

**CUPERTINO SANITARY DISTRICT
SANITARY BOARD MEETING
WEDNESDAY, MAY 17, 2023**

AGENDA

The meeting will be held in person at 7:00 p.m. in the Stevens Creek Office Center, Suite 100, 20863 Stevens Creek Boulevard, Cupertino, California and via virtual teleconference.

Anyone interested may attend in person, by phone [call 1 (866) 899 - 4679 Conference Access Code: 251566821], or virtually <https://global.gotomeeting.com/join/251566821>.

1. ROLL CALL

2. PUBLIC COMMENTS

This portion of the meeting is reserved for persons desiring to address the board on any matter not on the agenda. Speakers are limited to three (3) minutes.

All statements requiring a response will be referred to staff for further action. In most cases, state law will prohibit the board from making any decisions with respect to a matter not listed on the agenda.

3. PUBLIC HEARING

- A. CONDUCT A PUBLIC HEARING ON PROPOSED SANITARY SEWER SERVICE CHARGE INCREASE FOR FISCAL YEAR 2023-2024
 - 1. Staff Presentation
 - 2. Open Public Hearing and Receive Testimony
 - 3. Close Public Hearing
 - 4. Board Discussion
 - 5. Ordinance No. 131, Amending Article VII, Sections 7001 through 7003, of the Cupertino Sanitary District Operations Code
 - 6. Resolution No. 1342, Set Public Hearing Date to Collect Sewer Charges on Tax Roll for June 21, 2023

4. CLOSED SESSION

- A. CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
in accordance with government code section Paragraph (1) of Subdivision (d) of Section 54956.9, existing litigation. Name of Case: County Sanitation District 2-3, West Valley Sanitation District, Cupertino Sanitary District, Burbank Sanitary District and the City of Milpitas v. The City of San Jose, The City of Santa Clara and Does 1 through 50 inclusive.

5. MINUTES & BILLS

- A. APPROVAL OF THE MINUTES OF APRIL 19, 2023
- B. APPROVED MINUTES OF APRIL 5, 2023
- C. PAYMENT OF BILLS AND APPROVAL OF FINANCIAL STATEMENT

**CUPERTINO SANITARY DISTRICT
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D. DIRECTOR'S MONTHLY TIMESHEETS

6. CORRESPONDENCE

- A. NORTHPOINT HOA LETTER - PROTEST OF CUSD ORDINANCE NO. 117
- B. CASA EMAIL – SUPPORT REQUESTED-NATIONAL WIPES LEGISLATION
- C. CUPERTINO OUTREACH REQUEST

7. MEETINGS

- A. REGULAR MEETING OF THE SAN JOSE/SANTA CLARA TREATMENT PLANT ADVISORY COMMITTEE (TPAC) TO BE HELD ON THURSDAY, MAY 18, 2023
- B. SANTA CLARA COUNTY SPECIAL DISTRICTS ASSOCIATION (SCCSDA) REGULAR MEETING TO BE HELD ON MONDAY, JUNE 5, 2023
- C. REGULAR MEETING OF THE SAN JOSE/SANTA CLARA TREATMENT PLANT TECHNICAL ADVISORY COMMITTEE (TAC) TO BE HELD ON MONDAY, JUNE 12, 2023
- D. REGULAR MEETING OF THE SAN JOSE/SANTA CLARA TREATMENT PLANT ADVISORY COMMITTEE (TPAC) TO BE HELD ON THURSDAY, JUNE 15, 2023

8. REPORTS

- A. REGULAR MEETING OF THE SAN JOSE/SANTA CLARA TREATMENT PLANT TECHNICAL ADVISORY COMMITTEE (TAC) HELD ON MONDAY, MAY 15, 2023

9. UNFINISHED BUSINESS

- A. ANNUAL LATERAL MAINTENANCE PROGRAM

10. NEW BUSINESS

NONE

11. STAFF REPORT

- A. FUTURE DEVELOPMENT PROJECTS
- B. MAINTENANCE SUMMARY REPORT

12. CALENDAR ITEMS

- A. NEXT REGULAR DISTRICT BOARD MEETING IS TO BE HELD ON WEDNESDAY, JUNE 7, 2023

13. ADJOURNMENT

bporter

From:
Sent: Sunday, April 2, 2023 6:43 PM
To: bporter@cupertinosanitarydistrict.org
Subject: Proposed Sewer Service & Use Charge Rate Increase

Dear District Clerk,

I am a resident of Cupertino residing at xxxxxxxx Road.

I am AGAINST the proposed rate increase for the proposed sewer service and use. It is time that our government get efficient and start running the organization like a business. Every few years you keep asking for the rate increase but never talk about how you are going to CUT COSTS to make your organization more efficient. Thank You.

xxxxxxx

bporter

From:
Sent: Tuesday, April 11, 2023 10:41 AM
To: bporter@cupertinosanitarydistrict.org
Subject: Protest for new sewer rates for single family home with one senior citizen resident

I am retired single senior citizen on Social Security, living alone in single family residential house. I protest the general proposed new Sewer rates PER UNIT. With fixed SS income & rising utility rates (electricity, gas, garbage, water, etc.), it's difficult to keep up with bills. Why don't you offer Senior Citizen discounts since we use less services than a family with children or renters with roommates? (eg. I appreciate the exemptions from school taxes since we don't use public schools anymore)

Please address this in your public hearing for consideration for the elderly trying to stay in own home.
Thank you.

ORDINANCE NO. 131

**AN ORDINANCE OF THE CUPERTINO SANITARY DISTRICT
AMENDING SECTIONS 7301, 7302 AND 7303 OF CHAPTER VII OF
THE CUPERTINO SANITARY DISTRICT OPERATIONS CODE
RELATING TO SEWER SERVICE CHARGES**

The Sanitary Board of the Cupertino Sanitary District, Santa Clara County, California, hereby ordains as follows:

SECTION 1: Sections 7301, 7302, and 7303 in Chapter VII of the Operations Code are amended to read as follows:

7301. CHARGE FOR RESIDENTIAL UNITS:

| | |
|--|----------|
| Single Family Residential – per unit (annual) | \$734.56 |
| Single Family Residential in Pump Station Zone – per unit (annual) | \$807.60 |
| Multi-Family Residential – per unit (annual) | \$558.31 |
| Multi-Family Residential in Pump Station Zone – per unit (annual) | \$613.10 |
| Accessory Dwelling Unit – per unit (annual) | \$542.20 |
| Accessory Dwelling Unit in Pump Station Zone – per unit (annual) | \$596.97 |

Single Family Residential is defined as a parcel containing 1-4 residential units. Multi-Family residential is defined as a parcel containing five or more units. Accessory Dwelling units are defined by local zoning. Units that are served by one or more pump stations are defined as being in the Pump Station Zone.

7302. CHARGES FOR PARTICULAR UNITS:

A. Each Unit (as defined in Section 2109.A) of the particular uses listed below shall be charged Nine Dollars and 81/100th Cents (\$9.81) per year, plus an additional annual service charge per hundred cubic feet (HCF) of sewage discharged, to be determined by the District Manager utilizing water consumption for the months of December, January and February less 10% for irrigation and then annualized. Water consumption, if vacant during these months, will be determined by the District Engineer by reviewing typical monthly wet weather water usages. If water consumption data is not available during December, January, and February, or if water consumption during these months is determined to not be representative of typical use, the District Manager may determine water consumption using other available data, as appropriate. No credit, adjustment or refund shall be made if the premises or any part thereof is vacant unless said premises are disconnected from the sewer system. Additional annual service charges per hundred cubic feet (HCF) for various uses are as follows:

| <u>Type of Use:</u> | <u>Service Charge:</u> |
|---|------------------------|
| Auto Repair Shops & Service Stations | \$6.36 |
| Auto Repair Shops & Service Stations in Pump Station Zone | \$6.99 |
| Car Washes | \$5.17 |
| Domestic Laundry | \$5.59 |
| Domestic Laundry in Pump Station Zone | \$6.11 |
| Machinery Manufacturers | \$9.79 |
| Motels/Hotels without Food Service | \$6.53 |
| Motels/Hotels with Food Service | \$10.79 |
| Retirement Homes with Common Dining | \$10.77 |
| Retirement Homes with Common Dining in Pump Station Zone | \$11.95 |
| Convalescent Hospitals | \$5.96 |
| Convalescent Hospitals in Pump Station Zone | \$6.55 |
| Printing Plants | \$8.99 |
| Restaurants | \$13.15 |
| Restaurants in Pump Station Zone | \$14.41 |
| Retail or Professional Office | \$5.82 |
| Retails or Professional Office in Pump Station Zone | \$6.38 |
| Schools, Colleges, Day Care Facilities | \$6.89 |
| Schools, Colleges, Day Care Facilities in Pump Station Zone | \$7.56 |
| Hand Billing School | \$7.01 |
| Hand Billing Retail | \$6.78 |

- B. Minimum Charge: In no event shall the annual service charge levied upon any Unit of the uses listed in Paragraph A above, be less than seventy-five percent (75%) of the service charge for a Single-Family Unit, as set forth in Section 7301 of this Chapter.
- C. Where different types of use are served by the same water meter, the District Manager shall estimate the quantity of discharge produced by each type of use and calculate the additional service charge applicable to each type of use based upon the estimated discharge from that Unit.
- D. Whenever the District Manager determines that a Unit has been inappropriately classified as one of the use types listed in Paragraph A of this Section, the District Manager may reclassify such Unit to another of the use types listed in Paragraph A of this Section or require that the annual service charge for such Unit be calculated in accordance with the provisions of Section 7303 of this Chapter. Any increase or decrease in the annual service charge for the affected Unit resulting from the reclassification shall be prospective only and implemented on the next regular billing by the District for annual sewer charges. No discharger shall be entitled to a retroactive refund of charges paid, or liable for payment of additional charges, for any period prior to the effective date of the reclassification.

7303. CHARGES FOR ALL OTHER UNITS

A. For each Unit not listed in Section 7302, the annual service charge shall be the sum of the annual Capital Cost Recovery Charge and the annual Maintenance and Operation Cost Recovery Charge, as determined by the District Manager, calculated as follows:

(1) Capital Cost Recovery Charge:

| | |
|---------------------------------|--|
| Infiltration/Inflow (I/I) | \$10.65 per year for each unit; <i>plus</i> |
| Flow | \$459,915.95 per year for each million gallons per day of sewage treatment plant capacity required to treat the sewage discharged from the Unit into the sanitary sewer system; <i>plus</i> |
| Biochemical Oxygen Demand (BOD) | \$67,159.40 per year for each thousand pounds per day of sewage treatment plant capacity required to remove the biochemical oxygen demand contained in sewage discharged from the Unit into the sanitary sewer system; <i>plus</i> |
| Suspended Solids (SS) | \$62,085.49 per year for each thousand pounds per day of sewage treatment plant capacity required to remove the suspended solids contained in the sewage discharged from the Unit into the sanitary sewer system; <i>plus</i> |
| Ammonia (NH ₃) | \$203,797.29 per year for each thousand pounds per day of sewage treatment plant capacity required to remove ammonia contained in the sewage discharge from the Unit into the sanitary sewer system. |

(2) Operation and Maintenance Cost Recovery Charge:

| | |
|---------------------------------|--|
| Flow | \$4,004.18 for each million gallons per year of sewage discharged from the Unit into the sanitary sewer system; <i>plus</i> |
| Biochemical Oxygen Demand (BOD) | \$455.88 for each thousand pounds per year of biochemical oxygen demand discharged from the Unit into the sanitary sewer system; <i>plus</i> |
| Suspended Solids (SS) | \$595.27 for each thousand pounds per year of suspended solids discharged from the Unit into the sanitary sewer system; <i>plus</i> |

Ammonia (NH3)

\$4,914.89 for each thousand pounds per year of ammonia discharged from the Unit into the sanitary sewer system.

- B. In determining the Capital Cost Recovery Charge and the Operation and Maintenance Cost Recovery Charge, the District Manager may utilize information on the content of discharges from particular Units provided by the Treatment Plant, or other source of information deemed by the District Manager to be appropriate, or actual grab samples of such discharges taken by the District, or any combination thereof. The District Manager is authorized to modify the annual service charge from time to time, based upon such information and samples; *provided, however*, any increase or decrease in the annual service charge shall be prospective only and implemented on the next regular billing by the District for annual sewer charges. No discharger shall be entitled to a retroactive refund of charges paid, or liable for payment of additional charges, for any period prior to the effective date of the modification.

- C. Where multiple Units having different flow content are served by the same water meter, the District Manager shall allocate the Capital Cost Recovery Charge and the Operation and Maintenance Cost Recovery Charge between each individual Unit based upon his estimate of the discharge material produced by each Unit.

SECTION 2: Upon adoption, this Ordinance shall be entered into the minutes of the Sanitary Board and a summary of this Ordinance prepared by the District Counsel shall be published once in the Cupertino Courier and the Saratoga News, being newspapers of general circulation in the District. A certified copy of the full text of this Ordinance shall be posted in the office of the District Clerk.

SECTION 3: This Ordinance shall become effective July 1, 2023.

PASSED AND ADOPTED at a regular meeting of the Sanitary Board of the Cupertino Sanitary District held on the 17th day of May 2023, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

* * * * *

President of the Sanitary Board

ATTEST:

Secretary of the Sanitary Board

APPROVED AS TO FORM:

District Counsel

RESOLUTION NO. 1342

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CUPERTINO SANITARY DISTRICT FIXING TIME AND PLACE FOR HEARING ON REPORT ON RATES AND CHARGES AND COLLECTION ON TAX ROLL FOR SERVICE AND FACILITIES FURNISHED BY THE DISTRICT FOR THE FISCAL YEAR 2023-2024 AND PROVIDING FOR NOTICE THEREOF

RESOLVED, by the Sanitary Board of the Cupertino Sanitary District, Santa Clara County, California, that

WHEREAS, this District has elected to have certain rates and charges for services and facilities furnished by it which have become delinquent and the rates and charges for services and facilities furnished by the District for the fiscal year 2023-2024 collected on the tax roll of the County of Santa Clara, State of California, pursuant to Sections 5470 through 5473.11 of the Health and Safety Code of the State of California; and

WHEREAS, pursuant thereto, a report on said rates and charges will be filed with the Secretary of this District on June 16, 2023;

NOW, THEREFORE, IT IS HEREBY ORDERED that Wednesday, the 21st day of June 2023, at the hour of 7:00 o'clock P.M., at the regular meeting place of said Board, Stevens Creek Office Center, 20863 Stevens Creek, Suite 100, Cupertino, California, are hereby fixed as the time and place for hearing on the report on rates and charges and collection on tax roll for services and facilities furnished by the District filed with the Secretary of this District, pursuant to law. The Secretary shall publish notice of said hearing once a week for two successive weeks prior to the date set for said hearing, in both the Cupertino Courier and Saratoga News, both newspapers of general circulation published in the District.

* * * * *

I hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly passed and adopted by the Sanitary Board of the Cupertino Sanitary District, at a meeting thereof held on the 17th day of May 2023, by the following vote:

AYES, Members:

NOES, Members:

ABSENT, Members:

Secretary, Cupertino Sanitary District

APPROVED:

President, Cupertino Sanitary District

CUPERTINO SANITARY DISTRICT BOARD MEETING WEDNESDAY, APRIL 19, 2023

The Sanitary Board of the Cupertino Sanitary District convened this date at 7:00 p.m. This meeting was conducted at the District office at 20863 Stevens Creek Blvd, Suite 100, Cupertino.

1. ROLL CALL:

President Kwok called the meeting to order, and the following proceedings were had to wit: Roll call was taken, with the following members in attendance:

Directors present: William A. Bosworth, Taghi S. Saadati, David A. Doyle, and Patrick S. Kwok. Director Angela S. Chen was on excused absence.

Staff present: District Manager Benjamin Porter, Associate Sanitary Engineer Abby Yung, and Counsel Marc Hynes.

District Consultant: Richard K. Tanaka

Public: None

2. PUBLIC COMMENTS:

There were none.

3. CLOSED SESSION:

President Kwok adjourned the regular meeting session and opened the closed session at 7:04 p.m. Manager Porter, and Engineer Yung were excused from the closed session.

A. Conference with legal counsel – Existing Litigation in accordance with government code section Paragraph (1) of Subdivision (d) of Section 54956.9, existing litigation. Name of Case: County Sanitation District 2-3, West Valley Sanitation District, Cupertino Sanitary District, Burbank Sanitary District, and the City of Milpitas v. The City of San Jose, The City of Santa Clara, and Does 1 through 50 inclusive.

Board action: There was no reportable action.

President Kwok adjourned the closed session at 7:40 p.m. and the regular meeting was called to order. District Manager Porter, and Engineer Yung rejoined the regular meeting.

4. MINUTES & BILLS:

A. On a motion by Director Bosworth, seconded by Director Doyle, by a vote of 4-0-0, the minutes of the regular meeting held on Wednesday, April 5, 2023, were approved as written.

B. By consensus, the Minutes of Wednesday, March 15, 2023, are to be Noted & Filed.

C. The Board reviewed March payable warrants and financial statements. On a motion by Director Saadati, seconded by Director Doyle, by a vote of 4-0-0, the financial statements and payment of bills for March were approved as written.

CUPERTINO SANITARY DISTRICT BOARD MEETING
WEDNESDAY, APRIL 19, 2023

D. The Board members will submit their April timesheets to Manager Porter.

5. CORRESPONDENCE:

- A. The Board reviewed a notice correspondence from Local Agency Formation Commission of Santa Clara County (LAFCO), titled: Adoption of Proposed Budget for Fiscal Year 2023 & Notice of June 7, 2023 LAFCO Public Hearing. It is to be Noted & Filed.
- B. The Board reviewed an email correspondence from California Special Districts Association, titled: Call to Action for AB 557 (Hart) Re: Remote Meetings. It is to be Noted & Filed. The Board reviewed and decided to send a letter of support for the Bill.

6. MEETINGS:

- A. Manager Porter plans to attend the regular meeting of the San Jose/Santa Clara Treatment Plant Technical Advisory Committee (TAC) to be held on Monday, May 8, 2023.
- B. President Kwok plans to attend the regular meeting of the San Jose/Santa Clara Treatment Plant Advisory Committee (TPAC) to be held on Thursday, May 11, 2023.

7. REPORTS:

- A. Manager Porter reported on the regular meeting of the San Jose/Santa Clara Treatment Plant Technical Advisory Committee (TAC) held on Monday, April 10, 2023.
- B. President Kwok reported on the regular meeting of the San Jose/Santa Clara Treatment Plant Advisory Committee (TPAC) held on Thursday, April 13, 2023.

8. UNFINISHED BUSINESS:

- A. The Board continued discussion of Tax Roll calculations and Budget for FY 2022-2023 and FY 2023-2024 which included the irrigation water meters and water loss calculations. No Board action was taken.

