	4,970.98	2,204.60	2,163.88	44
CO-84	SV86813001	Ductile Iron	12 inch	1.196	3,120.20	2,163.88	2,144.92	52
CO-85	SV18186104	Ductile Iron	12 inch	1.1	2,992.34	2,144.92	2,120.64	101
CO-86	SV18187102	Ductile Iron	12 inch	0.279	1,507.90	2,120.64	2,105.60	64
CO-87	ST18188101	Ductile Iron	12 inch	1.151	3,060.85	2,105.60	2,085.60	57
CO-88	SV88817801	Ductile Iron	12 inch	0.585	2,182.34	2,085.60	2,076.86	49
CO-89	SV18189101	Ductile Iron	12 inch	1.064	2,943.30	2,076.86	2,050.58	81
CO-90	SV18189104	Ductile Iron	12 inch	1.084	2,513.15	2,050.58	2,033.07	53
CO-91	SV19180102	Ductile Iron	12 inch	0.851	2,631.72	2,033.07	2,020.36	49
CO-92	ST19180102	Ductile Iron	12 inch	0.927	2,746.62	2,020.36	1,998.04	79
CO-93	SV85821401	Ductile Iron	12 inch	0.04	573.08	2,216.52	2,215.29	100
CO-94	SV85816601	Ductile Iron	12 inch	0.232	1,375.35	2,210.48	2,204.60	83
CO-100	SV85819701	Ductile Iron	12 inch	1.096	2,986.13	2,194.27	2,163.88	91
CO-101	SV18186201	Ductile Iron	12 inch	0.016	359.44	2,148.30	2,148.25	31
CO-102	SV18186202	Ductile Iron	12 inch	0.067	740.71	2,148.25	2,146.75	73
CO-105	SV88862801	Ductile Iron	12 inch	0.318	1,608.84	2,180.25	2,175.50	49
CO-106	SV88861401	Ductile Iron	12 inch	0.319	1,611.26	2,175.50	2,169.18	65
CO-107	SV87858801	Ductile Iron	12 inch	0.318	1,609.90	2,169.18	2,161.90	75
CO-108	SV18187501	Ductile Iron	12 inch	0.139	1,063.31	2,161.90	2,159.19	64
CO-109	SV18188405	Ductile Iron	12 inch	0.398	1,798.99	2,159.19	2,152.16	58
CO-110	SV18188301	Ductile Iron	12 inch	1.092	2,981.33	2,152.16	2,132.52	59
CO-111	SV18188303	Ductile Iron	12 inch	0.847	2,624.89	2,132.52	2,120.65	46
CO-113	SV89820201	Ductile Iron	12 inch	0.978	2,821.82	2,093.56	2,076.86	56
CO-114	SV87838601	Ductile Iron	12 inch	0.163	1,151.71	2,135.60	2,132.52	62
CO-115	SV18184501	Ductile Iron	12 inch	0.146	1,090.24	2,330.86	2,328.10	62
CO-116	SV18185505	Ductile Iron	12 inch	0.084	828.32	2,328.10	2,326.07	79
CO-117	SV18185402	Ductile Iron	12 inch	2.815	4,786.16	2,326.07	2,243.71	96
CO-118	ST18186401	Ductile Iron	12 inch	2.8	4,773.70	2,243.71	2,149.83	110
CO-119	SV18186301	Ductile Iron	12 inch	0.758	2,483.36	2,149.83	2,135.51	62
CO-120	SV18186303	Ductile Iron	12 inch	0.498	2,014.00	2,135.51	2,125.18	68
CO-121	SV18187302	Ductile Iron	12 inch	0.674	2,342.45	2,125.18	2,112.85	60
CO-122	SV18187202	Ductile Iron	12 inch	0.404	1,813.72	2,112.85	2,106.69	50
CO-123	SV18187203	Ductile Iron	12 inch	0.876	2,669.87	2,106.69	2,085.60	79
CO-124	SV91845301	Ductile Iron	12 inch	1.816	3,844.38	2,158.34	2,115.72	77
CO-125	SV91831701	Ductile Iron	12 inch	1.942	3,975.16	2,115.72	2,073.11	72
CO-126	SV91849001	Ductile Iron	12 inch	2.091	4,125.42	2,162.52	2,118.54	69
CO-127	SV91838401	Ductile Iron	12 inch	1.718	3,738.98	2,118.54	2,074.56	84
CO-128	SV91826801	Ductile Iron	12 inch	2.405	4,424.02	2,074.56	2,052.57	30

CO-129	SV91826601	Ductile Iron	12 inch	2.061	4,095.84	2,052.57	2,030.58	35
CO-130	SV92833301	Ductile Iron	12 inch	2.154	4,187.00	2,158.60	2,116.58	64
CO-131	SV19181301	Ductile Iron	12 inch	2.507	4,516.60	2,116.58	2,074.56	55
CO-132	SV92824401	Ductile Iron	12 inch	0.325	1,626.88	2,060.50	2,052.57	80
CO-134	SV19181602	Ductile Iron	12 inch	0.464	1,942.74	2,236.87	2,226.41	74
CO-135	SV9180604	Ductile Iron	12 inch	0.373	1,743.43	2,226.41	2,218.10	73
CO-136	SV18189601	Ductile Iron	12 inch	0.209	1,302.99	2,218.10	2,214.73	53
CO-137	SV89856701	Ductile Iron	12 inch	0.319	1,611.01	2,214.73	2,212.30	25
CO-138	SV89853701	Ductile Iron	12 inch	0.319	1,610.19	2,212.30	2,205.60	69
CO-139	SV89862401	Ductile Iron	12 inch	0.318	1,609.61	2,205.60	2,199.39	64
CO-140	SV88867801	Ductile Iron	12 inch	0.319	1,610.53	2,199.39	2,195.31	42
CO-141	SV88875201	Ductile Iron	12 inch	0.47	1,956.31	2,195.31	2,189.29	42
CO-142	SV18189701	Ductile Iron	12 inch	0.091	858.88	2,244.63	2,243.00	59
CO-143	SV18189703	Ductile Iron	12 inch	0.076	784.4	2,243.00	2,241.41	69
CO-144	SV19188601	Ductile Iron	12 inch	0.084	827.43	2,241.41	2,240.41	39
CO-145	SV19180602	Ductile Iron	12 inch	0.239	1,394.06	2,240.41	2,233.35	97
CO-146	SV19190001	Ductile Iron	12 inch	0.34	1,664.03	2,291.65	2,288.85	27
CO-147	SV19180903	Ductile Iron	12 inch	0.688	2,366.83	2,288.85	2,278.36	50
CO-148	SV19180905	Ductile Iron	12 inch	0.594	2,197.83	2,278.36	2,270.40	44
CO-149	SV19180907	Ductile Iron	12 inch	0.179	1,206.58	2,270.40	2,265.82	84
CO-150	SV19180803	Ductile Iron	12 inch	0.657	2,312.79	2,265.82	2,253.60	61
CO-151	SV19180701	Ductile Iron	12 inch	0.465	1,945.44	2,253.60	2,241.41	86
CO-154	SV19181901	Ductile Iron	12 inch	2.146	4,178.82	2,243.54	2,201.03	65
CO-155	SV19181903	Ductile Iron	12 inch	2.324	4,349.45	2,201.03	2,158.52	60
CO-156	SV19181905	Ductile Iron	12 inch	2.214	4,244.63	2,158.52	2,116.01	63
CO-157	SV19182802	Ductile Iron	12 inch	2.146	4,178.82	2,116.01	2,073.50	65
CO-158	SV19182804	Ductile Iron	12 inch	1.761	3,785.64	2,073.50	2,040.76	61
CO-159	SV19183801	Ductile Iron	12 inch	1.512	3,508.39	2,040.76	2,008.03	71
CO-161	SV19183803	Ductile Iron	12 inch	1.286	3,234.82	2,008.03	1,985.30	58
CO-162	SV19184802	Ductile Iron	12 inch	1.374	3,343.73	1,985.30	1,958.92	63
CO-163	SV19182902	Ductile Iron	12 inch	1.045	2,916.11	2,045.50	2,016.20	92
CO-164	SV19183907	Ductile Iron	12 inch	0.666	2,327.58	2,016.20	2,002.20	69
CO-165	SV19183905	Ductile Iron	12 inch	1.092	2,981.42	2,002.20	1,981.56	62
CO-166	SV19184803	Ductile Iron	12 inch	0.99	2,839.04	1,981.56	1,958.92	75
CO-168	SV91914701	Ductile Iron	12 inch	1.224	3,156.12	2,147.48	2,115.77	85
CO-169	SV19192101	Ductile Iron	12 inch	1.303	3,257.01	2,115.77	2,096.70	48
CO-170	SV19192001	Ductile Iron	12 inch	1.489	3,480.57	2,096.70	2,072.20	54
CO-171	SV19192003	Ductile Iron	12 inch	1.292	3,242.46	2,072.20	2,034.40	96
CO-172	SV19183901	Ductile Iron	12 inch	1.165	3,078.78	2,034.40	2,015.23	54
CO-173	SV19183903	Ductile Iron	12 inch	0.712	2,408.03	2,015.23	2,002.20	60
CO-174	SV91919701	Ductile Iron	12 inch	1.261	3,203.26	2,155.49	2,150.11	14
CO-175	SV92910601	Ductile Iron	12 inch	5.93	6,946.85	2,150.11	2,115.77	19
CO-176	SV19193101	Ductile Iron	12 inch	1.187	3,108.62	2,148.10	2,114.08	94
CO-177	SV19194103	Ductile Iron	12 inch	1.213	3,141.77	2,114.08	2,080.07	92
CO-178	SV19195102	Ductile Iron	12 inch	1.537	3,537.34	2,080.07	2,042.58	80
CO-179	SV19196002	Ductile Iron	12 inch	1.416	3,394.32	2,042.58	2,005.04	87
CO-180	SV19195005	Ductile Iron	12 inch	1.548	3,549.63	2,005.04	1,980.03	53
CO-181	SV19185903	Ductile Iron	12 inch	1.218	3,148.30	1,980.03	1,967.52	33
CO-182	SV19186902	Ductile Iron	12 inch	0.28	1,509.47	1,967.52	1,966.70	15
CO-183	SV19185901	Ductile Iron	12 inch	0.106	930.31	1,966.70	1,962.94	116
CO-184	SV19185802	Ductile Iron	12 inch	0.201	1,279.18	1,962.94	1,958.21	78
CO-185	SV19184801	Ductile Iron	12 inch	0.16	10,927.56	1,958.21	1,957.43	16
CO-186	SV19184701	Ductile Iron	12 inch	0.128	9,773.91	1,957.43	1,955.87	40
CO-187	SV19185701	Ductile Iron	12 inch	0.122	13,600.99	1,955.87	1,953.61	61
CO-188	SV19185702	Ductile Iron	12 inch	0.192	17,098.95	1,953.61	1,947.93	97
CO-189	SV19186604	Ductile Iron	12 inch	0.047	8,423.38	1,947.93	1,947.12	57

CO-190	SV19187601	Ductile Iron	12 inch	0.032	7,010.70	1,947.12	1,946.49	64
CO-191	SV19187602	Ductile Iron	12 inch	0.096	12,062.78	1,946.49	1,944.45	70
CO-192	ST19188501	Ductile Iron	12 inch	0.048	8,542.53	1,944.45	1,943.50	65
CO-193	SV19189501	Ductile Iron	12 inch	0.13	14,091.11	1,943.50	1,939.88	86
CO-194	SV19189401	Ductile Iron	12 inch	0.155	15,372.15	1,939.88	1,935.30	101
CO-195	SV19188310	Ductile Iron	12 inch	0.066	9,993.01	1,935.30	1,935.00	15
CO-196	SV19189301	Ductile Iron	12 inch	0.102	12,455.52	1,935.00	1,931.52	112
CO-197	SV19189402	Ductile Iron	12 inch	0.05	640.93	1,931.52	1,930.72	52
CO-198	SV20180401	Ductile Iron	12 inch	0.108	12,817.42	1,930.72	1,929.70	31
CO-199	SV20180402	Ductile Iron	12 inch	0.037	7,461.18	1,929.70	1,928.73	87
CO-200	SV20180301	Ductile Iron	12 inch	0.032	6,940.31	1,928.73	1,927.91	85
CO-201	SV20181202	Ductile Iron	12 inch	0.048	8,538.96	1,927.91	1,926.99	63
CO-202	SV20181204	Ductile Iron	12 inch	0.166	15,894.38	1,926.99	1,920.21	134
CO-203	SV20181102	Ductile Iron	12 inch	0.107	12,738.64	1,920.21	1,919.56	20
CO-204	SV20182001	Ductile Iron	12 inch	0.064	9,832.25	1,919.56	1,918.65	47
CO-205	SV20181001	Ductile Iron	12 inch	0.09	856.9	1,918.65	1,916.56	76
CO-206	SV20180001	Ductile Iron	12 inch	0.496	27,483.19	1,916.56	1,909.45	47
CO-207	SV20180003	Ductile Iron	12 inch	0.93	37,612.32	1,909.45	1,897.55	42
CO-208	SV20170902	Ductile Iron	12 inch	0.198	17,357.22	1,897.55	1,893.99	59
CO-210	SV20170801	Ductile Iron	12 inch	0.127	13,912.45	1,891.40	1,888.26	81
CO-211	SV20171701	Ductile Iron	12 inch	0.135	14,331.58	1,888.26	1,886.45	44
CO-212	SV20171703	Ductile Iron	12 inch	0.146	14,907.65	1,886.45	1,881.91	102
CO-214	SV19179701	Ductile Iron	12 inch	0.155	15,348.22	1,874.92	1,871.24	78
CO-215	SV19178703	Ductile Iron	12 inch	0.101	908.46	1,871.24	1,868.52	88
CO-216	SV19178601	Ductile Iron	12 inch	0.619	30,691.11	1,868.52	1,841.92	141
CO-217	SV19178502	Ductile Iron	12 inch	0.586	29,863.71	1,841.92	1,819.95	123
CO-218	SV20165405	Ductile Iron	12 inch	0.064	9,883.79	1,894.03	1,892.68	69
CO-219	SV20164402	Ductile Iron	12 inch	0.082	11,196.27	1,892.68	1,891.50	47
CO-220	ST20164401	Ductile Iron	12 inch	0.112	953.47	1,891.50	1,888.69	84
CO-221	SV20163301	Ductile Iron	12 inch	0.019	391.83	1,888.69	1,888.00	120
CO-222	SV20162403	Ductile Iron	12 inch	0.017	367.43	1,888.00	1,887.10	178
CO-223	SV201160402	Ductile Iron	12 inch	0.029	484.9	1,887.10	1,886.51	67
CO-224	SV19169501	Ductile Iron	12 inch	0.027	1,015.07	1,886.51	1,885.52	125
CO-226	SV19168504	Ductile Iron	12 inch	0.012	673.43	1,885.52	1,885.26	71
CO-227	SV19168506	Ductile Iron	12 inch	0.118	2,109.43	1,885.26	1,882.17	86
CO-228	SV19168602	Ductile Iron	12 inch	0.031	1,972.71	1,882.17	1,881.52	68
CO-229	SV19168702	Ductile Iron	12 inch	0.103	3,574.98	1,881.52	1,879.04	79
CO-230	SV19167702	Ductile Iron	12 inch	0.076	3,077.80	1,879.04	1,875.48	153
CO-231	SV19166803	Ductile Iron	12 inch	0.14	4,162.78	1,875.48	1,870.50	117
CO-232	SV19165903	Ductile Iron	12 inch	0.022	1,666.08	1,870.50	1,869.90	88
CO-233	SV19176001	Ductile Iron	12 inch	0.01	1,119.23	1,869.90	1,869.70	65
CO-234	SV19175101	Ductile Iron	12 inch	0.025	1,744.67	1,869.70	1,868.90	107
CO-235	SV19175201	Ductile Iron	12 inch	0.06	2,724.04	1,868.90	1,865.20	203
CO-236	SV19174304	Ductile Iron	12 inch	0.205	5,044.30	1,865.20	1,863.80	24
CO-237	SV19174402	Ductile Iron	12 inch	0.004	713.37	1,863.80	1,863.72	64
CO-238	SV19170502	Ductile Iron	12 inch	0.209	5,095.44	2,084.20	2,080.82	53
CO-239	SV19170505	Ductile Iron	12 inch	0.229	13,083.87	2,080.82	2,074.60	89
CO-240	SV19170602	Ductile Iron	12 inch	1.465	3,452.89	2,074.60	2,045.13	66
CO-241	SV90768401	Ductile Iron	12 inch	1.553	3,555.67	2,045.13	2,005.83	83
CO-242	SV91765001	Ductile Iron	12 inch	1.56	3,563.03	2,005.83	1,969.22	77
CO-243	SV92750601	Ductile Iron	12 inch	1.556	3,558.25	1,969.22	1,937.45	67
CO-244	SV92754101	Ductile Iron	12 inch	2.152	4,184.97	1,937.45	1,919.74	27
CO-245	SV92756101	Ductile Iron	12 inch	2.188	4,220.01	1,919.74	1,873.72	69
CO-246	SV19173406	Ductile Iron	12 inch	2.231	4,261.07	1,873.72	1,863.72	15
CO-247	SV19173403	Ductile Iron	12 inch	0.014	341.44	1,863.72	1,863.10	142
CO-248	SV19173401	Ductile Iron	12 inch	0.022	419.2	1,863.10	1,862.33	117

CO-249	SV91771101	Ductile Iron	12 inch	1.581	34,359.73	2,055.15	2,011.29	91
CO-250	ST19171602	Ductile Iron	12 inch	1.583	34,382.20	2,011.29	1,966.89	92
CO-251	SV92752901	Ductile Iron	12 inch	1.578	3,584.20	1,966.89	1,919.74	98
CO-252	SV95581608	Ductile Iron	12 inch	0.338	1,658.73	1,990.15	1,987.78	23
CO-253	SV95583701	Ductile Iron	12 inch	0.338	1,659.27	1,987.78	1,983.14	45
CO-254	SV19155901	Ductile Iron	12 inch	0.329	1,635.48	1,983.14	1,977.43	57
CO-255	SV19156901	Ductile Iron	12 inch	0.329	1,635.14	1,977.43	1,969.92	75
CO-256	SV19156905	Ductile Iron	12 inch	0.155	1,121.95	1,969.92	1,965.30	98
CO-257	SV19167002	Ductile Iron	12 inch	0.106	927.96	1,965.30	1,962.72	80
CO-258	SV19167005	Ductile Iron	12 inch	0.185	1,226.44	1,962.72	1,959.34	60
CO-259	SV19168002	Ductile Iron	12 inch	0.117	974.36	1,959.34	1,957.42	54
CO-260	SV19168004	Ductile Iron	12 inch	0.153	1,115.80	1,957.42	1,953.41	86
CO-261	SV19169003	Ductile Iron	12 inch	0.144	1,081.35	1,953.41	1,950.87	58
CO-262	SV20160101	Ductile Iron	12 inch	0.153	1,117.69	1,950.87	1,948.25	56
CO-263	SV20160106	Ductile Iron	12 inch	0.196	1,262.02	1,948.25	1,944.85	57
CO-265	SV20162105	Ductile Iron	12 inch	0.14	1,068.27	1,933.90	1,930.78	73
CO-266	SV20163101	Ductile Iron	12 inch	0.176	1,195.74	1,930.78	1,927.46	62
CO-267	SV20163103	Ductile Iron	12 inch	0.103	917.48	1,927.46	1,925.60	59
CO-268	ST20164101	Ductile Iron	12 inch	0.058	689.56	1,925.60	1,924.30	73
CO-269	SV20165101	Ductile Iron	12 inch	0.298	1,557.35	1,924.30	1,917.76	72
CO-270	SV20165103	Ductile Iron	12 inch	0.191	1,247.25	1,917.76	1,913.74	69
CO-271	SV20166102	Ductile Iron	12 inch	0.026	460.76	1,913.74	1,912.77	122
CO-272	SV20166204	Ductile Iron	12 inch	0.143	1,077.96	1,912.77	1,910.42	54
CO-273	SV20167301	Ductile Iron	12 inch	0.128	1,021.09	1,910.42	1,909.60	21
CO-274	SV20166306	Ductile Iron	12 inch	0.106	927.77	1,908.25	1,905.80	76
CO-275	SV20166305	Ductile Iron	12 inch	0.131	1,033.46	1,905.80	1,904.68	28
CO-276	SV20165401	Ductile Iron	12 inch	0.359	1,708.51	1,904.68	1,898.23	59
CO-277	ST20165401	Ductile Iron	12 inch	0.247	1,417.18	1,898.23	1,894.77	46
CO-278	SV20165404	Ductile Iron	12 inch	0.076	785.79	1,894.77	1,894.03	32
CO-279	SV05630701	Ductile Iron	12 inch	0.28	1,510.06	1,902.57	1,894.03	100
CO-281	SV00613701	Ductile Iron	12 inch	0.045	607.08	2,023.64	2,022.66	71
CO-282	SV20160204	Ductile Iron	12 inch	0.469	1,953.06	2,022.66	2,010.66	84
CO-283	SV20161205	Ductile Iron	12 inch	0.454	1,922.87	2,010.66	2,002.49	59
CO-284	SV20162202	Ductile Iron	12 inch	0.546	2,107.36	1,996.37	1,981.90	87
CO-285	SV20163201	Ductile Iron	12 inch	0.37	1,736.16	1,981.90	1,976.82	45
CO-286	SV20163203	Ductile Iron	12 inch	2.06	4,094.19	1,976.82	1,965.52	18
CO-287	SV20163207	Ductile Iron	12 inch	0.415	1,837.53	1,965.52	1,955.53	79
CO-288	SV20164202	Ductile Iron	12 inch	0.744	2,461.52	1,955.53	1,940.78	65
CO-289	SV20164204	Ductile Iron	12 inch	1.103	2,996.71	1,940.78	1,924.30	49
CO-290	SV19168206	Ductile Iron	12 inch	0.228	1,360.72	2,053.77	2,049.54	61
CO-291	SV19168207	Ductile Iron	12 inch	0.154	1,120.42	2,049.54	2,046.39	67
CO-292	SV19169201	Ductile Iron	12 inch	0.433	1,877.38	2,046.39	2,042.43	30
CO-295	SV19166506	Ductile Iron	12 inch	0.614	2,235.68	2,054.12	2,043.45	57
CO-296	SV19166508	Ductile Iron	12 inch	0.116	973.37	2,043.45	2,041.25	62
CO-297	SV19167405	Ductile Iron	12 inch	0.133	1,039.69	2,041.25	2,038.74	62
CO-298	SV97647301	Ductile Iron	12 inch	0.166	1,162.43	2,038.74	2,037.07	33
CO-299	SV97648001	Ductile Iron	12 inch	0.227	1,359.09	2,037.07	2,032.02	73
CO-300	SV19168303	Ductile Iron	12 inch	0.079	803.29	2,032.02	2,031.44	24
CO-301	SV19168311	Ductile Iron	12 inch	0.322	1,619.35	2,031.44	2,024.86	67
CO-302	SV19169301	Ductile Iron	12 inch	0.285	1,521.90	2,024.86	2,017.40	86
CO-303	SV19169205	Ductile Iron	12 inch	0.014	340.15	2,017.40	2,017.14	60
CO-304	SV20160202	Ductile Iron	12 inch	0.236	1,384.78	2,017.14	2,012.40	66
CO-305	SV20160206	Ductile Iron	12 inch	0.521	2,058.48	2,012.40	1,997.80	92
CO-306	SV20161203	Ductile Iron	12 inch	0.549	2,114.34	1,997.80	1,986.75	66
CO-307	SV20162205	Ductile Iron	12 inch	0.358	1,706.21	1,986.75	1,978.90	72
CO-308	SV20163208	Ductile Iron	12 inch	0.145	1,087.04	1,978.90	1,976.82	47