9. NEW BUSINESS:

- A. The Board discussed the Lateral Maintenance and Repair Program. Staff is continue the study to address the Board's questions and report back.
- B. The Board reviewed Akel Engineering Amendment for Hydraulic Modeling. On a motion by Director Bosworth, seconded by Director Doyle, by a vote of 4-0-0, the Board approved Amendment No. 2, of providing additional budget of \$70,134 and directed the District Manager to execute the amendment.

10. STAFF REPORTS:

- A. Engineer Yung reported on Future Development Projects.
- B. Manager Porter reported on the Maintenance Summary Report.

CUPERTINO SANITARY DISTRICT BOARD MEETING
WEDNESDAY, APRIL 19, 2023

11. CALENDAR ITEMS:

- A. The next regular District Board meeting is scheduled to be held on Wednesday, May 3, 2023. Director Doyle plans to attend remotely, via video conference. Director Bosworth is excused from this meeting.

12. ADJOURNMENT:

On a motion properly made and seconded, at 9: 23 p.m. the meeting was adjourned.

Secretary of the Sanitary Board

President of the Sanitary Board

CUPERTINO SANITARY DISTRICT BOARD MEETING
WEDNESDAY, APRIL 5, 2023

The Sanitary Board of the Cupertino Sanitary District convened this date at 7:00 p.m. This meeting was conducted at the District office at 20863 Stevens Creek Blvd, Suite 100, Cupertino.

1. ROLL CALL:

President Kwok called the meeting to order, and the following proceedings were had to wit: Roll call was taken, with the following members in attendance:

Directors present: William A. Bosworth, Angela S. Chen, Taghi S. Saadati, David A. Doyle, and Patrick S. Kwok.

Staff present: District Manager Benjamin Porter, Associate Sanitary Engineer Abby Yung, and Counsel Marc Hynes.

District Consultant: Richard K. Tanaka

Public: None

2. PUBLIC COMMENTS:

There were none.

3. CLOSED SESSION:

President Kwok adjourned the regular meeting session and opened the closed session at 7:01 p.m. Manager Porter, and Engineer Yung were excused from the closed session.

A. Conference with legal counsel – Existing Litigation in accordance with government code section Paragraph (1) of Subdivision (d) of Section 54956.9, existing litigation. Name of Case: County Sanitation District 2-3, West Valley Sanitation District, Cupertino Sanitary District, Burbank Sanitary District, and the City of Milpitas v. The City of San Jose, The City of Santa Clara, and Does 1 through 50 inclusive.

Board action: There was no reportable action.

President Kwok adjourned the closed session at 7:18 p.m. and the regular meeting was called to order. District Manager Porter, and Engineer Yung rejoined the regular meeting.

4. MINUTES & BILLS:

A. On a motion by Director Chen, seconded by Director Saadati, by a vote of 5-0-0, the minutes of the regular meeting held on Wednesday, March 15, 2023, were approved as written.

B. By consensus, the Minutes of Wednesday, March 5, 2023, are to be Noted & Filed.

CUPERTINO SANITARY DISTRICT BOARD MEETING
WEDNESDAY, APRIL 5, 2023

5. CORRESPONDENCE:

There was none.

6. MEETINGS:

- A. Manager Porter plans to attend the regular meeting of the San Jose/Santa Clara Treatment Plant Technical Advisory Committee (TAC) to be held on Monday, April 10, 2023.
- B. President Kwok plans to attend the regular meeting of the San Jose/Santa Clara Treatment Plant Advisory Committee (TPAC) to be held on Thursday, April 13, 2023.

7. REPORTS:

There were none.

8. UNFINISHED BUSINESS:

There was none.

9. NEW BUSINESS:

- A. The Board discussed the budget for FY 2022-2023, which included the discussion of annual lateral maintenance cost. The Board discussed revising the budget to account for increased expenses related to litigation and corresponding increased revenue from the Tributary Agencies related to the District's role in paying the litigation expenses up front. The Board also discussed revising the revenue budget to include reimbursements. On a motion by Director Chen, seconded by Director Bosworth, by a vote of 5-0-0, the Board approved the revised budget.
- B. The Board reviewed a memo on Significant Defect Repair Project-Phase I. On a motion by Director Doyle, seconded by President Kwok, by a vote of 5-0-0, the Board accepted job completion and authorized payment to CR2 Engineering Inc. in the amount of \$137,280.63 as first and final payment.
- C. Manager Porter presented the Progress Report for Sewer Asset Data Migration to ARCGIS. There was no Board action.

10. STAFF REPORTS:

- A. Manager Porter reported on Future Development Projects. Itemized future development projects will be included in future agendas.

11. CALENDAR ITEMS:

- A. The next regular District Board meeting is scheduled to be held on Wednesday, April 19, 2023. Director Chen is excused from the meeting.

CUPERTINO SANITARY DISTRICT BOARD MEETING
WEDNESDAY, APRIL 5, 2023

12. ADJOURNMENT:

On a motion properly made and seconded, at 8: 19 p.m. the meeting was adjourned.

Secretary of the Sanitary Board

President of the Sanitary Board

CUPERTINO SANITARY DISTRICT
MONTHLY FINANCIAL REPORT THROUGH APRIL 2023
10th Month of Operations - 83% into FY Operations)
 FISCAL YEAR: July 1, 2022 to June 30, 2023

EXPENSE SUMMARY REPORT

| Account Name | Account Number | BUDGET | Prior Expenses | Amount Payable | Total To Date Expenses | Remaining Balance | % Expended To Date | Comments |
|---|----------------|---------------------|------------------------|-----------------------|------------------------|-----------------------|--------------------|---|
| APR SERVICES | | | | | | | | |
| OPERATING EXPENSES | | | | | | | | |
| Loan Payments | 41000 | \$1,200,063 | \$600,687.50 | \$0.00 | \$600,687.50 | \$599,375.50 | 50.1% | None this month |
| Directors Fees | 41030 | \$38,000 | \$26,013.39 | \$2,643.86 | \$28,657.25 | \$9,342.75 | 75.4% | On Target |
| Gasoline, Oil & Fuel | 41060 | \$4,000 | \$1,878.72 | \$0.00 | \$1,878.72 | \$2,121.28 | 47.0% | None this month |
| Insurance | 41060 | \$170,000 | \$157,654.10 | \$1,185.19 | \$158,839.29 | \$11,160.71 | 93.4% | Dooley Insurance (Group Life and Dental - June Coverage) |
| Memberships | 41080 | \$57,000 | \$39,520.23 | \$95.00 | \$39,615.23 | \$17,384.77 | 69.5% | CWEA - Certification Renewal (Field Inspector) |
| Office Rent | 41090 | \$4,800 | \$3,600.00 | \$400.00 | \$4,000.00 | \$800.00 | 83.3% | On Target |
| Operating Expenses - General | 41100 | \$3,000 | \$2,158.69 | \$499.73 | \$2,658.42 | \$341.58 | 88.6% | Business Cards for Field Inspectors; Portrait of New Director for Board Room |
| Operating Expenses - Credit Card Transaction Fees | 41100-1 | \$6,000 | \$3,407.75 | \$431.64 | \$3,839.39 | \$2,160.61 | 64.0% | Credit Card Processing Fees - April |
| Contractual Services: | | | | | | | | |
| Outfall Maintenance | 41113 | \$71,000 | \$176,187.69 | \$0.00 | \$176,187.69 | -\$105,187.69 | 248.2% | None this month |
| T.P. Operations & Maintenance | 41114 | \$6,902,554 | \$7,255,120.00 | \$0.00 | \$7,255,120.00 | -\$352,566.00 | 105.1% | Paid in Full for FY2022-2023 |
| Professional Services: | | | | | | | | |
| Management Services | 41121 | \$575,000 | \$358,561.65 | \$40,704.03 | \$399,265.68 | \$175,734.32 | 69.4% | On Target |
| SSMP Certification and Implementation | 41121 | \$100,000 | \$18,129.29 | \$5,364.80 | \$23,494.09 | \$76,505.91 | 23.5% | New Waste Discharge Requirements (WDR) Implementation |
| Engineering Services | 41122 | \$1,365,000 | \$944,959.51 | \$104,644.08 | \$1,049,603.59 | \$315,396.41 | 76.9% | On Target |
| Inflow/Infiltration Reduction | 41122 | \$500,000 | \$27,393.46 | \$972.84 | \$28,366.30 | \$471,633.70 | 5.7% | Flow model calibration |
| Plan Checking & Inspection | 41123 | \$300,000 | \$153,835.90 | \$13,234.99 | \$167,070.89 | \$132,929.11 | 55.7% | On Target |
| Legal - Consultant Services | 41124 | \$36,000 | \$33,200.00 | \$11,100.00 | \$44,300.00 | -\$8,300.00 | 123.1% | Richard Tanaka - Consulting Services for April 2023 |
| Legal - District Counsel | 41124 | \$60,000 | \$31,371.00 | \$3,375.00 | \$34,746.00 | \$25,254.00 | 57.9% | District Counsel - Legal Services for April 2023 |
| Legal - Common Interest Group (CuSD Advance Pay) | 41124 | \$4,004,000 | \$2,891,653.36 | \$823,666.89 | \$3,715,320.25 | \$288,679.75 | 92.8% | Hunton Andrews Kurth - March Legal Fees |
| Legal - Common Interest Group (CuSD Share) | 41124 | \$1,136,000 | \$815,594.53 | \$232,316.30 | \$1,047,910.83 | \$88,089.17 | 92.2% | Hunton Andrews Kurth - March Legal Fees |
| Audit | 41125 | \$12,600 | \$13,145.00 | \$0.00 | \$13,145.00 | -\$545.00 | 104.3% | None this month |
| Printing & Publications | 41130 | \$28,000 | \$23,063.48 | \$0.00 | \$23,063.48 | \$4,936.52 | 82.4% | None this month |
| Repairs and Maintenance | | | | | | | | |
| Repairs | 41150 | \$300,000 | \$85,935.93 | \$6,416.70 | \$92,352.63 | \$207,647.37 | 30.8% | On Target; \$4,714 from Mark Thomas is for Pump Stations |
| Maintenance | 41151 | \$3,725,000 | \$2,945,029.59 | \$370,577.07 | \$3,315,606.66 | \$409,393.34 | 89.0% | \$31.9K is for Pump Stations (\$30.6K from Mark Thomas Staff, and \$1,332 from outside vendors) |
| Travel & Meetings Staff | 41170 | \$15,000 | \$4,306.68 | \$1,740.00 | \$6,046.68 | \$8,953.32 | 40.3% | Unpaid CASA Registration-Winter 2023; ASCE Presentation attended by Staff |
| Travel & Meetings BOD | 41170 | \$18,000 | \$6,563.45 | \$2,500.00 | \$9,063.45 | \$8,936.55 | 50.4% | Unpaid CASA Registration-Winter 2023 |
| Utilities | 41190 | \$70,000 | \$51,909.56 | \$5,972.77 | \$57,882.33 | \$12,117.67 | 82.7% | On target; electricity and water at pump stations |
| Refunds & Reimbursements: | | | | | | | | |
| Miscellaneous | 41201 | \$50,000 | \$742.23 | \$0.00 | \$742.23 | \$49,257.77 | 1.5% | None this month |
| Connection Fees | 41202 | \$2,000 | \$0.00 | \$0.00 | \$0.00 | \$2,000.00 | 0.0% | None to date |
| Checking & Inspection | 41203 | \$3,000 | \$0.00 | \$0.00 | \$0.00 | \$3,000.00 | 0.0% | None to date |
| Emergency Funds | 48000 | \$250,000 | \$153,126.03 | \$6,076.76 | \$159,202.79 | \$90,797.21 | 63.7% | Mark Thomas - Stoppage Response |
| Consolidated Election | 48001 | \$150,000 | \$4,281.00 | \$0.00 | \$4,281.00 | \$145,719.00 | 0.0% | None this month |
| TOTAL OPERATING EXPENSES | | \$21,156,017 | \$16,829,029.72 | \$1,633,917.65 | \$18,462,947.37 | \$2,693,069.63 | 87.3% | |
| CAPITAL EXPENSES | | | | | | | | |
| District Sewer Capital & Support | 46041 | \$700,000 | \$453,943.87 | \$2,305.33 | \$456,249.20 | 243,750.80 | 65.2% | Significant Defect Repair Project |
| District Sewer Capital & Support - VTA | 46041 | \$1,800,000 | \$389,533.42 | \$1,019,752.65 | \$1,409,286.07 | 390,713.93 | 78.3% | \$60.4K from Mark Thomas Staff; \$959.2K from outside vendors |
| Treatment Plant Capital | 46042 | \$3,789,547 | \$3,784,547.00 | \$0.00 | \$3,784,547.00 | 5,000.00 | 99.9% | Paid in Full for FY2022-2023 |
| Outfall Capital | 46042 | \$95,000 | \$280,533.83 | \$0.00 | \$280,533.83 | (185,533.83) | 295.3% | None this month |
| District Equipment | 46043 | \$150,000 | \$115,632.50 | \$10,500.01 | \$126,132.51 | 23,867.49 | 84.1% | Shape Inc. - Replacement of Pump at Oakcrest Pump Station |
| Replacement Fund | 46044 | \$300,000 | \$0.00 | \$0.00 | \$0.00 | 300,000.00 | 0.0% | |
| TOTAL CAPITAL EXPENSES | | \$6,834,547 | \$5,024,190.62 | \$1,032,557.99 | \$6,056,748.61 | \$777,798.39 | 88.6% | |
| TOTAL EXPENSES | | \$27,990,564 | \$21,853,220.34 | \$2,666,475.64 | \$24,519,695.98 | \$3,470,868.02 | 87.6% | |

CUPERTINO SANITARY DISTRICT
MONTHLY FINANCIAL REPORT THROUGH APRIL 2023
10th Month of Operations - 83% into FY Operations)
 FISCAL YEAR: July 1, 2022 to June 30, 2023
REVENUE SUMMARY REPORT

| Account Name | Account Number | BUDGET | Prior Receipts | Current Month Receipts April Receipts | Total Amount Received | Remaining Balance to Collect | % Earned To Date | Comments |
|---|----------------|------------------------|------------------------|--|------------------------|------------------------------|------------------|---|
| OPERATING REVENUES | | | | | | | | |
| Service Charges | | | | | | | | |
| Handbilling | 31010 | \$618,711.00 | \$490,193.00 | \$0.00 | \$490,193.00 | \$128,518.00 | 79.2% | None this month |
| Tax Roll | 31010 | \$20,395,721.00 | \$11,611,244.47 | \$0.00 | \$11,611,244.47 | \$8,784,476.53 | 56.9% | None this month |
| Permit Fees | 31020 | \$75,000.00 | \$82,726.87 | \$4,400.00 | \$87,126.87 | (\$12,126.87) | 116.2% | Twelve payments received this month; One hundred seventy-nine received to date |
| Connection Fees | 31031 | \$600,000.00 | \$89,810.00 | \$0.00 | \$89,810.00 | \$510,190.00 | 15.0% | None this month |
| Capacity Fees | 31032 | \$450,000.00 | \$35,862.20 | \$0.00 | \$35,862.20 | \$414,137.80 | 8.0% | No payment received this month; Three payments received to date |
| Pump Zone Fees | 31033 | \$20,000.00 | \$0.00 | \$0.00 | \$0.00 | \$20,000.00 | 0.0% | None to date |
| Checking & Inspection Fees | 31040 | \$300,000.00 | \$149,700.00 | \$6,500.00 | \$156,200.00 | \$143,800.00 | 52.1% | Seventeen payments this month; Two hundred sixteen received to date |
| Annexation | 32010 | \$2,500.00 | \$0.00 | \$0.00 | \$0.00 | \$2,500.00 | 0.0% | None to date |
| Interest | 32050 | \$100,000.00 | \$160,181.52 | \$0.00 | \$160,181.52 | (\$60,181.52) | 160.2% | None this month |
| City of San Jose Credit(s) | 32091 | \$500,000.00 | \$1,898,833.00 | \$0.00 | \$1,898,833.00 | (\$1,398,833.00) | 379.8% | None this month |
| Legal - Common Interest Group (Tributaries) | 32092.1 | \$3,304,000.00 | \$2,767,382.76 | \$519,374.02 | \$3,286,756.78 | \$17,243.22 | 99.5% | Payments from Tributary Agencies for Jan/Feb. billings |
| Legal - Common Interest Group (2% Admin Fees) | 32902.2 | \$36,000.00 | \$55,607.24 | \$10,599.47 | \$66,206.71 | (\$30,206.71) | 183.9% | Payments from Tributary Agencies for Jan/Feb. billings |
| Refunds/Reimbursements - Misc. | 32091 | \$10,000.00 | \$14,714.67 | \$9.84 | \$14,724.51 | (\$4,724.51) | 147.2% | Refund from CD&Power for overcharged sales tax |
| Refunds/Reimbursements - VTA | 46041 | \$1,440,000.00 | \$476,360.74 | \$29,755.71 | \$506,116.45 | \$933,883.55 | 35.1% | Reimbursement from VTA for Mark Thomas and Sub-Contractor Invoices Paid by CuSD |
| Lateral Construction | 32093 | \$15,000.00 | \$0.00 | \$0.00 | \$0.00 | \$15,000.00 | 0.0% | None to date |
| TOTAL OPERATING REVENUE | | \$27,866,932.00 | \$17,832,616.47 | \$570,639.04 | \$18,403,255.51 | \$9,463,676.49 | 66.04% | |
| | | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | 0.00% | Reserve Account |
| TOTAL OPERATING REVENUE | | \$27,866,932.00 | \$17,832,616.47 | \$570,639.04 | \$18,403,255.51 | \$9,463,676.49 | 66.04% | |

CASH ACCOUNT SUMMARY

| Date | Operating Fund | Replacement Fund | Comingled Fund | Cal Bank Trust Acct | Loan Balance with interest * | Net Cash |
|--------------------|-----------------|------------------|-----------------|---------------------|------------------------------|-----------------|
| June 30, 2022 | \$18,765,721.45 | \$3,000,000.00 | \$15,765,721.45 | \$762,082.82 | \$1,058,859.55 | \$20,586,663.82 |
| July 31, 2022 | \$18,057,733.71 | \$3,000,000.00 | \$15,057,733.71 | \$770,283.34 | \$1,058,923.08 | \$19,886,940.13 |
| August 31, 2022 | \$15,040,721.91 | \$3,000,000.00 | \$12,040,721.91 | \$787,005.74 | \$1,059,066.69 | \$16,886,794.34 |
| September 30, 2022 | \$13,928,089.09 | \$3,000,000.00 | \$10,928,089.09 | \$801,832.83 | \$1,059,197.27 | \$15,789,119.19 |
| October 31, 2022 | \$11,161,210.40 | \$3,000,000.00 | \$8,161,210.40 | \$816,828.46 | \$1,059,332.22 | \$13,037,371.08 |
| November 30, 2022 | \$11,034,278.54 | \$3,000,000.00 | \$8,034,278.54 | \$771,056.11 | \$1,059,462.83 | \$12,864,797.48 |
| December 31, 2022 | \$9,947,547.23 | \$3,000,000.00 | \$6,947,547.23 | \$784,456.57 | \$1,059,593.46 | \$11,791,597.26 |
| January 31, 2023 | \$20,119,557.08 | \$3,000,000.00 | \$17,119,557.08 | \$753,678.39 | \$1,059,724.08 | \$21,932,959.55 |
| February 28, 2023 | \$19,643,212.78 | \$3,000,000.00 | \$16,643,212.78 | \$765,124.99 | \$1,059,846.03 | \$21,468,183.80 |
| March 31, 2023 | \$18,945,897.36 | \$3,000,000.00 | \$15,945,897.36 | \$780,718.80 | \$1,060,014.46 | \$20,786,630.62 |
| April 30, 2023 | \$13,557,809.17 | \$3,000,000.00 | \$10,557,809.17 | \$651,700.76 | \$1,060,351.39 | \$15,269,861.32 |

FOR CAL BANK SUMMARY, SEE ATTACHED DETAIL.