CO-309	SV19166404	Ductile Iron	12 inch	0.241	1,401.27	2,067.25	2,062.47	65
CO-310	SV97641001	Ductile Iron	12 inch	0.171	1,179.16	2,062.47	2,058.20	82
CO-311	SV19167303	Ductile Iron	12 inch	0.22	1,338.66	2,058.20	2,051.69	97
CO-312	SV19167203	Ductile Iron	12 inch	0.544	2,104.53	2,051.69	2,038.42	80
CO-313	SV96618601	Ductile Iron	12 inch	1.012	2,869.60	2,038.42	2,030.71	25
CO-314	SV19167101	Ductile Iron	12 inch	0.096	881.74	2,030.71	2,028.73	68
CO-315	SV19167103	Ductile Iron	12 inch	0.017	373.98	2,028.73	2,028.40	63
CO-316	SV19168202	Ductile Iron	12 inch	1.52	3,516.92	2,028.40	1,983.93	96
CO-318	SV98614401	Ductile Iron	12 inch	1.522	3,519.70	1,983.93	1,959.34	53
CO-319	SV19168306	Ductile Iron	12 inch	2.269	4,296.80	2,036.61	1,988.90	69
CO-320	ST19168401	Ductile Iron	12 inch	1.957	3,990.82	1,988.90	1,946.55	71
CO-321	SV19169401	Ductile Iron	12 inch	1.952	3,985.70	1,946.55	1,886.51	101
CO-322	SV19167409	Ductile Iron	12 inch	2.456	4,471.01	2,041.23	2,002.30	52
CO-323	SV19167501	Ductile Iron	12 inch	2.554	4,559.55	2,002.30	1,963.37	50
CO-324	SV19168501	Ductile Iron	12 inch	2.78	4,756.40	1,963.37	1,885.52	92
CO-325	SV19166509	Ductile Iron	12 inch	3.025	4,961.77	2,044.25	1,980.63	69
CO-326	SV19167502	Ductile Iron	12 inch	2.485	4,496.99	1,980.63	1,948.82	42
CO-327	SV19167503	Ductile Iron	12 inch	2.395	4,415.30	1,948.82	1,885.30	87
CO-328	SV19168603	Ductile Iron	12 inch	0.017	372.09	1,885.30	1,885.26	27
CO-329	SV21190401	Ductile Iron	12 inch	0.308	1,584.49	2,177.85	2,170.61	77
CO-330	SV21190302	Ductile Iron	12 inch	0.356	1,701.78	2,170.61	2,163.56	65
CO-331	SV20199301	Ductile Iron	12 inch	0.259	1,451.89	2,163.56	2,160.56	38
CO-332	SV20199303	Ductile Iron	12 inch	0.15	1,103.18	2,160.56	2,156.23	95
CO-333	SV20198201	Ductile Iron	12 inch	0.135	1,048.08	2,156.23	2,152.98	79
CO-334	SV20199101	Ductile Iron	12 inch	0.246	1,415.13	2,152.98	2,145.93	94
CO-335	SV20199001	Ductile Iron	12 inch	0.543	2,102.62	2,145.93	2,135.83	61
CO-336	SV20199002	Ductile Iron	12 inch	0.118	980.43	2,135.83	2,132.41	95
CO-337	SV20189902	Ductile Iron	12 inch	0.296	1,551.33	2,132.41	2,125.56	76
CO-338	SV21180801	Ductile Iron	12 inch	0.118	981.4	2,125.56	2,124.55	28
CO-339	SV21180802	Ductile Iron	12 inch	0.142	1,073.41	2,124.55	2,120.58	92
CO-340	ST20189901	Ductile Iron	12 inch	0.139	1,062.73	2,120.58	2,117.45	74
CO-341	SV20189903	Ductile Iron	12 inch	0.214	1,319.55	2,117.45	2,112.82	71
CO-342	SV20188902	Ductile Iron	12 inch	0.247	1,416.56	2,112.82	2,105.43	99
CO-343	SV20187901	Ductile Iron	12 inch	0.22	1,338.43	2,105.43	2,101.74	55
CO-344	SV20187902	Ductile Iron	12 inch	0.202	1,282.98	2,101.74	2,096.50	85
CO-345	SV20197001	Ductile Iron	12 inch	0.143	2,326.45	2,096.50	2,095.32	27
CO-346	SV20197002	Ductile Iron	12 inch	0.31	3,418.56	2,095.32	2,088.62	71
CO-347	SV20196101	Ductile Iron	12 inch	0.213	2,838.63	2,088.62	2,083.61	77
CO-348	SV20196102	Ductile Iron	12 inch	0.233	2,967.79	2,083.61	2,075.36	116
CO-349	SV20194101	Ductile Iron	12 inch	0.241	3,018.24	2,075.36	2,066.68	118
CO-350	SV20194203	Ductile Iron	12 inch	0.161	2,468.25	2,066.68	2,063.63	62
CO-351	SV20194205	Ductile Iron	12 inch	0.162	2,469.36	2,063.63	2,058.46	105
CO-353	SV20193402	Ductile Iron	12 inch	0.166	2,506.48	2,054.23	2,049.36	96
CO-354	SV20193302	Ductile Iron	12 inch	0.323	3,490.63	2,049.36	2,046.31	31
CO-355	SV20192301	Ductile Iron	12 inch	0.19	11,903.91	2,046.31	2,040.12	107
CO-356	SV20191401	Ductile Iron	12 inch	0.322	15,502.43	2,040.12	2,034.92	53
CO-357	SV20191402	Ductile Iron	12 inch	0.197	12,123.04	2,034.92	2,033.60	22
CO-358	SV20191403	Ductile Iron	12 inch	0.191	11,956.43	2,033.60	2,026.83	116
CO-359	SV20191201	Ductile Iron	12 inch	0.249	13,635.38	2,026.83	2,020.53	83
CO-360	SV20190202	Ductile Iron	12 inch	0.373	16,677.86	2,020.53	2,015.42	45
CO-364	SV19199810	Ductile Iron	12 inch	0.337	15,862.77	2,008.32	2,002.67	55
CO-365	SV19198102	Ductile Iron	12 inch	0.196	12,090.15	2,002.67	1,995.33	123
CO-367	SV19197203	Ductile Iron	12 inch	0.087	8,056.73	1,994.90	1,994.42	20
CO-368	SV19197204	Ductile Iron	12 inch	0.048	626.63	1,994.42	1,992.92	102
CO-369	SV19197103	Ductile Iron	12 inch	0.106	8,886.12	1,992.92	1,988.02	152
CO-370	SV19188901	Ductile Iron	12 inch	0.108	8,979.75	1,988.02	1,983.51	137

CO-371	SV19189902	Ductile Iron	12 inch	0.203	5,024.09	1,983.51	1,982.27	20
CO-372	SV19189903	Ductile Iron	12 inch	0.098	893.31	1,982.27	1,977.01	176
CO-373	SV19188802	Ductile Iron	12 inch	0.103	8,753.54	1,977.01	1,975.79	39
CO-375	SV19186802	Ductile Iron	12 inch	0.117	9,350.25	1,970.98	1,968.66	65
CO-377	SV19186903	Ductile Iron	12 inch	0.093	8,330.77	1,968.66	1,967.52	24
CO-378	SV19196008	Ductile Iron	12 inch	0.232	13,153.95	2,051.36	2,048.04	47
CO-379	SV19196010	Ductile Iron	12 inch	0.41	1,825.62	2,048.04	2,041.05	56
CO-380	SV19187903	Ductile Iron	12 inch	0.209	12,489.70	2,041.05	2,037.42	57
CO-381	SV19187905	Ductile Iron	12 inch	0.136	10,082.31	2,037.42	2,034.93	60
CO-382	SV19188903	Ductile Iron	12 inch	1.016	27,545.34	2,034.93	2,009.22	83
CO-383	SV19188906	Ductile Iron	12 inch	1.049	27,991.57	2,009.22	1,983.51	81
CO-384	SV19195104	Ductile Iron	12 inch	2.277	4,304.85	2,070.52	2,005.28	94
CO-385	SV19196002	Ductile Iron	12 inch	0.002	128.17	2,005.28	2,005.25	59
CO-386	ST19196002	Ductile Iron	12 inch	0.899	2,705.47	2,005.25	1,980.03	0
CO-387	SV05968701	Ductile Iron	12 inch	0.223	1,347.75	2,274.10	2,269.27	71
CO-388	SV05961601	Ductile Iron	12 inch	0.217	1,327.51	2,269.27	2,263.66	85
CO-389	SV04963901	Ductile Iron	12 inch	0.203	1,285.73	2,263.66	2,259.49	68
CO-390	SV03966801	Ductile Iron	12 inch	0.206	1,294.02	2,259.49	2,255.75	59
CO-391	SV03971001	Ductile Iron	12 inch	0.219	1,334.87	2,255.75	2,252.48	49
CO-392	SV20192704	Ductile Iron	12 inch	0.233	1,375.99	2,252.48	2,247.02	77
CO-393	SV20191701	Ductile Iron	12 inch	0.057	683.57	2,247.02	2,245.69	76
CO-394	SV20191703	Ductile Iron	12 inch	0.028	480.36	2,245.69	2,244.99	81
CO-395	SV20190702	Ductile Iron	12 inch	0.262	1,460.11	2,244.99	2,239.88	64
CO-396	SV19199709	Ductile Iron	12 inch	0.907	2,717.40	2,239.88	2,231.86	29
CO-397	SV19199710	Ductile Iron	12 inch	0.091	861.02	2,231.86	2,229.50	85
CO-399	SV19198606	Ductile Iron	12 inch	0.039	561.98	2,227.35	2,226.25	93
CO-400	SV19197605	Ductile Iron	12 inch	0.055	671.85	2,226.25	2,224.83	84
CO-401	SV19196701	Ductile Iron	12 inch	0.267	1,475.01	2,224.83	2,222.63	27
CO-402	ST19196601	Ductile Iron	12 inch	0.906	2,716.02	2,222.63	2,206.33	59
CO-403	SV97960501	Ductile Iron	12 inch	0.901	2,708.31	2,206.33	2,192.32	51
CO-404	SV19197602	Ductile Iron	12 inch	0.83	2,598.46	2,192.32	2,168.55	94
CO-405	SV19197503	Ductile Iron	12 inch	0.937	2,761.46	2,168.55	2,153.66	59
CO-406	SV96949901	Ductile Iron	12 inch	0.445	1,902.27	2,153.66	2,137.47	0
CO-407	SV19196406	Ductile Iron	12 inch	0.983	2,828.29	2,137.47	2,123.09	48
CO-410	SV96926901	Ductile Iron	12 inch	1.612	3,622.39	2,046.35	1,994.90	105
CO-411	SV98962201	Ductile Iron	12 inch	0.75	2,469.85	2,230.10	2,221.19	39
CO-412	SV98952801	Ductile Iron	12 inch	0.97	2,809.05	2,221.19	2,192.82	96
CO-413	SV19199501	Ductile Iron	12 inch	0.862	2,648.76	2,192.82	2,185.20	29
CO-414	SV19199502	Ductile Iron	12 inch	0.944	2,771.68	2,185.20	2,161.32	83
CO-415	SV19199401	Ductile Iron	12 inch	1.135	3,039.89	2,161.32	2,145.40	46
CO-416	SV19199403	Ductile Iron	12 inch	1.64	3,653.84	2,145.40	2,118.90	53
CO-417	SV19199405	Ductile Iron	12 inch	1.553	3,554.62	2,118.90	2,092.40	56
CO-418	SV19199302	Ductile Iron	12 inch	1.169	3,084.40	2,092.40	2,073.16	54
CO-419	SV19199304	Ductile Iron	12 inch	1.189	3,110.31	2,073.16	2,044.90	78
CO-420	SV20190206	Ductile Iron	12 inch	1.427	3,408.08	2,044.90	2,015.42	68
CO-421	SV19199406	Ductile Iron	12 inch	0.157	1,132.10	2,121.30	2,118.90	50
CO-422	SV20190610	Ductile Iron	12 inch	1.117	3,014.83	2,102.10	2,076.91	74
CO-423	SV20191505	Ductile Iron	12 inch	1.155	3,066.11	2,076.91	2,060.01	48
CO-424	SV20191404	Ductile Iron	12 inch	1.008	2,863.99	2,060.01	2,034.92	82
CO-425	SV20192506	Ductile Iron	12 inch	1.784	3,809.89	2,102.40	2,070.87	58
CO-426	SV20182508	Ductile Iron	12 inch	1.211	3,139.17	2,070.87	2,047.25	64
CO-427	SV20191407	Ductile Iron	12 inch	0.624	2,253.94	2,047.25	2,040.12	38
CO-428	SV20193403	Ductile Iron	12 inch	0.153	1,115.82	2,050.36	2,046.31	89
CO-430	SV19199605	Ductile Iron	12 inch	0.959	2,794.41	2,208.60	2,194.27	49
CO-431	SV19199607	Ductile Iron	12 inch	0.72	2,421.48	2,194.27	2,172.31	100
CO-432	SV00965301	Ductile Iron	12 inch	0.67	2,334.56	2,172.31	2,161.90	51

CO-433	SV20190605	Ductile Iron	12 inch	0.2	1,276.12	2,161.90	2,156.35	91
CO-434	SV20191502	Ductile Iron	12 inch	0.194	1,255.59	2,156.35	2,150.80	94
CO-435	SV20192504	Ductile Iron	12 inch	0.24	1,396.38	2,150.80	2,145.25	76
CO-436	SV20193503	Ductile Iron	12 inch	0.309	1,584.84	2,145.25	2,139.70	59
CO-438	SV20194502	Ductile Iron	12 inch	0.192	1,251.09	2,120.30	2,115.20	87
CO-440	SV20194406	Ductile Iron	12 inch	0.157	1,129.48	2,130.50	2,126.63	81
CO-441	SV20195306	Ductile Iron	12 inch	1.903	3,935.85	2,126.63	2,090.66	62
CO-442	SV20195312	Ductile Iron	12 inch	1.433	3,415.55	2,090.66	2,066.68	55
CO-443	SV20194501	Ductile Iron	12 inch	1.602	3,611.32	2,139.70	2,080.60	0
CO-445	SV20194407	Ductile Iron	12 inch	1.852	3,882.80	2,115.20	2,077.37	67
CO-446	SV20194409	Ductile Iron	12 inch	1.595	3,602.89	2,077.37	2,058.46	39
CO-447	SV20194605	Ductile Iron	12 inch	1.581	3,587.15	2,200.10	2,154.80	94
CO-448	SV20194504	Ductile Iron	12 inch	1.651	3,666.00	2,154.80	2,139.70	30
CO-449	SV20199271(	Ductile Iron	12 inch	1.881	3,912.26	2,245.20	2,191.89	93
CO-450	SV20192603	Ductile Iron	12 inch	1.534	3,533.59	2,191.89	2,156.35	76
CO-451	SV20190704	Ductile Iron	12 inch	1.421	3,400.53	2,218.20	2,184.42	78
CO-452	SV20191603	Ductile Iron	12 inch	1.449	3,433.71	2,184.42	2,161.90	51
CO-453	SV20192801	Ductile Iron	12 inch	0.134	1,045.29	2,302.87	2,299.76	76
CO-455	SV20192709	Ductile Iron	12 inch	1.277	3,224.15	2,280.90	2,252.48	73
CO-456	SV20192707	Ductile Iron	12 inch	0.086	836.36	2,299.76	2,297.90	71
CO-457	SV20193703	Ductile Iron	12 inch	0.595	2,201.24	2,297.90	2,285.56	68
CO-458	SV04971401	Ductile Iron	12 inch	1.142	3,048.86	2,285.56	2,259.49	75
CO-459	SV01986301	Ductile Iron	12 inch	0.154	1,121.12	2,295.71	2,291.85	82
CO-460	SV20190804	Ductile Iron	12 inch	0.294	1,547.53	2,291.85	2,283.15	97
CO-461	SV19199801	Ductile Iron	12 inch	0.396	1,795.15	2,283.15	2,272.65	87
CO-462	SV99972501	Ductile Iron	12 inch	0.314	1,598.65	2,272.65	2,264.61	0
CO-463	SV19199708	Ductile Iron	12 inch	0.219	1,335.64	2,264.61	2,260.00	0
CO-464	SV19198601	Ductile Iron	12 inch	0.181	1,212.28	2,260.00	2,253.01	0
CO-465	SV19198604	Ductile Iron	12 inch	0.636	2,275.45	2,253.01	2,226.25	0
CO-466	SV98977501	Ductile Iron	12 inch	0.322	1,618.85	2,293.16	2,290.51	27
CO-467	SV98979501	Ductile Iron	12 inch	0.063	716.58	2,290.51	2,289.51	52
CO-468	SV98979501	Ductile Iron	12 inch	0.259	1,452.73	2,289.51	2,285.40	52
CO-469	ST19199702	Ductile Iron	12 inch	0.121	992.41	2,285.40	2,283.15	61
CO-470	SV00002001	Ductile Iron	12 inch	0.248	1,421.85	2,319.91	2,314.61	70
CO-471	SV00993301	Ductile Iron	12 inch	0.249	1,422.37	2,314.61	2,312.64	26
CO-472	SV00992101	Ductile Iron	12 inch	0.247	1,418.75	2,312.64	2,311.66	13
CO-473	SV00993001	Ductile Iron	12 inch	0.248	1,420.36	2,311.66	2,309.62	27
CO-474	SV00996101	Ductile Iron	12 inch	0.577	2,166.29	2,309.62	2,296.79	73
CO-475	SV00983401	Ductile Iron	12 inch	0.814	2,573.30	2,296.79	2,283.15	55
CO-476	SV19199710	Ductile Iron	12 inch	1.593	3,600.14	2,231.86	2,190.60	85
CO-477	SV20190607	Ductile Iron	12 inch	0.938	2,762.37	2,190.60	2,172.31	64
CO-478	SV19197403	Ductile Iron	12 inch	1.398	3,372.64	2,135.90	2,123.12	30
CO-479	SV19197404	Ductile Iron	12 inch	1.657	3,671.88	2,123.12	2,072.12	101
CO-480	SV19197301	Ductile Iron	12 inch	1.203	3,129.17	2,072.12	2,046.45	70
CO-481	SV19197303	Ductile Iron	12 inch	1.353	3,317.79	2,046.45	2,020.89	62
CO-482	SV19197206	Ductile Iron	12 inch	1.791	3,818.07	2,020.89	1,995.33	47
CO-483	SV19195602	Ductile Iron	12 inch	0.472	1,959.51	2,244.32	2,234.11	71
CO-484	SV19195604	Ductile Iron	12 inch	1.517	3,513.66	2,234.11	2,189.26	97
CO-485	SV95957401	Ductile Iron	12 inch	1.521	3,518.72	2,189.26	2,151.70	81
CO-486	SV95948701	Ductile Iron	12 inch	1.531	3,529.61	2,151.70	2,133.97	38
CO-487	SV95948401	Ductile Iron	12 inch	1.518	3,515.07	2,133.97	2,105.28	62
CO-488	SV96931901	Ductile Iron	12 inch	1.507	3,501.92	2,105.28	2,085.99	42
CO-489	SV94946901	Ductile Iron	12 inch	2.081	4,115.40	2,197.40	2,133.97	100
CO-490	SV94965001	Ductile Iron	12 inch	1.908	3,940.58	2,237.19	2,211.02	45
CO-491	SV94957601	Ductile Iron	12 inch	1.89	3,921.71	2,211.02	2,170.70	70
CO-492	SV19195503	Ductile Iron	12 inch	0.769	2,501.37	2,170.70	2,155.00	67

CO-493	SV95945701	Ductile Iron	12 inch	1.353	3,318.17	2,155.00	2,133.97	51
CO-494	SV93959101	Ductile Iron	12 inch	1.385	3,356.76	2,233.27	2,197.40	85
CO-495	SV94946901	Ductile Iron	12 inch	1.391	3,364.71	2,197.40	2,155.00	100
CO-496	SV19191401	Ductile Iron	12 inch	0.089	850.12	2,282.56	2,280.53	75
CO-497	SV19192501	Ductile Iron	12 inch	0.465	1,945.51	2,280.53	2,272.45	57
CO-498	SV92956501	Ductile Iron	12 inch	0.463	1,941.70	2,272.45	2,265.39	50
CO-499	SV93951601	Ductile Iron	12 inch	0.466	1,948.02	2,265.39	2,256.01	66
CO-500	SV93966001	Ductile Iron	12 inch	0.465	1,945.64	2,256.01	2,247.22	62
CO-501	SV94960401	Ductile Iron	12 inch	0.474	1,964.57	2,247.22	2,245.63	11
CO-502	SV19194601	Ductile Iron	12 inch	0.285	1,522.54	2,245.63	2,243.72	22
CO-503	SV19194602	Ductile Iron	12 inch	0.181	1,215.32	2,243.72	2,239.35	0
CO-504	SV19194501	Ductile Iron	12 inch	0.126	1,011.07	2,239.35	2,236.67	70
CO-505	SV19193504	Ductile Iron	12 inch	0.56	2,135.28	2,236.67	2,225.40	66
CO-506	SV94941601	Ductile Iron	12 inch	1.278	3,224.50	2,225.40	2,205.93	50
CO-507	SV19194404	Ductile Iron	12 inch	1.3	3,252.24	2,205.93	2,193.65	31
CO-508	SV94944201	Ductile Iron	12 inch	1.277	3,223.63	2,193.65	2,179.25	37
CO-511	SV95931401	Ductile Iron	12 inch	1.293	3,244.06	2,146.23	2,134.80	29
CO-512	SV19195302	Ductile Iron	12 inch	1.189	3,110.12	2,134.80	2,115.60	53
CO-513	SV19195204	Ductile Iron	12 inch	0.857	2,640.85	2,115.60	2,093.66	84
CO-514	SV19196102	Ductile Iron	12 inch	0.771	2,504.61	2,093.66	2,075.10	79
CO-515	SV19196104	Ductile Iron	12 inch	0.138	1,060.64	2,075.10	2,072.53	61
CO-516	SV19196005	Ductile Iron	12 inch	2.168	4,200.06	2,072.53	2,052.71	30
CO-517	SV19196006	Ductile Iron	12 inch	0.367	1,728.29	2,052.71	2,042.53	91
CO-518	SV19197003	Ductile Iron	12 inch	0.314	1,599.52	2,042.53	2,037.26	55
CO-519	SV19187902	Ductile Iron	12 inch	0.156	1,126.79	2,037.26	2,034.93	49
CO-520	SV19193501	Ductile Iron	12 inch	0.538	2,092.10	2,244.26	2,235.90	51
CO-521	ST19193402	Ductile Iron	12 inch	0.674	2,342.77	2,235.90	2,224.80	54
CO-522	SV19193403	Ductile Iron	12 inch	1.231	3,164.66	2,224.80	2,201.92	61
CO-523	SV19194301	Ductile Iron	12 inch	1.34	3,302.92	2,201.92	2,179.04	56
CO-524	SV19194303	Ductile Iron	12 inch	1.331	3,291.55	2,179.04	2,155.10	59
CO-525	SV19194201	Ductile Iron	12 inch	1.539	3,538.76	2,155.10	2,117.58	80
CO-526	SV19194204	Ductile Iron	12 inch	1.338	3,299.47	2,117.58	2,080.07	92
CO-527	SV93946101	Ductile Iron	12 inch	1.054	2,928.14	2,223.57	2,206.23	54
CO-529	SV93936201	Ductile Iron	12 inch	1.039	2,907.28	2,188.22	2,179.02	29
CO-530	SV93938001	Ductile Iron	12 inch	1.052	2,926.52	2,179.02	2,162.02	53
CO-531	SV93926501	Ductile Iron	12 inch	1.109	3,004.38	2,162.02	2,148.16	41
CO-532	SV94920401	Ductile Iron	12 inch	1.103	2,995.45	2,148.16	2,117.58	91
CO-535	SV92929801	Ductile Iron	12 inch	0.978	2,820.80	2,189.63	2,183.67	20
CO-537	SV93921501	Ductile Iron	12 inch	1.102	2,994.10	2,192.24	2,174.11	54
CO-538	SV93925201	Ductile Iron	12 inch	1.102	2,994.52	2,174.11	2,162.02	36
CO-539	SV92956401	Ductile Iron	12 inch	0.182	1,216.07	2,265.59	2,262.71	52
CO-540	SV92944801	Ductile Iron	12 inch	0.603	2,214.63	2,262.71	2,245.26	95
CO-541	SV92948801	Ductile Iron	12 inch	0.653	2,305.41	2,245.26	2,226.35	95
CO-542	SV93946301	Ductile Iron	12 inch	0.231	1,371.57	2,226.35	2,224.80	22
CO-543	SV19192401	Ductile Iron	12 inch	0.25	1,425.48	2,245.15	2,240.66	59
CO-544	SV19192403	Ductile Iron	12 inch	0.594	2,198.45	2,240.66	2,222.74	99
CO-545	SV92931201	Ductile Iron	12 inch	0.859	2,644.66	2,222.74	2,203.88	72
CO-546	SV92927801	Ductile Iron	12 inch	0.832	2,601.83	2,203.88	2,199.57	17
CO-547	SV92927601	Ductile Iron	12 inch	0.851	2,632.01	2,199.57	2,185.56	54
CO-548	SV19192205	Ductile Iron	12 inch	0.754	2,477.23	2,185.56	2,172.23	58
CO-549	SV19192207	Ductile Iron	12 inch	0.885	2,684.00	2,172.23	2,159.01	49
CO-552	SV92935801	Ductile Iron	12 inch	0.302	1,568.54	2,223.23	2,216.78	70
CO-553	SV93932701	Ductile Iron	12 inch	0.387	1,773.81	2,216.78	2,208.06	74
CO-554	SV92939001	Ductile Iron	12 inch	0.343	1,670.41	2,208.06	2,203.88	40
CO-555	SV18197101	Ductile Iron	12 inch	0.058	685.25	2,418.21	2,417.70	29
CO-556	SV18197102	Ductile Iron	12 inch	0.226	1,354.88	2,417.70	2,411.10	96

CO-557	SV86905501	Ductile Iron	12 inch	0.192	1,248.83	2,411.10	2,408.53	44
CO-558	SV18196006	Ductile Iron	12 inch	0.153	1,114.73	2,408.53	2,407.32	26
CO-559	SV18196007	Ductile Iron	12 inch	0.268	1,475.80	2,407.32	2,403.16	51
CO-560	SV18185906	Ductile Iron	12 inch	0.427	1,864.45	2,403.16	2,396.26	53
CO-561	SV18185905	Ductile Iron	12 inch	0.305	1,576.25	2,396.26	2,390.77	59
CO-562	SV18185802	Ductile Iron	12 inch	0.44	1,891.28	2,390.77	2,383.67	53
CO-563	ST18185801	Ductile Iron	12 inch	0.473	1,961.59	2,383.67	2,375.60	56
CO-564	SV85876501	Ductile Iron	12 inch	0.308	1,582.97	2,375.60	2,369.50	65
CO-565	SV85864901	Ductile Iron	12 inch	0.513	2,043.61	2,369.50	2,363.40	39
CO-566	SV85860801	Ductile Iron	12 inch	0.47	1,955.24	2,363.40	2,351.23	85
CO-567	SV84864401	Ductile Iron	12 inch	0.729	2,436.50	2,351.23	2,344.56	30
CO-568	SV84866401	Ductile Iron	12 inch	0.436	1,883.46	2,344.56	2,340.84	28
CO-569	SV18184607	Ductile Iron	12 inch	0.778	2,516.91	2,340.84	2,331.35	40
CO-570	SV18184503	Ductile Iron	12 inch	0.054	660.39	2,331.35	2,330.86	30
CO-571	SV18185503	Ductile Iron	12 inch	0.149	1,099.80	2,330.60	2,326.07	100
CO-572	SV91868501	Ductile Iron	12 inch	0.503	2,022.41	2,233.35	2,219.87	88
CO-573	SV19182602	Ductile Iron	12 inch	0.284	1,519.59	2,219.87	2,215.20	54
CO-574	ST19182502	Ductile Iron	12 inch	0.138	1,059.50	2,215.20	2,213.14	49
CO-575	SV19183504	Ductile Iron	12 inch	0.174	1,188.67	2,213.14	2,210.60	48
CO-577	SV19184402	Ductile Iron	12 inch	0.503	2,023.94	2,206.40	2,193.82	82
CO-578	SV19185401	Ductile Iron	12 inch	0.586	2,183.59	2,193.82	2,188.82	28
CO-579	SV19185402	Ductile Iron	12 inch	1.507	3,501.89	2,188.82	2,150.70	83
CO-580	SV19185404	Ductile Iron	12 inch	1.856	3,886.13	2,150.70	2,103.19	84
CO-581	SV19186402	Ductile Iron	12 inch	1.738	3,760.86	2,103.19	2,065.58	71
CO-582	ST19187401	Ductile Iron	12 inch	1.555	3,557.36	2,065.58	2,031.93	71
CO-583	SV19187301	Ductile Iron	12 inch	2.106	4,140.39	2,031.93	1,984.42	74
CO-584	SV19188303	Ductile Iron	12 inch	2.05	4,084.91	1,984.42	1,935.30	79
CO-585	SV19186101	Ductile Iron	12 inch	0.25	1,427.26	2,004.29	1,997.50	89
CO-586	SV19187202	Ductile Iron	12 inch	1.404	3,380.86	1,997.50	1,955.12	99
CO-587	SV19188305	Ductile Iron	12 inch	0.609	2,226.11	1,955.12	1,944.17	59
CO-588	SV19188307	Ductile Iron	12 inch	0.302	1,568.36	1,944.17	1,935.30	99
CO-589	SV19189201	Ductile Iron	12 inch	1.267	3,211.49	2,002.53	1,964.29	99
CO-590	SV19188308	Ductile Iron	12 inch	1.279	3,226.43	1,964.29	1,935.30	75
CO-591	SV18186703	Ductile Iron	12 inch	0.393	1,788.14	2,347.64	2,342.85	40
CO-592	SV18185809	Ductile Iron	12 inch	0.308	1,583.33	2,342.85	2,341.16	18
CO-593	SV18186805	Ductile Iron	12 inch	0.091	860.44	2,341.16	2,340.55	22
CO-594	SV18186806	Ductile Iron	12 inch	0.216	1,325.39	2,340.55	2,338.05	38
CO-595	SV18186901	Ductile Iron	12 inch	0.168	7,745.67	2,338.05	2,335.08	58
CO-596	SV18186904	Ductile Iron	12 inch	0.122	998.42	2,335.08	2,332.84	60
CO-598	SV18188910	Ductile Iron	12 inch	0.203	1,284.92	2,327.97	2,324.26	60
CO-599	SV18188909	Ductile Iron	12 inch	0.775	2,512.01	2,324.26	2,312.68	49
CO-600	SV18189801	Ductile Iron	12 inch	0.171	1,180.63	2,312.68	2,309.60	59
CO-601	SV18189803	Ductile Iron	12 inch	0.23	1,367.14	2,309.60	2,308.20	20
CO-602	SV18189804	Ductile Iron	12 inch	0.076	784.97	2,308.20	2,307.30	39
CO-603	SV18189806	Ductile Iron	12 inch	0.084	828.61	2,307.30	2,306.22	42
CO-604	SV18189902	Ductile Iron	12 inch	0.483	1,982.28	2,306.22	2,296.36	67
CO-605	SV18189905	Ductile Iron	12 inch	0.203	1,286.65	2,296.36	2,294.50	30
CO-606	SV19180902	Ductile Iron	12 inch	0.334	1,648.57	2,294.50	2,291.65	28
CO-607	SV18186701	Ductile Iron	12 inch	0.262	1,461.54	2,345.12	2,340.88	53
CO-608	SV18185701	Ductile Iron	12 inch	0.166	1,160.61	2,340.88	2,337.50	67
CO-609	SV85866401	Ductile Iron	12 inch	0.134	1,043.25	2,337.50	2,333.75	92
CO-610	SV18184614	Ductile Iron	12 inch	0.161	1,143.59	2,333.75	2,331.35	49
CO-611	SV20198301	Ductile Iron	12 inch	0.591	2,192.30	2,180.00	2,170.28	54
CO-612	SV201198304	Ductile Iron	12 inch	0.523	2,062.68	2,170.28	2,160.56	61
CO-613	SV20198204	Ductile Iron	12 inch	0.114	963.62	2,158.56	2,156.23	67
CO-614	SV20197204	Ductile Iron	12 inch	0.056	676.26	2,181.36	2,179.75	94

CO-615	SV20198103	Ductile Iron	12 inch	0.033	520.16	2,179.75	2,178.99	75
CO-616	SV20198105	Ductile Iron	12 inch	0.693	2,374.43	2,178.99	2,160.62	87
CO-617	SV20198006	Ductile Iron	12 inch	1.662	3,677.70	2,160.62	2,145.93	29
CO-618	SV20197201	Ductile Iron	12 inch	1.523	3,521.20	2,162.40	2,115.50	101
CO-619	SV20197101	Ductile Iron	12 inch	1.55	3,551.77	2,115.50	2,088.62	57
CO-620	SV20196301	Ductile Iron	12 inch	1.672	3,688.48	2,180.40	2,148.30	63
CO-621	SV20196303	Ductile Iron	12 inch	1.81	3,838.18	2,148.30	2,100.30	87
CO-622	SV20195203	Ductile Iron	12 inch	0.337	1,655.34	2,100.30	2,094.04	61
CO-623	SV20195206	Ductile Iron	12 inch	0.311	1,591.40	2,094.04	2,087.78	66
CO-624	SV20195104	Ductile Iron	12 inch	0.288	1,532.15	2,087.78	2,083.61	48
CO-625	SV20193604	Ductile Iron	12 inch	0.777	2,515.26	2,252.62	2,229.40	98
CO-626	SV20194608	Ductile Iron	12 inch	0.784	2,525.29	2,229.40	2,215.07	60
CO-627	SV20194610	Ductile Iron	12 inch	0.065	724.85	2,215.07	2,213.85	62
CO-628	SV20195606	Ductile Iron	12 inch	0.225	1,354.40	2,213.85	2,208.56	77
CO-629	SV20195505	Ductile Iron	12 inch	0.065	727.25	2,208.56	2,207.53	52
CO-630	SV20195404	Ductile Iron	12 inch	0.4	1,805.12	2,207.53	2,200.33	59
CO-631	SV20196403	Ductile Iron	12 inch	1.116	3,013.54	2,200.33	2,170.40	88
CO-632	SV20195405	Ductile Iron	12 inch	1.795	3,822.15	2,170.40	2,126.63	80
CO-634	SV95968801	Ductile Iron	12 inch	1.2	3,125.73	2,240.15	2,224.05	44
CO-635	SV95969401	Ductile Iron	12 inch	1.194	3,117.44	2,224.05	2,199.30	68
CO-637	SV96952201	Ductile Iron	12 inch	1.195	3,119.05	2,171.80	2,146.66	69
CO-638	SV19196405	Ductile Iron	12 inch	1.04	2,908.86	2,146.66	2,137.47	29
CO-639	SV19196604	Ductile Iron	12 inch	1.092	2,981.69	2,200.40	2,173.43	81
CO-640	SV19196502	Ductile Iron	12 inch	1.033	2,899.88	2,173.43	2,146.66	85
CO-641	SV94968601	Ductile Iron	12 inch	2.227	4,256.89	2,244.29	2,234.11	15
CO-642	SV19188101	Ductile Iron	12 inch	1.324	3,283.01	2,014.50	1,981.40	82
CO-643	ST19189101	Ductile Iron	12 inch	0.859	2,644.25	1,981.40	1,950.50	0
CO-644	SV20180201	Ductile Iron	12 inch	0.678	2,348.27	1,950.50	1,941.00	46
CO-645	SV20180202	Ductile Iron	12 inch	0.695	2,377.78	1,941.00	1,927.91	63
CO-646	SV20180101	Ductile Iron	12 inch	1.09	2,979.08	1,937.25	1,916.56	63
CO-647	SV19189001	Ductile Iron	12 inch	0.688	2,366.04	1,943.80	1,925.35	88
CO-648	SV19189004	Ductile Iron	12 inch	0.623	2,252.38	1,925.35	1,909.45	85
CO-649	SV19179901	Ductile Iron	12 inch	1.135	3,039.20	1,927.05	1,897.55	86
CO-650	SV19179902	Ductile Iron	12 inch	1.122	3,021.36	1,922.80	1,893.99	85
CO-651	SV20170803	Ductile Iron	12 inch	1.038	2,906.88	1,917.10	1,891.40	82
CO-653	SV19177901	Ductile Iron	12 inch	1.359	3,325.64	1,949.60	1,910.25	95
CO-654	SV19177802	Ductile Iron	12 inch	1.436	3,418.56	1,910.25	1,880.05	69
CO-655	SV19178802	Ductile Iron	12 inch	0.661	2,318.58	1,880.05	1,871.24	45
CO-656	SV19177703	Ductile Iron	12 inch	0.124	13,724.89	1,871.16	1,869.50	44
CO-657	SV19177705	Ductile Iron	12 inch	0.096	884.29	1,869.50	1,868.52	42
CO-658	SV19184806	Ductile Iron	12 inch	0.166	1,161.51	1,958.92	1,958.21	19
CO-659	SV19185603	Ductile Iron	12 inch	0.327	1,631.64	1,969.08	1,965.69	34
CO-660	SV19185707	Ductile Iron	12 inch	0.424	1,856.66	1,965.69	1,955.87	78
CO-661	SV19185501	Ductile Iron	12 inch	0.135	1,048.55	1,954.49	1,951.69	68
CO-662	SV19185602	Ductile Iron	12 inch	0.136	1,050.63	1,951.69	1,947.93	97
CO-663	SV19186501	Ductile Iron	12 inch	0.124	1,004.54	1,952.30	1,949.39	77
CO-664	SV19187503	Ductile Iron	12 inch	0.152	1,112.16	1,949.39	1,946.49	68
CO-665	SV19170501	Ductile Iron	12 inch	2.165	4,197.94	2,079.06	2,040.12	59
CO-666	SV191752101	Ductile Iron	12 inch	2.178	4,210.12	2,040.12	2,000.29	60
CO-667	SV91756101	Ductile Iron	12 inch	2.17	4,202.63	2,000.29	1,937.45	95
CO-668	SV19170401	Ductile Iron	12 inch	0.408	1,821.93	2,084.94	2,074.00	88
CO-669	SV90746601	Ductile Iron	12 inch	1.089	2,977.38	2,074.00	2,050.76	70
CO-670	SV19170404	Ductile Iron	12 inch	1.147	3,055.74	2,050.76	2,038.87	34
CO-671	SV19171301	Ductile Iron	12 inch	1.597	3,604.79	2,038.87	2,005.29	69
CO-672	ST19171302	Ductile Iron	12 inch	1.525	3,522.81	2,005.29	1,973.22	69
CO-673	SV19172304	Ductile Iron	12 inch	1.561	3,564.58	1,973.22	1,951.33	46

CO-674	SV19172401	Ductile Iror	12 inch	2.146	4,179.39	1,951.33	1,907.50	67
CO-675	SV19173404	Ductile Iror	12 inch	1.171	3,087.05	1,907.50	1,863.80	0
CO-676	SV19170201	Ductile Iror	12 inch	1.555	3,557.57	2,075.28	2,042.10	70
CO-677	SV19171201	Ductile Iror	12 inch	1.909	3,941.85	2,042.10	2,008.93	57
CO-678	SV19171205	Ductile Iror	12 inch	1.707	3,727.04	2,008.93	1,964.71	85
CO-679	SV19172203	Ductile Iror	12 inch	1.512	3,507.42	1,964.71	1,920.48	96
CO-680	SV19172302	Ductile Iror	12 inch	1.172	3,088.06	1,920.48	1,890.48	84
CO-681	ST19173302	Ductile Iror	12 inch	1.068	2,947.56	1,890.48	1,865.20	78
CO-682	SV19172101	Ductile Iror	12 inch	2.329	4,353.62	2,075.14	2,025.45	70
CO-683	ST19173013	Ductile Iror	12 inch	1.843	3,872.48	2,025.45	2,001.30	43
CO-684	ST19173102	Ductile Iror	12 inch	2.222	4,252.39	2,001.30	1,957.28	65
CO-685	SV19174101	Ductile Iror	12 inch	1.859	3,889.37	1,957.28	1,927.82	52
CO-687	SV19174101	Ductile Iror	12 inch	1.757	3,781.81	1,927.82	1,898.36	55
CO-688	SV19174103	Ductile Iror	12 inch	2.063	4,097.96	1,898.36	1,868.90	47
CO-689	SV19173001	Ductile Iror	12 inch	2.191	4,222.68	2,070.03	2,003.25	100
CO-690	SV19174001	Ductile Iror	12 inch	1.435	3,417.66	2,003.25	1,980.94	51
CO-691	SV19174002	Ductile Iror	12 inch	2.114	4,148.33	1,980.94	1,936.47	69
CO-692	ST19175001	Ductile Iror	12 inch	1.974	4,007.99	1,936.47	1,914.21	37
CO-693	SV19175005	Ductile Iror	12 inch	2.152	4,185.30	1,914.21	1,869.70	68
CO-694	SV19164901	Ductile Iror	12 inch	2.447	4,462.54	2,960.15	2,001.23	79
CO-695	ST19164902	Ductile Iror	12 inch	2.031	4,065.92	2,001.23	1,965.32	58
CO-696	SV19165901	Ductile Iror	12 inch	2.561	4,565.09	1,965.32	1,902.10	81
CO-697	SV19165902	Ductile Iror	12 inch	2.419	4,436.70	1,902.10	1,870.50	43
CO-698	SV19164801	Ductile Iror	12 inch	2.53	4,538.07	2,038.81	1,978.65	78
CO-699	SV19166804	Ductile Iror	12 inch	2.495	4,505.94	1,978.65	1,940.63	50
CO-700	ST19165802	Ductile Iror	12 inch	2.605	4,604.84	1,940.63	1,875.51	82
CO-701	SV19166804	Ductile Iror	12 inch	0.012	310.52	1,875.51	1,875.48	36
CO-702	SV19164701	Ductile Iror	12 inch	0.727	2,433.03	2,037.82	2,015.65	100
CO-703	SV19165703	Ductile Iror	12 inch	0.643	2,288.12	2,015.65	2,055.65	51
CO-704	SV19166704	Ductile Iror	12 inch	1.539	3,539.47	2,055.65	1,970.93	74
CO-705	SV19166603	Ductile Iror	12 inch	0.311	1,591.00	1,970.93	1,968.56	25
CO-706	SV19166602	Ductile Iror	12 inch	0.723	2,425.01	1,968.56	1,950.28	83
CO-707	SV97674201	Ductile Iror	12 inch	2.722	4,706.33	1,950.28	1,879.04	86
CO-708	SV19167307	Ductile Iror	12 inch	0.261	1,457.02	2,070.40	2,063.96	81
CO-709	SV19166404	Ductile Iror	12 inch	0.131	1,033.46	2,063.96	2,061.12	71
CO-710	SV19166503	Ductile Iror	12 inch	0.366	1,726.74	2,061.12	2,055.09	54
CO-712	SV20198004	Ductile Iror	12 inch	0.94	2,765.64	2,140.32	2,112.82	96
CO-713	SV20198102	Ductile Iror	12 inch	1.968	4,002.12	2,160.10	2,116.91	72
CO-714	SV20197003	Ductile Iror	12 inch	1.972	4,006.29	2,116.91	2,095.32	36
CO-715	SV20195501	Ductile Iror	12 inch	1.921	3,953.87	2,187.80	2,151.50	62
CO-716	SV20195402	Ductile Iror	12 inch	1.804	3,832.18	2,151.50	2,115.20	66
CO-717	SV18188904	Ductile Iror	12 inch	0.26	1,453.57	2,346.91	2,341.45	69
CO-720	SV18196101	Ductile Iror	12 inch	0.52	2,057.68	2,452.62	2,442.63	63
CO-722	SV19187402	Ductile Iror	12 inch	0.187	1,234.82	1,946.38	1,942.04	76
CO-723	SV19188404	Ductile Iror	12 inch	0.234	1,379.68	1,942.04	1,939.88	31
CO-724	SV20196308	Ductile Iror	12 inch	0.322	1,618.85	2,105.60	2,100.30	54
CO-725	SV96948501	Ductile Iror	12 inch	0.679	2,350.98	2,139.65	2,123.09	80
CO-726	SV19171801	Ductile Iror	12 inch	1.336	3,297.96	2,081.36	2,055.29	64
CO-727	SV90778801	Ductile Iror	12 inch	0.979	2,823.17	2,099.27	2,081.36	60
CO-728	SV18187103	Ductile Iror	12 inch	0.078	796.61	2,146.75	2,144.92	77
CO-730	SV86905001	Ductile Iror	12 inch	1.349	45,314.19	2,424.98	2,408.53	40
CO-731	SV18196104	Ductile Iror	12 inch	0.839	2,613.44	2,442.63	2,424.98	69
CO-734	SV02620601	Ductile Iror	12 inch	0.528	2,073.71	2,002.49	1,996.37	38
CO-735	SV91917701	Ductile Iror	12 inch	0.889	2,690.34	2,159.01	2,151.42	28
CO-736	SV91914801	Ductile Iror	12 inch	0.862	2,648.30	2,151.42	2,147.48	15
CO-737	SV92802501	Ductile Iror	12 inch	0.993	2,842.49	1,975.76	1,945.50	100

CO-738	SV19172903	Ductile Iror	12 inch	0.933	2,755.56	1,945.50	1,927.30	64
CO-739	SV92798101	Ductile Iror	12 inch	3.183	5,089.97	1,994.25	1,927.30	69
CO-740	SV19175703	Ductile Iror	12 inch	0.159	1,137.38	1,866.08	1,863.27	58
CO-741	SV96944101	Ductile Iror	12 inch	2.099	4,132.74	2,123.09	2,085.99	58
CO-742	SV96933601	Ductile Iror	12 inch	1.512	3,508.18	2,085.99	2,046.35	86
CO-743	ST20194502	Ductile Iror	12 inch	1.396	3,370.80	2,080.60	2,056.82	56
CO-744	SV20194303	Ductile Iror	12 inch	0.448	1,910.28	2,058.46	2,056.82	12
CO-745	SV20194401	Ductile Iror	12 inch	0.321	1,615.79	2,056.82	2,054.23	27
CO-749	SV19199603	Ductile Iror	12 inch	0.062	711.71	2,229.50	2,228.21	68
CO-750	SV19198605	Ductile Iror	12 inch	0.063	714.34	2,228.21	2,227.35	45
CO-751	SV19187801	Ductile Iror	12 inch	0.187	1,232.85	1,975.79	1,974.34	26
CO-752	SV19187802	Ductile Iror	12 inch	0.097	887.05	1,974.34	1,970.98	113
CO-753	SV19185401	Ductile Iror	12 inch	0.146	1,090.80	2,210.60	2,208.06	57
CO-754	SV93849901	Ductile Iror	12 inch	0.156	1,125.34	2,208.06	2,206.40	35
CO-755	SV92810501	Ductile Iror	12 inch	0.817	24,692.50	1,998.67	1,980.25	74
CO-756	SV92802801	Ductile Iror	12 inch	0.46	1,935.59	1,980.25	1,975.76	32
CO-757	SV20170701	Ductile Iror	12 inch	0.072	763.94	1,881.91	1,878.85	0
CO-758	SV19179703	Ductile Iror	12 inch	0.239	1,394.00	1,878.85	1,874.92	54
CO-761	SV20170904	Ductile Iror	12 inch	0.118	980.05	1,893.99	1,891.40	72
CO-762	SV19169105	Ductile Iror	12 inch	3.022	4,959.48	2,042.43	2,025.86	18
CO-763	SV19169103	Ductile Iror	12 inch	0.101	8,690.53	2,025.86	2,023.64	72
CO-764	SV98619801	Ductile Iror	12 inch	0.156	10,798.55	2,029.24	2,025.86	71
CO-765	SV19166505	Ductile Iror	12 inch	0.152	1,110.56	2,055.09	2,054.12	21
CO-766	SV20161102	Ductile Iror	12 inch	0.339	1,661.51	1,944.85	1,942.60	21.8
CO-767	SV20161104	Ductile Iror	12 inch	1.011	2,868.21	1,942.60	1,933.90	28.2
CO-768	SV20167302	Ductile Iror	12 inch	0.085	832.59	1,909.60	1,908.25	52
CO-769	SV18188904	Ductile Iror	12 inch	0.259	19,854.10	2,341.45	2,330.95	0
CO-771	SV18187903	Ductile Iror	12 inch	0.109	12,857.84	2,330.95	2,327.97	90
CO-772	SV18187901	Ductile Iror	12 inch	0.2	17,447.42	2,332.84	2,330.95	31
CO-773	SV18185203	Ductile Iror	12 inch	1.096	2,987.18	2,219.00	2,194.27	74
CO-774	SV18185204	Ductile Iror	12 inch	0.23	1,367.14	2,218.30	2,215.29	43
CO-775	SV8871701	Ductile Iror	12 inch	0.319	1,611.61	2,189.29	2,188.22	11
CO-776	SV88870601	Ductile Iror	12 inch	0.319	1,610.97	2,188.22	2,180.25	82
CO-777	SV88826901	Ductile Iror	12 inch	1.033	2,900.15	2,120.65	2,118.13	8
CO-778	SV88836001	Ductile Iror	12 inch	0.983	2,828.53	2,118.13	2,093.56	82
CO-779	SV94589901	Ductile Iror	12 inch	0.338	1,659.38	1,993.45	1,990.15	32
CO-780	SV93932201	Ductile Iror	12 inch	1.029	2,894.39	2,206.89	2,204.38	8
CO-781	SV93933201	Ductile Iror	12 inch	0.988	2,835.06	2,204.38	2,189.63	49
CO-782	SV93920601	Ductile Iror	12 inch	0.987	2,833.53	2,183.67	2,162.02	72
CO-783	SV93933601	Ductile Iror	12 inch	0.658	2,314.92	2,215.52	2,206.89	43
CO-784	SV93936601	Ductile Iror	12 inch	1.046	2,917.36	2,206.23	2,201.13	16
CO-785	SV93937501	Ductile Iror	12 inch	1.061	2,937.88	2,201.13	2,188.22	40
CO-786	SV19196506	Ductile Iror	12 inch	1.122	3,021.73	2,241.78	2,222.63	56
CO-787	SV95959801	Ductile Iror	12 inch	1.218	3,147.87	2,199.30	2,192.62	18
CO-788	SV96951701	Ductile Iror	12 inch	1.198	3,122.97	2,192.62	2,171.80	57
CO-789	SV19176706	Ductile Iror	12 inch	0.099	759.48	1,871.00	1,869.25	58
CO-790	SV19176803	Ductile Iror	12 inch	0.756	2,099.43	1,883.45	1,871.00	54
CO-791	SV20190204	Ductile Iror	12 inch	0.259	1,228.07	2,015.42	2,008.32	90
CO-792	SV19197202	Ductile Iron		0.121	840.16	1,995.33	1,994.90	13
CO-794	SV94947001	Ductile Iron		0.895	2,284.07	2,179.25	2,146.23	0
CO-796	SV98962201			0.72	13,565.94	2,230.10	2,208.60	98

Conduit Data

Label	Start Node	Infiltration (System Total) (gpd)	Flow (gpm)	Length (Scaled) (ft)	Hydraulic Grade Line (In) (m)	Hydraulic Grade Line (Out) (m)	Cover (Start) (m)
CO-2	SV93835701	89.77	7.73	125.3	2,173.40	2,147.51	0.75
CO-3	SV19183201	145.7	7.77	132.8	2,147.51	2,092.14	0.9
CO-4	SV19183204	185.4	15.46	102.5	2,092.14	2,055.23	0.9
CO-5	SV19183102	209.45	15.48	64.6	2,055.23	2,036.77	0.9
CO-6	SV19183103	239.09	23.17	73.4	2,036.77	2,009.23	0.9
CO-7	ST19183001	269.85	23.19	78.4	2,009.23	1,981.40	0.9
CO-8	SV19183003	312.35	27.22	97.9	1,981.40	1,937.74	0.9
CO-9	SV92799601	338.07	27.23	66.7	1,937.74	1,929.14	0.9
CO-10	SV93791201	347.58	31.24	30.5	1,929.14	1,926.37	0.9
CO-11	ST19173901	4,643.24	281.25	128.8	1,926.37	1,896.37	0.9
CO-12	ST19173802	4,671.20	281.27	74.6	1,896.37	1,879.38	0.9
CO-13	SV19173804	4,755.46	281.33	185.9	1,879.46	1,861.20	0.9
CO-14	SV19174703	12,343.70	453.57	178.6	1,861.20	1,823.83	0.9
CO-15	SV19175601	12,500.29	453.68	173.9	1,823.92	1,822.97	0.9
CO-16	SV19175502	12,759.21	453.86	197.5	1,822.97	1,821.77	0.9
CO-17	SV19176502	13,031.75	466.52	233.3	1,821.77	1,820.42	0.9
CO-18	SV19177502	13,310.62	474.99	261.8	1,820.42	1,818.84	0.9
CO-19	SV19179501	31,299.23	1,163.37	98	1,818.84	1,815.72	0.9
CO-20	SV19177503	44.74	6.11	130.6	1,836.12	1,820.42	0.9
CO-21	SV19176601	41.94	6.42	119.7	1,855.22	1,840.27	0.9
CO-22	SV19176603	77.17	6.44	98.6	1,840.27	1,821.77	0.9
CO-23	SV19175704	41.38	0.03	116.9	1,852.65	1,838.20	0.9
CO-24	SV19175604	75.5	0.05	100.2	1,838.20	1,822.97	0.9
CO-25	SV19176801	26.84	7.69	75.2	1,891.52	1,882.42	0.9
CO-30	SV19175801	121.91	7.75	93.1	1,868.22	1,865.07	0.9
CO-34	SV19174704	512.82	27.36	85	1,862.26	1,861.20	0.9
CO-35	SV19184201	40.26	7.69	96.3	2,171.27	2,134.12	0.9
CO-36	SV19184203	96.19	7.73	145	2,134.12	2,086.87	0.9
CO-37	SV19184103	131.98	7.76	100.6	2,086.87	2,062.03	0.9
CO-38	SV19184001	166.65	15.45	84.5	2,062.03	2,027.38	0.9
CO-39	ST19184002	201.32	15.47	73.6	2,027.38	1,993.48	0.9
CO-40	SV19174901	257.25	15.51	129.7	1,993.48	1,930.93	0.9
CO-41	SV19175802	298.63	19.54	97.2	1,930.93	1,884.08	0.9
CO-42	SV19175804	329.39	19.56	83.6	1,884.08	1,865.07	0.9
CO-43	SV89858101	50.89	6.7	133.8	2,157.16	2,114.62	0.9
CO-44	SV90841401	87.8	6.73	111.8	2,114.62	2,093.35	0.9
CO-45	ST19180301	137.57	6.76	134.4	2,093.35	2,072.09	0.9
CO-46	SV90839201	251.1	15.84	88	2,072.09	2,050.82	0.9
CO-47	SV91822801	283.53	20.2	85.4	2,050.82	2,029.57	0.9
CO-48	SV91825301	540.78	38.38	65.8	2,029.57	2,018.94	0.9
CO-49	SV91816901	573.77	43.07	91.9	2,018.94	1,997.63	0.9
CO-54	SV92789602	106.25	14.74	79.5	2,003.13	1,993.23	0.9
CO-55	SV92788601	79.97	12.28	14.5	2,008.75	2,003.13	0.9
CO-56	SV92788301	73.82	9.83	45.8	2,015.20	2,008.75	0.9
CO-57	SV92787301	54.8	7.37	24.9	2,019.11	2,015.20	0.9
CO-58	SV92776901	45.86	4.92	67.7	2,025.42	2,019.11	0.9
CO-59	SV92773901	22.93	2.46	40.9	2,050.96	2,025.42	0.9
CO-60	SV89761901	45.3	0.03	130.4	2,137.00	2,113.02	0.9
CO-61	SV89777301	92.27	2.51	135.1	2,113.02	2,100.40	0.9