CALIFORNIA BANK AND TRUST ACCOUNT SUMMARY AS OF 04/30/23

| Cal Bank Activities | | | | Total Interest Earned or Refund Received from CSJ | Interest or Refund Prorated to Loan Balance | Loan Balance w/Interest | Interest or Refund Prorated to \$600K District Savings | District Portion of Savings Balance | Total Savings balance | Checking Acct Balance (Credit Card Payments Received) | TOTAL AT CAL BANK |
|--------------------------------|----------------------------|----------|------------------------|---|---|-------------------------|--|-------------------------------------|-----------------------|---|-----------------------|
| No. | Payee | Date | Check Amount | | | | | | | | |
| | | | | | | \$10,000,000.00 | | | \$10,000,000.00 | | \$10,000,000.00 |
| 1001 | San Jose | 10/16/19 | \$2,180,309.00 | | | \$7,819,691.00 | | | \$7,819,691.00 | | \$7,819,691.00 |
| 1002 | San Jose | 10/16/19 | \$29,515.44 | | | \$7,790,175.56 | | | \$7,790,175.56 | | \$7,790,175.56 |
| 1003 | Tesco | 11/20/19 | \$17,707.00 | | | \$7,772,468.56 | | | \$7,772,468.56 | | \$7,772,468.56 |
| 1004 | Shape | 11/20/19 | \$108,814.78 | | | \$7,663,653.78 | | | \$7,663,653.78 | | \$7,663,653.78 |
| 1005 | Tesco | 12/18/19 | \$169,018.00 | | | \$7,494,635.78 | | | \$7,494,635.78 | | \$7,494,635.78 |
| 1006 | Con Quest | 12/18/19 | \$385,242.58 | \$30,683.35 | \$30,683.35 | \$7,140,076.55 | | | \$7,140,076.55 | | \$7,140,076.55 |
| 1007 | San Jose | 01/15/20 | \$6,966,355.00 | | | \$173,721.55 | | | \$173,721.55 | | \$173,721.55 |
| | Interest through 3/31/20 | | | \$6,823.36 | \$6,823.36 | \$180,544.91 | | | \$180,544.91 | | \$180,544.91 |
| | Deposit | 04/16/20 | | | | \$180,544.91 | | \$600,000.00 | \$780,544.91 | \$2,996.28 | \$783,541.19 |
| | Balance as of 5/30/2020 | | | \$179.37 | \$41.50 | \$180,586.41 | \$137.87 | \$600,137.87 | \$780,724.28 | \$5,744.81 | \$786,469.09 |
| | Balance as of 6/30/2020 | | | \$197.98 | \$45.80 | \$180,632.21 | \$152.18 | \$600,290.05 | \$780,922.26 | \$31,953.57 | \$812,875.83 |
| | Balance as of 7/31/2020 | | | \$191.84 | \$44.37 | \$180,676.58 | \$147.47 | \$600,437.52 | \$781,114.10 | \$37,732.75 | \$818,846.85 |
| | Balance as of 8/31/2020 | | | \$154.53 | \$35.74 | \$180,712.33 | \$118.79 | \$600,556.30 | \$781,268.63 | \$48,220.05 | \$829,488.68 |
| | Balance as of 9/30/2020 | | | \$25.62 | \$5.93 | \$180,718.25 | \$19.69 | \$600,576.00 | \$781,294.25 | \$56,059.22 | \$837,353.47 |
| | Balance as of 10/31/2020 | | | \$25.62 | \$5.93 | \$180,724.18 | \$19.69 | \$600,595.69 | \$781,319.87 | \$67,713.45 | \$849,033.32 |
| | Balance as of 11/30/2020 | | | \$26.47 | \$6.12 | \$180,730.30 | \$20.35 | \$600,616.04 | \$781,346.34 | \$80,097.89 | \$861,444.23 |
| | Balance as of 12/31/2020 | | | \$26.47 | \$6.12 | \$180,736.42 | \$20.35 | \$600,636.39 | \$781,372.81 | \$89,436.48 | \$870,809.29 |
| | Balance as of 1/31/2021 | | | \$24.83 | \$5.74 | \$180,742.17 | \$19.09 | \$600,655.47 | \$781,397.64 | \$99,672.14 | \$881,069.78 |
| | Balance as of 2/28/2021 | | | \$23.98 | \$5.55 | \$180,747.71 | \$18.43 | \$600,673.91 | \$781,421.62 | \$108,211.86 | \$889,633.48 |
| | Balance as of 3/31/2021 | | | \$28.26 | \$6.54 | \$180,754.25 | \$21.72 | \$600,695.63 | \$781,449.88 | \$121,953.35 | \$903,403.23 |
| | Balance as of 4/30/2021 | | | \$22.27 | \$5.15 | \$180,759.40 | \$17.12 | \$600,712.75 | \$781,472.15 | \$135,672.77 | \$917,144.92 |
| | Balance as of 5/31/2021 | | | \$11.99 | \$2.77 | \$180,762.18 | \$9.22 | \$600,721.96 | \$781,484.14 | \$153,926.10 | \$935,410.24 |
| | Deposit - CSJ Refund | 06/22/21 | | \$1,415,647.00 | \$926,889.61 | \$1,107,651.79 | \$488,757.39 | \$1,089,479.35 | \$2,197,131.14 | | \$2,197,131.14 |
| | Balance as of 6/30/2021 | | | \$20.34 | \$10.25 | \$1,107,662.04 | \$10.09 | \$1,089,489.44 | \$2,197,151.48 | \$168,561.21 | \$2,365,712.69 |
| | 1008 Voided - CSJ | 07/15/21 | | | | | | | | | |
| | Balance as of 7/31/2021 | | | \$36.12 | \$18.21 | \$1,107,680.25 | \$17.91 | \$1,089,507.35 | \$2,197,187.60 | \$190,143.43 | \$2,387,331.03 |
| | Balance as of 8/31/2021 | | | \$38.53 | \$19.42 | \$1,107,699.67 | \$19.11 | \$1,089,526.46 | \$2,197,226.13 | \$200,919.93 | \$2,398,146.06 |
| | Balance as of 9/30/2021 | | | \$36.12 | \$18.21 | \$1,107,717.88 | \$17.91 | \$1,089,544.37 | \$2,197,262.25 | \$215,257.91 | \$2,412,520.16 |
| | 1009 Co-Mingled Fund | 10/20/21 | \$690,453.00 | | | | (\$480,000.00) | (\$480,000.00) | | (\$210,453.00) | |
| | 1010 C2R Engineering | 10/20/21 | \$49,030.00 | | | (\$49,030.00) | | | | | |
| | Balance as of 10/20/2021 | | | | | \$1,058,687.88 | | \$609,544.37 | \$1,668,232.25 | \$4,804.91 | \$1,673,037.16 |
| | Balance as of 10/31/2021 | | | \$31.44 | \$19.95 | \$1,058,707.83 | \$11.49 | \$609,555.86 | \$1,668,263.69 | \$25,242.07 | \$1,693,505.76 |
| | Balance as of 11/30/2021 | | | \$29.25 | \$18.56 | \$1,058,726.40 | \$10.69 | \$609,566.54 | \$1,668,292.94 | \$38,319.76 | \$1,706,612.70 |
| | Balance as of 12/31/2021 | | | \$28.34 | \$17.99 | \$1,058,744.38 | \$10.35 | \$609,576.90 | \$1,668,321.28 | \$55,958.38 | \$1,724,279.66 |
| | Balance as of 1/31/2022 | | | \$28.34 | \$17.99 | \$1,058,762.37 | \$10.35 | \$609,587.25 | \$1,668,349.62 | \$65,691.28 | \$1,734,040.90 |
| | Balance as of 2/28/2022 | | | \$25.60 | \$16.25 | \$1,058,778.61 | \$9.35 | \$609,596.61 | \$1,668,375.22 | \$85,965.01 | \$1,754,340.23 |
| | Balance as of 3/31/2022 | | | \$28.34 | \$17.99 | \$1,058,796.60 | \$10.35 | \$609,606.96 | \$1,668,403.56 | \$106,346.21 | \$1,774,749.77 |
| | Balance as of 4/30/2022 | | | \$26.51 | \$16.82 | \$1,058,813.42 | \$9.69 | \$609,616.65 | \$1,668,430.07 | \$119,004.80 | \$1,787,434.87 |
| | Balance as of 5/31/2022 | | | \$29.25 | \$18.56 | \$1,058,831.98 | \$10.69 | \$609,627.34 | \$1,668,459.32 | \$132,240.88 | \$1,800,700.20 |
| | Balance as of 6/30/2022 | | | \$43.43 | \$27.56 | \$1,058,859.55 | \$15.87 | \$609,643.20 | \$1,668,502.75 | \$152,439.62 | \$1,820,942.37 |
| | Balance as of 7/31/2022 | | | \$100.11 | \$63.53 | \$1,058,923.08 | \$36.58 | \$609,679.78 | \$1,668,602.86 | \$160,603.56 | \$1,829,206.42 |
| | Balance as of 8/31/2022 | | | \$226.30 | \$143.61 | \$1,059,066.69 | \$82.69 | \$609,762.47 | \$1,668,829.16 | \$177,243.27 | \$1,846,072.43 |
| | Balance as of 9/30/2022 | | | \$205.76 | \$130.58 | \$1,059,197.27 | \$75.18 | \$609,837.65 | \$1,669,034.92 | \$191,995.18 | \$1,861,030.10 |
| | Balance as of 10/31/2022 | | | \$212.64 | \$134.94 | \$1,059,332.22 | \$77.70 | \$609,915.34 | \$1,669,247.56 | \$206,913.12 | \$1,876,160.68 |
| | 1011 C2R Engineering, Inc. | 11/16/22 | \$54,058.43 | | | | | | | -\$54,058.43 | |
| | Balance as of 11/30/2022 | | | \$205.81 | \$130.61 | \$1,059,462.83 | \$75.20 | \$609,990.54 | \$1,669,453.37 | \$161,065.57 | \$1,830,518.94 |
| | Balance as of 12/31/2022 | | | \$205.84 | \$130.63 | \$1,059,593.46 | \$75.21 | \$610,065.75 | \$1,669,659.21 | \$174,390.82 | \$1,844,050.03 |
| | 1012 C2R Engineering, Inc. | 01/30/23 | \$42,585.13 | | | | | | | \$42,585.13 | |
| | Balance as of 1/31/2023 | | | \$188.72 | \$119.76 | \$1,059,724.08 | \$68.96 | \$610,134.71 | \$1,669,858.79 | \$143,543.68 | \$1,813,402.47 |
| | Balance as of 2/28/2023 | | | \$192.16 | \$121.95 | \$1,059,846.03 | \$70.21 | \$610,204.92 | \$1,670,050.95 | \$154,920.07 | \$1,824,971.02 |
| | Balance as of 3/31/2023 | | | \$265.40 | \$168.43 | \$1,060,014.46 | \$96.97 | \$610,301.89 | \$1,670,316.35 | \$170,416.91 | \$1,840,733.26 |
| | 1013 C2R Engineering, Inc. | 04/25/23 | \$137,280.63 | | | | | | | \$137,280.63 | |
| | Balance as of 4/30/2023 | | | \$530.92 | \$336.93 | \$1,060,351.39 | \$193.99 | \$610,495.88 | \$1,670,847.27 | \$41,204.88 | \$1,712,052.15 |
| TOTAL OR BALANCE AMOUNT | | | \$10,830,368.99 | \$1,456,828.21 | \$966,332.33 | \$1,060,351.39 | \$10,495.88 | \$610,495.88 | \$1,670,847.27 | \$41,204.88 | \$1,712,052.15 |

**CUPERTINO SANITARY DISTRICT
WARRANTS PAYABLE - May 17, 2023**

| <u>WARRANT NUMBER</u> | <u>FUND</u> | <u>AMOUNT</u> | <u>PAYEE</u> | <u>DESCRIPTION</u> | |
|-----------------------|-------------|------------------------|-------------------------------------|--|------------|
| N/A | M&O | \$ 2,643.86 | ADP | Directors' Salary | |
| 19676 | M&O | \$ 1,185.19 | Dooley Insurance Services | Insurance - Group Life & Dental | |
| 19677 | M&O | \$ 95.00 | CWEA | Memberships | |
| N/A | M&O | \$ 431.64 | CalBank Credit Card Processing Fees | Operating Exp. - Credit Card Processing Fees | |
| 19678 | M&O | \$ 417,391.09 | Mark Thomas | Office Rent | 400.00 |
| | | | | Operating Expense-General | 499.73 |
| | | | | Management Services | 40,704.03 |
| | | | | SSMP Cert Update and Implementation | 5,364.80 |
| | | | | Engineering Services | 104,644.08 |
| | | | | Peak Flow Reduction | 972.84 |
| | | | | Plan Checking & Inspection | 13,234.99 |
| | | | | Repairs (Non-Pump Station) | 1,702.16 |
| | | | | Repairs (Pump Stations) | 4,714.54 |
| | | | | Maintenance (Non-Pump Stations) | 144,388.85 |
| | | | | Maintenance (Pump Stations) | 30,649.07 |
| | | | | Travel & Meetings Staff | 220.00 |
| | | | | Utilities (Pump Stations) | 1,052.70 |
| | | | | Emergency Funds | 6,076.76 |
| | | | | District Sewer Capital & Support | 2,305.33 |
| | | | | District Sewer Capital & Support - VTA | 60,461.21 |
| 19679 | M&O | \$ 11,100.00 | Richard K. Tanaka | Legal - Consultant Services | |
| 19680 | M&O | \$ 3,375.00 | Armento & Hynes | Legal - District Counsel | |
| 19681 | M&O | \$ 1,055,983.19 | Hunton Andrews Kurth, LLP | Legal - Common Interest Group (CuSD Advance Pay) | 823,666.89 |
| | | | | Legal - Common Interest Group (CuSD Share) | 232,316.30 |
| 19682 | M&O | \$ 1,135.07 | St. Francis Electric | Maintenance (Pump Stations) | |
| 19683 | M&O | \$ 76.78 | Grainger | Maintenance (Pump Stations) | |
| 19684 | M&O | \$ 214.60 | Home Depot | Maintenance (Non-Pump Stations) | 94.10 |
| | | | | Maintenance (Pump Stations) | 120.50 |
| 19685 | M&O | \$ 21,621.60 | RotoRooter | Maintenance | |
| 19686 | M&O | \$ 63,947.50 | AB/JDD Plumbing Heating & AC | Maintenance | |
| 19687 | M&O | \$ 108,543.60 | Able Underground Construction | Maintenance (Non-Pump Stations) | 67,849.65 |
| | | | | District Sewer Capital & Support (Pump Stations) | 40,693.95 |
| 19688 | M&O | \$ 4,020.00 | CASA | Travel & Meetings Staff | 1,520.00 |
| | | | | Travel & Meetings BOD | 2,500.00 |
| 19689 | M&O | \$ 80.24 | City of Santa Clara Utilities | Utilities (Pump Stations) | |
| 19690 | M&O | \$ 4,719.61 | PG&E | Utilities (Pump Stations) | |
| 19691 | M&O | \$ 120.22 | San Jose Water Company | Utilities (Pump Stations) | |
| 19692 | M&O | \$ 4,850.76 | Imperium First Consulting | District Sewer Capital & Support - VTA | |
| 19693 | M&O | \$ 1,694.67 | Sequoia Ecological Consulting | District Sewer Capital & Support - VTA | |
| 19694 | M&O | \$ 8,390.00 | Bennett Trenchless | District Sewer Capital & Support - VTA | |
| 19695 | M&O | \$ 944,927.48 | Cratus, Inc. | District Sewer Capital & Support - VTA | |
| 19696 | M&O | \$ 10,500.01 | Shape Inc. | District Equipment (Pump Stations) | |
| TOTAL WARRANTS | | \$ 2,667,047.11 | | | |

| | | | |
|-----------------------------|-----------------|---|--|
| <u>Pk Flow Red. Total:</u> | \$ 972.84 | Mark Thomas | |
| <u>Maintenance Total:</u> | \$ 370,577.07 | Mark Thomas, St. Francis, Grainger, HomeDepot; RotoRooter, ABLE, AB/JDD | |
| <u>Utilities Total:</u> | \$ 5,972.77 | Mark Thomas, Santa Clara Utilities, PG&E, San Jose Water | |
| <u>Emergency Total:</u> | \$ 6,076.76 | Mark Thomas | |
| <u>Pump Station Portion</u> | \$ 93,862.69 | Mark Thomas (Maintenance staff); St. Francis (Pierce PS); Grainger (all PS); Home Depot (Flume PS); Able (Country Club PS); Shape (Oakcrest PS); Utilities (all PS) | |
| <u>VTA Portion</u> | \$ 1,020,324.12 | Mark Thomas, Imperium, Sequoia, Bennett, Cratus | |

EMERGENCY DETAILS:

Roto-Rooter - No emergencies this month
Able - No emergencies this month
AB/JDD Plumbing - No emergencies this month

RECEIVED

Item 6.A.

APR 26 2023

CUPERTINO
SANITARY DISTRICT



NORTHPOINT HOMEOWNERS ASSOCIATION

10880 Northpoint Way
Cupertino, CA 95014

March 18, 2023

Cupertino Sanitary District
20863 Stevens Creek Boulevard, Suite 100
Cupertino, CA 95014

Board of Directors, Cupertino Sanitary District

Not included — We are writing to you as a result of receiving your 2022 annual report. We would like to point out that the Northpoint HOA located at 10880 Northpoint Way consists of 417 members that pay to the district for sewer. Until Dec. 21, 2016 we enjoyed the benefits as described on page 3 of the report (encl. 1). On that date the board passed ordinance 117 (encl. 2) which states that "All sewer laterals from the sewer main to the building are owned, maintained and repaired at the property owners' expense, including any costs associated with sanitary sewer overflow and spills". Each unit in Northpoint has an individual connection to the sewer much as an individual house.