CO-62	SV19170703	117.44	2.53	75.6	2,100.40	2,098.23	0.9
CO-64	ST19171801	215.86	2.59	85.8	2,054.25	2,048.09	0.9
CO-65	SV92782701	302.55	7.4	134.6	2,048.09	2,043.37	0.9
CO-66	SV19171903	453.54	12.15	77	2,043.37	1,979.34	0.9
CO-67	SV19172902	482.62	12.17	60.4	1,979.34	1,944.56	0.9
CO-69	SV92783001	41.94	2.22	135.6	2,050.39	2,048.09	0.9
CO-70	SV19170801	52.01	2.48	155.2	2,046.06	2,044.86	0.9
CO-71	ST19170902	107.37	2.52	164.4	2,044.86	2,043.37	0.9
CO-72	SV88795401	37.47	6.5	99	2,158.27	2,129.39	0.9
CO-73	SV89791601	78.29	6.53	109.7	2,129.39	2,097.62	0.9
CO-74	SV89797801	129.74	10.87	139.7	2,097.62	2,057.67	0.9
CO-75	SV90804301	169.45	14.34	105.4	2,057.67	2,026.85	0.9
CO-76	SV91800601	208.04	14.37	103	2,026.85	1,997.09	0.92
CO-77	SV19181002	2,842.96	175.2	129.9	1,997.09	1,974.82	0.9
CO-78	SV18185301	19.01	19.57	56.7	2,224.55	2,224.19	0.9
CO-79	SV18185302	60.96	19.6	118.1	2,224.19	2,220.60	0.9
CO-80	SV18185202	77.73	33.83	47.9	2,220.60	2,217.99	0.9
CO-82	ST18185101	125.83	18.75	134.7	2,214.27	2,203.59	0.9
CO-83	SV18186106	196.85	33.91	27.9	2,203.59	2,162.89	0.9
CO-84	SV86813001	395.94	76.72	79.2	2,162.89	2,143.94	0.9
CO-85	SV18186104	553.64	85.72	156.4	2,143.94	2,110.07	0.9
CO-86	SV18187102	589.43	85.74	106.3	2,110.07	2,104.62	10.49
CO-87	ST18188101	621.31	85.76	85.1	2,104.62	2,084.63	0.9
CO-88	SV88817801	1,794.95	130.08	81.2	2,084.63	2,075.90	0.9
CO-89	SV18189101	2,488.41	160.73	128.3	2,075.90	2,049.62	0.9
CO-90	SV18189104	2,518.04	160.75	82.5	2,049.62	2,032.11	0.9
CO-91	SV19180102	2,545.45	160.77	80	2,032.11	2,019.40	0.9
CO-92	ST19180102	2,589.63	160.8	129.2	2,019.40	1,997.09	0.9
CO-93	SV85821401	55.92	14.26	162.2	2,215.50	2,214.27	0.9
CO-94	SV85816601	46.42	0.03	135.8	2,209.43	2,203.59	0.9
CO-100	SV85819701	170.01	33.9	137.4	2,193.26	2,162.89	0.9
CO-101	SV18186201	17.34	8.9	49.2	2,147.37	2,147.22	0.8
CO-102	SV18186202	58.16	8.93	121.8	2,147.22	2,145.72	0.9
CO-105	SV88862801	326.59	21.78	80	2,179.23	2,174.48	0.9
CO-106	SV88861401	362.94	21.81	106.3	2,174.48	2,168.17	0.9
CO-107	SV87858801	404.89	26.14	121.5	2,168.17	2,160.89	0.9
CO-108	SV18187501	440.68	26.17	104.3	2,160.89	2,158.18	0.9
CO-109	SV18188405	473.11	26.19	96.4	2,158.18	2,151.15	0.9
CO-110	SV18188301	506.11	26.21	96	2,151.15	2,131.51	0.9
CO-111	SV18188303	566.5	30.56	67.5	2,131.51	2,119.64	0.9
CO-113	SV89820201	648.15	30.62	85.4	2,092.55	2,075.90	0.9
CO-114	SV87838601	34.67	4.33	107.3	2,134.56	2,131.51	0.9
CO-115	SV18184501	752.54	39.58	102.7	2,329.85	2,327.10	0.9
CO-116	SV18185505	796.72	41.83	133	2,327.10	2,325.07	0.9
CO-117	SV18185402	906.33	44.13	80.9	2,325.07	2,242.71	0.9
CO-118	ST18186401	967.85	44.17	95.5	2,242.71	2,148.83	0.9
CO-119	SV18186301	1,002.52	44.2	97.7	2,148.83	2,134.51	0.9
CO-120	SV18186303	1,040.55	44.22	113	2,134.51	2,124.18	0.9
CO-121	SV18187302	1,074.10	44.25	97.4	2,124.18	2,111.85	0.9
CO-122	SV18187202	1,102.06	44.27	79.3	2,111.85	2,105.69	0.9
CO-123	SV18187203	1,146.24	44.3	128.7	2,105.69	2,084.63	0.9
CO-124	SV91845301	43.06	9.03	107.2	2,157.31	2,114.69	0.9
CO-125	SV91831701	83.33	9.06	91.9	2,114.69	2,072.09	0.9
CO-126	SV91849001	38.59	6.69	88.5	2,161.49	2,117.51	0.9
CO-127	SV91838401	85.56	6.73	117.3	2,117.51	2,073.54	0.9
CO-128	SV91826801	168.89	13.45	28.2	2,073.54	2,051.55	0.9

CO-129	SV91826601	233.2	18.16	47	2,051.55	2,029.57	0.9
CO-130	SV92833301	35.79	6.69	80.7	2,157.57	2,115.55	0.9
CO-131	SV19181301	66.55	6.71	57.5	2,115.55	2,073.54	0.9
CO-132	SV92824401	44.74	0.03	134.6	2,059.45	2,051.55	0.9
CO-134	SV19181602	41.38	4.33	116.3	2,235.83	2,225.38	0.9
CO-135	SV9180604	82.21	10.39	126.7	2,225.38	2,217.07	0.9
CO-136	SV18189601	111.85	10.41	83	2,217.07	2,213.70	0.9
CO-137	SV89856701	125.83	10.42	43.1	2,213.70	2,211.28	0.9
CO-138	SV89853701	164.41	13.89	112.4	2,211.28	2,204.58	0.9
CO-139	SV89862401	200.21	17.36	109.7	2,204.58	2,198.37	0.9
CO-140	SV88867801	223.69	17.38	68.7	2,198.37	2,194.29	0.9
CO-141	SV88875201	247.18	19.56	106.1	2,194.29	2,188.27	0.9
CO-142	SV18189701	32.99	9.5	97.1	2,243.60	2,241.97	0.9
CO-143	SV18189703	71.58	9.52	121.1	2,241.97	2,240.40	0.9
CO-144	SV19188060l	1,093.41	39.56	65.1	2,240.40	2,239.41	0.9
CO-145	SV19180602	1,147.65	43.05	163.9	2,239.41	2,232.35	0.9
CO-146	SV19190001	818.27	25.6	46.9	2,290.64	2,287.84	0.9
CO-147	SV19180903	846.23	25.62	81.4	2,287.84	2,277.35	0.9
CO-148	SV19180905	870.83	25.63	75.8	2,277.35	2,269.39	0.9
CO-149	SV19180907	917.81	25.67	134.7	2,269.39	2,264.81	0.9
CO-150	SV19180803	951.92	25.69	101.3	2,264.81	2,252.59	0.9
CO-151	SV19180701	1,000.02	25.72	145.1	2,252.59	2,240.40	0.9
CO-154	SV19181901	36.35	4.33	81.1	2,242.50	2,199.99	0.9
CO-155	SV19181903	69.9	4.35	70.9	2,199.99	2,157.49	0.9
CO-156	SV19181905	105.14	7.82	77	2,157.49	2,114.98	0.9
CO-157	SV19182802	141.49	7.85	81.4	2,114.98	2,072.47	0.9
CO-158	SV19182804	175.6	9.59	91.6	2,072.47	2,039.73	0.9
CO-159	SV19183801	215.31	9.62	99.7	2,039.73	2,007.00	0.9
CO-161	SV19183803	247.74	9.64	84.6	2,007.00	1,984.27	0.9
CO-162	SV19184802	282.97	9.67	94.1	1,984.27	1,957.93	0.9
CO-163	SV19182902	51.45	0.04	148.1	2,044.45	2,015.16	0.9
CO-164	SV19183907	90.04	2.23	118.2	2,015.16	2,001.20	0.9
CO-165	SV19183905	720.29	53.78	96.4	2,001.20	1,980.56	0.9
CO-166	SV19184803	762.24	55.97	115.2	1,980.56	1,957.93	0.9
CO-168	SV91914701	402.65	35.86	133.5	2,146.47	2,114.77	0.9
CO-169	SV19192101	447.95	41.51	72.9	2,114.77	2,095.70	0.9
CO-170	SV19192001	478.15	47.14	75.5	2,095.70	2,071.20	0.9
CO-171	SV19192003	531.83	51.48	147.4	2,071.20	2,033.40	0.9
CO-172	SV19183901	562.03	51.5	80.1	2,033.40	2,014.23	0.9
CO-173	SV19183903	595.58	51.52	101	2,014.23	2,001.20	0.9
CO-174	SV91919701	7.83	3.45	36.4	2,154.45	2,149.08	0.9
CO-175	SV92910601	18.45	5.62	88.4	2,149.08	2,114.77	0.9
CO-176	SV19193101	52.57	7.79	149.3	2,147.07	2,113.06	0.9
CO-177	SV19194103	104.02	13.85	141.4	2,113.06	2,079.08	0.9
CO-178	SV19195102	888.62	58.73	118	2,079.08	2,041.59	0.9
CO-179	SV19196002	937.28	58.76	131	2,041.59	2,004.05	0.9
CO-180	SV19195005	966.92	58.78	77.6	2,004.05	1,979.04	0.9
CO-181	SV19185903	1,122.38	70.11	49	1,979.04	1,966.87	0.9
CO-182	SV19186902	10,647.82	441.01	24.8	1,966.87	1,965.59	0.64
CO-183	SV19185901	10,712.69	444.94	190.2	1,965.59	1,961.83	1.1
CO-184	SV19185802	10,756.31	448.41	126.3	1,961.83	1,956.97	1.1
CO-185	SV19184801	11,833.02	522.27	28.3	1,957.04	1,956.26	0.95
CO-186	SV19184701	11,885.22	522.31	63.3	1,956.26	1,954.62	0.95
CO-187	SV19185701	12,038.82	522.42	104.1	1,954.70	1,952.44	0.9
CO-188	SV19185702	12,183.47	522.52	161.4	1,952.44	1,946.76	0.9
CO-189	SV19186604	12,360.75	522.64	93.7	1,946.76	1,945.95	0.9

CO-190	SV19187601	12,456.19	522.71	108.2	1,945.95	1,945.32	0.9
CO-191	SV19187602	12,641.67	524.5	182.5	1,945.32	1,943.28	0.9
CO-192	ST19188501	12,738.61	524.57	108.7	1,943.28	1,942.33	0.9
CO-193	SV19189501	12,866.86	526.32	142.5	1,942.33	1,938.91	0.9
CO-194	SV19189401	13,077.32	533.14	167.3	1,938.91	1,934.14	0.7
CO-195	SV19188310	15,043.13	610.42	28.4	1,934.14	1,933.84	0.9
CO-196	SV19189301	15,210.15	612.2	184.3	1,933.84	1,930.37	0.9
CO-197	SV19189402	15,239.23	613.89	86.6	1,930.37	1,929.54	1.15
CO-198	SV20180401	15,285.46	613.92	56.5	1,929.56	1,928.54	0.9
CO-199	SV20180402	15,415.21	615.68	145.5	1,928.54	1,927.57	0.9
CO-200	SV20180301	15,541.97	615.77	138.6	1,927.57	1,926.75	0.9
CO-201	SV20181202	15,808.72	621.45	103.4	1,926.75	1,925.83	0.9
CO-202	SV20181204	16,008.55	621.59	220.7	1,925.83	1,919.05	0.9
CO-203	SV20181102	16,038.38	628.94	36.3	1,919.05	1,918.40	0.9
CO-204	SV20182001	16,108.47	636.33	76.3	1,918.40	1,917.50	0.9
CO-205	SV20181001	16,150.97	641.85	124.1	1,917.50	1,915.36	1.15
CO-206	SV20180001	16,256.29	645.59	68.5	1,915.40	1,908.29	0.9
CO-207	SV20180003	16,415.68	653.04	67.7	1,908.29	1,896.39	0.9
CO-208	SV20170902	16,551.76	654.97	85.1	1,896.39	1,892.84	0.9
CO-210	SV20170801	16,806.21	671.64	128.1	1,890.25	1,887.11	0.9
CO-211	SV20171701	16,871.82	672.61	82.6	1,887.11	1,885.30	0.9
CO-212	SV20171703	17,023.94	672.71	194.4	1,885.30	1,880.76	0.9
CO-214	SV19179701	17,248.75	672.87	131.3	1,873.77	1,870.09	0.9
CO-215	SV19178703	17,414.84	682.15	144.3	1,870.09	1,867.32	1.15
CO-216	SV19178601	17,714.22	687.47	224.3	1,867.37	1,840.77	0.9
CO-217	SV19178502	17,897.65	687.6	200.5	1,840.77	1,818.84	0.9
CO-218	SV20165405	2,707.06	58.35	115.4	1,893.02	1,891.67	0.65
CO-219	SV20164402	2,777.15	58.4	77.5	1,891.67	1,890.50	0.65
CO-220	ST20164401	2,824.13	58.43	139.9	1,890.50	1,887.65	0.9
CO-221	SV20163301	2,891.23	58.48	196.8	1,887.65	1,886.96	0.95
CO-222	SV20162403	2,990.78	58.55	299.3	1,886.96	1,886.05	0.95
CO-223	SV201160402	3,028.25	58.58	118.2	1,886.05	1,885.45	0.95
CO-224	SV19169501	3,256.23	63.59	207.2	1,885.46	1,884.42	0.9
CO-226	SV19168504	3,417.66	68.57	118.5	1,884.42	1,884.17	0.95
CO-227	SV19168506	3,607.61	73.56	140.8	1,884.17	1,881.05	0.95
CO-228	SV19168602	3,670.99	74.58	117.3	1,881.07	1,880.42	0.9
CO-229	SV19168702	3,744.62	74.63	127.5	1,880.42	1,877.95	0.9
CO-230	SV19167702	4,121.55	92.89	259.8	1,877.95	1,874.39	0.9
CO-231	SV19166803	4,368.17	99.56	185.6	1,874.39	1,869.41	0.9
CO-232	SV19165903	4,596.15	104.58	151	1,869.41	1,868.81	0.9
CO-233	SV19176001	4,656.74	104.62	105.6	1,868.81	1,868.62	0.9
CO-234	SV19175101	4,938.22	109.68	180.8	1,868.62	1,867.82	0.9
CO-235	SV19175201	5,313.09	109.94	326.9	1,867.82	1,864.12	0.9
CO-236	SV19174304	5,598.30	118.78	86.7	1,864.12	1,862.62	0.9
CO-237	SV19174402	5,974.48	126.34	116.4	1,862.62	1,862.56	1
CO-238	SV19170502	49.4	2.23	81.9	2,083.16	2,079.78	0.8
CO-239	SV19170505	165.53	3.28	155	2,079.78	2,073.57	0.7
CO-240	SV19170602	202.44	8.17	95.3	2,073.57	2,044.10	0.9
CO-241	SV90768401	248.86	8.2	120.7	2,044.10	2,004.80	0.9
CO-242	SV91765001	291.92	10.67	111.7	2,004.80	1,968.19	0.9
CO-243	SV92750601	329.39	10.7	101.3	1,968.19	1,936.42	0.9
CO-244	SV92754101	464.16	10.79	36.1	1,936.42	1,918.72	0.9
CO-245	SV92756101	796.35	15.89	83.8	1,918.72	1,872.70	0.9
CO-246	SV19173406	804.74	15.89	70.7	1,872.70	1,862.56	0.9
CO-247	SV19173403	6,858.63	142.29	229.3	1,862.56	1,861.94	1.1
CO-248	SV19173401	6,924.06	142.34	191.4	1,861.94	1,861.20	1.1

CO-249	SV91771101	118.74	4.94	130.7	2,054.11	2,010.25	0.7
CO-250	ST19171602	238.79	5.03	134.7	2,010.25	1,965.86	0.7
CO-251	SV92752901	293.6	5.06	146.3	1,965.86	1,918.72	0.9
CO-252	SV95581608	30.76	0.02	37.8	1,989.10	1,986.75	0.9
CO-253	SV95583701	55.92	6.29	76.7	1,986.75	1,982.11	0.9
CO-254	SV19155901	87.8	8.06	97.1	1,982.11	1,976.40	0.9
CO-255	SV19156901	129.74	8.09	120.4	1,976.40	1,968.89	0.9
CO-256	SV19156905	184.55	8.82	137.8	1,968.89	1,964.27	0.9
CO-257	SV19167002	229.29	9.55	134.5	1,964.27	1,961.69	0.9
CO-258	SV19167005	262.84	10.27	103.7	1,961.69	1,958.32	0.9
CO-259	SV19168002	644.8	23.45	87.6	1,958.32	1,956.41	0.9
CO-260	SV19168004	692.89	29.56	148.9	1,956.41	1,952.40	0.9
CO-261	SV19169003	725.33	29.59	98.2	1,952.40	1,949.86	0.9
CO-262	SV20160101	756.64	35.19	97.3	1,949.86	1,947.24	0.9
CO-263	SV20160106	788.52	35.21	90.6	1,947.24	1,943.84	0.9
CO-265	SV20162105	857.31	35.26	105.2	1,932.89	1,929.77	0.9
CO-266	SV20163101	891.98	36.26	98	1,929.77	1,926.45	0.9
CO-267	SV20163103	924.97	36.28	124.8	1,926.45	1,924.59	0.9
CO-268	ST20164101	965.8	36.31	119.3	1,924.59	1,923.30	0.9
CO-269	SV20165101	2,235.62	55.22	122.8	1,923.30	1,916.76	0.9
CO-270	SV20165103	2,274.21	55.25	110	1,916.76	1,912.74	0.9
CO-271	SV20166102	2,342.44	55.29	198.1	1,912.74	1,911.77	0.9
CO-272	SV20166204	2,372.64	55.31	91.5	1,911.77	1,909.42	0.9
CO-273	SV20167301	2,384.38	55.32	34.5	1,909.42	1,908.60	0.9
CO-274	SV20166306	2,455.96	55.37	123.5	1,907.25	1,904.80	0.9
CO-275	SV20166305	2,471.62	55.38	46.1	1,904.80	1,903.68	0.9
CO-276	SV20165401	2,504.62	55.41	99.9	1,903.68	1,897.23	0.9
CO-277	ST20165401	2,530.34	55.42	78	1,897.23	1,893.77	0.9
CO-278	SV20165404	2,548.24	55.44	51.1	1,893.77	1,893.01	0.9
CO-279	SV05630701	55.92	2.84	162.8	1,901.53	1,893.02	0.9
CO-281	SV00613701	324.72	6.56	122	2,022.61	2,021.63	0.9
CO-282	SV20160204	371.7	7.56	135.4	2,021.63	2,009.63	0.9
CO-283	SV20161205	404.69	7.59	101.6	2,009.63	2,001.46	0.9
CO-284	SV20162202	474.6	7.64	142.8	1,995.34	1,980.87	0.9
CO-285	SV20163201	499.76	7.65	73.7	1,980.87	1,975.80	0.9
CO-286	SV20163203	1,121.63	16.86	20.6	1,975.80	1,964.50	0.9
CO-287	SV20163207	1,165.81	16.89	130.7	1,964.50	1,954.51	0.9
CO-288	SV20164202	1,202.16	17.89	104.3	1,954.51	1,939.74	0.9
CO-289	SV20164204	1,229.56	17.91	73.1	1,939.76	1,923.30	0.9
CO-290	SV19168206	34.11	3.44	104.5	2,052.73	2,048.50	0.9
CO-291	SV19168207	71.58	3.47	106.7	2,048.50	2,045.35	0.9
CO-292	SV19169201	88.36	4.45	51.3	2,045.35	2,041.40	0.9
CO-295	SV19166506	158.82	3.03	90.9	2,053.08	2,042.41	0.9
CO-296	SV19166508	193.49	3.05	87.6	2,042.41	2,040.21	0.9
CO-297	SV19167405	228.17	3.08	105.6	2,040.21	2,037.70	0.9
CO-298	SV97647301	246.62	3.09	61.9	2,037.70	2,036.03	0.9
CO-299	SV97648001	287.45	3.12	117.2	2,036.03	2,030.98	0.9
CO-300	SV19168303	300.87	3.13	28.2	2,030.98	2,030.41	0.9
CO-301	SV19168311	338.34	5.6	125.4	2,030.41	2,023.83	0.9
CO-302	SV19169301	386.43	5.63	130	2,023.83	2,016.37	0.9
CO-303	SV19169205	419.98	5.65	112.2	2,016.37	2,016.11	0.9
CO-304	SV20160202	456.89	5.68	105.9	2,016.11	2,011.37	0.9
CO-305	SV20160206	508.34	8.16	153.3	2,011.37	1,996.77	0.9
CO-306	SV20161203	545.25	8.18	104.2	1,996.77	1,985.72	0.9
CO-307	SV20162205	585.52	8.21	121.4	1,985.72	1,977.87	0.9
CO-308	SV20163208	611.8	9.2	74.8	1,977.87	1,975.80	0.9

CO-309	SV19166404	36.35	1.97	110.1	2,066.21	2,061.44	0.9
CO-310	SV97641001	82.21	5.42	138.5	2,061.44	2,057.17	0.9
CO-311	SV19167303	136.45	5.46	152.9	2,057.17	2,050.66	0.9
CO-312	SV19167203	181.19	5.49	119.9	2,050.66	2,037.39	0.9
CO-313	SV96618601	195.17	5.5	42.3	2,037.39	2,029.68	0.9
CO-314	SV19167101	233.2	8.94	113.1	2,029.68	2,027.70	0.9
CO-315	SV19167103	268.43	8.96	107.3	2,027.70	2,027.38	0.9
CO-316	SV19168202	322.12	13.14	142.8	2,027.38	1,982.91	0.9
CO-318	SV98614401	351.76	13.16	78.7	1,982.91	1,958.32	0.9
CO-319	SV19168306	38.59	4.89	83.8	2,035.58	1,987.87	0.9
CO-320	ST19168401	78.29	4.92	90.3	1,987.87	1,945.52	0.9
CO-321	SV19169401	134.78	4.95	134.8	1,945.52	1,885.46	0.9
CO-322	SV19167409	29.08	4.88	59.4	2,040.20	2,001.27	0.9
CO-323	SV19167501	57.04	4.9	55.1	2,001.27	1,962.34	0.9
CO-324	SV19168501	108.49	4.94	79.7	1,962.34	1,884.42	0.9
CO-325	SV19166509	38.59	4.89	45.9	2,043.22	1,979.60	0.9
CO-326	SV19167502	62.07	4.9	49.8	1,979.60	1,947.79	0.9
CO-327	SV19167503	110.73	4.94	99.8	1,947.79	1,884.27	0.9
CO-328	SV19168603	125.83	4.95	44	1,884.27	1,884.17	0.9
CO-329	SV21190401	43.06	6.36	124.1	2,176.82	2,169.58	0.9
CO-330	SV21190302	79.41	9.72	108.9	2,169.58	2,162.53	0.9
CO-331	SV20199301	100.66	9.74	66.6	2,162.53	2,159.54	0.9
CO-332	SV20199303	218.1	18.82	157.9	2,159.54	2,155.21	0.9
CO-333	SV20198201	299.75	22.21	126.9	2,155.21	2,151.96	0.9
CO-334	SV20199101	352.32	22.24	163.1	2,151.96	2,144.91	0.9
CO-335	SV20199001	545.81	22.38	96.3	2,144.91	2,134.81	0.9
CO-336	SV20199002	598.94	22.42	156.8	2,134.81	2,131.39	0.9
CO-337	SV20189902	641.44	22.45	126	2,131.39	2,124.54	0.9
CO-338	SV21180801	657.1	22.46	49.6	2,124.54	2,123.53	0.9
CO-339	SV21180802	708.55	22.49	153.3	2,123.53	2,119.56	0.9
CO-340	ST20189901	749.93	22.52	122.5	2,119.56	2,116.43	0.9
CO-341	SV20189903	789.64	22.55	114.4	2,116.43	2,111.80	0.9
CO-342	SV20188902	898.69	22.62	167	2,111.80	2,104.36	0.9
CO-343	SV20187901	929.45	22.65	88	2,104.36	2,100.67	0.95
CO-344	SV20187902	976.98	22.68	140	2,100.67	2,095.41	0.95
CO-345	SV20197001	997.11	22.69	42.4	2,095.43	2,094.25	0.9
CO-346	SV20197002	1,110.45	22.77	116.4	2,094.25	2,087.56	0.9
CO-347	SV20196101	1,256.23	29.54	122.5	2,087.56	2,082.55	0.9
CO-348	SV20196102	1,554.67	40.75	200.8	2,082.55	2,074.30	0.9
CO-349	SV20194101	1,642.66	42.14	186.7	2,074.30	2,065.64	0.9
CO-350	SV20194203	2,121.73	84.64	104.2	2,065.64	2,062.59	0.9
CO-351	SV20194205	2,200.03	87.19	172.6	2,062.59	2,057.43	0.9
CO-353	SV20193402	3,182.04	138.21	161.7	2,053.16	2,048.29	0.95
CO-354	SV20193302	3,205.16	138.89	45.6	2,048.29	2,045.19	0.95
CO-355	SV20192301	3,394.55	150.02	177.8	2,045.23	2,039.04	0.8
CO-356	SV20191401	3,553.19	158.47	97.6	2,039.04	2,033.84	0.8
CO-357	SV20191402	3,695.98	169.23	29.1	2,033.84	2,032.53	0.8
CO-358	SV20191403	3,847.34	174.34	191.6	2,032.53	2,025.76	0.8
CO-359	SV20191201	3,955.65	178.41	136.8	2,025.76	2,019.46	0.8
CO-360	SV20190202	4,014.37	180.12	72.1	2,019.46	2,014.37	0.8
CO-364	SV19199810	4,501.09	201.57	95.6	2,007.25	2,001.60	0.8
CO-365	SV19198102	4,661.59	201.68	200.1	2,001.60	1,994.29	0.8
CO-367	SV19197203	7,519.09	306.44	34.7	1,993.80	1,993.30	0.85
CO-368	SV19197204	7,576.13	309.93	168.7	1,993.30	1,991.74	1.1
CO-369	SV19197103	7,774.47	312.23	249.1	1,991.77	1,986.87	0.9
CO-370	SV19188901	7,953.24	312.36	227.4	1,986.87	1,982.38	0.9

CO-371	SV19189902	9,173.86	363.26	33	1,982.38	1,981.16	1
CO-372	SV19189903	9,272.29	365.49	299.5	1,981.16	1,975.83	1.1
CO-373	SV19188802	9,323.18	366.84	63.7	1,975.87	1,974.68	0.9
CO-375	SV19186802	9,485.73	369.56	110.4	1,969.84	1,967.52	0.9
CO-377	SV19186903	9,517.05	369.58	41.7	1,967.52	1,966.87	0.9
CO-378	SV19196008	61.33	3.93	75.6	2,050.32	2,047.00	0.7
CO-379	SV19196010	92.65	3.95	90.5	2,047.00	2,040.01	0.9
CO-380	SV19187903	167.02	6.17	90.7	2,040.01	2,036.38	0.7
CO-381	SV19187905	245.32	6.23	102.1	2,036.38	2,033.92	0.7
CO-382	SV19188903	1,096.29	50.82	130.6	2,033.92	2,008.21	0.7
CO-383	SV19188906	1,201.98	50.89	138	2,008.21	1,982.38	0.7
CO-384	SV19195104	52.57	6.51	133.9	2,069.49	2,004.26	0.9
CO-385	SV19196002	85.56	9.98	92.4	2,004.26	2,004.22	0.9
CO-386	ST19196002	137.01	10.01	91.6	2,004.22	1,979.04	0.9
CO-387	SV05968701	39.71	3.97	121.4	2,273.06	2,268.23	0.9
CO-388	SV05961601	87.24	4.01	143.8	2,268.23	2,262.62	0.9
CO-389	SV04963901	125.27	4.03	111.7	2,262.62	2,258.43	0.9
CO-390	SV03966801	320.44	15.28	98.4	2,258.43	2,254.73	0.94
CO-391	SV03971001	347.84	15.3	75.7	2,254.73	2,251.46	0.9
CO-392	SV20192704	431.73	22.47	129.9	2,251.46	2,246.00	0.9
CO-393	SV20191701	474.23	24.47	125.9	2,246.00	2,244.68	0.9
CO-394	SV20191703	519.53	25.69	135.2	2,244.68	2,243.98	0.9
CO-395	SV20190702	555.32	26.36	107.2	2,243.98	2,238.87	0.9
CO-396	SV19199709	571.54	26.37	45.8	2,238.87	2,230.85	0.9
CO-397	SV19199710	619.07	27.04	154.6	2,230.85	2,228.49	0.9
CO-399	SV19198606	734.27	27.76	155.1	2,226.34	2,225.25	0.9
CO-400	SV19197605	1,418.78	40.12	133.2	2,225.25	2,223.83	0.9
CO-401	SV19196701	1,433.88	41.8	44.6	2,223.83	2,221.63	0.9
CO-402	ST19196601	1,498.19	45.51	94	2,221.63	2,205.33	0.9
CO-403	SV97960501	1,526.71	45.53	85.2	2,205.33	2,191.32	0.9
CO-404	SV19197602	1,579.28	49.24	143.1	2,191.32	2,167.55	0.9
CO-405	SV19197503	1,612.27	50.93	97.4	2,167.55	2,150.70	0.9
CO-406	SV96949901	1,670.99	50.97	104.6	2,150.70	2,136.48	2.86
CO-407	SV19196406	1,950.05	62.49	72.5	2,136.48	2,122.10	0.9
CO-410	SV96926901	2,650.77	91.48	147	2,045.37	1,993.80	0.9
CO-411	SV98962201	21.81	5.02	66.9	2,229.07	2,220.16	0.9
CO-412	SV98952801	75.5	8.72	144.8	2,220.16	2,191.79	0.9
CO-413	SV19199501	91.71	10.4	54.5	2,191.79	2,184.16	0.9
CO-414	SV19199502	138.13	10.43	128.1	2,184.17	2,160.29	0.9
CO-415	SV19199401	163.86	10.45	73.4	2,160.29	2,144.37	0.9
CO-416	SV19199403	193.49	10.47	79.9	2,144.37	2,117.88	0.9
CO-417	SV19199405	252.77	16.18	82.7	2,117.88	2,091.38	0.9
CO-418	SV19199302	282.97	17.86	75	2,091.38	2,072.12	0.9
CO-419	SV19199304	326.59	17.89	121.9	2,072.14	2,043.86	0.9
CO-420	SV20190206	364.62	17.92	103.3	2,043.88	2,014.37	0.9
CO-421	SV19199406	27.96	2.35	86.9	2,120.26	2,117.88	0.9
CO-422	SV20190610	41.38	5.03	113.3	2,101.07	2,075.88	0.9
CO-423	SV20191505	68.23	5.05	75.7	2,075.88	2,058.98	0.9
CO-424	SV20191404	114.08	10.08	129.4	2,058.98	2,033.84	0.9
CO-425	SV20192506	32.44	6.69	81.5	2,101.37	2,069.84	0.9
CO-426	SV20182508	68.23	6.71	98.6	2,069.84	2,046.22	0.9
CO-427	SV20191407	89.48	6.73	61.7	2,046.22	2,039.04	0.9
CO-428	SV20193403	49.77	6.7	144.5	2,049.33	2,045.23	0.9
CO-430	SV19199605	27.4	0.02	84.7	2,207.55	2,193.22	0.9
CO-431	SV19199607	83.33	0.06	163.6	2,193.22	2,171.26	0.9
CO-432	SV00965301	195.17	0.14	84	2,171.26	2,160.87	0.9

CO-433	SV20190605	318.2	9.39	145.1	2,160.87	2,155.33	0.9
CO-434	SV20191502	465.28	19.49	158.6	2,155.33	2,149.78	0.9
CO-435	SV20192504	507.78	23.69	128.6	2,149.78	2,144.24	0.9
CO-436	SV20193503	540.78	27.38	97.6	2,144.24	2,138.69	0.9
CO-438	SV20194502	48.65	2.37	147.3	2,119.26	2,114.17	0.9
CO-440	SV20194406	45.3	6.7	136.3	2,129.47	2,125.63	0.9
CO-441	SV20195306	402.09	40.78	85.3	2,125.63	2,089.66	0.9
CO-442	SV20195312	432.85	40.8	81	2,089.66	2,065.64	0.9
CO-443	SV20194501	677.79	34.14	120.7	2,138.69	2,079.59	0.9
CO-445	SV20194407	157.7	9.44	90.7	2,114.17	2,076.34	0.9
CO-446	SV20194409	179.51	9.46	52	2,076.34	2,057.43	0.9
CO-447	SV20194605	52.57	6.7	134.4	2,199.07	2,153.77	0.9
CO-448	SV20194504	69.35	6.71	44.6	2,153.77	2,138.69	0.9
CO-449	SV20199271(	52.01	5.04	126.2	2,244.17	2,190.86	0.9
CO-450	SV20192603	94.51	5.07	109.9	2,190.86	2,155.33	0.9
CO-451	SV20190704	43.62	4.2	112.6	2,217.16	2,183.38	0.9
CO-452	SV20191603	72.14	4.22	76.9	2,183.38	2,160.87	0.9
CO-453	SV20192801	42.5	2	122	2,301.83	2,298.73	0.9
CO-455	SV20192709	40.82	2	110.6	2,279.86	2,251.46	0.9
CO-456	SV20192707	82.21	4.81	118.1	2,298.73	2,296.87	0.9
CO-457	SV20193703	120.24	5.64	97.6	2,296.87	2,284.53	0.9
CO-458	SV04971401	162.18	5.67	119	2,284.53	2,258.43	0.9
CO-459	SV01986301	45.86	2.84	140.4	2,294.67	2,290.81	0.9
CO-460	SV20190804	100.1	3.82	159.9	2,290.81	2,282.12	0.9
CO-461	SV19199801	403.77	9.67	153.5	2,282.12	2,271.62	0.9
CO-462	SV99972501	450.74	10.95	84.1	2,271.62	2,263.58	0.9
CO-463	SV19199708	489.33	12.23	68.7	2,263.58	2,258.97	0.9
CO-464	SV19198601	560.35	12.28	126.8	2,258.97	2,251.98	0.9
CO-465	SV19198604	637.53	12.33	138	2,251.98	2,225.25	0.9
CO-466	SV98977501	15.1	0.01	34.8	2,292.11	2,289.46	0.9
CO-467	SV98979501	44.18	0.03	43	2,289.46	2,288.46	0.9
CO-468	SV98979501	73.26	0.05	84.6	2,288.46	2,284.35	0.9
CO-469	ST19199702	107.37	0.07	113.5	2,284.35	2,282.12	0.9
CO-470	SV00002001	39.15	2.53	115.6	2,318.87	2,313.57	0.9
CO-471	SV00993301	53.69	2.54	40.6	2,313.57	2,311.60	0.9
CO-472	SV00992101	60.96	2.54	27.6	2,311.60	2,310.62	0.9
CO-473	SV00993001	76.06	4.44	47.7	2,310.62	2,308.59	0.9
CO-474	SV00996101	116.88	5.72	121.4	2,308.59	2,295.76	0.9
CO-475	SV00983401	147.64	5.74	88.4	2,295.76	2,282.12	0.9
CO-476	SV19199710	47.53	0.03	123	2,230.81	2,189.55	0.9
CO-477	SV20190607	83.33	0.06	97	2,189.55	2,171.26	0.9
CO-478	SV19197403	16.78	0.01	45.3	2,134.85	2,122.08	0.9
CO-479	SV19197404	73.26	3.38	144.4	2,122.08	2,071.09	0.9
CO-480	SV19197301	112.41	5.08	108.4	2,071.09	2,045.42	0.9
CO-481	SV19197303	147.08	6.77	96.6	2,045.42	2,019.86	0.9
CO-482	SV19197206	173.36	6.79	65.8	2,019.86	1,994.29	0.9
CO-483	SV19195602	39.71	0.03	117.4	2,243.27	2,233.08	0.9
CO-484	SV19195604	102.34	9.07	139.2	2,233.08	2,188.23	0.9
CO-485	SV95957401	147.64	11.44	119.2	2,188.23	2,150.68	0.9
CO-486	SV95948701	168.89	13.78	57.8	2,150.68	2,132.95	0.9
CO-487	SV95948401	493.24	24.51	90.8	2,132.95	2,104.27	0.9
CO-488	SV96931901	516.73	28.86	64.9	2,104.27	2,085.01	0.9
CO-489	SV94946901	55.92	0.04	153.6	2,196.35	2,132.95	0.9
CO-490	SV94965001	25.17	3.68	61	2,236.15	2,209.98	0.9
CO-491	SV94957601	64.31	3.71	92.8	2,209.98	2,169.67	0.9
CO-492	SV19195503	101.78	5.4	107.7	2,169.67	2,153.97	0.9

CO-493	SV95945701	233.76	10.66	81.5	2,153.97	2,132.95	0.9
CO-494	SV93959101	47.53	3.48	131.5	2,232.23	2,196.37	0.9
CO-495	SV94946901	103.46	5.24	146.6	2,196.37	2,153.97	0.9
CO-496	SV19191401	41.94	0.03	123.6	2,281.51	2,279.49	0.9
CO-497	SV19192501	73.82	1.36	88.7	2,279.49	2,271.41	0.9
CO-498	SV92956501	101.78	1.38	81.6	2,271.41	2,264.35	0.9
CO-499	SV93951601	138.69	2.71	109.4	2,264.35	2,254.97	0.9
CO-500	SV93966001	173.36	2.73	101.2	2,254.97	2,246.18	0.9
CO-501	SV94960401	179.51	2.74	19.7	2,246.18	2,244.60	0.9
CO-502	SV19194601	191.82	5.08	37.3	2,244.60	2,242.69	0.9
CO-503	SV19194602	236	11.77	78.6	2,242.69	2,238.32	0.9
CO-504	SV19194501	275.14	11.8	115.3	2,238.32	2,235.65	0.9
CO-505	SV19193504	312.05	16.16	108.5	2,235.65	2,224.38	0.9
CO-506	SV94941601	340.01	16.18	68.4	2,224.38	2,204.91	0.9
CO-507	SV19194404	357.35	18.53	45.4	2,204.91	2,192.63	0.9
CO-508	SV94944201	378.04	20.87	60.2	2,192.63	2,178.23	0.9
CO-511	SV95931401	461.93	24.93	43.8	2,145.22	2,133.79	0.9
CO-512	SV19195302	491.57	29.26	85.1	2,133.79	2,114.59	0.9
CO-513	SV19195204	538.54	29.29	128.1	2,114.59	2,092.65	0.9
CO-514	SV19196102	582.72	34.49	130.7	2,092.65	2,074.09	0.9
CO-515	SV19196104	616.84	34.51	104.7	2,074.09	2,071.52	0.9
CO-516	SV19196005	633.61	35.38	30.8	2,071.52	2,051.70	0.9
CO-517	SV19196006	684.5	38.86	150.6	2,051.70	2,041.53	0.9
CO-518	SV19197003	715.26	41.05	90.9	2,041.53	2,036.26	0.9
CO-519	SV19187902	742.66	41.07	80.7	2,036.26	2,033.90	0.9
CO-520	SV19193501	28.52	4.69	86.1	2,243.23	2,234.87	0.9
CO-521	ST19193402	58.72	4.71	86.5	2,234.87	2,223.77	0.9
CO-522	SV19193403	240.47	8.28	98	2,223.77	2,200.89	0.9
CO-523	SV19194301	271.79	8.3	81.9	2,200.89	2,178.01	0.9
CO-524	SV19194303	304.78	12.63	88.7	2,178.01	2,154.08	0.9
CO-525	SV19194201	349.52	12.66	115.7	2,154.08	2,116.57	0.9
CO-526	SV19194204	739.87	37.1	136.3	2,116.57	2,079.08	0.9
CO-527	SV93946101	30.2	3.47	82	2,222.53	2,205.19	0.9
CO-529	SV93936201	77.73	8.25	46.3	2,187.17	2,177.99	0.92
CO-530	SV93938001	107.37	9.99	82.9	2,177.99	2,161.00	0.9
CO-531	SV93926501	288.01	22.2	65.8	2,161.00	2,147.14	0.9
CO-532	SV94920401	338.9	22.24	143.1	2,147.14	2,116.57	0.9
CO-535	SV92929801	67.11	6.1	30	2,188.60	2,182.64	0.9
CO-537	SV93921501	30.2	0.02	84.4	2,191.19	2,173.07	0.9
CO-538	SV93925201	50.33	1.76	55.6	2,173.07	2,161.00	0.9
CO-539	SV92956401	29.08	0.02	106.3	2,264.54	2,261.66	0.9
CO-540	SV92944801	82.21	0.06	84.2	2,261.66	2,244.21	0.9
CO-541	SV92948801	135.33	0.09	152.5	2,244.21	2,225.30	0.9
CO-542	SV93946301	147.64	0.1	36.1	2,225.30	2,223.77	0.9
CO-543	SV19192401	32.99	2.19	98.2	2,244.11	2,239.62	0.9
CO-544	SV19192403	88.36	3.53	157.5	2,239.62	2,221.71	0.9
CO-545	SV92931201	128.62	4.87	117	2,221.71	2,202.86	0.9
CO-546	SV92927801	241.03	17.2	27.9	2,202.86	2,198.55	0.9
CO-547	SV92927601	271.23	19.38	87.2	2,198.55	2,184.54	0.9
CO-548	SV19192205	303.66	22.85	90.4	2,184.54	2,171.22	0.9
CO-549	SV19192207	331.07	25.04	80.2	2,171.22	2,158.00	0.9
CO-552	SV92935801	39.15	3.47	120	2,222.19	2,215.75	0.9
CO-553	SV93932701	80.53	4.81	119.4	2,215.75	2,207.03	0.9
CO-554	SV92939001	102.9	10.15	57.7	2,207.03	2,202.86	0.9
CO-555	SV18197101	16.22	0.01	46.3	2,417.16	2,416.65	0.9
CO-556	SV18197102	69.9	0.05	152.7	2,416.65	2,410.05	0.9

CO-557	SV86905501	94.51	0.07	77.1	2,410.05	2,407.50	0.9
CO-558	SV18196006	242.52	6.84	39	2,407.50	2,406.29	0.9
CO-559	SV18196007	271.04	6.85	84.4	2,406.29	2,402.13	0.9
CO-560	SV18185906	300.68	9.1	87.9	2,402.13	2,395.23	0.9
CO-561	SV18185905	333.68	10.9	98.9	2,395.23	2,389.74	0.9
CO-562	SV18185802	363.32	10.92	86.8	2,389.74	2,382.64	0.9
CO-563	ST18185801	394.63	10.94	89.1	2,382.64	2,374.57	0.9
CO-564	SV85876501	430.98	10.97	108.4	2,374.57	2,368.47	0.9
CO-565	SV85864901	452.79	10.98	65.6	2,368.47	2,362.37	0.9
CO-566	SV85860801	500.33	11.01	141.6	2,362.37	2,350.20	0.9
CO-567	SV84864401	517.11	11.03	44.6	2,350.20	2,343.53	0.9
CO-568	SV84866401	532.76	11.04	45.7	2,343.53	2,339.81	0.9
CO-569	SV18184607	555.13	11.05	64.3	2,339.81	2,330.34	0.9
CO-570	SV18184503	717.87	35.11	47.5	2,330.34	2,329.85	0.9
CO-571	SV18185503	55.92	2.26	166.5	2,329.56	2,325.07	0.9
CO-572	SV91868501	1,196.87	43.08	146.9	2,232.35	2,218.87	0.9
CO-573	SV19182602	1,227.07	43.1	90.6	2,218.87	2,214.20	0.9
CO-574	ST19182502	1,254.47	43.12	78.9	2,214.20	2,212.14	0.9
CO-575	SV19183504	1,281.31	43.14	76.7	2,212.14	2,209.60	0.9
CO-577	SV19184402	1,378.62	43.21	134	2,205.40	2,192.82	0.9
CO-578	SV19185401	1,394.28	43.22	46.7	2,192.82	2,187.82	0.9
CO-579	SV19185402	1,440.69	47.25	121.8	2,187.82	2,149.70	0.9
CO-580	SV19185404	1,487.67	47.28	110.6	2,149.70	2,102.19	0.9
CO-581	SV19186402	1,527.37	56.31	102.5	2,102.19	2,064.58	0.9
CO-582	ST19187401	1,567.08	56.34	103.4	2,064.58	2,030.94	0.9
CO-583	SV19187301	1,608.46	60.03	97	2,030.94	1,983.43	0.9
CO-584	SV19188303	1,652.64	60.06	101.1	1,983.43	1,934.14	0.9
CO-585	SV19186101	49.77	7.7	146.2	2,003.26	1,996.47	0.9
CO-586	SV19187202	105.14	11.74	146.7	1,996.47	1,954.09	0.9
CO-587	SV19188305	138.13	11.76	97.2	1,954.09	1,943.14	0.9
CO-588	SV19188307	193.49	11.8	70.8	1,943.14	1,934.14	0.9
CO-589	SV19189201	55.36	3.71	144.3	2,001.49	1,963.26	0.9
CO-590	SV19188308	97.31	5.4	113.2	1,963.26	1,934.14	0.9
CO-591	SV18186703	22.37	6.04	71.2	2,346.61	2,341.82	0.9
CO-592	SV18185809	32.44	9.94	27.6	2,341.82	2,340.13	0.9
CO-593	SV18186805	44.74	12.53	41.8	2,340.13	2,339.52	0.9
CO-594	SV18186806	65.99	12.55	56.3	2,339.52	2,337.01	0.9
CO-595	SV18186901	131.9	12.59	93.1	2,337.02	2,334.06	0.75
CO-596	SV18186904	165.45	13.92	97.5	2,334.06	2,331.80	0.9
CO-598	SV18188910	616.38	14.23	97.6	2,326.95	2,323.24	0.9
CO-599	SV18188909	643.78	16.42	77.9	2,323.24	2,311.66	0.9
CO-600	SV18189801	676.78	20.75	96.2	2,311.66	2,308.58	0.9
CO-601	SV18189803	687.96	24.2	34.4	2,308.58	2,307.19	0.9
CO-602	SV18189804	709.77	25.52	59.6	2,307.19	2,306.29	0.9
CO-603	SV18189806	733.26	25.54	66.7	2,306.29	2,305.21	0.9
CO-604	SV18189902	770.73	25.56	107.5	2,305.21	2,295.35	0.9
CO-605	SV18189905	787.51	25.57	54.1	2,295.35	2,293.49	0.9
CO-606	SV19180902	803.17	25.59	44.2	2,293.49	2,290.64	0.9
CO-607	SV18186701	29.64	13.3	87.5	2,344.10	2,339.86	0.9
CO-608	SV18185701	67.11	15.1	112.9	2,339.86	2,336.48	0.9
CO-609	SV85866401	118.56	15.14	155.5	2,336.48	2,332.73	0.9
CO-610	SV18184614	145.96	15.16	75.4	2,332.73	2,330.34	0.9
CO-611	SV20198301	30.2	5.69	85.9	2,178.97	2,169.25	0.9
CO-612	SV201198304	64.31	5.71	101.2	2,169.25	2,159.54	0.9
CO-613	SV20198204	37.47	0.03	110.3	2,157.51	2,155.21	0.9
CO-614	SV20197204	52.57	0.04	152.1	2,180.31	2,178.70	0.9