The district placed this on the owners without any reduction in the charges for sewer use. This means that the owners are now paying a higher rate than others in the city because they happen to live in a location you decided to discriminate against. The owners never received any individual notice that this was occurring with the only notice appearing in 2 local newspapers which people may not read and not in the Mercury-News.

We strongly object and urge you to reconsider this ordinance. We would like a response stating the rationale for the ordinance and your due consideration of the rescission of the ordinance.

Daniel N. Petroff
President, Northpoint Homeowners Association

From: CASA <cmackelvie@casaweb.org>
Sent: Monday, May 8, 2023 2:01 PM
To: Benjamin Porter <bporter@markthomas.com>
Subject: Member Alert - Support Requested



SUPPORT REQUESTED

WIPES CLOG PIPES

Reach out to Your Congressional Representatives in Support of National Wipes Legislation!

Last month, the bipartisan, bicameral WIPPES Act was introduced in Congress. The *Wastewater Infrastructure Pollution Prevention and Environmental Safety (WIPPES) Act* ([S. 1350/H.R. 2964](#)), is sponsored by Senator Jeff Merkley (D-OR) and Senator Susan Collins (R-ME) and Representative Lisa McClain (R-MI) and Representative Mary Sattler Peltola (D-AK). Senator Alex Padilla (D-CA) also supports the WIPPES Act.

S. 1350 and H.R. 2964 [requires](#) wipes manufacturers to print a clear and conspicuous "Do Not Flush" label on their nonflushable wipes product packaging. These labeling requirements are the same requirements CASA negotiated with the wipes industry and enacted into law under AB 818. The House and Senate bills enjoys support from the wipes industry, national clean water stakeholders, and the National Stewardship Action Council. The legislation has been referred to the [House Committee on Energy and Commerce](#) and [Senate Committee on Commerce, Science, & Transportation](#). The WIPPES Acts must be considered and reported out of the committees to be voted on the chamber floors and passed into law.

The key to advancing this meaningful legislation will be increasing broad support for the bills through additional co-sponsorships, and the most direct way to do this is by having members of Congress hear directly from their constituents!

We're asking CASA members to reach out to your congressional delegations urging them to support the WIPPES Act. To help, CASA has created support letter templates to send to your [House delegations](#) and [Senator Dianne Feinstein](#). CASA and the other stakeholders have also created a [fact sheet](#) that can be sent along with your letters to congressional offices.

Letters should be sent to congressional offices by May 15th. If you have any questions or need assistance, please do not hesitate to reach out to CASA's Sarah Sapirstein (ssap@ensresources.com). Thank you in advance for your support on this issue!



CASA represents more than 130 local public agencies engaged in the collection, treatment and recycling of Wastewater and biosolids to protect public health and the environment. Our mission is to provide trusted information and advocacy on behalf of California clean water agencies, and to be a leader in sustainability and utilization of renewable resources.

[Visit Our Website](#)

CASA | 925 L Street, Suite 200, Sacramento, CA 95814

[Unsubscribe bporter@markthomas.com](mailto:bporter@markthomas.com)

[Update Profile](#) | [Constant Contact Data Notice](#)

Sent by cmackelvie@casaweb.org

May 17, 2023

The Honorable Ro Khanna
U.S. House of Representatives
Washington, D.C. 20515

Dear Representative Ro Khanna:

On behalf of the Cupertino Sanitary District, we write to express our support for the *Wastewater Infrastructure Pollution Prevention and Environmental Safety (WIPPES) Act* (H.R. 2964). This bipartisan legislation takes a straightforward and reasonable approach to addressing the pervasive pollution problem stemming from the improper disposal of non-flushable wipes in the nation's wastewater systems, and compliments California's existing "Do Not Flush" label law, commonly referred to as AB 818. We urge you to co-sponsor the WIPPES Act and for Congress to act expeditiously to pass the legislation.

The WIPPES Act's labeling requirements mirrors AB 818's requirements by establishing the same clear and conspicuous standards for "Do Not Flush" language and symbol, scope of covered products, and includes the negotiated penalty structure California's clean water sector secured with the wipes industry should a manufacturer violate the label requirements. Further, this legislation enjoys the support from the wipes industry and the national clean water sector, and environmental advocates who believe the legislation will advance our mutually shared interest to protect public infrastructure and the environment by promoting responsible disposal habits.

Thank you for your leadership to address and develop common-sense and bipartisan solutions to the unique problems related to the flushing of non-flushable wipes. Again, we urge you to co-sponsor H.R. 2964. If Cupertino Sanitary District can be a resource for you, please do not hesitate to contact Benjamin Porter at bporter@markthomas.com, (408) 253-7071.

Sincerely,

Patrick S. Kwok, Board President
Cupertino Sanitary District

May 17, 2023

The Honorable Dianne Feinstein
U.S. Senate
Washington, D.C. 20510

Dear Senator Feinstein:

On behalf of the Cupertino Sanitary District, we write to express our support for the *Wastewater Infrastructure Pollution Prevention and Environmental Safety (WIPPES) Act* (S. 1350). This bipartisan legislation takes a straightforward and reasonable approach to addressing the pervasive pollution problem stemming from the improper disposal of non-flushable wipes in the nation's wastewater systems, and compliments California's existing "Do Not Flush" label law, commonly referred to as AB 818. We urge you to co-sponsor the WIPPES Act and for Congress to act expeditiously to pass the legislation.

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Thank you for your leadership in addressing and developing common-sense and bipartisan solutions to the unique problems related to the flushing of non-flushable wipes. If Cupertino Sanitary District can be a resource for you, please do not hesitate to contact Benjamin Porter at bporter@markthomas.com, (408) 253-7071.

Sincerely,

Patrick S. Kwok, Board President
Cupertino Sanitary District

Toilets Are **Not** Trashcans!

Protect Public Utility Pipes, Pumps, Plants, & Personnel **from Wipes**

THE PROBLEM

Consumers frequently use the wastewater system as a means of disposal, flushing wet wipes like diaper wipes, cosmetic wipes, and surface cleaning and disinfectant wipes, even when they are not intended to be flushed. This can cause problems for wastewater utilities by clogging pumps, blocking screens and accumulating in other treatment equipment.

THE CAUSE

Inconsistent or non-existent “Do Not Flush” labeling on product packaging to inform consumers of proper disposal methods.

COSTS TO THE CLEAN WATER SECTOR AND PUBLIC

The impacts of the flushing of nonflushable wipes are a national problem. In NACWA’s 2020 *Cost of Wipes Report*, the flushing of wipes resulted in an additional \$441 million of operating costs each year for U.S. clean water utilities.

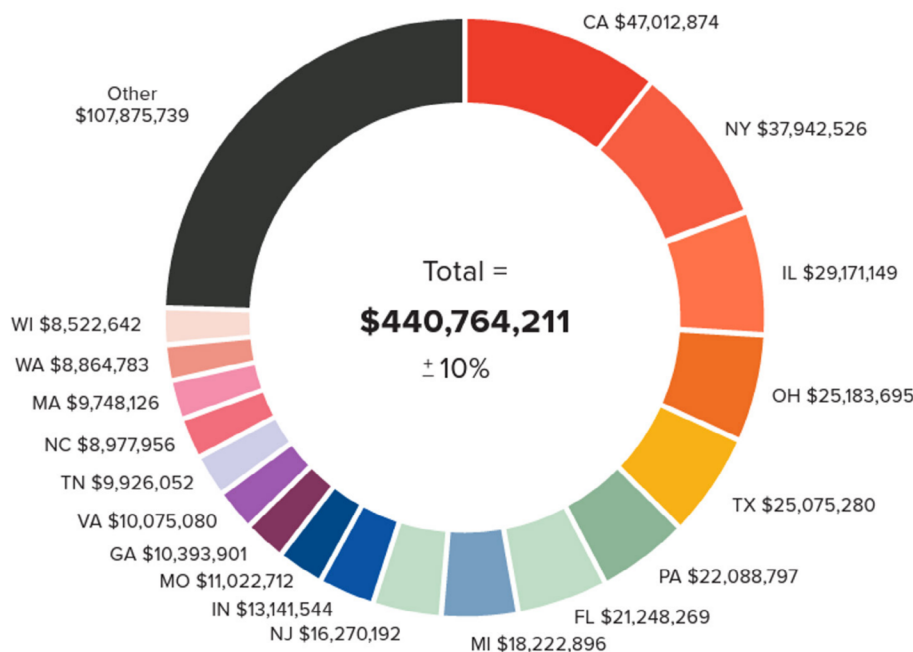


DC Water spent \$100,000 repairing the Upper Anacostia Pumping Station after it was clogged with wipes.



Utility workers are also placed at risk of physical injury and illness from removing sewage-soaked wipes from equipment.

COST OF WIPES BY STATE (2019)





“DO NOT FLUSH” LABEL

IMPACTS TO WIPES MANUFACTURERS

The lack of federal labeling standards means that wipes manufacturers are required to produce different label notices based on the patchwork of state laws. Five states currently have their own “Do Not Flush” requirements, with more states considering similar bills.

THE SOLUTION

WIPES Act (S. 1350/HR 2964) establishes a national labeling requirement for a clear and conspicuous “Do Not Flush” label on packaging of nonflushable wipes, with both a “Do Not Flush” symbol and phrase at set font size, color, and display panel percentage. This provides both a commonsense source control measure and manufacturing certainty for these products.

WHAT IS COVERED

Wipes that are not intended by the manufacturer to be flushable, which are mostly made with plastic materials, should be clearly and conspicuously labeled as “Do Not Flush.”



BROAD SECTOR SOLUTION SUPPORT

The WIPES Act labeling requirements is supported by the wipes industry sector, clean water sector, and environmental advocates, including the following organizations:





Memo

Item 9A

To: Board of Directors
From: Benjamin T. Porter, District Manager-Engineer
Date: May 17, 2023
Re: Annual Lateral Maintenance Program Follow-up

Background:

On April 19, 2023 Cupertino Sanitary District staff and the Board discussed the Annual Lateral Maintenance Program. The purpose of the discussion was to gain better understanding of the strengths and necessity of the annual lateral cleaning services, as well as its impacts on the overall operation of the organization, to ensure its effectiveness after eight years of continued annual services. During the Board meeting, four Maintenance Program options were presented to the Board for consideration, including lining the problematic laterals. Several additional questions came up and required further study. Staff was tasked to perform a more in-depth analysis of the program and report back the findings to the Board.

The items that require follow-up reporting consist of:

- i. To acquire sales brochures for CIPP.*
- ii. To obtain quotations from the contractor in order to validate the engineering cost estimate.*
- iii. To inquire about the lateral maintenance plan implemented by other agencies.*
- iv. To provide clarification on the correlation between emergency calls logged on Lucity and annual maintenance leading to a 75% reduction.*

Sales Brochures For CIPP

The specific sales brochure for lining the problematic lateral is CIPP (Cured-in-Place Pipe) from National Liner(see attachment 1.). This brochure provides the product information, safety data sheet, results of field installations, and installation procedures.

To Validate The Engineering Cost Estimate

Staff requested CIPP quotations from eight different contractors, but none of them have responded. The staff followed up with an email to inquire about their intention to provide a quotation and only one responded with a budget price of \$130/LF, which is within the Staff estimation of \$50-\$150/LF. However this contractor only has experience lining six inch mains or to reconnect laterals, not lining the laterals (see attachment 2.). The rest of the contractors indicated either they do not have experience in lining laterals or are not interested in the job.

Lateral Maintenance Plan Implemented By Other Agencies

In February 2023, staff reached out to various sanitation districts regarding PLCO requirements. More recently, staff contacted these agencies again to verify their response to backup calls and inquired about their lateral maintenance schedule, if any. The outcome of these inquiries is summarized and presented in the table below.

Of the seven sanitary districts surveyed, only one district does not respond to backups or emergency calls, while the rest respond on a call basis. Two out of seven districts have their own maintenance schedule for laterals, and three out of seven districts conduct lower lateral assessments.

Other Sanitation Districts Lateral Requirements and Services:

| | 2/23/2023 | | | 5/3/2023 | | |
|--|--|------------|------------------|-------------------------------|-------------------------------|--|
| Other Sanitation Districts | Lower Lateral requirements | Accept ABS | Accept PVC SDR26 | On Maintenance Schedule (Y/N) | Response: on-call basis (Y/N) | Lower Lateral condition assessment (Y/N) |
| West Valley Sanitation District | 5FT DEEP REQUIRED DUCTIL IRON | - | Y | Y | Y | Y |
| Union Sanitary District | PVC 900/DUCTILE IRON IF COVER LESS THAN 2 FT | Y | Y | N | Y | N |
| Central Contra Costa Sanitary District | - | Y | Y | N | N | N |
| West Bay Sanitary District | CEMENT 900 | - | - | Y | Y | Y |
| Mt. View Sanitary District | - | Y | Y | Y | Y | N |
| East Palo Alto Sanitary District | Not Sure | - | - | Y | Y | Y |
| San Jose Sanitary District | - | - | - | Y | Y | Y |

The Correlation Between Emergency Calls And Annual Maintenance

In the period from 2015-2022, 1,165 emergency calls were received, which is a reduction of 75% compared to the 6,350 calls received prior to 2015 when annual lateral maintenance had not yet been implemented. A further in-depth study was conducted to determine how the 12-month maintenance program could have such a significant impact on the numbers.

Only 30% of laterals, approximately 4,849 out of 16,340, are on the 12-month maintenance program. The reasons for not scheduling maintenance include the absence of PLCO on-site, failure to meet District standards, properties under HOA maintenance, and the use of PVC sewer pipes. PVC pipes are highly resistant to root intrusion and do not require frequent maintenance due to their smooth surface that discourages debris and root growth. Unlike other pipe materials such as clay and cast-iron, PVC pipes are non-porous, making them less prone to root intrusion and less problematic.

Hence, this information provides us with a clearer understanding of the numerical data. It presented that cleaning and addressing Problematic Laterals (30%) has resulted in a significant reduction in emergency calls and a notable improvement in the overall operational efficiency.

Staff compiled a Summary of SSOs and Emergency Events, District-wide Laterals Cleaning Frequency and Problematic Laterals Defect Analysis, and is included in the attached document for reference (see attachment 3.). Based on the 1,165 emergency calls logged onto the Lucity system, 38% of these calls were related to on-site issues; this implies that the properties did not have a cleanout or failed to meet the District's PLCO standards. The data highlights that this is the primary reason for these emergency calls; lack of regular maintenance and absence of a proper cleanout. The affected property owners are advised to install a PLCO that meets the District's standard and are offered a one-time service to resolve the issue.

This emphasizes the significance of regular maintenance and the implementation of PLCO to prevent emergencies and sewer backups, which improves the operational efficiency.

Recommendation:

It is not recommended by the Staff to reduce the maintenance schedule, as it is deemed crucial to the smooth operation of the sewer system. Other maintenance options, such as lining problematic areas, may be subject to further study or investigation if necessary.

Attachments:

1. Sales brochures for CIPP
2. Email correspondence - cost estimate for lining laterals
3. Consolidated Tables Summary

Vipel®
L758-LTI
Polyester Resin

Product Information

**Vipel Polyester Resin for
Underground Sewer Pipe Liners**

TYPICAL FILLED LIQUID RESIN PROPERTIES* (1) see back page

| | Nominal |
|--|----------------|
| Viscosity @ 77°F/25°C, RVF Brookfield Spindle #4 @ 20 RPM, cps. | 5,800 |
| Thix Index 2/20 | 2.5+ |
| Color | Opaque |
| Specific Gravity @ 77°F/25°C | 1.29 |
| Styrene, % | 30 |
| Gel Time @ 140°F with (1.0% Di-(4-tert-butyl-cyclohexyl) peroxydicarbonate and 0.5% Trigonox® C), minutes | 12 |
| Pot Life @ 77°F/25°C (1% Di-(4-tert-butyl-cyclohexyl) peroxydicarbonate and + 0.5% Trigonox® C), hours | 40 |

Trigonox is a trademark of Akzo Nobel Chemicals

TYPICAL FILLED CAST MECHANICAL PROPERTIES* (2) See back page

| | | Test Method |
|---|-------------|--------------------|
| Tensile Strength, psi/MPa | 6,770/47 | ASTM D 638 |
| Tensile Modulus, psi/GPa | 800,000/5.5 | ASTM D 638 |
| Tensile Elongation, % | 1.6 | ASTM D 638 |
| Flexural Strength, psi/MPa | 11,020/76 | ASTM D 790 |
| Flexural Modulus, psi/GPa | 740,000/5.1 | ASTM D 790 |
| Heat Distortion Temperature, °F/°C @ 264 psi | 259/126 | ASTM D 648 |
| Barcol Hardness | 42 | ASTM D 2583 |

*Typical properties are not to be construed as specifications.



DESCRIPTION

The Vipel L758-LTI is a high molecular weight unsaturated polyester resin. The Vipel L758-LTI provides the corrosion resistance, durability and toughness that is required for cured in place pipe applications.

BENEFITS

- Excellent catalyzed pot life
- Superior mechanical properties
- High molecular weight

Vipel® L758-LTI Polyester Resin

PERFORMANCE GUIDELINES

A. Keep full strength catalyst levels between 1.0% - 3.0% of the total resin weight.

B. Maintaining shop temperatures between 65°F/ 18°C and 90°F/32°C and humidity between 40% and 90% will help the fabricator make a high quality part. Consistent shop conditions contribute to consistent gel times.

STORAGE STABILITY

Resins are stable for three months from date of production when stored in the original containers away from sunlight at no more than 77°F/25°C. After extended storage, some drift may occur in gel time.

During the hot summer months, no more than two months stability at 86°F/30°C should be anticipated.

SAFETY

See appropriate Material Safety Data Sheet for guidelines.

ISO 9001:2008 CERTIFIED

The Quality Management Systems at every AOC manufacturing facility have been certified as meeting ISO 9001:2008 standards. This certification recognizes that each AOC facility has an internationally accepted model in place for managing and assuring quality. We follow the practices set forth in this model to add value to the resins we make for our customers.

FOOTNOTES

(1)

The pot life times shown are typical but may be affected by catalyst, promoter and inhibitor concentrations in resin, and environmental temperature. Variations in gelling characteristics can be expected between different lots of catalysts and at extremely high humidities. Pigment and fillers can retard or accelerate gelation. It is recommended that the fabricator check the gelling characteristics of a small quantity of resin under actual operating conditions prior to use.

(2)

Based on tests on Vipel L758-LTI pipe at 77°F/25°C and 50% relative humidity. Castings were prepared using 1.0% Perkadox 16 and 0.5 Trigonox C.