CO-615	SV20198103	94.51	0.07	123.9	2,178.70	2,177.94	0.9
CO-616	SV20198105	143.16	0.1	136.9	2,177.94	2,159.57	0.9
CO-617	SV20198006	159.38	0.11	45.4	2,159.57	2,144.91	0.9
CO-618	SV20197201	56.48	4.37	121	2,161.36	2,114.46	0.9
CO-619	SV20197101	88.36	4.39	109.1	2,114.46	2,087.56	0.9
CO-620	SV20196301	35.23	6.36	90.4	2,179.37	2,147.27	0.9
CO-621	SV20196303	83.89	6.39	121.7	2,147.27	2,099.27	0.9
CO-622	SV20195203	148.2	6.44	99.3	2,099.27	2,093.01	0.9
CO-623	SV20195206	185.11	8.13	114.4	2,093.01	2,086.75	0.9
CO-624	SV20195104	211.95	9.48	78.1	2,086.75	2,082.55	0.9
CO-625	SV20193604	54.8	4.2	157.6	2,251.58	2,228.37	0.9
CO-626	SV20194608	88.36	9.89	97.2	2,228.37	2,214.05	0.9
CO-627	SV20194610	123.03	16.59	101.4	2,214.05	2,212.83	0.9
CO-628	SV20195606	166.09	20.78	130.6	2,212.83	2,207.55	0.9
CO-629	SV20195505	195.17	24.97	84.8	2,207.55	2,206.52	0.9
CO-630	SV20195404	228.17	27.33	97.7	2,206.52	2,199.32	0.9
CO-631	SV20196403	277.38	29.03	136.6	2,199.32	2,169.39	0.9
CO-632	SV20195405	322.12	30.39	110.4	2,169.39	2,125.63	0.9
CO-634	SV95968801	24.61	3.68	64.9	2,239.11	2,223.01	0.9
CO-635	SV95969401	62.63	3.71	104.4	2,223.01	2,198.26	0.9
CO-637	SV96952201	143.16	3.77	106	2,170.76	2,145.63	0.9
CO-638	SV19196405	252.21	9.84	49.5	2,145.63	2,136.48	0.9
CO-639	SV19196604	45.3	3.7	123.8	2,199.36	2,172.40	0.9
CO-640	SV19196502	92.83	6.06	132.5	2,172.40	2,145.63	0.9
CO-641	SV94968601	8.39	5.34	104.3	2,243.26	2,233.08	0.9
CO-642	SV19188101	45.86	0.03	125	2,013.45	1,980.35	0.9
CO-643	ST19189101	111.85	0.08	117.8	1,980.35	1,949.46	0.9
CO-644	SV20180201	137.57	3.76	73	1,949.46	1,939.96	0.9
CO-645	SV20180202	172.8	3.79	100.2	1,939.96	1,926.75	0.9
CO-646	SV20180101	35.23	0.02	98.4	1,936.20	1,915.40	0.9
CO-647	SV19189001	49.21	3.7	138.3	1,942.76	1,924.31	0.9
CO-648	SV19189004	96.75	3.73	135.3	1,924.31	1,908.29	0.9
CO-649	SV19179901	48.09	0.03	139.1	1,926.00	1,896.39	0.9
CO-650	SV19179902	47.53	5.53	156.2	1,921.77	1,892.84	0.9
CO-651	SV20170803	45.86	5.53	129.2	1,916.07	1,890.25	0.9
CO-653	SV19177901	53.13	5.54	143.5	1,948.57	1,909.22	0.9
CO-654	SV19177802	91.71	9.23	102.6	1,909.22	1,879.02	0.9
CO-655	SV19178802	116.88	9.25	73.3	1,879.02	1,870.09	0.9
CO-656	SV19177703	65.62	5.16	72.5	1,870.12	1,868.47	0.65
CO-657	SV19177705	89.1	5.17	73	1,868.47	1,867.37	0.9
CO-658	SV19184806	1,055.83	69.09	30.5	1,957.93	1,957.04	0.9
CO-659	SV19185603	19.01	0.01	51.5	1,968.03	1,964.64	0.9
CO-660	SV19185707	62.63	0.04	122.4	1,964.64	1,954.70	0.9
CO-661	SV19185501	38.03	0.03	110.2	1,953.44	1,950.64	0.9
CO-662	SV19185602	92.27	0.06	155.4	1,950.64	1,946.76	0.9
CO-663	SV19186501	43.06	0.03	124.6	1,951.25	1,948.34	0.9
CO-664	SV19187503	81.09	0.06	116.5	1,948.34	1,945.32	0.9
CO-665	SV19170501	32.99	0.02	77.4	2,078.01	2,039.07	0.9
CO-666	SV191752101	66.55	0.05	78.5	2,039.07	1,999.24	0.9
CO-667	SV91756101	119.68	0.08	117.1	1,999.24	1,936.42	0.9
CO-668	SV19170401	49.21	4.9	91.6	2,083.91	2,072.97	0.9
CO-669	SV90746601	88.36	4.92	109.1	2,072.97	2,049.73	0.9
CO-670	SV19170404	107.37	7.38	55.7	2,049.73	2,037.84	0.9
CO-671	SV19171301	145.96	7.41	99.9	2,037.84	2,004.26	0.9
CO-672	ST19171302	184.55	7.43	102.7	2,004.26	1,972.19	0.9
CO-673	SV19172304	210.27	7.45	68.7	1,972.19	1,950.30	0.9

CO-674	SV19172401	247.74	7.48	76.6	1,950.30	1,906.47	0.9
CO-675	SV19173404	316.53	7.53	123.3	1,906.47	1,862.62	0.9
CO-676	SV19170201	39.15	4.89	101.7	2,074.25	2,041.07	0.9
CO-677	SV19171201	71.02	4.91	78.7	2,041.07	2,007.90	0.9
CO-678	SV19171205	118.56	8.72	120.8	2,007.90	1,963.68	0.9
CO-679	SV19172203	172.24	8.76	143.1	1,963.68	1,919.45	0.9
CO-680	SV19172302	219.22	8.79	127.6	1,919.45	1,889.45	0.9
CO-681	ST19173302	262.84	8.82	125.2	1,889.45	1,864.12	0.9
CO-682	SV19172101	39.15	0.03	84.6	2,074.09	2,024.40	0.9
CO-683	ST19173013	63.19	0.04	57.3	2,024.40	2,000.25	0.9
CO-684	ST19173102	99.54	0.07	79	2,000.25	1,956.23	0.9
CO-685	SV19174101	128.62	0.09	72.6	1,956.23	1,926.77	0.9
CO-687	SV19174101	159.38	0.11	79.6	1,926.77	1,897.31	0.9
CO-688	SV19174103	185.67	0.13	59.7	1,897.31	1,867.82	0.9
CO-689	SV19173001	55.92	4.9	128.9	2,069.00	2,002.22	0.9
CO-690	SV19174001	84.44	4.92	75.1	2,002.22	1,979.91	0.9
CO-691	SV19174002	123.03	4.95	88.6	1,979.91	1,935.44	0.9
CO-692	ST19175001	143.72	4.96	46.9	1,935.44	1,913.18	0.9
CO-693	SV19175005	181.75	4.99	82.4	1,913.18	1,868.62	0.9
CO-694	SV19164901	44.18	4.89	83.6	2,059.12	2,000.20	900.9
CO-695	ST19164902	76.62	4.91	78	2,000.20	1,964.29	0.9
CO-696	SV19165901	121.91	4.95	83.1	1,964.29	1,901.07	0.9
CO-697	SV19165902	145.96	4.96	48.1	1,901.07	1,869.41	0.9
CO-698	SV19164801	43.62	6.53	78.6	2,037.78	1,977.62	0.9
CO-699	SV19166804	71.58	6.55	69.6	1,977.62	1,939.60	0.9
CO-700	ST19165802	117.44	6.58	74.5	1,939.60	1,874.48	0.9
CO-701	SV19166804	137.57	6.6	61.4	1,874.48	1,874.39	0.9
CO-702	SV19164701	55.92	9.04	159.7	2,036.79	2,014.62	0.9
CO-703	SV19165703	84.44	9.06	86.8	2,014.62	2,004.63	0.9
CO-704	SV19166704	125.83	14.09	105.2	2,004.63	1,969.91	50.9
CO-705	SV19166603	139.81	18.1	38.4	1,969.91	1,967.52	0.9
CO-706	SV19166602	186.22	18.13	132.2	1,967.54	1,949.24	0.9
CO-707	SV97674201	234.32	18.16	78.5	1,949.26	1,877.95	0.9
CO-708	SV19167307	45.3	0.03	140.8	2,069.35	2,062.92	0.9
CO-709	SV19166404	85	2	112.1	2,062.92	2,060.08	0.9
CO-710	SV19166503	115.2	2.02	90.8	2,060.08	2,054.05	0.9
CO-712	SV20198004	53.69	0.04	148.9	2,139.27	2,111.80	0.9
CO-713	SV20198102	40.26	0.03	94.7	2,159.05	2,115.86	0.9
CO-714	SV20197003	60.4	0.04	48.9	2,115.86	2,094.25	0.9
CO-715	SV20195501	34.67	7.02	83	2,186.77	2,150.47	0.9
CO-716	SV20195402	71.58	7.05	89.5	2,150.47	2,114.17	0.9
CO-717	SV18188904	38.59	0.03	117.6	2,345.86	2,340.40	0.9
CO-720	SV18196101	35.23	4.47	106.8	2,451.58	2,441.60	0.9
CO-722	SV19187402	42.5	5.03	131.3	1,945.35	1,941.01	0.9
CO-723	SV19188404	59.84	5.04	49.5	1,941.01	1,938.91	0.9
CO-724	SV20196308	30.2	0.02	89.4	2,104.55	2,099.27	0.9
CO-725	SV96948501	44.74	0.03	122	2,138.60	2,122.10	0.9
CO-726	SV19171801	186.78	2.57	96.8	2,080.32	2,054.25	0.9
CO-727	SV90778801	150.99	2.55	95.9	2,098.23	2,080.32	0.9
CO-728	SV18187103	101.22	8.96	124.6	2,145.72	2,143.94	0.9
CO-730	SV86905001	133.47	6.76	59.2	2,423.94	2,407.50	0.65
CO-731	SV18196104	73.82	6.72	105.8	2,441.60	2,423.94	0.9
CO-734	SV02620601	425.94	7.6	54	2,001.46	1,995.34	0.9
CO-735	SV91917701	346.73	29.35	43.5	2,158.00	2,150.41	0.9
CO-736	SV91914801	355.11	29.36	25.1	2,150.41	2,146.47	0.9
CO-737	SV92802501	3,587.11	218.38	147.7	1,974.82	1,944.56	0.9

CO-738	SV19172903	4,105.52	232.77	100.7	1,944.56	1,926.37	0.9
CO-739	SV92798101	144.84	17.21	26.1	1,993.23	1,926.37	0.9
CO-740	SV19175703	483.74	27.34	94.3	1,865.07	1,862.26	0.9
CO-741	SV96944101	2,027.22	62.55	79.8	2,122.10	2,085.01	0.9
CO-742	SV96933601	2,592.05	91.44	120.7	2,085.01	2,045.37	0.9
CO-743	ST20194502	709.11	34.16	76.9	2,079.59	2,055.80	0.9
CO-744	SV20194303	2,386.25	99.16	27.9	2,057.43	2,055.80	0.95
CO-745	SV20194401	3,110.46	133.99	42.1	2,055.80	2,053.11	0.95
CO-749	SV19199603	657.1	27.71	116.3	2,228.49	2,227.18	0.9
CO-750	SV19198605	682.27	27.72	77.7	2,227.20	2,226.32	0.9
CO-751	SV19187801	9,337.72	368.15	43	1,974.68	1,973.20	1.1
CO-752	SV19187802	9,400.91	368.2	182.9	1,973.20	1,969.80	1.13
CO-753	SV19185401	1,313.19	43.16	98.6	2,209.60	2,207.06	0.9
CO-754	SV93849901	1,332.76	43.18	59.6	2,207.06	2,205.40	0.9
CO-755	SV92810501	670.34	43.13	118.6	1,997.66	1,979.25	0.7
CO-756	SV92802801	688.23	43.14	52	1,979.25	1,974.82	0.9
CO-757	SV20170701	17,102.23	672.77	140.4	1,880.76	1,877.70	1.15
CO-758	SV19179703	17,132.43	672.79	88.7	1,877.70	1,873.69	1.15
CO-761	SV20170904	16,639.56	664.19	170.3	1,892.84	1,890.19	1.15
CO-762	SV19169105	98.42	5.43	69.8	2,041.40	2,024.81	0.9
CO-763	SV19169103	285.02	5.56	132	2,024.82	2,022.61	0.7
CO-764	SV98619801	92.65	0.06	116.7	2,028.19	2,024.82	0.7
CO-765	SV19166505	126.95	2.03	36.7	2,054.05	2,053.08	0.9
CO-766	SV20161102	800.69	35.22	86.4	1,943.84	1,941.59	0.9
CO-767	SV20161104	816.48	35.23	113.7	1,941.59	1,932.89	0.9
CO-768	SV20167302	2,413.46	55.34	83.8	1,908.60	1,907.25	0.9
CO-769	SV18188904	236.93	0.16	133.1	2,340.40	2,329.92	0.65
CO-771	SV18187903	582.83	14.21	154.6	2,329.92	2,326.95	0.65
CO-772	SV18187901	211.68	13.95	48.7	2,331.81	2,329.92	0.65
CO-773	SV18185203	119.12	33.86	118.7	2,217.99	2,193.26	0.9
CO-774	SV18185204	24.05	0.02	72.8	2,217.25	2,214.27	0.9
CO-775	SV8871701	253.33	21.73	20.5	2,188.27	2,187.20	0.9
CO-776	SV88870601	299.19	21.76	134.9	2,187.20	2,179.23	0.9
CO-777	SV88826901	570.98	30.56	24.2	2,119.64	2,117.12	0.9
CO-778	SV88836001	616.84	30.6	118.8	2,117.12	2,092.55	0.9
CO-779	SV94589901	17.9	0.01	56.2	1,992.40	1,989.10	0.9
CO-780	SV93932201	28.52	4.35	13.2	2,205.85	2,203.35	0.9
CO-781	SV93933201	55.92	6.09	72.8	2,203.35	2,188.60	0.9
CO-782	SV93920601	107.37	6.13	118.8	2,182.64	2,161.00	0.9
CO-783	SV93933601	24.05	2.18	73.6	2,214.48	2,205.85	0.9
CO-784	SV93936601	39.15	3.47	27.7	2,205.19	2,200.10	0.9
CO-785	SV93937501	61.52	6.93	66.5	2,200.10	2,187.17	0.9
CO-786	SV19196506	31.32	0.02	80.5	2,240.73	2,221.63	0.9
CO-787	SV95959801	72.7	3.72	31.8	2,198.26	2,191.58	0.9
CO-788	SV96951701	104.58	3.74	85.5	2,191.58	2,170.76	0.9
CO-789	SV19176706	89.48	7.73	99.8	1,869.97	1,868.22	0.9
CO-790	SV19176803	57.04	7.71	86.3	1,882.42	1,869.97	0.9
CO-791	SV20190204	4,429.32	201.52	227.1	2,014.37	2,007.21	1
CO-792	SV19197202	4,842.22	208.47	15.6	1,994.29	1,993.75	1
CO-794	SV94947001	445.71	20.92	120.9	2,178.23	2,145.22	0.9
CO-796	SV98962201	(N/A)	0	154.6	(N/A)	(N/A)	0.75

Conduit Data

Label	Start Node	Cover (Stop) (m)	Velocity (Average) (m/h)	Infiltration Load Type	Infiltration Loading Unit	Infiltration Rate per Loading Unit (gpd)
CO-2	SV93835701	0.75	6,721.19	Pipe Rise-	in-mile	500
CO-3	SV19183201	0.9	9,127.02	Pipe Rise-	in-mile	500
CO-4	SV19183204	0.9	10,939.39	Pipe Rise-	in-mile	500
CO-5	SV19183102	0.9	10,902.25	Pipe Rise-	in-mile	500
CO-6	SV19183103	0.9	13,256.68	Pipe Rise-	in-mile	500
CO-7	ST19183001	0.9	13,137.66	Pipe Rise-	in-mile	500
CO-8	SV19183003	0.9	14,397.82	Pipe Rise-	in-mile	500
CO-9	SV92799601	0.9	9,868.09	Pipe Rise-	in-mile	500
CO-10	SV93791201	0.9	9,850.45	Pipe Rise-	in-mile	500
CO-11	ST19173901	0.9	25,012.67	Pipe Rise-	in-mile	500
CO-12	ST19173802	0.95	24,217.34	Pipe Rise-	in-mile	500
CO-13	SV19173804	1.05	18,056.91	Pipe Rise-	in-mile	500
CO-14	SV19174703	0.95	24,618.33	Pipe Rise-	in-mile	500
CO-15	SV19175601	0.9	6,922.34	Pipe Rise-	in-mile	500
CO-16	SV19175502	0.9	7,110.58	Pipe Rise-	in-mile	500
CO-17	SV19176502	0.9	7,308.27	Pipe Rise-	in-mile	500
CO-18	SV19177502	0.9	7,397.94	Pipe Rise-	in-mile	500
CO-19	SV19179501	1.9	16,594.39	Pipe Rise-	in-mile	500
CO-20	SV19177503	1.15	6,325.06	Pipe Rise-	in-mile	500
CO-21	SV19176601	0.9	6,418.95	Pipe Rise-	in-mile	500
CO-22	SV19176603	1.15	7,369.13	Pipe Rise-	in-mile	500
CO-23	SV19175704	0.9	1,294.14	Pipe Rise-	in-mile	500
CO-24	SV19175604	1.15	1,370.74	Pipe Rise-	in-mile	500
CO-25	SV19176801	0.9	6,753.94	Pipe Rise-	in-mile	500
CO-30	SV19175801	0.9	4,338.65	Pipe Rise-	in-mile	500
CO-34	SV19174704	1.1	4,640.79	Pipe Rise-	in-mile	500
CO-35	SV19184201	0.9	9,596.01	Pipe Rise-	in-mile	500
CO-36	SV19184203	0.9	9,159.34	Pipe Rise-	in-mile	500
CO-37	SV19184103	0.9	8,588.17	Pipe Rise-	in-mile	500
CO-38	SV19184001	0.9	12,068.07	Pipe Rise-	in-mile	500
CO-39	ST19184002	0.9	11,699.55	Pipe Rise-	in-mile	500
CO-40	SV19174901	0.9	12,585.13	Pipe Rise-	in-mile	500
CO-41	SV19175802	0.9	13,516.43	Pipe Rise-	in-mile	500
CO-42	SV19175804	0.9	10,923.96	Pipe Rise-	in-mile	500
CO-43	SV89858101	0.9	8,943.22	Pipe Rise-	in-mile	500
CO-44	SV90841401	0.9	7,697.86	Pipe Rise-	in-mile	500
CO-45	ST19180301	0.9	6,969.61	Pipe Rise-	in-mile	500
CO-46	SV90839201	0.9	10,755.02	Pipe Rise-	in-mile	500
CO-47	SV91822801	0.9	11,255.93	Pipe Rise-	in-mile	500
CO-48	SV91825301	0.9	12,004.34	Pipe Rise-	in-mile	500
CO-49	SV91816901	0.9	14,198.46	Pipe Rise-	in-mile	500
CO-54	SV92789602	0.9	8,438.83	Pipe Rise-	in-mile	500
CO-55	SV92788601	0.9	11,030.61	Pipe Rise-	in-mile	500
CO-56	SV92788301	0.9	7,199.08	Pipe Rise-	in-mile	500
CO-57	SV92787301	0.9	7,150.54	Pipe Rise-	in-mile	500
CO-58	SV92776901	0.9	5,419.99	Pipe Rise-	in-mile	500
CO-59	SV92773901	0.9	7,234.78	Pipe Rise-	in-mile	500
CO-60	SV89761901	0.9	1,062.44	Pipe Rise-	in-mile	500

CO-61	SV89777301	0.9	4,409.33	Pipe Rise-	in-mile	500
CO-62	SV19170703	0.9	2,948.15	Pipe Rise-	in-mile	500
CO-64	ST19171801	0.9	4,052.90	Pipe Rise-	in-mile	500
CO-65	SV92782701	0.9	4,398.86	Pipe Rise-	in-mile	500
CO-66	SV19171903	0.9	12,789.72	Pipe Rise-	in-mile	500
CO-67	SV19172902	0.9	11,837.91	Pipe Rise-	in-mile	500
CO-69	SV92783001	0.9	2,432.61	Pipe Rise-	in-mile	500
CO-70	SV19170801	0.9	1,875.60	Pipe Rise-	in-mile	500
CO-71	ST19170902	0.9	1,981.55	Pipe Rise-	in-mile	500
CO-72	SV88795401	0.9	8,606.84	Pipe Rise-	in-mile	500
CO-73	SV89791601	0.9	8,647.38	Pipe Rise-	in-mile	500
CO-74	SV89797801	0.9	10,080.64	Pipe Rise-	in-mile	500
CO-75	SV90804301	0.92	10,842.68	Pipe Rise-	in-mile	500
CO-76	SV91800601	0.9	10,862.94	Pipe Rise-	in-mile	500
CO-77	SV19181002	0.9	19,600.10	Pipe Rise-	in-mile	500
CO-78	SV18185301	0.9	3,252.38	Pipe Rise-	in-mile	500
CO-79	SV18185302	0.9	5,497.82	Pipe Rise-	in-mile	500
CO-80	SV18185202	0.9	7,117.58	Pipe Rise-	in-mile	500
CO-82	ST18185101	0.9	7,662.38	Pipe Rise-	in-mile	500
CO-83	SV18186106	0.9	18,175.99	Pipe Rise-	in-mile	500
CO-84	SV86813001	0.9	16,889.87	Pipe Rise-	in-mile	500
CO-85	SV18186104	10.49	16,956.33	Pipe Rise-	in-mile	500
CO-86	SV18187102	0.9	10,491.81	Pipe Rise-	in-mile	500
CO-87	ST18188101	0.9	17,229.84	Pipe Rise-	in-mile	500
CO-88	SV88817801	0.9	15,398.24	Pipe Rise-	in-mile	500
CO-89	SV18189101	0.9	20,234.92	Pipe Rise-	in-mile	500
CO-90	SV18189104	0.9	18,119.79	Pipe Rise-	in-mile	500
CO-91	SV19180102	0.9	18,722.11	Pipe Rise-	in-mile	500
CO-92	ST19180102	0.9	19,276.65	Pipe Rise-	in-mile	500
CO-93	SV85821401	0.9	3,113.29	Pipe Rise-	in-mile	500
CO-94	SV85816601	0.9	815.85	Pipe Rise-	in-mile	500
CO-100	SV85819701	0.9	12,680.40	Pipe Rise-	in-mile	500
CO-101	SV18186201	0.9	1,949.82	Pipe Rise-	in-mile	500
CO-102	SV18186202	0.9	3,261.67	Pipe Rise-	in-mile	500
CO-105	SV88862801	0.9	7,312.27	Pipe Rise-	in-mile	500
CO-106	SV88861401	0.9	7,322.58	Pipe Rise-	in-mile	500
CO-107	SV87858801	0.9	7,700.64	Pipe Rise-	in-mile	500
CO-108	SV18187501	0.9	5,757.25	Pipe Rise-	in-mile	500
CO-109	SV18188405	0.9	8,342.50	Pipe Rise-	in-mile	500
CO-110	SV18188301	0.9	11,753.45	Pipe Rise-	in-mile	500
CO-111	SV18188303	0.9	11,450.06	Pipe Rise-	in-mile	500
CO-113	SV89820201	0.9	11,867.16	Pipe Rise-	in-mile	500
CO-114	SV87838601	0.9	3,537.76	Pipe Rise-	in-mile	500
CO-115	SV18184501	0.9	6,642.26	Pipe Rise-	in-mile	500
CO-116	SV18185505	0.9	5,564.07	Pipe Rise-	in-mile	500
CO-117	SV18185402	0.9	19,142.74	Pipe Rise-	in-mile	500
CO-118	ST18186401	0.9	19,113.69	Pipe Rise-	in-mile	500
CO-119	SV18186301	0.9	12,279.15	Pipe Rise-	in-mile	500
CO-120	SV18186303	0.9	10,539.69	Pipe Rise-	in-mile	500
CO-121	SV18187302	0.9	11,775.52	Pipe Rise-	in-mile	500
CO-122	SV18187202	0.9	9,796.01	Pipe Rise-	in-mile	500
CO-123	SV18187203	0.9	12,850.49	Pipe Rise-	in-mile	500
CO-124	SV91845301	0.9	10,168.45	Pipe Rise-	in-mile	500
CO-125	SV91831701	0.9	10,409.02	Pipe Rise-	in-mile	500
CO-126	SV91849001	0.9	9,605.63	Pipe Rise-	in-mile	500
CO-127	SV91838401	0.9	9,353.25	Pipe Rise-	in-mile	500

CO-128	SV91826801	0.9	12,502.77	Pipe Rise-	in-mile	500
CO-129	SV91826601	0.9	13,302.34	Pipe Rise-	in-mile	500
CO-130	SV92833301	0.9	9,716.86	Pipe Rise-	in-mile	500
CO-131	SV19181301	0.9	10,324.09	Pipe Rise-	in-mile	500
CO-132	SV92824401	0.9	1,228.50	Pipe Rise-	in-mile	500
CO-134	SV19181602	0.9	5,051.24	Pipe Rise-	in-mile	500
CO-135	SV9180604	0.9	6,128.30	Pipe Rise-	in-mile	500
CO-136	SV18189601	0.9	4,991.54	Pipe Rise-	in-mile	500
CO-137	SV89856701	0.9	5,799.55	Pipe Rise-	in-mile	500
CO-138	SV89853701	0.9	6,311.82	Pipe Rise-	in-mile	500
CO-139	SV89862401	0.9	6,756.73	Pipe Rise-	in-mile	500
CO-140	SV88867801	0.9	6,761.38	Pipe Rise-	in-mile	500
CO-141	SV88875201	0.9	8,021.28	Pipe Rise-	in-mile	500
CO-142	SV18189701	0.9	3,633.24	Pipe Rise-	in-mile	500
CO-143	SV18189703	0.9	3,460.57	Pipe Rise-	in-mile	500
CO-144	SV191880601	0.9	5,465.90	Pipe Rise-	in-mile	500
CO-145	SV19180602	0.9	8,104.37	Pipe Rise-	in-mile	500
CO-146	SV19190001	0.9	7,837.14	Pipe Rise-	in-mile	500
CO-147	SV19180903	0.9	9,945.88	Pipe Rise-	in-mile	500
CO-148	SV19180905	0.9	9,591.69	Pipe Rise-	in-mile	500
CO-149	SV19180907	0.9	6,254.65	Pipe Rise-	in-mile	500
CO-150	SV19180803	0.9	9,797.95	Pipe Rise-	in-mile	500
CO-151	SV19180701	0.9	8,784.77	Pipe Rise-	in-mile	500
CO-154	SV19181901	0.9	8,732.71	Pipe Rise-	in-mile	500
CO-155	SV19181903	0.9	9,006.57	Pipe Rise-	in-mile	500
CO-156	SV19181905	0.9	10,674.91	Pipe Rise-	in-mile	500
CO-157	SV19182802	0.9	10,553.98	Pipe Rise-	in-mile	500
CO-158	SV19182804	0.9	10,263.86	Pipe Rise-	in-mile	500
CO-159	SV19183801	0.9	9,739.82	Pipe Rise-	in-mile	500
CO-161	SV19183803	0.9	9,108.17	Pipe Rise-	in-mile	500
CO-162	SV19184802	0.9	9,363.32	Pipe Rise-	in-mile	500
CO-163	SV19182902	0.9	2,954.89	Pipe Rise-	in-mile	500
CO-164	SV19183907	0.9	4,764.82	Pipe Rise-	in-mile	500
CO-165	SV19183905	0.9	14,825.59	Pipe Rise-	in-mile	500
CO-166	SV19184803	0.9	14,315.48	Pipe Rise-	in-mile	500
CO-168	SV91914701	0.9	13,406.17	Pipe Rise-	in-mile	500
CO-169	SV19192101	0.9	14,560.01	Pipe Rise-	in-mile	500
CO-170	SV19192001	0.9	15,820.65	Pipe Rise-	in-mile	500
CO-171	SV19192003	0.9	15,409.60	Pipe Rise-	in-mile	500
CO-172	SV19183901	0.9	14,854.13	Pipe Rise-	in-mile	500
CO-173	SV19183903	0.9	12,504.72	Pipe Rise-	in-mile	500
CO-174	SV91919701	0.9	6,763.32	Pipe Rise-	in-mile	500
CO-175	SV92910601	0.9	13,647.06	Pipe Rise-	in-mile	500
CO-176	SV19193101	0.9	8,396.52	Pipe Rise-	in-mile	500
CO-177	SV19194103	0.9	10,144.16	Pipe Rise-	in-mile	500
CO-178	SV19195102	0.9	17,029.16	Pipe Rise-	in-mile	500
CO-179	SV19196002	0.9	16,483.86	Pipe Rise-	in-mile	500
CO-180	SV19195005	0.9	17,075.69	Pipe Rise-	in-mile	500
CO-181	SV19185903	0.64	16,545.36	Pipe Rise-	in-mile	500
CO-182	SV19186902	1.1	16,848.34	Pipe Rise-	in-mile	500
CO-183	SV19185901	1.1	11,829.04	Pipe Rise-	in-mile	500
CO-184	SV19185802	1.15	15,006.10	Pipe Rise-	in-mile	500
CO-185	SV19184801	0.95	13,263.62	Pipe Rise-	in-mile	500
CO-186	SV19184701	0.95	12,262.92	Pipe Rise-	in-mile	500
CO-187	SV19185701	0.9	11,846.13	Pipe Rise-	in-mile	500
CO-188	SV19185702	0.9	13,872.09	Pipe Rise-	in-mile	500