North America
northamerica@aac-resins.com
Toll Free: +1 (866) 319-8827
www.aac-resins.com

Global Contacts

| | |
|---|--|
| Australia australia@aac-resins.com | Africa africa@aac-resins.com |
| Middle East middleeast@aac-resins.com | Asia asia@aac-resins.com |
| Latin America latinamerica@aac-resins.com | Europe europe@aac-resins.com |

The information contained in this data sheet is based on laboratory data and field experience. We believe this information to be reliable, but do not guarantee its applicability to the user's process or assume any liability for occurrences arising out of its use. The user, by accepting the products described herein, agrees to be responsible for thoroughly testing each such product before committing to production.

Our recommendations should not be taken as inducements to infringe any patent or violate any law, safety code or insurance regulation.

SAFETY DATA SHEET

Date of issue: 05/26/2015

Date of previous issue: 04/20/2015

Section 1. Identification

| | |
|--|--|
| Product name | L758-LTI-14 |
| Product type | Polyester Resin Solution |
| Chemical family | Aromatic. |
| MSDS no. | NA-1504:516 (Version: 1.1) |
| Relevant identified uses of the substance or mixture and uses advised against | |
| Identified uses | Used in the manufacture of thermoset plastic parts. |
| Uses advised against | No additional information. |
| Supplier's details | AOC, LLC 955 Highway 57 East Collierville, TN 38017 Website: www.aoc-resins.com Phone Number: (901) 854-2800 Hours: 8AM-5pm (Central Time) Mon-Friday |
| Emergency telephone number (with hours of operation) | CHEMTREC (US): 24 hours/7 days (800) 424-9300 CANUTEC (Canada): 24 hours/7 days (613) 996-6666 |

Section 2. Hazards identification

OSHA/HCS status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

Flammable liquid and vapor. – Category 3, H226
Acute toxicity – Inhalation – Category 4, H332
Eye irritation – Category 2, H319
Skin irritation – Category 2, H315
STOT-SE = Specific Target Organ Toxicity - Single Exposure – Category 3, H335
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure – Category 1, H372

GHS label elements

Hazard pictograms



Signal word

Danger

Hazard statements

H226: Flammable liquid and vapor.
H332: Harmful if inhaled.
H319: Causes serious eye irritation.
H315: Causes skin irritation.
H335: May cause respiratory irritation.
H372: Causes damage to organs through prolonged or repeated exposure if inhaled.

Precautionary statements

General

P101: If medical advice is needed, have product container or label at hand.
P102: Keep out of reach of children.

Section 2. Hazards identification

Prevention

- P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P233: Keep container tightly closed.
- P240: Ground/bond container and receiving equipment.
- P241: Use explosion-proof electrical/ventilating/lighting/material-handling equipment.
- P242: Use only non-sparking tools.
- P243: Take precautionary measures against static discharge.
- P264: Wash hands thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P271: Use only outdoors or in a well-ventilated area.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P261: Do not breathe vapor or mist.

Response

- P370 + P378 In case of fire: Use DRY chemicals, CO2, water spray or foam.
- P308 + P313 IF exposed or concerned: Get medical attention.
- P304 + P340 + P312: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
- P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
- P333 + P313: If skin irritation occurs: Get medical attention/advice.
- P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313: If eye irritation persists: Get medical attention/advice.
- P391: Collect spillage.

Storage

- P403 + P235: Store in a well-ventilated place. Keep cool.
- P233: Keep container tightly closed.
- P405: Store locked up.

Disposal

- P501: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified

None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

| Ingredient name | CAS number | % |
|--------------------|------------|-------------|
| Styrene | 100-42-5 | 31.0 |
| Talc | 14807-96-6 | ≥25 - <50 |
| Crystalline Silica | 14808-60-7 | ≥0.1 - <0.3 |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Use of buffered baby shampoo will aid in removal. If irritation persists, get medical attention.

Inhalation

Move the victim to a safe area as soon as possible. Allow the victim to rest in a well-ventilated area. If breathing is difficult, give oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Skin contact

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. If irritation persists, seek medical attention. Wash contaminated clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

Section 4. First aid measures

Wash out mouth with water. Remove dentures if any. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Seek immediate medical attention.

Most important symptoms/effects, acute and delayed

Eye contact

Causes serious eye irritation.

Inhalation

Harmful if inhaled. May cause respiratory irritation.

Skin contact

Causes skin irritation.

Ingestion

Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact

Adverse symptoms may include the following: pain or irritation, watering, redness.

Inhalation

Adverse symptoms may include the following: respiratory tract irritation, coughing.

Skin contact

Adverse symptoms may include the following: irritation, redness.

Ingestion

Adverse symptoms may include the following: Irritating to mouth, throat and stomach..

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media

Do not use water jet.

Specific hazards arising from the chemical

Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products

Decomposition products may include the following materials: carbon dioxide, carbon monoxide, sulfur oxides halogenated compounds, metal oxide/oxides

Special protective actions for fire-fighters

Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation.

For emergency responders

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. See also the information in "For non-emergency personnel".

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Large spill

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Segregate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Refer to the product label and/or technical data sheet for further information.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

| Ingredient name | Exposure limits |
|--------------------|--|
| Styrene | <p>ACGIH TLV (United States, 3/2012). Absorbed through skin. TWA: 20 ppm 8 hours. TWA: 85 mg/m³ 8 hours. STEL: 40 ppm 15 minutes. STEL: 170 mg/m³ 15 minutes.</p> <p>OSHA PEL Z2 (United States, 11/2006). TWA: 100 ppm 8 hours. AMP: 600 ppm 5 minutes. CEIL: 200 ppm</p> <p>NIOSH REL (United States, 6/2009). TWA: 50 ppm 10 hours. Form: TWA: 215 mg/m³ 10 hours. STEL: 100 ppm 15 minutes. STEL: 425 mg/m³ 15 minutes.</p> |
| Talc | <p>NIOSH REL (United States, 6/2008). TWA: 2 mg/m³ 10 hours. Form: Respirable fraction</p> <p>OSHA PEL Z3 (United States, 9/2005). : 1 f/cc 30 minutes. Form: not containing asbestos TWA: 20 mppcf 8 hours. Form: not containing asbestos</p> <p>ACGIH TLV (United States, 1/2008). TWA: 0.1 f/cc 8 hours.</p> |
| Crystalline Silica | <p>OSHA PEL Z3 (United States, 9/2005). Notes: 250/(SiO₂+5) TWA: 250 mppcf 8 hours. Form: Respirable</p> <p>OSHA PEL Z3 (United States, 9/2005). Notes: 10/(SiO₂+2) TWA: 10 mg/m³ 8 hours. Form: Respirable</p> <p>ACGIH TLV (United States, 3/2012). TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 6/2009). TWA: 0.05 mg/m³, () 10 hours. Form: respirable dust</p> <p>OSHA PEL Z3 (United States, 9/2005). Notes: 30/(%SiO₂+2) TWA: 30 mg/m³ 8 hours. Form: Total dust.</p> |

Appropriate engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.



Section 9. Physical and chemical properties

Appearance

| | |
|--|--|
| Physical state | Liquid. |
| Color | Grey. |
| Odor | Aromatic. |
| Odor threshold | 0.01 - 0.1 ppm (<i>Styrene</i>) |
| pH | <i>Not applicable.</i> |
| Melting point | -23.8°F / -30.6°C (<i>Styrene</i>) |
| Boiling point | 293°F / 145°C (<i>Styrene</i>) |
| Flash point | 88°F / 31°C (<i>Styrene</i>) |
| Evaporation rate | < 1 (Butyl acetate = 1) |
| Flammability (solid, gas) | <i>Not applicable.</i> |
| Lower and upper explosive (flammable) limits | Lower: 1.1% Upper: 6.1% (<i>Styrene</i>) |
| Vapor pressure | 5.0 mm Hg@ 68°F / 20°C (<i>Styrene</i>) |
| Vapor density | 3.6 (Air = 1) (<i>Styrene</i>) |
| Relative density | 1.1 (Water = 1) |
| Solubility | Slight. |
| Partition coefficient: n-octanol/water | Not available. |
| Auto-ignition temperature | 914°F / 490°C (<i>Styrene</i>) |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Molecular weight | 10,000 to 15,000 |

Section 10. Stability and reactivity

Reactivity

No specific test data related to reactivity available for this product or its ingredients.

Chemical stability

The product is stable. Stable under recommended storage and handling conditions (see Section 7).

Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible materials

Reactive or incompatible with the following materials: oxidizing materials

Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|-----------------------|---------|-------------------------|----------|
| Styrene | LC50 Inhalation Gas. | Rat | 2770 ppm | 4 hours |
| | LC50 Inhalation Vapor | Rat | 11800 mg/m ³ | 4 hours |
| | LD50 Oral | Rat | 2650 mg/kg | - |

Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|-------------------------|--------------------------|---------|-------|-------------------------|-------------|
| Styrene | Eyes - Mild irritant | Human | - | 50 parts per million | - |
| | Eyes - Moderate irritant | Rabbit | - | 24 hours 100 milligrams | - |
| | Eyes - Severe irritant | Rabbit | - | 100 milligrams | - |
| | Skin - Mild irritant | Rabbit | - | 500 milligrams | - |
| | Skin - Moderate irritant | Rabbit | - | 100 Percent | - |

Sensitization

Section 11. Toxicological information

May cause sensitization by skin contact.

Carcinogenicity

Classification

| Product/ingredient name | ACGIH | IARC | NTP |
|-------------------------|-------|------|--|
| Styrene | - | 2B | Reasonably anticipated to be a human carcinogen. |
| Talc | - | 1 | Known to be a human carcinogen. |
| Crystalline Silica | - | 1 | Known to be a human carcinogen. |

- 1) Negative Study A published study concluded that the mechanism for producing cancer in mice exposed to styrene is not applicable in human metabolism. (June 2013 Pharmacology & Toxicology 66 (2013))
- 2) Negative Study A recent update to an extensive study of reinforced plastic workers from 1948-1977 concluded that there was no coherent evidence that styrene exposure increased risk of cancer (March 2013 Epidemiology Vol. 24 Issue 2)
- 3) Positive Study Styrene induced pulmonary toxicity and carcinogenicity in mice was shown to be caused by a metabolite of styrene, probably styrene oxide. (Dec.2001 Toxicology Vol.169 Issue 2)

Mutagenicity

No mutagenic effect.

Reproductive toxicity

Not considered to be toxic to the reproductive system.

Teratogenicity

No known effect according to our database..

Specific target organ toxicity (single exposure)

No known effect according to our database.

Specific target organ toxicity (repeated exposure)

A study of long term effects of workers exposed to styrene levels in the range of 25-35 ppm, 8 hour TWA, indicated a possible mild hearing loss.

Aspiration hazard

No known effect according to our database.

Potential acute health effects

Eye contact

Causes serious eye irritation.

Inhalation

Harmful if inhaled. May cause respiratory irritation.

Skin contact

Causes skin irritation.

Ingestion

Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact

Adverse symptoms may include the following: pain or irritation, watering, redness.

Inhalation

Adverse symptoms may include the following: respiratory tract irritation, coughing.

Skin contact

Adverse symptoms may include the following: irritation, redness.

Ingestion

Adverse symptoms may include the following: Irritating to mouth, throat and stomach..

Section 12. Ecological information

Toxicity

| Product/ingredient name | Result | Species | Exposure |
|-------------------------|---|---|----------------------|
| Styrene | Acute EC50 4.7 mg/l Fresh water Acute LC50 4.02 mg/l Fresh water | Daphnia - Daphnia magna Fish - Pimephales promelas | 48 hours 96 hours |

Persistence and degradability

Section 12. Ecological information

| Product/ingredient name | Test | Result | Dose | Inoculum |
|-------------------------|------|--------------------------|------|----------|
| Styrene | EU | 100 % - Readily - 1 days | - | - |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|-------------------------|-------------------|------------|------------------|
| Styrene | - | - | Readily |

Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|-------------------------|--------------------|-------|-----------|
| Styrene | 2.95 | 13.49 | low |

Mobility in soil

Soil/water partition coefficient (K_{oc})

Not available.

Other adverse effects

No known effect according to our database.

Section 13. Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid disposal. Attempt to use product completely in accordance with intended use. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions

This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

DOT / TDG/ IMDG/IMO / ICAO/IATA and National regulations.

| | |
|----------------------------|----------------|
| UN number | UN1866 |
| Proper shipping name | Resin Solution |
| Transport hazard class(es) | 3 |



| | |
|-----------------------|-----------------------|
| Packing group | III |
| Environmental hazards | Marine pollutant: No. |

Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Additional information

US regulations require the reporting of spills when the amount exceeds the Reportable Quantity (RQ) for specific components of this material. See CERCLA in Section 15, Regulatory Information, for the Reportable Quantities.

IMDG Emergency schedules (EmS) 3-05

IATA No additional information.

Section 15. Regulatory information

Inventories (National and International)

- United States inventory (TSCA 8b)** : All components are listed or exempted.
- Australia** : Not determined.
- Canada** : All components are listed or exempted.
- China** : Not determined.
- Europe** : Not determined.
- New Zealand** : Not determined.
- Philippines** : Not determined.
- Japan** : Not determined.
- Malaysia** : Not determined.
- Republic of Korea** : At least one component is not listed.
- Taiwan** : Not determined.

SARA 311/312

Composition/information on ingredients

| Name | Fire hazard | Sudden release of pressure | Reactive | Immediate (acute) health hazard | Delayed (chronic) health hazard |
|--------------------|-------------|----------------------------|----------|---------------------------------|---------------------------------|
| Styrene | Yes. | No. | No. | No. | Yes. |
| Talc | No. | No. | No. | No. | Yes. |
| Crystalline Silica | No. | No. | No. | No. | Yes. |

SARA 313

| | Product name | CAS number |
|--|--------------|------------|
| Form R - Reporting requirements | Styrene | 100-42-5 |

State regulations

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

Section 16. Other information

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

- Date of issue** : 05/26/2015
 - Date of previous issue** : 04/20/2015
 - Version** : 1.1
- AOC Corporate Regulatory Affairs

Section 16. Other information

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

▣ Indicates information that has changed from previously issued version.

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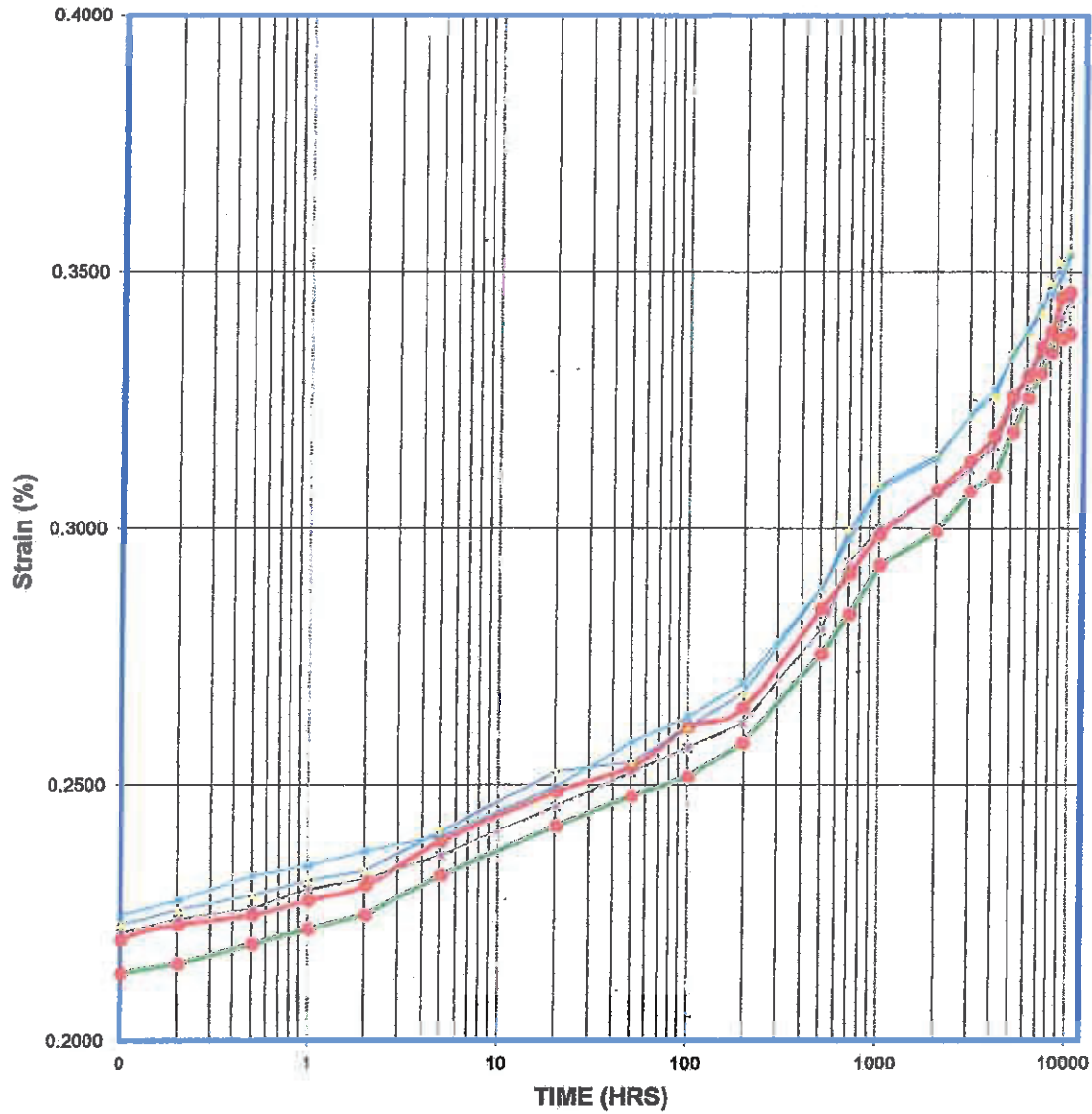
CREEP DATA



HTS Pipe Consultants, Inc.

420 Pickering, Houston, Texas 77091
Tel: (713) 692-8373 Fax: (713) 692-8502

FLEXURAL CREEP ASTM D2990



Project Name:

Project No.:

Sample ID No.: *L758-LT*

HTS Report#: *AOCF265.001*

Tested Temperature: 71°F

Lab Humidity: 50%

Specimen Gage Length: 4.0"

Stress: 1300 psi



**ASTM F1216 Test Results on 6 mm Felt Composite
L758-LTI
One Month Results at 25°C**

| | L758-LTI | REQUIREMENTS % | PASS OR FAIL |
|------------------------------------|----------|-------------------|--------------|
| CONTROL SAMPLE | | | |
| FLEXURAL STRENGTH, psi | 8,270 | | |
| FLEXURAL MODULUS, psi | 650,000 | | |
| TAP WATER | | | |
| FLEXURAL STRENGTH, psi | 6,747 | | |
| STANDARD DEVIATION | 214 | | |
| % FLEXURAL STRENGTH, psi RETENTION | 82 | >80 | PASSED |
| FLEXURAL MODULUS, psi | 702,132 | | |
| STANDARD DEVIATION | 6,442 | | |
| % FLEXUARAL MODULUS RETENTION | 108 | >80 | PASSED |
| 5% NITRIC ACID | | | |
| FLEXURAL STRENGTH, psi | 6970 | | |
| STANDARD DEVIATION | 474 | | |
| % FLEXURAL STRENGTH, psi RETENTION | 84 | >80 | PASSED |
| FLEXURAL MODULUS, psi | 657,266 | | |
| STANDARD DEVIATION | 9,847 | | |
| % FLEXUARAL MODULUS RETENTION | 101 | >80 | PASSED |
| 10% PHOSPHORIC ACID | | | |
| FLEXURAL STRENGTH, psi | 7,747 | | |
| STANDARD DEVIATION | 99 | | |
| % FLEXURAL STRENGTH, psi RETENTION | 94 | >80 | PASSED |
| FLEXURAL MODULUS, psi | 732,698 | | |
| STANDARD DEVIATION | 47,836 | | |
| % FLEXUARAL MODULUS RETENTION | 113 | >80 | PASSED |
| 10% SULFURIC ACID | | | |
| FLEXURAL STRENGTH, psi | 7,046 | | |
| STANDARD DEVIATION | 263 | | |
| % FLEXURAL STRENGTH, psi RETENTION | 85 | >80 | PASSED |
| FLEXURAL MODULUS, psi | 726,822 | | |
| STANDARD DEVIATION | 16,340 | | |
| % FLEXUARAL MODULUS RETENTION | 112 | >80 | PASSED |

| | | | |
|------------------------------------|---------|-----|--------|
| AMOCO GASOLINE | | | |
| FLEXURAL STRENGTH, psi | 6,850 | | |
| STANDARD DEVIATION | 226 | | |
| % FLEXURAL STRENGTH, psi RETENTION | 83 | >80 | PASSED |
| FLEXURAL MODULUS, psi | 722,905 | | |
| STANDARD DEVIATION | 24,684 | | |
| % FLEXURAL MODULUS RETENTION | 111 | >80 | PASSED |
| VEGETABLE OIL | | | |
| FLEXURAL STRENGTH, psi | 7,315 | | |
| STANDARD DEVIATION | 557 | | |
| % FLEXURAL STRENGTH, psi RETENTION | 88 | >80 | PASSED |
| FLEXURAL MODULUS, psi | 728,120 | | |
| STANDARD DEVIATION | 13,202 | | |
| % FLEXURAL MODULUS RETENTION | 112 | >80 | PASSED |
| 0.1% DETERGENT | | | |
| FLEXURAL STRENGTH, psi | 7,502 | | |
| STANDARD DEVIATION | 285 | | |
| % FLEXURAL STRENGTH, psi RETENTION | 91 | >80 | PASSED |
| FLEXURAL MODULUS, psi | 702,355 | | |
| STANDARD DEVIATION | 35,516 | | |
| % FLEXURAL MODULUS RETENTION | 108 | >80 | PASSED |
| 0.1% SOAP | | | |
| FLEXURAL STRENGTH, psi | 7,490 | | |
| STANDARD DEVIATION | 180 | | |
| % FLEXURAL STRENGTH, psi RETENTION | 91 | >80 | PASSED |
| FLEXURAL MODULUS, psi | 706,826 | | |
| STANDARD DEVIATION | 13,288 | | |
| % FLEXURAL MODULUS RETENTION | 109 | >80 | PASSED |

August 2012

The information contained in this data sheet is based on laboratory data and field experience. We believe this information to be reliable, but do not guarantee its applicability to the user's process or assume any liability for occurrences arising out of its use. The user, by accepting the products described herein, agrees to be responsible for thoroughly testing any application before committing to production. Our recommendation should not be taken as inducements to infringe any patent or violate any law, safety code or insurance regulation.

HTS Repor AOCF265.001

Sample ID: L758-LT

Spec# 1

Thickness: 0.256" Width: 0.552"

| <u>TIME (HRS)</u> | <u>Strain (%)</u> |
|-------------------|--------------------|
| 0.02 | 0.2016 |
| 0.10 | 0.2131 |
| 0.20 | 0.2150 |
| 0.50 | 0.2189 |
| 1 | 0.2218 |
| 2 | 0.2246 |
| 5 | 0.2323 |
| 20 | 0.2419 |
| 50 | 0.2477 |
| 100 | 0.2515 |
| 196 | 0.2582 |
| 500 | 0.2755 |
| 700 | 0.2832 |
| 1004 | 0.2928 |
| 2012 | 0.2995 |
| 3020 | 0.3072 |
| 4029 | 0.3101 |
| 5037 | 0.3187 |
| 6032 | 0.3254 |
| 7053 | 0.3302 |
| 7996 | 0.3341 |
| 9000 | 0.3370 |
| 10005 | 0.3379 |

Spec# 2

Thickness: 0.257" Width: 0.552"

| <u>TIME (HRS)</u> | <u>Strain (%)</u> |
|-------------------|--------------------|
| 0.02 | 0.2053 |
| 0.10 | 0.2197 |
| 0.20 | 0.2226 |
| 0.50 | 0.2246 |
| 1 | 0.2274 |
| 2 | 0.2303 |
| 5 | 0.2390 |
| 20 | 0.2486 |
| 50 | 0.2535 |
| 100 | 0.2612 |
| 196 | 0.2650 |
| 500 | 0.2843 |
| 700 | 0.2911 |
| 1004 | 0.2988 |
| 2012 | 0.3074 |
| 3020 | 0.3132 |
| 4029 | 0.3180 |
| 5037 | 0.3257 |
| 6032 | 0.3296 |
| 7053 | 0.3354 |
| 7996 | 0.3383 |
| 9000 | 0.3450 |
| 10005 | 0.3460 |

Spec# 3

Thickness: 0.257" Width: 0.553"

| <u>TIME (HRS)</u> | <u>Strain (%)</u> |
|-------------------|--------------------|
| 0.02 | 0.2130 |
| 0.10 | 0.2226 |
| 0.20 | 0.2255 |
| 0.50 | 0.2284 |
| 1 | 0.2313 |
| 2 | 0.2332 |
| 5 | 0.2409 |
| 20 | 0.2525 |
| 50 | 0.2544 |
| 100 | 0.2612 |
| 196 | 0.2679 |
| 500 | 0.2882 |
| 700 | 0.2997 |
| 1004 | 0.3084 |
| 2012 | 0.3142 |
| 3020 | 0.3219 |
| 4029 | 0.3257 |
| 5037 | 0.3344 |
| 6032 | 0.3383 |
| 7053 | 0.3421 |
| 7996 | 0.3479 |
| 9000 | 0.3518 |
| 10005 | 0.3537 |

HTS Report AOCF265.001

Sample ID: L758-LT

Spec# 4

Thickness: 0.258" Width: 0.554"

| <u>TIME (HRS)</u> | <u>Strain (%)</u> |
|-------------------|-------------------|
| 0.02 | 0.2148 |
| 0.10 | 0.2245 |
| 0.20 | 0.2274 |
| 0.50 | 0.2322 |
| 1 | 0.2341 |
| 2 | 0.2370 |
| 5 | 0.2399 |
| 20 | 0.2496 |
| 50 | 0.2583 |
| 100 | 0.2632 |
| 196 | 0.2699 |
| 500 | 0.2883 |
| 700 | 0.2980 |
| 1004 | 0.3077 |
| 2012 | 0.3135 |
| 3020 | 0.3222 |
| 4029 | 0.3270 |
| 5037 | 0.3338 |
| 6032 | 0.3386 |
| 7053 | 0.3435 |
| 7996 | 0.3454 |
| 9000 | 0.3493 |
| 10005 | 0.3531 |

Spec# 5

Thickness: 0.254" Width: 0.552"

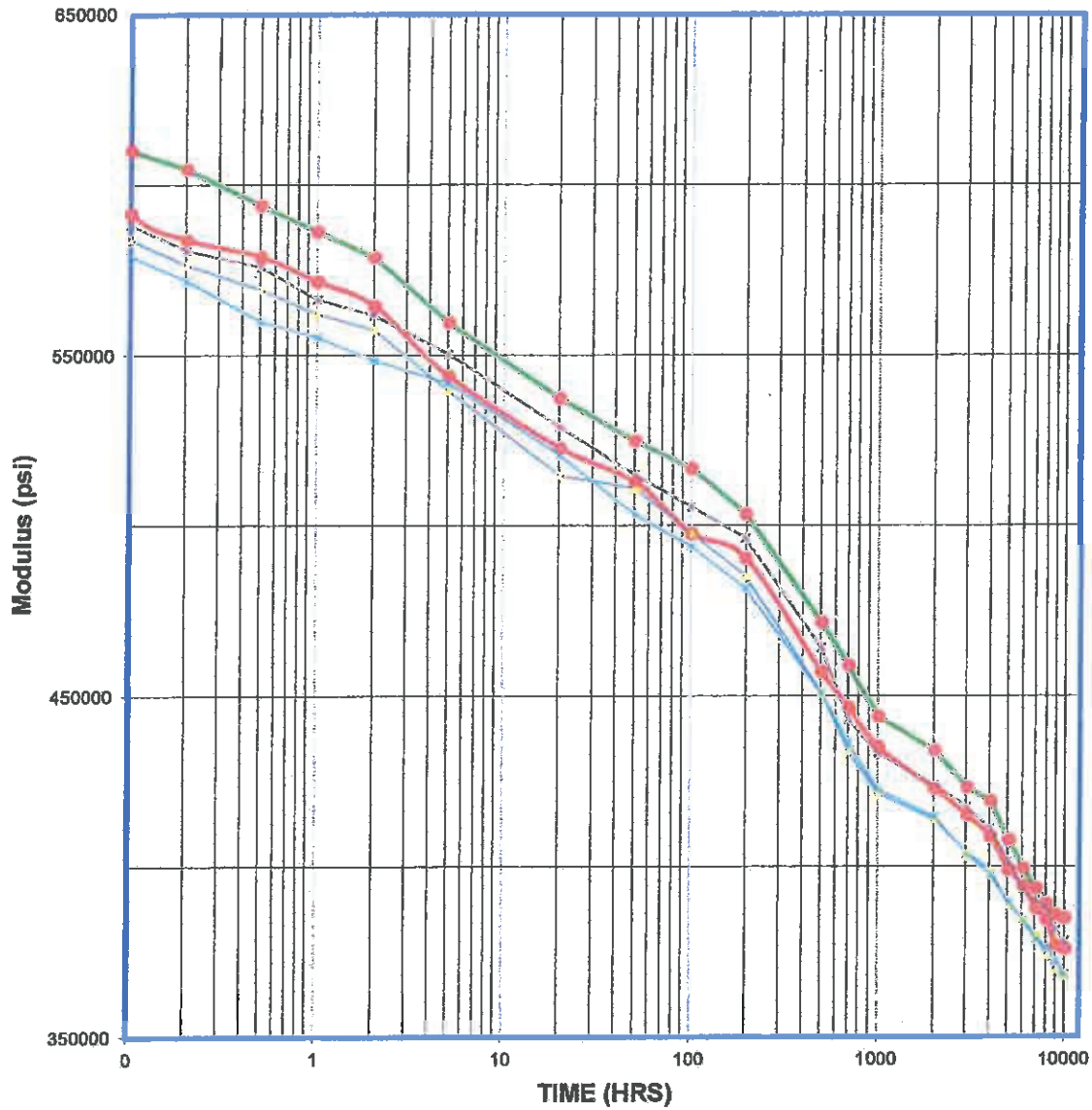
| <u>TIME (HRS)</u> | <u>Strain (%)</u> |
|-------------------|-------------------|
| 0.02 | 0.2162 |
| 0.10 | 0.2210 |
| 0.20 | 0.2238 |
| 0.50 | 0.2257 |
| 1 | 0.2296 |
| 2 | 0.2315 |
| 5 | 0.2362 |
| 20 | 0.2457 |
| 50 | 0.2524 |
| 100 | 0.2572 |
| 196 | 0.2619 |
| 500 | 0.2800 |
| 700 | 0.2934 |
| 1004 | 0.3000 |
| 2012 | 0.3067 |
| 3020 | 0.3115 |
| 4029 | 0.3162 |
| 5037 | 0.3239 |
| 6032 | 0.3305 |
| 7053 | 0.3334 |
| 7996 | 0.3353 |
| 9000 | 0.3410 |
| 10005 | 0.3439 |



HTS Pipe Consultants, Inc.

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Tel: (713) 692-8373 Fax: (713) 692-8502

FLEXURAL CREEP ASTM D2990



Project Name:

Project No.:

Sample ID No.: L758-LT

HTS Report#: AOCF265.001

Tested Temperature: 71°F

Lab Humidity: 50%

Specimen Gage Length: 4.0"

Stress: 1300 psi

HTS Report AOCF265.001

Sample ID: L758-LT

Spec# 1

Thickness: 0.256" Width: 0.552"

| <u>TIME (HRS)</u> | <u>Modulus (psi)</u> |
|-------------------|----------------------|
| 0.02 | 644841 |
| 0.10 | 609985 |
| 0.20 | 604539 |
| 0.50 | 593933 |
| 1 | 586219 |
| 2 | 578704 |
| 5 | 559573 |
| 20 | 537368 |
| 50 | 524871 |
| 100 | 516858 |
| 196 | 503408 |
| 500 | 471835 |
| 700 | 459040 |
| 1004 | 443989 |
| 2012 | 434028 |
| 3020 | 423177 |
| 4029 | 419247 |
| 5037 | 407882 |
| 6032 | 399459 |
| 7053 | 393853 |
| 7996 | 389128 |
| 9000 | 385802 |
| 10005 | 384706 |

Spec# 2

Thickness: 0.257" Width: 0.552"

| <u>TIME (HRS)</u> | <u>Modulus (psi)</u> |
|-------------------|----------------------|
| 0.02 | 633285 |
| 0.10 | 591622 |
| 0.20 | 583938 |
| 0.50 | 578926 |
| 1 | 571567 |
| 2 | 564392 |
| 5 | 543910 |
| 20 | 522829 |
| 50 | 512889 |
| 100 | 497748 |
| 196 | 490508 |
| 500 | 457253 |
| 700 | 446655 |
| 1004 | 435128 |
| 2012 | 422852 |
| 3020 | 415045 |
| 4029 | 408757 |
| 5037 | 399082 |
| 6032 | 394414 |
| 7053 | 387614 |
| 7996 | 384301 |
| 9000 | 376787 |
| 10005 | 375737 |

Spec# 3

Thickness: 0.257" Width: 0.553"

| <u>TIME (HRS)</u> | <u>Modulus (psi)</u> |
|-------------------|----------------------|
| 0.02 | 610361 |
| 0.10 | 583938 |
| 0.20 | 576452 |
| 0.50 | 569155 |
| 1 | 562041 |
| 2 | 557396 |
| 5 | 539559 |
| 20 | 514846 |
| 50 | 510946 |
| 100 | 497748 |
| 196 | 485215 |
| 500 | 451136 |
| 700 | 433729 |
| 1004 | 421530 |
| 2012 | 413772 |
| 3020 | 403862 |
| 4029 | 399082 |
| 5037 | 388731 |
| 6032 | 384301 |
| 7053 | 379971 |
| 7996 | 373856 |
| 9000 | 369561 |
| 10005 | 367547 |

HTS Report AOCF265.001

Sample ID: L758-LT

Spec# 4

Thickness: 0.258" Width: 0.554"

| <u>TIME (HRS)</u> | <u>Modulus (psi)</u> |
|-------------------|----------------------|
| 0.02 | 605256 |
| 0.10 | 579168 |
| 0.20 | 571774 |
| 0.50 | 559862 |
| 1 | 555235 |
| 2 | 548436 |
| 5 | 541802 |
| 20 | 520802 |
| 50 | 503247 |
| 100 | 493996 |
| 196 | 481602 |
| 500 | 450896 |
| 700 | 436256 |
| 1004 | 422538 |
| 2012 | 414713 |
| 3020 | 403504 |
| 4029 | 397535 |
| 5037 | 389469 |
| 6032 | 383906 |
| 7053 | 378498 |
| 7996 | 376378 |
| 9000 | 372208 |
| 10005 | 368129 |

Spec# 5

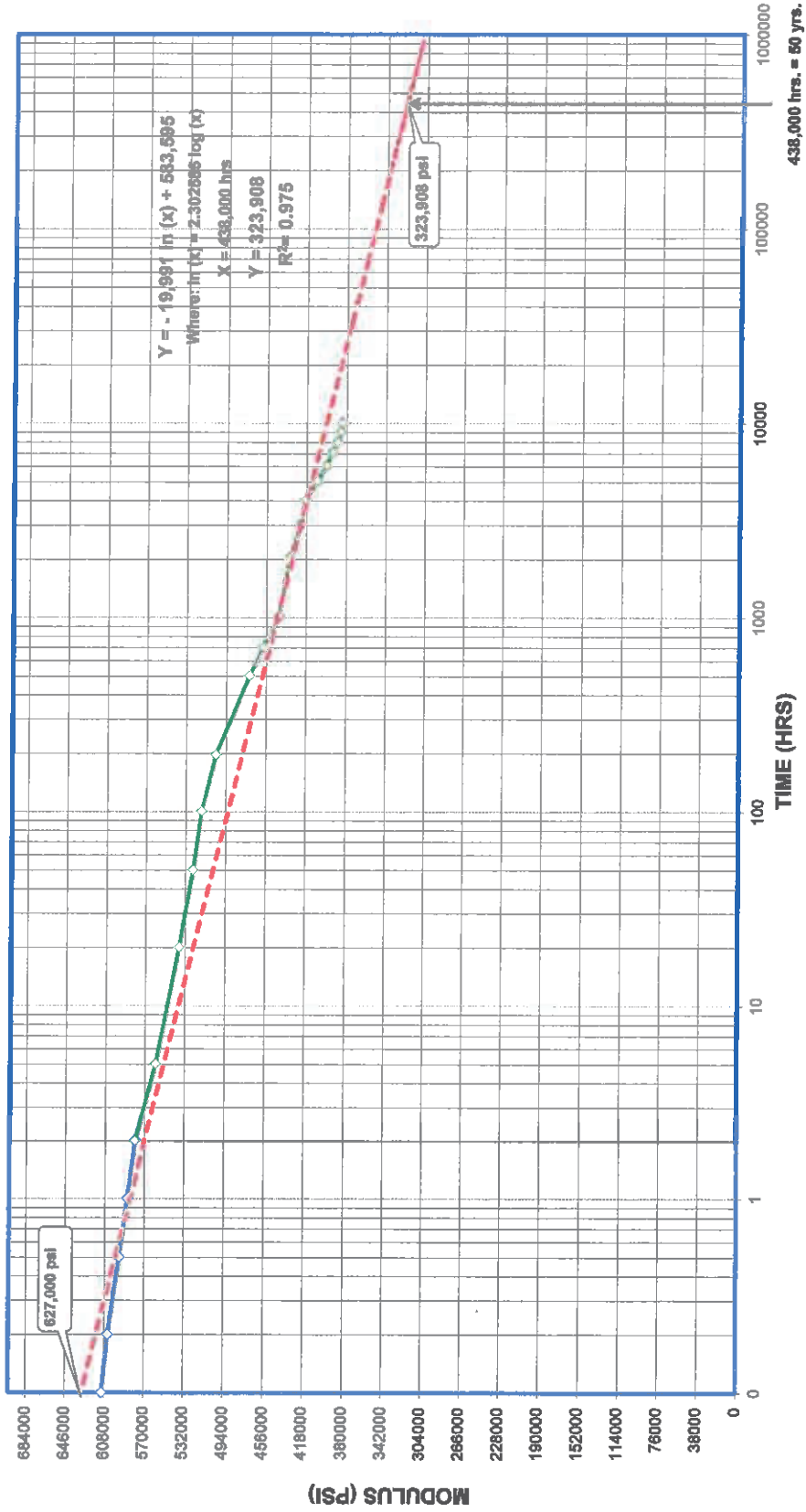
Thickness: 0.254" Width: 0.552"

| <u>TIME (HRS)</u> | <u>Modulus (psi)</u> |
|-------------------|----------------------|
| 0.02 | 601246 |
| 0.10 | 588289 |
| 0.20 | 580778 |
| 0.50 | 575877 |
| 1 | 566319 |
| 2 | 561658 |
| 5 | 550334 |
| 20 | 529004 |
| 50 | 515030 |
| 100 | 505492 |
| 196 | 496302 |
| 500 | 464228 |
| 700 | 443126 |
| 1004 | 433279 |
| 2012 | 423880 |
| 3020 | 417379 |
| 4029 | 411093 |
| 5037 | 401420 |
| 6032 | 393323 |
| 7053 | 389951 |
| 7996 | 387736 |
| 9000 | 381237 |
| 10005 | 378089 |