CO-189	SV19186604	0.9	8,465.14	Pipe Rise-	in-mile	500
CO-190	SV19187601	0.9	7,432.81	Pipe Rise-	in-mile	500
CO-191	SV19187602	0.9	10,878.62	Pipe Rise-	in-mile	500
CO-192	ST19188501	0.9	8,558.99	Pipe Rise-	in-mile	500
CO-193	SV19189501	0.7	12,173.18	Pipe Rise-	in-mile	500
CO-194	SV19189401	0.9	12,996.74	Pipe Rise-	in-mile	500
CO-195	SV19188310	0.9	9,996.92	Pipe Rise-	in-mile	500
CO-196	SV19189301	0.9	11,671.49	Pipe Rise-	in-mile	500
CO-197	SV19189402	1.15	9,382.76	Pipe Rise-	in-mile	500
CO-198	SV20180401	0.9	11,918.83	Pipe Rise-	in-mile	500
CO-199	SV20180402	0.9	8,150.60	Pipe Rise-	in-mile	500
CO-200	SV20180301	0.9	7,744.61	Pipe Rise-	in-mile	500
CO-201	SV20181202	0.9	8,989.94	Pipe Rise-	in-mile	500
CO-202	SV20181204	0.9	13,916.83	Pipe Rise-	in-mile	500
CO-203	SV20181102	0.9	11,952.75	Pipe Rise-	in-mile	500
CO-204	SV20182001	0.9	10,003.09	Pipe Rise-	in-mile	500
CO-205	SV20181001	1.15	12,080.50	Pipe Rise-	in-mile	500
CO-206	SV20180001	0.9	20,637.14	Pipe Rise-	in-mile	500
CO-207	SV20180003	0.9	25,799.38	Pipe Rise-	in-mile	500
CO-208	SV20170902	0.9	15,039.47	Pipe Rise-	in-mile	500
CO-210	SV20170801	0.9	12,967.41	Pipe Rise-	in-mile	500
CO-211	SV20171701	0.9	13,246.47	Pipe Rise-	in-mile	500
CO-212	SV20171703	0.9	13,619.07	Pipe Rise-	in-mile	500
CO-214	SV19179701	0.9	13,886.24	Pipe Rise-	in-mile	500
CO-215	SV19178703	1.15	12,813.90	Pipe Rise-	in-mile	500
CO-216	SV19178601	0.9	22,721.01	Pipe Rise-	in-mile	500
CO-217	SV19178502	0.9	22,290.86	Pipe Rise-	in-mile	500
CO-218	SV20165405	0.65	4,872.25	Pipe Rise-	in-mile	500
CO-219	SV20164402	0.65	5,323.33	Pipe Rise-	in-mile	500
CO-220	ST20164401	0.95	6,789.38	Pipe Rise-	in-mile	500
CO-221	SV20163301	0.95	3,614.58	Pipe Rise-	in-mile	500
CO-222	SV20162403	0.95	3,449.86	Pipe Rise-	in-mile	500
CO-223	SV201160402	0.95	4,215.46	Pipe Rise-	in-mile	500
CO-224	SV19169501	0.95	4,091.95	Pipe Rise-	in-mile	500
CO-226	SV19168504	0.95	3,130.57	Pipe Rise-	in-mile	500
CO-227	SV19168506	0.95	7,145.19	Pipe Rise-	in-mile	500
CO-228	SV19168602	0.9	4,378.15	Pipe Rise-	in-mile	500
CO-229	SV19168702	0.9	6,634.11	Pipe Rise-	in-mile	500
CO-230	SV19167702	0.9	6,377.97	Pipe Rise-	in-mile	500
CO-231	SV19166803	0.9	8,045.25	Pipe Rise-	in-mile	500
CO-232	SV19165903	0.9	4,300.82	Pipe Rise-	in-mile	500
CO-233	SV19176001	0.9	3,246.55	Pipe Rise-	in-mile	500
CO-234	SV19175101	0.9	4,505.69	Pipe Rise-	in-mile	500
CO-235	SV19175201	0.9	6,162.79	Pipe Rise-	in-mile	500
CO-236	SV19174304	1	9,703.61	Pipe Rise-	in-mile	500
CO-237	SV19174402	1	2,492.08	Pipe Rise-	in-mile	500
CO-238	SV19170502	0.8	2,978.68	Pipe Rise-	in-mile	500
CO-239	SV19170505	0.7	3,186.14	Pipe Rise-	in-mile	500
CO-240	SV19170602	0.9	9,154.42	Pipe Rise-	in-mile	500
CO-241	SV90768401	0.9	9,348.15	Pipe Rise-	in-mile	500
CO-242	SV91765001	0.9	10,041.45	Pipe Rise-	in-mile	500
CO-243	SV92750601	0.9	10,035.09	Pipe Rise-	in-mile	500
CO-244	SV92754101	0.9	11,410.78	Pipe Rise-	in-mile	500
CO-245	SV92756101	0.9	12,967.44	Pipe Rise-	in-mile	500
CO-246	SV19173406	1.1	13,062.11	Pipe Rise-	in-mile	500
CO-247	SV19173403	1.1	4,191.91	Pipe Rise-	in-mile	500

CO-248	SV19173401	1.1	4,876.89	Pipe Rise-	in-mile	500
CO-249	SV91771101	0.7	7,290.15	Pipe Rise-	in-mile	500
CO-250	ST19171602	0.7	7,340.34	Pipe Rise-	in-mile	500
CO-251	SV92752901	0.9	8,112.78	Pipe Rise-	in-mile	500
CO-252	SV95581608	0.9	961.86	Pipe Rise-	in-mile	500
CO-253	SV95583701	0.9	5,107.74	Pipe Rise-	in-mile	500
CO-254	SV19155901	0.9	5,438.25	Pipe Rise-	in-mile	500
CO-255	SV19156901	0.9	5,443.23	Pipe Rise-	in-mile	500
CO-256	SV19156905	0.9	4,277.64	Pipe Rise-	in-mile	500
CO-257	SV19167002	0.9	3,838.68	Pipe Rise-	in-mile	500
CO-258	SV19167005	0.9	4,764.04	Pipe Rise-	in-mile	500
CO-259	SV19168002	0.9	5,240.49	Pipe Rise-	in-mile	500
CO-260	SV19168004	0.9	6,176.52	Pipe Rise-	in-mile	500
CO-261	SV19169003	0.9	6,043.74	Pipe Rise-	in-mile	500
CO-262	SV20160101	0.9	6,534.46	Pipe Rise-	in-mile	500
CO-263	SV20160106	0.9	7,095.14	Pipe Rise-	in-mile	500
CO-265	SV20162105	0.9	6,331.41	Pipe Rise-	in-mile	500
CO-266	SV20163101	0.9	6,892.74	Pipe Rise-	in-mile	500
CO-267	SV20163103	0.9	5,724.37	Pipe Rise-	in-mile	500
CO-268	ST20164101	0.9	4,689.77	Pipe Rise-	in-mile	500
CO-269	SV20165101	0.9	9,423.41	Pipe Rise-	in-mile	500
CO-270	SV20165103	0.9	8,087.89	Pipe Rise-	in-mile	500
CO-271	SV20166102	0.9	4,003.83	Pipe Rise-	in-mile	500
CO-272	SV20166204	0.9	7,275.34	Pipe Rise-	in-mile	500
CO-273	SV20167301	0.9	7,003.50	Pipe Rise-	in-mile	500
CO-274	SV20166306	0.9	6,548.73	Pipe Rise-	in-mile	500
CO-275	SV20166305	0.9	7,065.40	Pipe Rise-	in-mile	500
CO-276	SV20165401	0.9	10,074.29	Pipe Rise-	in-mile	500
CO-277	ST20165401	0.9	8,823.92	Pipe Rise-	in-mile	500
CO-278	SV20165404	0.9	5,823.95	Pipe Rise-	in-mile	500
CO-279	SV05630701	0.9	3,816.33	Pipe Rise-	in-mile	500
CO-281	SV00613701	0.9	2,549.70	Pipe Rise-	in-mile	500
CO-282	SV20160204	0.9	6,046.95	Pipe Rise-	in-mile	500
CO-283	SV20161205	0.9	5,984.14	Pipe Rise-	in-mile	500
CO-284	SV20162202	0.9	6,413.25	Pipe Rise-	in-mile	500
CO-285	SV20163201	0.9	5,605.00	Pipe Rise-	in-mile	500
CO-286	SV20163203	0.9	12,749.88	Pipe Rise-	in-mile	500
CO-287	SV20163207	0.9	7,342.84	Pipe Rise-	in-mile	500
CO-288	SV20164202	0.9	9,168.97	Pipe Rise-	in-mile	500
CO-289	SV20164204	0.9	10,542.24	Pipe Rise-	in-mile	500
CO-290	SV19168206	0.9	3,686.45	Pipe Rise-	in-mile	500
CO-291	SV19168207	0.9	3,177.30	Pipe Rise-	in-mile	500
CO-292	SV19169201	0.9	4,980.68	Pipe Rise-	in-mile	500
CO-295	SV19166506	0.9	5,020.84	Pipe Rise-	in-mile	500
CO-296	SV19166508	0.9	2,871.55	Pipe Rise-	in-mile	500
CO-297	SV19167405	0.9	2,923.14	Pipe Rise-	in-mile	500
CO-298	SV97647301	0.9	3,199.37	Pipe Rise-	in-mile	500
CO-299	SV97648001	0.9	3,566.23	Pipe Rise-	in-mile	500
CO-300	SV19168303	0.9	2,490.30	Pipe Rise-	in-mile	500
CO-301	SV19168311	0.9	4,873.67	Pipe Rise-	in-mile	500
CO-302	SV19169301	0.9	4,655.49	Pipe Rise-	in-mile	500
CO-303	SV19169205	0.9	1,637.99	Pipe Rise-	in-mile	500
CO-304	SV20160202	0.9	4,293.55	Pipe Rise-	in-mile	500
CO-305	SV20160206	0.9	6,414.36	Pipe Rise-	in-mile	500
CO-306	SV20161203	0.9	6,545.39	Pipe Rise-	in-mile	500
CO-307	SV20162205	0.9	5,633.75	Pipe Rise-	in-mile	500

CO-308	SV20163208	0.9	4,236.93	Pipe Rise-	in-mile	500
CO-309	SV19166404	0.9	3,168.58	Pipe Rise-	in-mile	500
CO-310	SV97641001	0.9	3,807.35	Pipe Rise-	in-mile	500
CO-311	SV19167303	0.9	4,125.29	Pipe Rise-	in-mile	500
CO-312	SV19167203	0.9	5,757.95	Pipe Rise-	in-mile	500
CO-313	SV96618601	0.9	7,280.16	Pipe Rise-	in-mile	500
CO-314	SV19167101	0.9	3,630.89	Pipe Rise-	in-mile	500
CO-315	SV19167103	0.9	2,009.05	Pipe Rise-	in-mile	500
CO-316	SV19168202	0.9	10,785.92	Pipe Rise-	in-mile	500
CO-318	SV98614401	0.9	10,796.61	Pipe Rise-	in-mile	500
CO-319	SV19168306	0.9	9,208.53	Pipe Rise-	in-mile	500
CO-320	ST19168401	0.9	8,744.36	Pipe Rise-	in-mile	500
CO-321	SV19169401	0.95	8,755.94	Pipe Rise-	in-mile	500
CO-322	SV19167409	0.9	9,474.89	Pipe Rise-	in-mile	500
CO-323	SV19167501	0.9	9,621.75	Pipe Rise-	in-mile	500
CO-324	SV19168501	1	9,943.51	Pipe Rise-	in-mile	500
CO-325	SV19166509	0.9	10,231.54	Pipe Rise-	in-mile	500
CO-326	SV19167502	0.9	9,527.09	Pipe Rise-	in-mile	500
CO-327	SV19167503	0.9	9,418.44	Pipe Rise-	in-mile	500
CO-328	SV19168603	1	1,682.88	Pipe Rise-	in-mile	500
CO-329	SV21190401	0.9	4,811.37	Pipe Rise-	in-mile	500
CO-330	SV21190302	0.9	5,908.61	Pipe Rise-	in-mile	500
CO-331	SV20199301	0.9	5,282.08	Pipe Rise-	in-mile	500
CO-332	SV20199303	0.9	5,351.37	Pipe Rise-	in-mile	500
CO-333	SV20198201	0.9	5,426.75	Pipe Rise-	in-mile	500
CO-334	SV20199101	0.9	6,706.13	Pipe Rise-	in-mile	500
CO-335	SV20199001	0.9	8,789.73	Pipe Rise-	in-mile	500
CO-336	SV20199002	0.9	5,193.09	Pipe Rise-	in-mile	500
CO-337	SV20189902	0.9	7,181.65	Pipe Rise-	in-mile	500
CO-338	SV21180801	0.9	5,199.50	Pipe Rise-	in-mile	500
CO-339	SV21180802	0.9	5,539.38	Pipe Rise-	in-mile	500
CO-340	ST20189901	0.9	5,502.76	Pipe Rise-	in-mile	500
CO-341	SV20189903	0.9	6,401.82	Pipe Rise-	in-mile	500
CO-342	SV20188902	0.95	6,743.52	Pipe Rise-	in-mile	500
CO-343	SV20187901	0.95	6,479.03	Pipe Rise-	in-mile	500
CO-344	SV20187902	0.95	6,341.41	Pipe Rise-	in-mile	500
CO-345	SV20197001	0.9	5,324.89	Pipe Rise-	in-mile	500
CO-346	SV20197002	0.9	6,982.01	Pipe Rise-	in-mile	500
CO-347	SV20196101	0.9	6,628.30	Pipe Rise-	in-mile	500
CO-348	SV20196102	0.9	7,616.65	Pipe Rise-	in-mile	500
CO-349	SV20194101	0.9	7,782.13	Pipe Rise-	in-mile	500
CO-350	SV20194203	0.9	8,320.02	Pipe Rise-	in-mile	500
CO-351	SV20194205	0.9	8,394.73	Pipe Rise-	in-mile	500
CO-353	SV20193402	0.95	9,720.84	Pipe Rise-	in-mile	500
CO-354	SV20193302	0.95	12,287.67	Pipe Rise-	in-mile	500
CO-355	SV20192301	0.8	9,665.33	Pipe Rise-	in-mile	500
CO-356	SV20191401	0.8	11,861.26	Pipe Rise-	in-mile	500
CO-357	SV20191402	0.8	10,206.11	Pipe Rise-	in-mile	500
CO-358	SV20191403	0.8	10,188.46	Pipe Rise-	in-mile	500
CO-359	SV20191201	0.8	11,186.72	Pipe Rise-	in-mile	500
CO-360	SV20190202	0.8	12,977.51	Pipe Rise-	in-mile	500
CO-364	SV191998101	0.8	12,909.05	Pipe Rise-	in-mile	500
CO-365	SV19198102	0.8	10,705.21	Pipe Rise-	in-mile	500
CO-367	SV19197203	0.9	9,139.11	Pipe Rise-	in-mile	500
CO-368	SV19197204	1.1	8,035.13	Pipe Rise-	in-mile	500
CO-369	SV19197103	0.9	9,850.02	Pipe Rise-	in-mile	500

CO-370	SV19188901	0.9	9,924.75	Pipe Rise-	in-mile	500
CO-371	SV19189902	1	13,515.04	Pipe Rise-	in-mile	500
CO-372	SV19189903	1.1	10,915.26	Pipe Rise-	in-mile	500
CO-373	SV19188802	0.9	10,194.29	Pipe Rise-	in-mile	500
CO-375	SV19186802	0.9	10,726.44	Pipe Rise-	in-mile	500
CO-377	SV19186903	0.44	9,884.58	Pipe Rise-	in-mile	500
CO-378	SV19196008	0.7	3,437.54	Pipe Rise-	in-mile	500
CO-379	SV19196010	0.9	4,698.97	Pipe Rise-	in-mile	500
CO-380	SV19187903	0.7	3,836.22	Pipe Rise-	in-mile	500
CO-381	SV19187905	0.7	3,286.44	Pipe Rise-	in-mile	500
CO-382	SV19188903	0.7	12,469.36	Pipe Rise-	in-mile	500
CO-383	SV19188906	0.9	12,627.81	Pipe Rise-	in-mile	500
CO-384	SV19195104	0.9	9,874.26	Pipe Rise-	in-mile	500
CO-385	SV19196002	0.9	979.45	Pipe Rise-	in-mile	500
CO-386	ST19196002	0.9	8,276.97	Pipe Rise-	in-mile	500
CO-387	SV05968701	0.9	3,786.79	Pipe Rise-	in-mile	500
CO-388	SV05961601	0.9	3,746.14	Pipe Rise-	in-mile	500
CO-389	SV04963901	0.94	3,793.27	Pipe Rise-	in-mile	500
CO-390	SV03966801	0.9	5,666.08	Pipe Rise-	in-mile	500
CO-391	SV03971001	0.9	5,797.99	Pipe Rise-	in-mile	500
CO-392	SV20192704	0.9	6,592.18	Pipe Rise-	in-mile	500
CO-393	SV20191701	0.9	4,147.62	Pipe Rise-	in-mile	500
CO-394	SV20191703	0.9	3,282.24	Pipe Rise-	in-mile	500
CO-395	SV20190702	0.9	7,150.96	Pipe Rise-	in-mile	500
CO-396	SV19199709	0.9	11,039.72	Pipe Rise-	in-mile	500
CO-397	SV19199710	0.9	5,030.11	Pipe Rise-	in-mile	500
CO-399	SV19198606	0.9	3,750.28	Pipe Rise-	in-mile	500
CO-400	SV19197605	0.9	4,743.18	Pipe Rise-	in-mile	500
CO-401	SV19196701	0.9	8,331.31	Pipe Rise-	in-mile	500
CO-402	ST19196601	0.9	13,110.59	Pipe Rise-	in-mile	500
CO-403	SV97960501	0.9	13,085.91	Pipe Rise-	in-mile	500
CO-404	SV19197602	0.9	13,080.34	Pipe Rise-	in-mile	500
CO-405	SV19197503	2.86	13,816.14	Pipe Rise-	in-mile	500
CO-406	SV96949901	0.9	10,565.12	Pipe Rise-	in-mile	500
CO-407	SV19196406	0.9	14,828.75	Pipe Rise-	in-mile	500
CO-410	SV96926901	1.05	19,765.57	Pipe Rise-	in-mile	500
CO-411	SV98962201	0.9	6,353.10	Pipe Rise-	in-mile	500
CO-412	SV98952801	0.9	8,272.14	Pipe Rise-	in-mile	500
CO-413	SV19199501	0.9	8,231.39	Pipe Rise-	in-mile	500
CO-414	SV19199502	0.9	8,515.92	Pipe Rise-	in-mile	500
CO-415	SV19199401	0.9	9,137.66	Pipe Rise-	in-mile	500
CO-416	SV19199403	0.9	10,215.39	Pipe Rise-	in-mile	500
CO-417	SV19199405	0.9	11,417.44	Pipe Rise-	in-mile	500
CO-418	SV19199302	0.9	10,751.88	Pipe Rise-	in-mile	500
CO-419	SV19199304	0.9	10,821.16	Pipe Rise-	in-mile	500
CO-420	SV20190206	1	11,549.85	Pipe Rise-	in-mile	500
CO-421	SV19199406	0.9	2,928.63	Pipe Rise-	in-mile	500
CO-422	SV20190610	0.9	7,063.25	Pipe Rise-	in-mile	500
CO-423	SV20191505	0.9	7,162.14	Pipe Rise-	in-mile	500
CO-424	SV20191404	1	8,655.62	Pipe Rise-	in-mile	500
CO-425	SV20192506	0.9	9,481.11	Pipe Rise-	in-mile	500
CO-426	SV20182508	0.9	8,045.82	Pipe Rise-	in-mile	500
CO-427	SV20191407	1	6,347.90	Pipe Rise-	in-mile	500
CO-428	SV20193403	1	3,930.97	Pipe Rise-	in-mile	500
CO-430	SV19199605	0.9	1,573.80	Pipe Rise-	in-mile	500
CO-431	SV19199607	0.9	1,458.86	Pipe Rise-	in-mile	500

CO-432	SV00965301	0.9	2,087.08	Pipe Rise-	in-mile	500
CO-433	SV20190605	0.9	4,770.38	Pipe Rise-	in-mile	500
CO-434	SV20191502	0.9	5,928.77	Pipe Rise-	in-mile	500
CO-435	SV20192504	0.9	6,764.58	Pipe Rise-	in-mile	500
CO-436	SV20193503	0.9	7,695.21	Pipe Rise-	in-mile	500
CO-438	SV20194502	0.9	3,165.07	Pipe Rise-	in-mile	500
CO-440	SV20194406	0.9	3,964.49	Pipe Rise-	in-mile	500
CO-441	SV20195306	0.9	16,316.43	Pipe Rise-	in-mile	500
CO-442	SV20195312	0.95	15,003.00	Pipe Rise-	in-mile	500
CO-443	SV20194501	0.9	14,554.09	Pipe Rise-	in-mile	500
CO-445	SV20194407	0.9	10,387.77	Pipe Rise-	in-mile	500
CO-446	SV20194409	0.95	9,878.96	Pipe Rise-	in-mile	500
CO-447	SV20194605	0.9	9,049.35	Pipe Rise-	in-mile	500
CO-448	SV20194504	0.9	9,207.03	Pipe Rise-	in-mile	500
CO-449	SV20199271(	0.9	8,680.18	Pipe Rise-	in-mile	500
CO-450	SV20192603	0.9	8,020.09	Pipe Rise-	in-mile	500
CO-451	SV20190704	0.9	7,455.25	Pipe Rise-	in-mile	500
CO-452	SV20191603	0.9	7,517.38	Pipe Rise-	in-mile	500
CO-453	SV20192801	0.9	2,651.75	Pipe Rise-	in-mile	500
CO-455	SV20192709	0.9	5,792.50	Pipe Rise-	in-mile	500
CO-456	SV20192707	0.9	2,909.01	Pipe Rise-	in-mile	500
CO-457	SV20193703	0.9	5,988.78	Pipe Rise-	in-mile	500
CO-458	SV04971401	0.94	7,682.54	Pipe Rise-	in-mile	500
CO-459	SV01986301	0.9	3,038.30	Pipe Rise-	in-mile	500
CO-460	SV20190804	0.9	4,160.05	Pipe Rise-	in-mile	500
CO-461	SV19199801	0.9	6,126.74	Pipe Rise-	in-mile	500
CO-462	SV99972501	0.9	5,852.40	Pipe Rise-	in-mile	500
CO-463	SV19199708	0.9	5,330.64	Pipe Rise-	in-mile	500
CO-464	SV19198601	0.9	4,990.35	Pipe Rise-	in-mile	500
CO-465	SV19198604	0.9	7,779.90	Pipe Rise-	in-mile	500
CO-466	SV98977501	0.9	867.2	Pipe Rise-	in-mile	500
CO-467	SV98979501	0.9	588	Pipe Rise-	in-mile	500
CO-468	SV98979501	0.9	897.22	Pipe Rise-	in-mile	500
CO-469	ST19199702	0.9	956.14	Pipe Rise-	in-mile	500
CO-470	SV00002001	0.9	3,547.60	Pipe Rise-	in-mile	500
CO-471	SV00993301	0.9	3,551.66	Pipe Rise-	in-mile	500
CO-472	SV00992101	0.9	3,546.10	Pipe Rise-	in-mile	500
CO-473	SV00993001	0.9	4,188.39	Pipe Rise-	in-mile	500
CO-474	SV00996101	0.9	5,950.91	Pipe Rise-	in-mile	500
CO-475	SV00983401	0.9	6,690.87	Pipe Rise-	in-mile	500
CO-476	SV19199710	0.9	1,408.85	Pipe Rise-	in-mile	500
CO-477	SV20190607	0.9	1,500.60	Pipe Rise-	in-mile	500
CO-478	SV19197403	0.9	963.55	Pipe Rise-	in-mile	500
CO-479	SV19197404	0.9	7,443.80	Pipe Rise-	in-mile	500
CO-480	SV19197301	0.9	7,286.28	Pipe Rise-	in-mile	500
CO-481	SV19197303	0.9	8,544.00	Pipe Rise-	in-mile	500
CO-482	SV19197206	1	9,526.58	Pipe Rise-	in-mile	500
CO-483	SV19195602	0.9	1,222.37	Pipe Rise-	in-mile	500
CO-484	SV19195604	0.9	9,583.11	Pipe Rise-	in-mile	500
CO-485	SV95957401	0.9	10,453.00	Pipe Rise-	in-mile	500
CO-486	SV95948701	0.9	10,953.24	Pipe Rise-	in-mile	500
CO-487	SV95948401	0.9	12,934.75	Pipe Rise-	in-mile	500
CO-488	SV96931901	0.9	13,539.58	Pipe Rise-	in-mile	500
CO-489	SV94946901	0.9	1,603.58	Pipe Rise-	in-mile	500
CO-490	SV94965001	0.9	8,017.40	Pipe Rise-	in-mile	500
CO-491	SV94957601	0.9	8,003.70	Pipe Rise-	in-mile	500

CO-492	SV19195503	0.9	6,433.21	Pipe Rise-	in-mile	500
CO-493	SV95945701	0.9	9,835.18	Pipe Rise-	in-mile	500
CO-494	SV93959101	0.9	7,014.08	Pipe Rise-	in-mile	500
CO-495	SV94946901	0.9	7,764.95	Pipe Rise-	in-mile	500
CO-496	SV19191401	0.9	525.17	Pipe Rise-	in-mile	500
CO-497	SV19192501	0.9	3,675.08	Pipe Rise-	in-mile	500
CO-498	SV92956501	0.9	3,703.66	Pipe Rise-	in-mile	500
CO-499	SV93951601	0.9	4,395.65	Pipe Rise-	in-mile	500
CO-500	SV93966001	0.9	4,398.51	Pipe Rise-	in-mile	500
CO-501	SV94960401	0.9	4,434.59	Pipe Rise-	in-mile	500
CO-502	SV19194601	0.9	4,546.98	Pipe Rise-	in-mile	500
CO-503	SV19194602	0.9	4,935.03	Pipe Rise-	in-mile	500
CO-504	SV19194501	0.9	4,413.54	Pipe Rise-	in-mile	500
CO-505	SV19193504	0.9	8,049.40	Pipe Rise-	in-mile	500
CO-506	SV94941601	0.9	10,778.84	Pipe Rise-	in-mile	500
CO-507	SV19194404	0.9	11,282.43	Pipe Rise-	in-mile	500
CO-508	SV94944201	0.9	11,608.43	Pipe Rise-	in-mile	500
CO-511	SV95931401	0.9	12,284.74	Pipe Rise-	in-mile	500
CO-512	SV19195302	0.9	12,515.72	Pipe Rise-	in-mile	500
CO-513	SV19195204	0.9	11,182.73	Pipe Rise-	in-mile	500
CO-514	SV19196102	0.9	11,436.67	Pipe Rise-	in-mile	500
CO-515	SV19196104	0.9	6,260.15	Pipe Rise-	in-mile	500
CO-516	SV19196005	0.9	16,346.58	Pipe Rise-	in-mile	500
CO-517	SV19196006	0.9	9,109.10	Pipe Rise-	in-mile	500
CO-518	SV19197003	0.9	8,770.07	Pipe Rise-	in-mile	500
CO-519	SV19187902	0.9	6,873.05	Pipe Rise-	in-mile	500
CO-520	SV19193501	0.9	5,447.01	Pipe Rise-	in-mile	500
CO-521	ST19193402	0.9	6,010.96	Pipe Rise-	in-mile	500
CO-522	SV19193403	0.9	8,667.53	Pipe Rise-	in-mile	500
CO-523	SV19194301	0.9	8,930.60	Pipe Rise-	in-mile	500
CO-524	SV19194303	0.9	10,165.29	Pipe Rise-	in-mile	500
CO-525	SV19194201	0.9	10,736.30	Pipe Rise-	in-mile	500
CO-526	SV19194204	0.9	13,973.55	Pipe Rise-	in-mile	500
CO-527	SV93946101	0.9	6,344.50	Pipe Rise-	in-mile	500
CO-529	SV93936201	0.9	8,114.90	Pipe Rise-	in-mile	500
CO-530	SV93938001	0.9	8,784.02	Pipe Rise-	in-mile	500
CO-531	SV93926501	0.9	11,245.71	Pipe Rise-	in-mile	500
CO-532	SV94920401	0.9	11,227.42	Pipe Rise-	in-mile	500
CO-535	SV92929801	0.9	7,258.03	Pipe Rise-	in-mile	500
CO-537	SV93921501	0.9	1,734.39	Pipe Rise-	in-mile	500
CO-538	SV93925201	0.9	5,243.62	Pipe Rise-	in-mile	500
CO-539	SV92956401	0.9	838.29	Pipe Rise-	in-mile	500
CO-540	SV92944801	0.9	1,350.20	Pipe Rise-	in-mile	500
CO-541	SV92948801	0.9	1,851.43	Pipe Rise-	in-mile	500
CO-542	SV93946301	0.9	1,318.35	Pipe Rise-	in-mile	500
CO-543	SV19192401	0.9	3,280.38	Pipe Rise-	in-mile	500
CO-544	SV19192403	0.9	5,108.33	Pipe Rise-	in-mile	500
CO-545	SV92931201	0.9	6,648.95	Pipe Rise-	in-mile	500
CO-546	SV92927801	0.9	9,425.33	Pipe Rise-	in-mile	500
CO-547	SV92927601	0.9	9,842.07	Pipe Rise-	in-mile	500
CO-548	SV19192205	0.9	9,909.14	Pipe Rise-	in-mile	500
CO-549	SV19192207	0.9	10,772.91	Pipe Rise-	in-mile	500
CO-552	SV92935801	0.9	4,067.34	Pipe Rise-	in-mile	500
CO-553	SV93932701	0.9	4,912.68	Pipe Rise-	in-mile	500
CO-554	SV92939001	0.9	5,905.65	Pipe Rise-	in-mile	500
CO-555	SV18197101	0.9	469.31	Pipe Rise-	in-mile	500

CO-556	SV18197102	0.9	1,117.05	Pipe Rise-	in-mile	500
CO-557	SV86905501	0.9	1,098.57	Pipe Rise-	in-mile	500
CO-558	SV18196006	0.9	3,950.94	Pipe Rise-	in-mile	500
CO-559	SV18196007	0.9	4,792.85	Pipe Rise-	in-mile	500
CO-560	SV18185906	0.9	6,181.26	Pipe Rise-	in-mile	500
CO-561	SV18185905	0.9	5,785.98	Pipe Rise-	in-mile	500
CO-562	SV18185802	0.9	6,586.78	Pipe Rise-	in-mile	500
CO-563	ST18185801	0.9	6,763.28	Pipe Rise-	in-mile	500
CO-564	SV85876501	0.9	5,813.93	Pipe Rise-	in-mile	500
CO-565	SV85864901	0.9	6,969.81	Pipe Rise-	in-mile	500
CO-566	SV85860801	0.9	6,760.95	Pipe Rise-	in-mile	500
CO-567	SV84864401	0.9	7,802.41	Pipe Rise-	in-mile	500
CO-568	SV84866401	0.9	6,588.00	Pipe Rise-	in-mile	500
CO-569	SV18184607	0.9	8,094.94	Pipe Rise-	in-mile	500
CO-570	SV18184503	0.9	4,504.21	Pipe Rise-	in-mile	500
CO-571	SV18185503	0.9	2,837.53	Pipe Rise-	in-mile	500
CO-572	SV91868501	0.9	10,488.24	Pipe Rise-	in-mile	500
CO-573	SV19182602	0.9	8,585.36	Pipe Rise-	in-mile	500
CO-574	ST19182502	0.9	6,644.58	Pipe Rise-	in-mile	500
CO-575	SV19183504	0.9	7,241.35	Pipe Rise-	in-mile	500
CO-577	SV19184402	0.9	10,503.00	Pipe Rise-	in-mile	500
CO-578	SV19185401	0.9	11,028.71	Pipe Rise-	in-mile	500
CO-579	SV19185402	0.9	15,901.29	Pipe Rise-	in-mile	500
CO-580	SV19185404	0.9	17,155.31	Pipe Rise-	in-mile	500
CO-581	SV19186402	0.9	17,578.27	Pipe Rise-	in-mile	500
CO-582	ST19187401	0.9	16,893.98	Pipe Rise-	in-mile	500
CO-583	SV19187301	0.9	19,178.79	Pipe Rise-	in-mile	500
CO-584	SV19188303	1.15	18,996.01	Pipe Rise-	in-mile	500
CO-585	SV19186101	0.9	4,873.67	Pipe Rise-	in-mile	500
CO-586	SV19187202	0.9	10,186.26	Pipe Rise-	in-mile	500
CO-587	SV19188305	0.9	7,555.04	Pipe Rise-	in-mile	500
CO-588	SV19188307	1.15	5,902.04	Pipe Rise-	in-mile	500
CO-589	SV19189201	0.9	6,909.37	Pipe Rise-	in-mile	500
CO-590	SV19188308	1.15	7,565.12	Pipe Rise-	in-mile	500
CO-591	SV18186703	0.9	5,355.34	Pipe Rise-	in-mile	500
CO-592	SV18185809	0.9	5,650.32	Pipe Rise-	in-mile	500
CO-593	SV18186805	0.9	3,990.55	Pipe Rise-	in-mile	500
CO-594	SV18186806	0.9	5,343.71	Pipe Rise-	in-mile	500
CO-595	SV18186901	0.75	4,455.70	Pipe Rise-	in-mile	500
CO-596	SV18186904	0.9	4,574.75	Pipe Rise-	in-mile	500
CO-598	SV18188910	0.9	5,438.88	Pipe Rise-	in-mile	500
CO-599	SV18188909	0.9	9,070.68	Pipe Rise-	in-mile	500
CO-600	SV18189801	0.9	5,739.64	Pipe Rise-	in-mile	500
CO-601	SV18189803	0.9	6,757.92	Pipe Rise-	in-mile	500
CO-602	SV18189804	0.9	4,631.99	Pipe Rise-	in-mile	500
CO-603	SV18189806	0.9	4,814.44	Pipe Rise-	in-mile	500
CO-604	SV18189902	0.9	8,890.26	Pipe Rise-	in-mile	500
CO-605	SV18189905	0.9	6,510.35	Pipe Rise-	in-mile	500
CO-606	SV19180902	0.9	7,784.03	Pipe Rise-	in-mile	500
CO-607	SV18186701	0.9	5,822.06	Pipe Rise-	in-mile	500
CO-608	SV18185701	0.9	5,217.96	Pipe Rise-	in-mile	500
CO-609	SV85866401	0.9	4,833.45	Pipe Rise-	in-mile	500
CO-610	SV18184614	0.9	5,167.40	Pipe Rise-	in-mile	500
CO-611	SV20198301	0.9	5,988.65	Pipe Rise-	in-mile	500
CO-612	SV201198304	0.9	5,734.82	Pipe Rise-	in-mile	500
CO-613	SV20198204	0.9	590.02	Pipe Rise-	in-mile	500

CO-614	SV20197204	0.9	594.63	Pipe Rise-	in-mile	500
CO-615	SV20198103	0.9	531.53	Pipe Rise-	in-mile	500
CO-616	SV20198105	0.9	1,929.25	Pipe Rise-	in-mile	500
CO-617	SV20198006	0.9	2,266.83	Pipe Rise-	in-mile	500
CO-618	SV20197201	0.9	7,733.14	Pipe Rise-	in-mile	500
CO-619	SV20197101	0.95	7,792.38	Pipe Rise-	in-mile	500
CO-620	SV20196301	0.9	8,706.99	Pipe Rise-	in-mile	500
CO-621	SV20196303	0.9	8,988.89	Pipe Rise-	in-mile	500
CO-622	SV20195203	0.9	5,130.73	Pipe Rise-	in-mile	500
CO-623	SV20195206	0.9	5,347.54	Pipe Rise-	in-mile	500
CO-624	SV20195104	0.95	5,444.81	Pipe Rise-	in-mile	500
CO-625	SV20193604	0.9	5,895.79	Pipe Rise-	in-mile	500
CO-626	SV20194608	0.9	7,843.80	Pipe Rise-	in-mile	500
CO-627	SV20194610	0.9	3,840.25	Pipe Rise-	in-mile	500
CO-628	SV20195606	0.9	6,374.41	Pipe Rise-	in-mile	500
CO-629	SV20195505	0.9	4,359.61	Pipe Rise-	in-mile	500
CO-630	SV20195404	0.9	8,463.18	Pipe Rise-	in-mile	500
CO-631	SV20196403	0.9	12,214.90	Pipe Rise-	in-mile	500
CO-632	SV20195405	0.9	14,620.71	Pipe Rise-	in-mile	500
CO-634	SV95968801	0.9	6,764.69	Pipe Rise-	in-mile	500
CO-635	SV95969401	0.9	6,765.21	Pipe Rise-	in-mile	500
CO-637	SV96952201	0.9	6,796.11	Pipe Rise-	in-mile	500
CO-638	SV19196405	0.9	8,713.88	Pipe Rise-	in-mile	500
CO-639	SV19196604	0.9	6,546.05	Pipe Rise-	in-mile	500
CO-640	SV19196502	0.9	7,513.33	Pipe Rise-	in-mile	500
CO-641	SV94968601	0.9	9,375.30	Pipe Rise-	in-mile	500
CO-642	SV19188101	0.9	1,273.65	Pipe Rise-	in-mile	500
CO-643	ST19189101	0.9	1,628.03	Pipe Rise-	in-mile	500
CO-644	SV20180201	0.9	5,452.61	Pipe Rise-	in-mile	500
CO-645	SV20180202	1.15	5,513.95	Pipe Rise-	in-mile	500
CO-646	SV20180101	1.15	1,101.77	Pipe Rise-	in-mile	500
CO-647	SV19189001	0.9	5,465.62	Pipe Rise-	in-mile	500
CO-648	SV19189004	1.15	5,269.61	Pipe Rise-	in-mile	500
CO-649	SV19179901	1.15	1,152.41	Pipe Rise-	in-mile	500
CO-650	SV19179902	1.15	7,587.72	Pipe Rise-	in-mile	500
CO-651	SV20170803	1.15	7,363.66	Pipe Rise-	in-mile	500
CO-653	SV19177901	0.9	7,788.16	Pipe Rise-	in-mile	500
CO-654	SV19177802	0.9	9,457.63	Pipe Rise-	in-mile	500
CO-655	SV19178802	1.15	7,237.82	Pipe Rise-	in-mile	500
CO-656	SV19177703	0.65	2,921.66	Pipe Rise-	in-mile	500
CO-657	SV19177705	1.15	3,091.55	Pipe Rise-	in-mile	500
CO-658	SV19184806	1.15	8,190.58	Pipe Rise-	in-mile	500
CO-659	SV19185603	0.9	1,092.02	Pipe Rise-	in-mile	500
CO-660	SV19185707	1.15	1,101.00	Pipe Rise-	in-mile	500
CO-661	SV19185501	0.9	637.91	Pipe Rise-	in-mile	500
CO-662	SV19185602	1.15	950.02	Pipe Rise-	in-mile	500
CO-663	SV19186501	0.9	618.87	Pipe Rise-	in-mile	500
CO-664	SV19187503	1.15	967.48	Pipe Rise-	in-mile	500
CO-665	SV19170501	0.9	1,894.98	Pipe Rise-	in-mile	500
CO-666	SV191752101	0.9	1,596.76	Pipe Rise-	in-mile	500
CO-667	SV91756101	0.9	2,184.61	Pipe Rise-	in-mile	500
CO-668	SV19170401	0.9	5,032.66	Pipe Rise-	in-mile	500
CO-669	SV90746601	0.9	6,961.59	Pipe Rise-	in-mile	500
CO-670	SV19170404	0.9	8,156.64	Pipe Rise-	in-mile	500
CO-671	SV19171301	0.9	9,299.24	Pipe Rise-	in-mile	500
CO-672	ST19171302	0.9	8,987.34	Pipe Rise-	in-mile	500

CO-673	SV19172304	0.9	9,234.61	Pipe Rise-	in-mile	500
CO-674	SV19172401	0.9	10,442.66	Pipe Rise-	in-mile	500
CO-675	SV19173404	1.1	8,265.23	Pipe Rise-	in-mile	500
CO-676	SV19170201	0.9	8,010.77	Pipe Rise-	in-mile	500
CO-677	SV19171201	0.9	8,664.71	Pipe Rise-	in-mile	500
CO-678	SV19171205	0.9	9,845.79	Pipe Rise-	in-mile	500
CO-679	SV19172203	0.9	9,464.31	Pipe Rise-	in-mile	500
CO-680	SV19172302	0.9	8,624.38	Pipe Rise-	in-mile	500
CO-681	ST19173302	1	8,305.24	Pipe Rise-	in-mile	500
CO-682	SV19172101	0.9	2,248.29	Pipe Rise-	in-mile	500
CO-683	ST19173013	0.9	1,459.06	Pipe Rise-	in-mile	500
CO-684	ST19173102	0.9	2,892.48	Pipe Rise-	in-mile	500
CO-685	SV19174101	0.9	2,270.27	Pipe Rise-	in-mile	500
CO-687	SV19174101	0.9	2,327.97	Pipe Rise-	in-mile	500
CO-688	SV19174103	1	2,529.60	Pipe Rise-	in-mile	500
CO-689	SV19173001	0.9	9,099.44	Pipe Rise-	in-mile	500
CO-690	SV19174001	0.9	7,763.15	Pipe Rise-	in-mile	500
CO-691	SV19174002	0.9	9,007.20	Pipe Rise-	in-mile	500
CO-692	ST19175001	0.9	8,794.15	Pipe Rise-	in-mile	500
CO-693	SV19175005	1	9,085.78	Pipe Rise-	in-mile	500
CO-694	SV19164901	0.9	9,467.34	Pipe Rise-	in-mile	500
CO-695	ST19164902	0.9	8,861.74	Pipe Rise-	in-mile	500
CO-696	SV19165901	0.9	9,654.11	Pipe Rise-	in-mile	500
CO-697	SV19165902	1	9,464.37	Pipe Rise-	in-mile	500
CO-698	SV19164801	0.9	10,307.43	Pipe Rise-	in-mile	500
CO-699	SV19166804	0.9	10,254.49	Pipe Rise-	in-mile	500
CO-700	ST19165802	0.9	10,445.47	Pipe Rise-	in-mile	500
CO-701	SV19166804	1	1,608.96	Pipe Rise-	in-mile	500
CO-702	SV19164701	0.9	7,450.87	Pipe Rise-	in-mile	500
CO-703	SV19165703	50.9	7,127.70	Pipe Rise-	in-mile	500
CO-704	SV19166704	0.9	11,042.33	Pipe Rise-	in-mile	500
CO-705	SV19166603	0.9	6,759.98	Pipe Rise-	in-mile	500
CO-706	SV19166602	0.9	9,108.40	Pipe Rise-	in-mile	500
CO-707	SV97674201	1	14,557.60	Pipe Rise-	in-mile	500
CO-708	SV19167307	0.9	810.23	Pipe Rise-	in-mile	500
CO-709	SV19166404	0.9	2,629.20	Pipe Rise-	in-mile	500
CO-710	SV19166503	0.9	3,731.60	Pipe Rise-	in-mile	500
CO-712	SV20198004	0.9	1,678.88	Pipe Rise-	in-mile	500
CO-713	SV20198102	0.9	2,312.52	Pipe Rise-	in-mile	500
CO-714	SV20197003	0.95	1,533.55	Pipe Rise-	in-mile	500
CO-715	SV20195501	0.9	9,864.09	Pipe Rise-	in-mile	500
CO-716	SV20195402	0.9	9,633.64	Pipe Rise-	in-mile	500
CO-717	SV18188904	0.9	1,072.04	Pipe Rise-	in-mile	500
CO-720	SV18196101	0.9	5,301.60	Pipe Rise-	in-mile	500
CO-722	SV19187402	0.9	3,802.92	Pipe Rise-	in-mile	500
CO-723	SV19188404	0.95	4,207.58	Pipe Rise-	in-mile	500
CO-724	SV20196308	0.9	944.37	Pipe Rise-	in-mile	500
CO-725	SV96948501	0.9	1,399.07	Pipe Rise-	in-mile	500
CO-726	SV19171801	0.9	6,424.66	Pipe Rise-	in-mile	500
CO-727	SV90778801	0.9	5,694.03	Pipe Rise-	in-mile	500
CO-728	SV18187103	0.9	3,373.98	Pipe Rise-	in-mile	500
CO-730	SV86905001	0.65	7,402.03	Pipe Rise-	in-mile	500
CO-731	SV18196104	0.9	7,118.02	Pipe Rise-	in-mile	500
CO-734	SV02620601	0.9	6,329.05	Pipe Rise-	in-mile	500
CO-735	SV91917701	0.9	11,333.75	Pipe Rise-	in-mile	500
CO-736	SV91914801	0.9	11,212.43	Pipe Rise-	in-mile	500

CO-737	SV92802501	0.9	21,607.39	Pipe Rise-	in-mile	500
CO-738	SV19172903	0.9	21,512.02	Pipe Rise-	in-mile	500
CO-739	SV92798101	0.9	15,245.82	Pipe Rise-	in-mile	500
CO-740	SV19175703	0.9	6,114.93	Pipe Rise-	in-mile	500
CO-741	SV96944101	0.9	19,374.96	Pipe Rise-	in-mile	500
CO-742	SV96933601	0.9	19,324.23	Pipe Rise-	in-mile	500
CO-743	ST20194502	0.95	13,878.37	Pipe Rise-	in-mile	500
CO-744	SV20194303	0.95	12,936.84	Pipe Rise-	in-mile	500
CO-745	SV20194401	1	12,534.43	Pipe Rise-	in-mile	500
CO-749	SV19199603	0.9	4,425.44	Pipe Rise-	in-mile	500
CO-750	SV19198605	0.9	4,437.81	Pipe Rise-	in-mile	500
CO-751	SV19187801	1.13	13,855.14	Pipe Rise-	in-mile	500
CO-752	SV19187802	1.1	10,879.24	Pipe Rise-	in-mile	500
CO-753	SV19185401	0.9	6,806.54	Pipe Rise-	in-mile	500
CO-754	SV93849901	0.9	6,967.61	Pipe Rise-	in-mile	500
CO-755	SV92810501	0.7	11,006.40	Pipe Rise-	in-mile	500
CO-756	SV92802801	0.9	10,174.90	Pipe Rise-	in-mile	500
CO-757	SV20170701	1.15	11,087.02	Pipe Rise-	in-mile	500
CO-758	SV19179703	1.15	17,765.76	Pipe Rise-	in-mile	500
CO-761	SV20170904	1.15	13,533.24	Pipe Rise-	in-mile	500
CO-762	SV19169105	0.9	10,517.87	Pipe Rise-	in-mile	500
CO-763	SV19169103	0.7	2,860.98	Pipe Rise-	in-mile	500
CO-764	SV98619801	0.7	912.85	Pipe Rise-	in-mile	500
CO-765	SV19166505	0.9	2,788.65	Pipe Rise-	in-mile	500
CO-766	SV20161102	0.9	8,604.17	Pipe Rise-	in-mile	500
CO-767	SV20161104	0.9	12,694.63	Pipe Rise-	in-mile	500
CO-768	SV20167302	0.9	6,070.55	Pipe Rise-	in-mile	500
CO-769	SV18188904	0.65	1,238.82	Pipe Rise-	in-mile	500
CO-771	SV18187903	0.65	3,844.52	Pipe Rise-	in-mile	500
CO-772	SV18187901	0.65	4,680.75	Pipe Rise-	in-mile	500
CO-773	SV18185203	0.9	12,679.88	Pipe Rise-	in-mile	500
CO-774	SV18185204	0.9	1,381.09	Pipe Rise-	in-mile	500
CO-775	SV8871701	0.9	7,316.69	Pipe Rise-	in-mile	500
CO-776	SV88870601	0.9	7,317.52	Pipe Rise-	in-mile	500
CO-777	SV88826901	0.9	12,086.40	Pipe Rise-	in-mile	500
CO-778	SV88836001	0.9	11,883.93	Pipe Rise-	in-mile	500
CO-779	SV94589901	0.9	1,027.79	Pipe Rise-	in-mile	500
CO-780	SV93932201	0.9	6,631.87	Pipe Rise-	in-mile	500
CO-781	SV93933201	0.9	7,278.99	Pipe Rise-	in-mile	500
CO-782	SV93920601	0.9	7,290.94	Pipe Rise-	in-mile	500
CO-783	SV93933601	0.9	4,720.39	Pipe Rise-	in-mile	500
CO-784	SV93936601	0.9	6,330.80	Pipe Rise-	in-mile	500
CO-785	SV93937501	0.92	7,782.21	Pipe Rise-	in-mile	500
CO-786	SV19196506	0.9	1,798.63	Pipe Rise-	in-mile	500
CO-787	SV95959801	0.9	6,816.34	Pipe Rise-	in-mile	500
CO-788	SV96951701	0.9	6,788.67	Pipe Rise-	in-mile	500
CO-789	SV19176706	0.9	3,131.03	Pipe Rise-	in-mile	500
CO-790	SV19176803	0.9	6,409.76	Pipe Rise-	in-mile	500
CO-791	SV20190204	1	11,677.45	Pipe Rise-	in-mile	500
CO-792	SV19197202	1.05	8,971.58	Pipe Rise-	in-mile	500
CO-794	SV94947001	0.9	9,116.99	Pipe Rise-	in-mile	500
CO-796	SV98962201	0.75	(N/A)	None		0