HTS Pipe Consultants, Inc.
 420 Pickering, Houston, Texas 77091
 Tel: (713) 692-8873 Fax: (713) 692-8502

**FLEXURAL CREEP
 (ASTM D2990)**



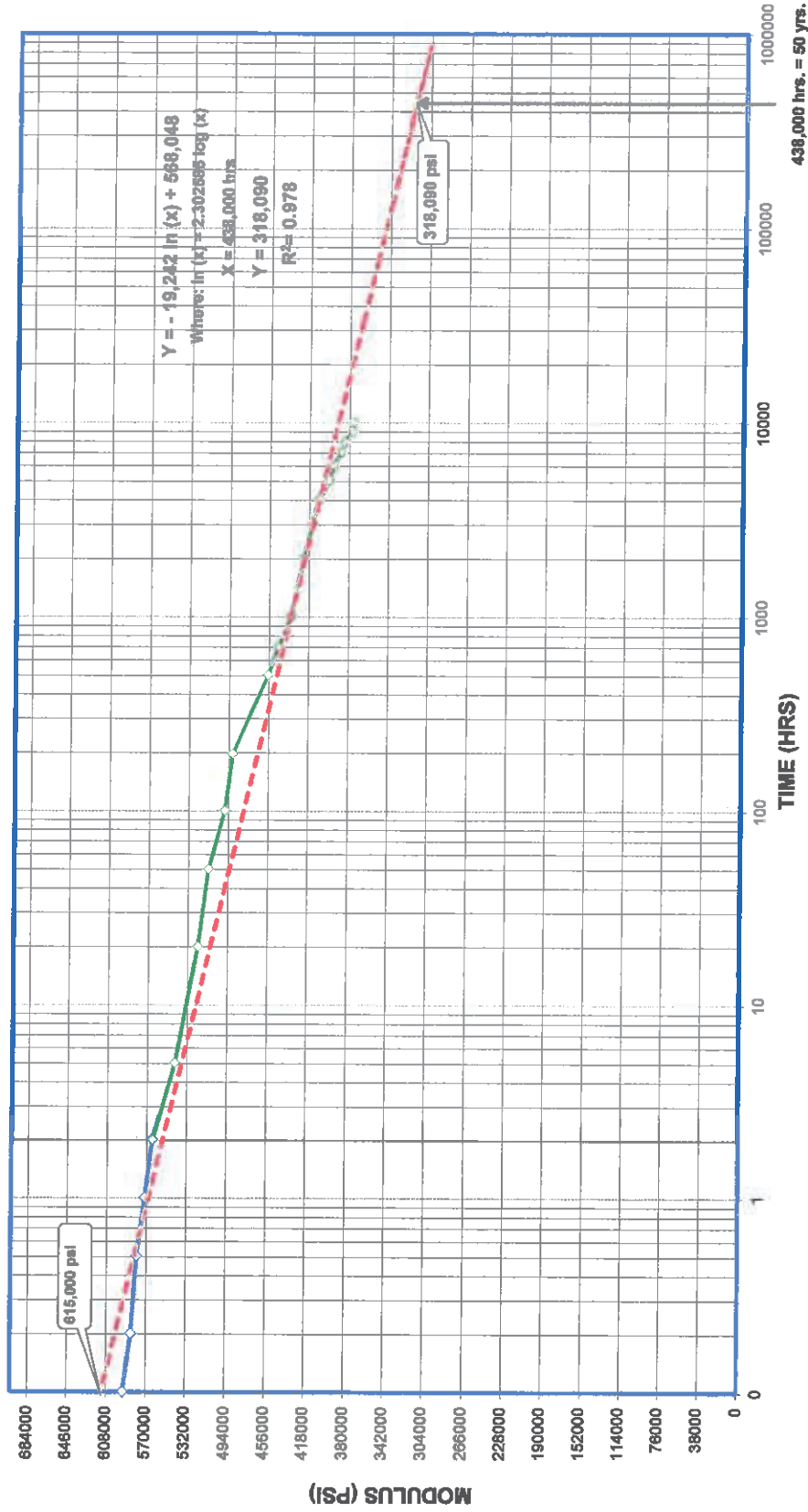
Project Name: Modulus = 323,908 psi (extrapolated to 50 years) Test Temperature : 71° F
 Report Date : January 20, 2014 Laboratory Humidity : 50%
 Sample ID No.: L758-LT - Specimen # 1 Specimen Gage Length : 4.0"
 HTS Report#: AOCF265.001 Line from Lab test data Stress : 1300 psi
 Line from linear extrapolation



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**FLEXURAL CREEP
 (ASTM D2990)**

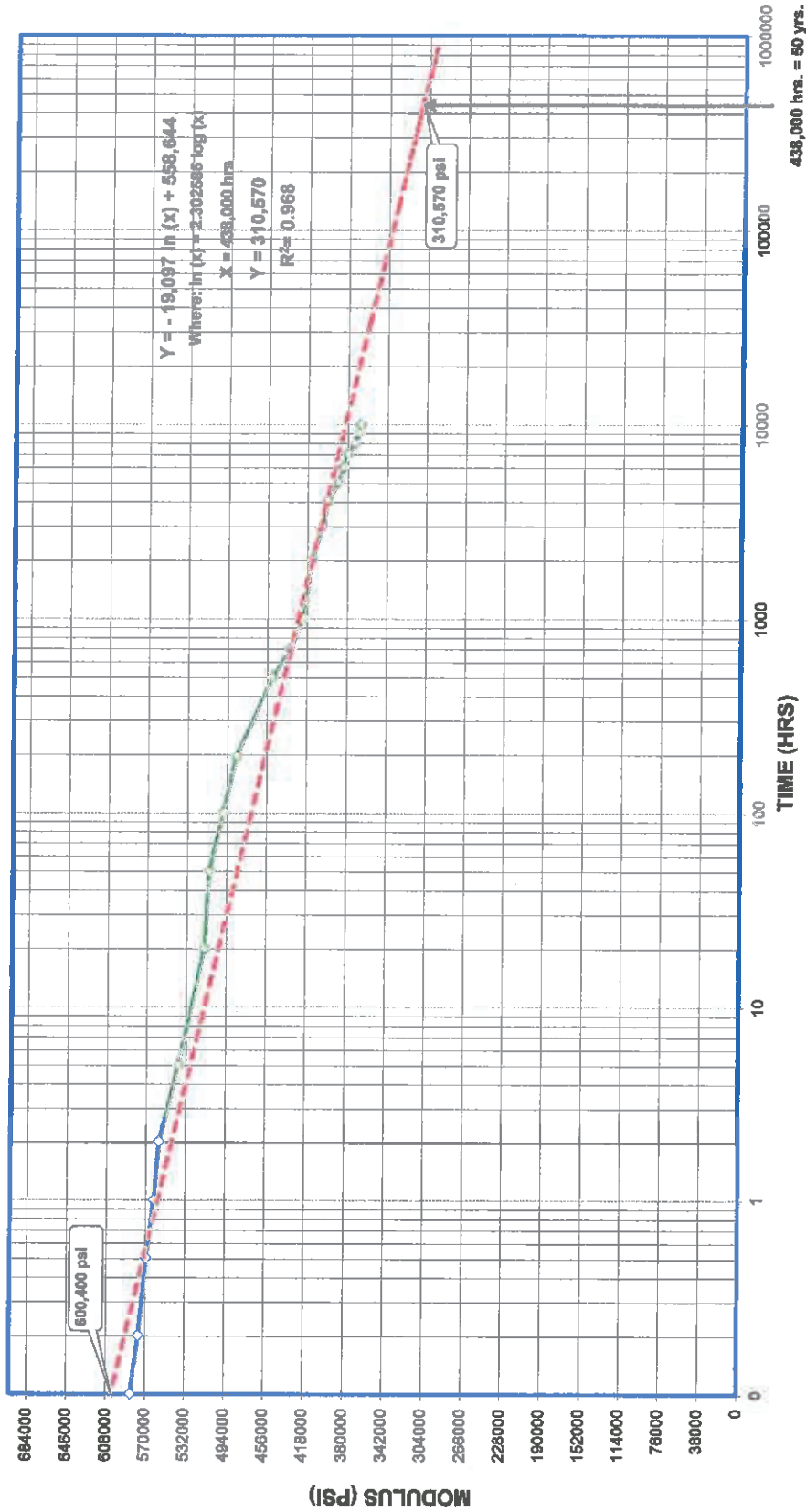


Project Name: **January 20, 2014**
 Report Date : **L758-LT - Specimen # 2**
 Sample ID No.: **AOCF265.001**
 HTS Report#: **438,000 hrs. = 50 yrs.**
 Modulus = **318,090 psi (extrapolated to 50 years)**
 % Retained = **51.7**
 Test Temperature : **71° F**
 Laboratory Humidity : **50%**
 Specimen Gage Length : **4.0"**
 Stress : **1300 psi**
 Legend:
 - Line from Lab test data
 - Line from linear extrapolation



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 420 Pickering, Houston, Texas 77091
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**FLEXURAL CREEP
 (ASTM D2990)**



Project Name: L758-LT - Specimen # 3
Report Date: January 20, 2014
Sample ID No.: AOCF265.001
HTS Report#: AOCF265.001

Modulus = 310,570 psi (extrapolated to 50 years)
% Retained = 51.7
Test Temperature : 71° F
Laboratory Humidity : 50%
Specimen Gage Length : 4.0"
Stress : 1300 psi

Line from Lab test data
Line from linear extrapolation

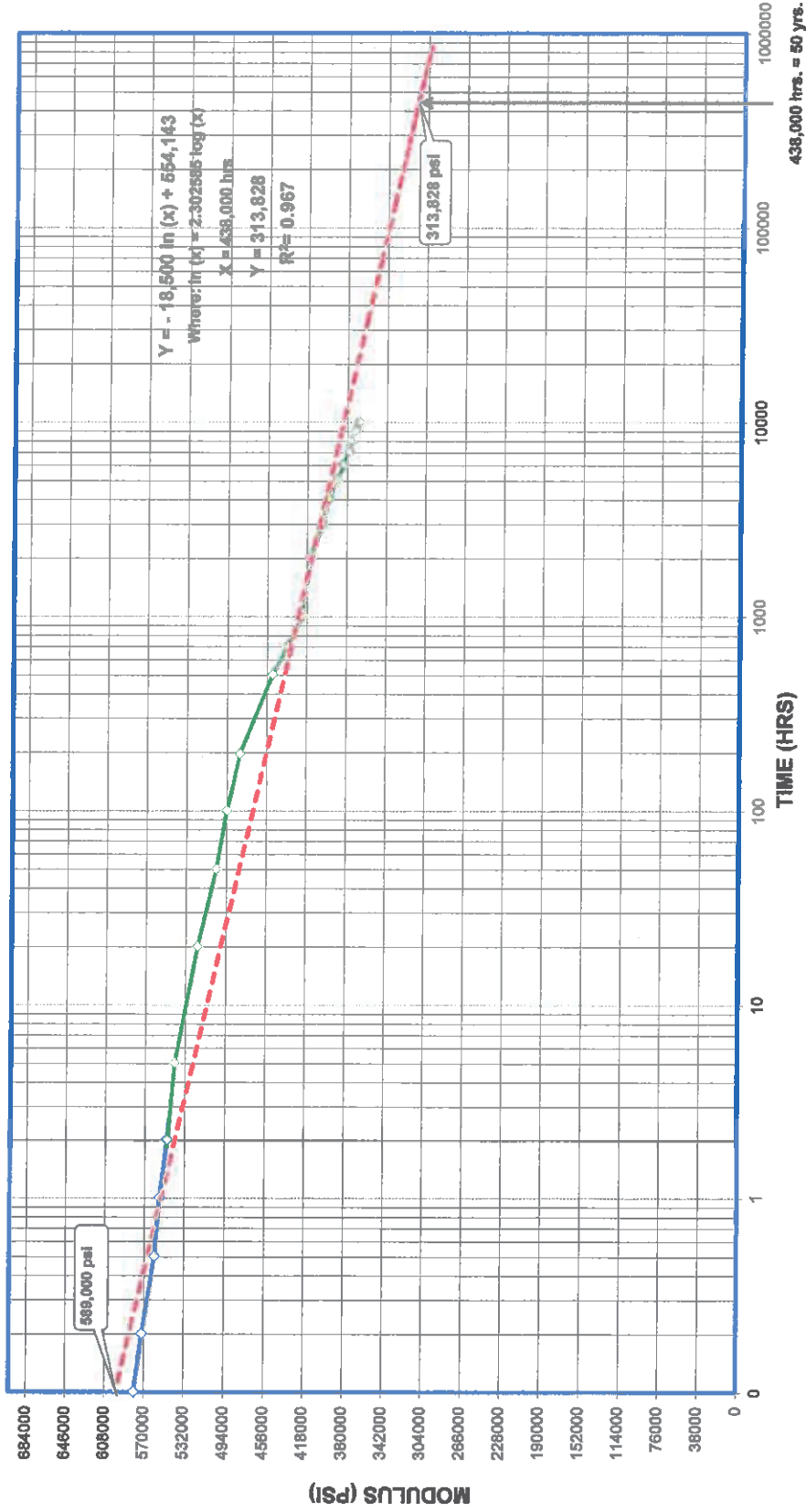
438,000 hrs. = 50 yrs.



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FLEXURAL CREEP (ASTM D2990)



Project Name: January 20, 2014
Report Date : L758-LT - Specimen # 4
Sample ID No.: AOCF265.001
HTS Report#:

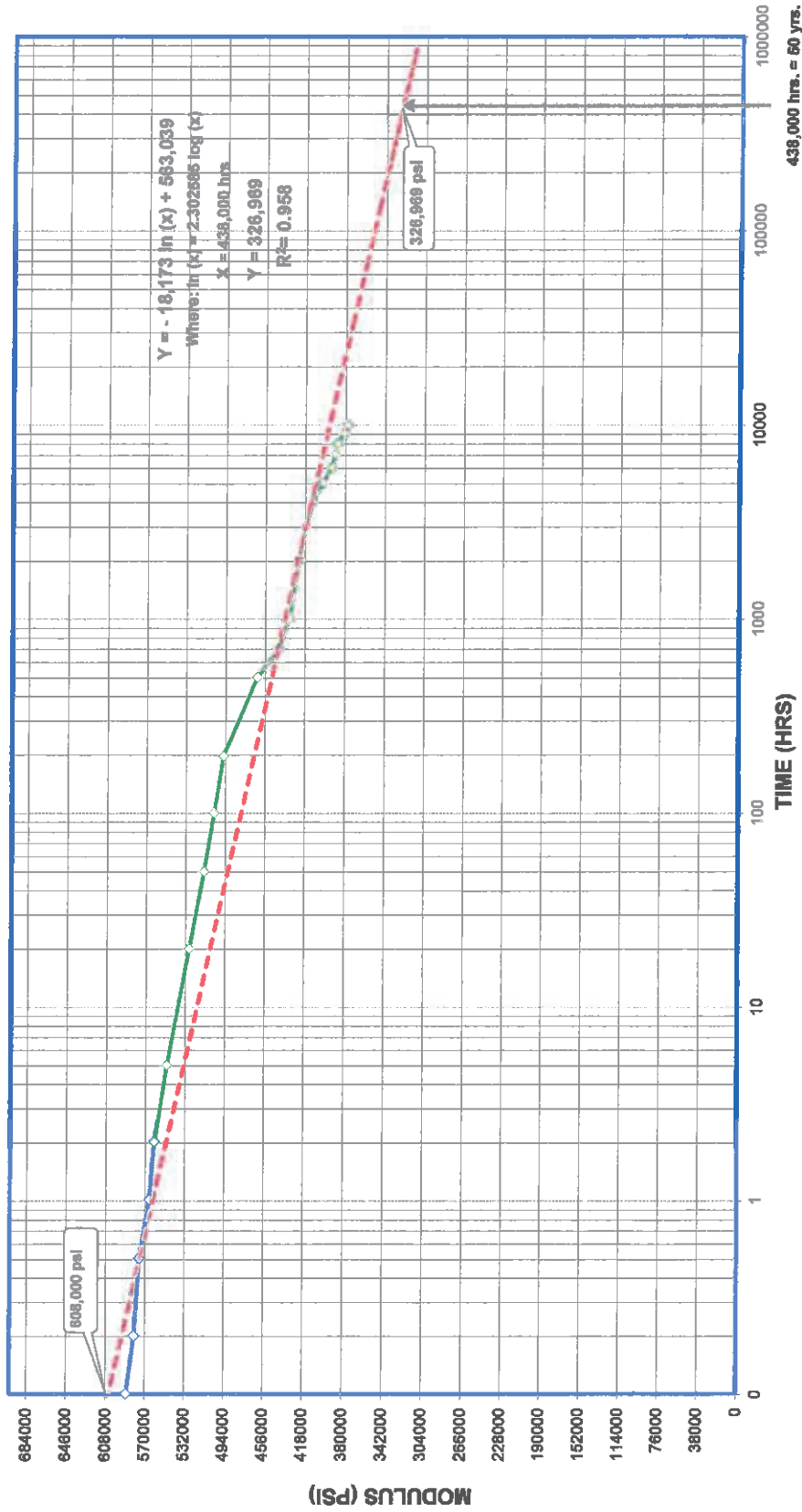
Modulus = 313,828 psi (extrapolated to 50 years)
% Retained = 53.3
Test Temperature : 71° F
Laboratory Humidity : 50%
Specimen Gauge Length : 4.0"
Stress : 1300 psi

438,000 hrs. = 50 yrs.



HTS Pipe Consultants, Inc.
 420 Pickering, Houston, Texas 77091
 Tel: (713) 692-8373 Fax: (713) 692-8802

**FLEXURAL CREEP
 (ASTM D2990)**



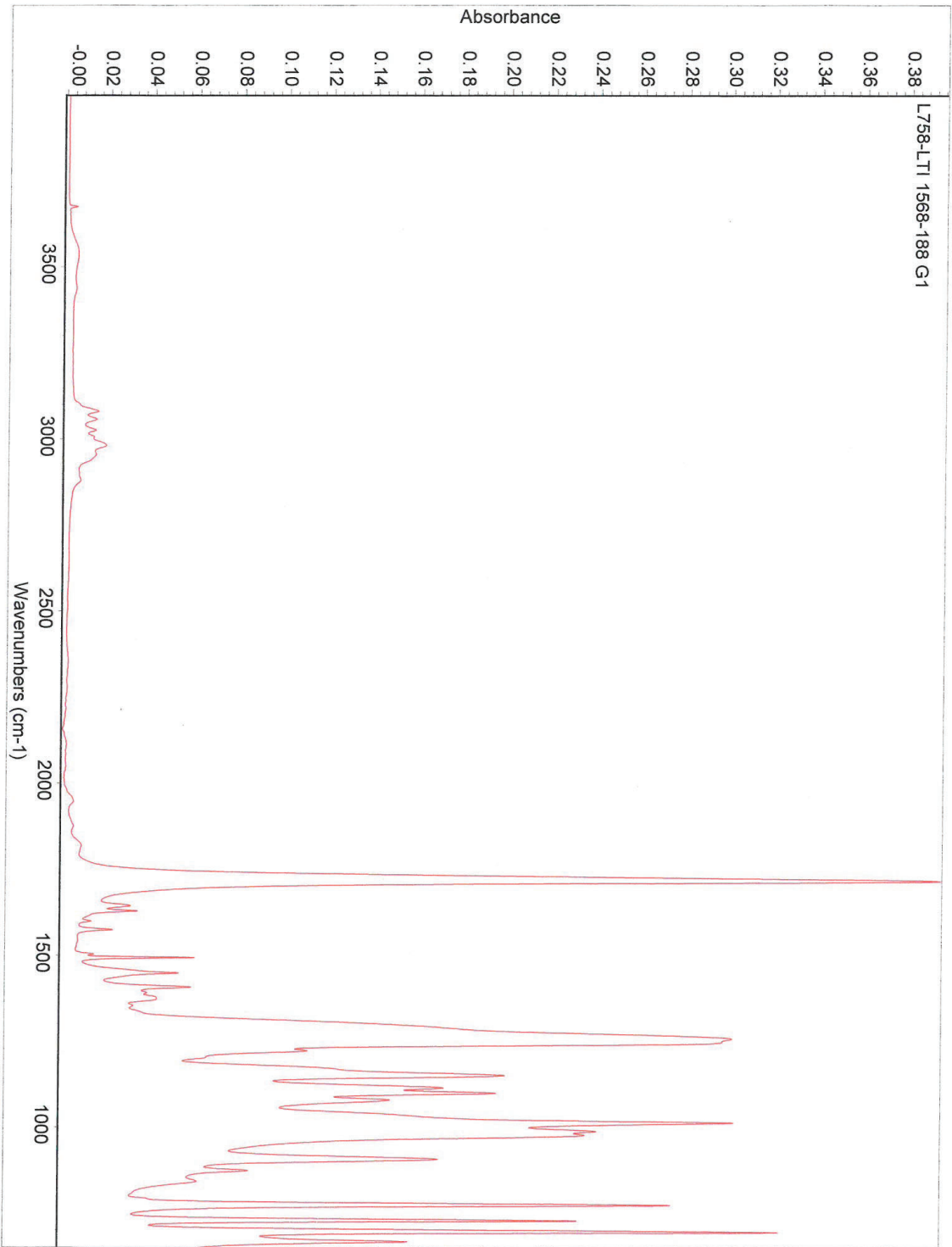
Project Name: Modulus = 326,969 psi (extrapolated to 50 years) **Test Temperature :** 71° F
Report Date : January 20, 2014 **Laboratory Humidity :** 50%
Sample ID No.: L758-LT - Specimen # 5 **Specimen Gauge Length :** 4.0"
HTS Report#: AOCF265.001 **Stress :** 1300 psi

% Retained = 53.8
 - - - - - Line from Lab test data
 - - - - - Line from linear extrapolation



INFRARED FINGERPRINT

11767 Katy Freeway, Suite 490 Houston, TX 77079
800-547-1235





CORROSION DATA

11767 Katy Freeway, Suite 490 Houston, TX 77079
800-547-1235

**SUMMARY OF TEST DATA
RESISTANCE OF CIPP TO CHEMICAL REAGENTS**

SAMPLE ID: L758-LT

Duration: 1 Year

Date Tested: 11/13/2013

| Chemical Reagent (Concentration) | Mechanical Property | Test Method ASTM D | Unit | Control Sample | 1 Year | |
|-------------------------------------|--------------------------|-----------------------|------------|-------------------|------------------|------------------|
| | | | | | Value | % Change |
| Nitric Acid (1.0%) | Observation | 543 | | N/A | No Change | |
| | Weight | 543 | g | 137.27 | 138.61 | 0.98 |
| | Thickness | 2122 | in. | 0.262 | 0.262 | 0.00 |
| | | | mm. | 6.6 | 6.6 | 0.00 |
| | Max. Flexural Modulus | 790 790 | psi psi | 8457 654918 | 7469 547793 | -11.68 -16.36 |
| Sulfuric Acid (5.0%) | Observation | 543 | | N/A | No Change | |
| | Weight | 543 | g | 137.49 | 138.70 | 0.88 |
| | Thickness | 2122 | in. | 0.262 | 0.262 | 0.00 |
| | | | mm. | 6.6 | 6.6 | 0.00 |
| | Max. Flexural Modulus | 790 790 | psi psi | 8457 654918 | 7878 572052 | -6.85 -12.65 |
| Fuel C (100%) | Observation | 543 | | N/A | Light Brown | |
| | Weight | 543 | g | 135.77 | 136.15 | 0.28 |
| | Thickness | 2122 | in. | 0.260 | 0.260 | 0.00 |
| | | | mm. | 6.6 | 6.6 | 0.00 |
| | Max. Flexural Modulus | 790 790 | psi psi | 8457 654918 | 8422.0 640808 | -0.41 -2.15 |
| Sodium Hydroxide (0.5%) | Observation | 543 | | N/A | Light Gray | |
| | Weight | 543 | g | 137.92 | 138.93 | 0.73 |
| | Thickness | 2122 | in. | 0.260 | 0.260 | 0.00 |
| | | | mm. | 6.6 | 6.6 | 0.00 |
| | Max. Flexural Modulus | 790 790 | psi psi | 8457 654918 | 6904 550062 | -18.36 -16.01 |



**SUMMARY OF TEST DATA
RESISTANCE OF CIPP TO CHEMICAL REAGENTS**

SAMPLE ID: L758-LT

Duration: 1 Year

Date Tested: 11/13/2013

| Chemical Reagent (Concentration) | Mechanical Property | Test Method ASTM D | Unit | Control Sample | 1 Year | |
|-------------------------------------|--------------------------|-----------------------|--------|-------------------|-----------|----------|
| | | | | | Value | % Change |
| Vegetable Oil (100%) | Observation | 543 | | N/A | No Change | |
| | Weight | 543 | g | 119.72 | 119.76 | 0.03 |
| | Thickness | 2122 | in. | 0.259 | 0.259 | 0.00 |
| | | | mm. | 6.6 | 6.6 | 0.00 |
| | Max. Flexural Modulus | 790 | psi | 8457 | 8345 | -1.32 |
| psi | | | 654918 | 649069 | -0.89 | |
| Detergent (0.1%) | Observation | 543 | | N/A | No Change | |
| | Weight | 543 | g | 134.30 | 135.63 | 0.99 |
| | Thickness | 2122 | in. | 0.255 | 0.255 | 0.00 |
| | | | mm. | 6.5 | 6.5 | 0.00 |
| | Max. Flexural Modulus | 790 | psi | 8457 | 7132 | -15.67 |
| psi | | | 654918 | 552222 | -15.68 | |
| Soap (0.1%) | Observation | 543 | | N/A | No Change | |
| | Weight | 543 | g | 136.73 | 138.07 | 0.98 |
| | Thickness | 2122 | in. | 0.258 | 0.258 | 0.00 |
| | | | mm. | 6.6 | 6.6 | 0.00 |
| | Max. Flexural Modulus | 790 | psi | 8457 | 7308 | -13.59 |
| psi | | | 654918 | 576412 | -11.99 | |





Wednesday, November 13, 2013

FLEXURAL PROPERTIES OF PLASTICS
 ASTM D790
 3 POINT BEND

INSTRON CORPORATION
 BLUEHILL V. 2.26.

OPERATOR NAME:
 E. CARRILLO

TEMPERATURE (F) / HUMIDITY (%)
 71 / 50

RATE (in/min)
 .110

SAMPLE ID:

L758-LT, CONTROL

| | WIDTH (in) | THICKNESS (in) | SUPPORT SPAN (in) |
|---|---------------|-------------------|----------------------|
| 1 | 0.550 | 0.257 | 4.0 |
| 2 | 0.553 | 0.258 | 4.0 |
| 3 | 0.553 | 0.258 | 4.0 |
| 4 | 0.544 | 0.264 | 4.0 |
| 5 | 0.544 | 0.265 | 4.0 |

| | STRAIN @ MAX (in/in) | MAXIMUM LOAD (lbf) | FLEXURAL STRENGTH (psi) | FLEXURAL MODULUS (psi) |
|--------------------|-------------------------|-----------------------|----------------------------|---------------------------|
| 1 | 0.0410 | 49.7 | 8204 | 654782 |
| 2 | 0.0493 | 52.4 | 8544 | 652803 |
| 3 | 0.0444 | 53.6 | 8731 | 658243 |
| 4 | 0.0371 | 51.2 | 8104 | 655947 |
| 5 | 0.0461 | 55.4 | 8702 | 652816 |
| Mean | 0.0436 | 52.5 | 8457 | 654918 |
| Standard Deviation | 0.0047 | 2.2 | 288 | 2293 |
| Minimum | 0.0371 | 49.7 | 8104 | 652803 |
| Maximum | 0.0493 | 55.4 | 8731 | 658243 |

F353-1-1-C.is_flex



Wednesday, November 13, 2013

FLEXURAL PROPERTIES OF PLASTICS
 ASTM D790
 3 POINT BEND

INSTRON CORPORATION
 BLUEHILL V. 2.26.

OPERATOR NAME:
 E. CARRILLO

TEMPERATURE (F) / HUMIDITY (%)
 71 / 50

RATE (in/min)
 .110

SAMPLE ID:

L758-LT, SAMPLE SOAKED IN NITRIC ACID (1%) FOR 1 YEAR

| | WIDTH (in) | THICKNESS (in) | SUPPORT SPAN (in) |
|---|---------------|-------------------|----------------------|
| 1 | 0.551 | 0.264 | 4.0 |
| 2 | 0.551 | 0.265 | 4.0 |
| 3 | 0.553 | 0.265 | 4.0 |
| 4 | 0.555 | 0.266 | 4.0 |
| 5 | 0.553 | 0.267 | 4.0 |

| | STRAIN @ MAX (in/in) | MAXIMUM LOAD (lbf) | FLEXURAL STRENGTH (psi) | FLEXURAL MODULUS (psi) |
|--------------------|-------------------------|-----------------------|-------------------------------|------------------------------|
| 1 | 0.0501 | 47.5 | 7426 | 546007 |
| 2 | 0.0464 | 48.5 | 7524 | 559283 |
| 3 | 0.0501 | 48.4 | 7478 | 529391 |
| 4 | 0.0400 | 48.4 | 7400 | 548648 |
| 5 | 0.0500 | 49.4 | 7518 | 555634 |
| Mean | 0.0473 | 48.5 | 7469 | 547793 |
| Standard Deviation | 0.0044 | 0.7 | 55 | 11577 |
| Minimum | 0.0400 | 47.5 | 7400 | 529391 |
| Maximum | 0.0501 | 49.4 | 7524 | 559283 |

F353-1.is_flex



Wednesday, November 13, 2013

FLEXURAL PROPERTIES OF PLASTICS
 ASTM D790
 3 POINT BEND

INSTRON CORPORATION
 BLUEHILL V. 2.26.

OPERATOR NAME:
 E. CARRILLO

TEMPERATURE (F) / HUMIDITY (%)
 71 / 50

RATE (in/min)
 .110

SAMPLE ID:

L758-LT, SAMPLE SOAKED IN SULFURIC ACID (5%) FOR 1 YEAR

| | WIDTH (in) | THICKNESS (in) | SUPPORT SPAN (in) |
|---|---------------|-------------------|----------------------|
| 1 | 0.550 | 0.265 | 4.0 |
| 2 | 0.552 | 0.265 | 4.0 |
| 3 | 0.553 | 0.265 | 4.0 |
| 4 | 0.554 | 0.265 | 4.0 |
| 5 | 0.555 | 0.265 | 4.0 |

| | STRAIN @ MAX (in/in) | MAXIMUM LOAD (lbf) | FLEXURAL STRENGTH (psi) | FLEXURAL MODULUS (psi) |
|--------------------|-------------------------|-----------------------|----------------------------|---------------------------|
| 1 | 0.0500 | 49.8 | 7740 | 585066 |
| 2 | 0.0443 | 51.1 | 7903 | 600201 |
| 3 | 0.0476 | 50.2 | 7749 | 554767 |
| 4 | 0.0500 | 52.5 | 8098 | 569062 |
| 5 | 0.0414 | 51.3 | 7902 | 551163 |
| Mean | 0.0467 | 51.0 | 7878 | 572052 |
| Standard Deviation | 0.0038 | 1.1 | 146 | 20651 |
| Minimum | 0.0414 | 49.8 | 7740 | 551163 |
| Maximum | 0.0500 | 52.5 | 8098 | 600201 |



Wednesday, November 13, 2013

FLEXURAL PROPERTIES OF PLASTICS
 ASTM D790
 3 POINT BEND

INSTRON CORPORATION
 BLUEHILL V. 2.26.

OPERATOR NAME:
 E. CARRILLO

TEMPERATURE (F) / HUMIDITY (%)
 71 / 50

RATE (in/min)
 .110

SAMPLE ID:

L758-LT, SAMPLE SOAKED IN FUEL C (100%) FOR 1 YEAR

| | WIDTH (in) | THICKNESS (in) | SUPPORT SPAN (in) |
|---|---------------|-------------------|----------------------|
| 1 | 0.546 | 0.262 | 4.0 |
| 2 | 0.550 | 0.262 | 4.0 |
| 3 | 0.551 | 0.262 | 4.0 |
| 4 | 0.552 | 0.262 | 4.0 |
| 5 | 0.547 | 0.263 | 4.0 |

| | STRAIN @ MAX (in/in) | MAXIMUM LOAD (lbf) | FLEXURAL STRENGTH (psi) | FLEXURAL MODULUS (psi) |
|--------------------|-------------------------|-----------------------|----------------------------|---------------------------|
| 1 | 0.0359 | 53.0 | 8483 | 630788 |
| 2 | 0.0377 | 53.8 | 8556 | 643299 |
| 3 | 0.0332 | 51.7 | 8205 | 649678 |
| 4 | 0.0346 | 53.6 | 8491 | 640871 |
| 5 | 0.0363 | 52.8 | 8374 | 639405 |
| Mean | 0.0355 | 53.0 | 8422 | 640808 |
| Standard Deviation | 0.0017 | 0.8 | 138 | 6842 |
| Minimum | 0.0332 | 51.7 | 8205 | 630788 |
| Maximum | 0.0377 | 53.8 | 8556 | 649678 |

F353-1-3 is_flex



Wednesday, November 13, 2013

FLEXURAL PROPERTIES OF PLASTICS
 ASTM D790
 3 POINT BEND

INSTRON CORPORATION
 BLUEHILL V. 2.26.

OPERATOR NAME:
 E. CARRILLO

TEMPERATURE (F) / HUMIDITY (%)
 71 / 50

RATE (in/min)
 .110

SAMPLE ID:

L758-LT, SAMPL SOAKED IN SODIUM HYDROXIDE (0.5%) FOR 1 YEAR

| | WIDTH (in) | THICKNESS (in) | SUPPORT SPAN (in) |
|---|---------------|-------------------|----------------------|
| 1 | 0.545 | 0.265 | 4.0 |
| 2 | 0.550 | 0.265 | 4.0 |
| 3 | 0.551 | 0.265 | 4.0 |
| 4 | 0.551 | 0.265 | 4.0 |
| 5 | 0.547 | 0.266 | 4.0 |

| | STRAIN @ MAX (in/in) | MAXIMUM LOAD (lbf) | FLEXURAL STRENGTH (psi) | FLEXURAL MODULUS (psi) |
|--------------------|-------------------------|-----------------------|-------------------------------|------------------------------|
| 1 | 0.0497 | 42.7 | 6694 | 558477 |
| 2 | 0.0501 | 44.3 | 6882 | 542777 |
| 3 | 0.0500 | 45.1 | 6986 | 560681 |
| 4 | 0.0500 | 45.9 | 7112 | 544351 |
| 5 | 0.0488 | 44.1 | 6844 | 544021 |
| Mean | 0.0497 | 44.4 | 6904 | 550062 |
| Standard Deviation | 0.0005 | 1.2 | 157 | 8743 |
| Minimum | 0.0488 | 42.7 | 6694 | 542777 |
| Maximum | 0.0501 | 45.9 | 7112 | 560681 |

F353-1-4 is_flex



Wednesday, November 13, 2013

FLEXURAL PROPERTIES OF PLASTICS
ASTM D790
3 POINT BEND

INSTRON CORPORATION
BLUEHILL V. 2.26

OPERATOR NAME:
E. CARRILLO

TEMPERATURE (F) / HUMIDITY (%)
 71 / 50

RATE (in/min)
 .110

SAMPLE ID:

L758-LT, SAMPLE SOAKED IN VEGATABLE OIL (100%) FOR 1 YEAR

| | WIDTH (in) | THICKNESS (in) | SUPPORT SPAN (in) |
|---|---------------|-------------------|----------------------|
| 1 | 0.554 | 0.266 | 4.0 |
| 2 | 0.555 | 0.264 | 4.0 |
| 3 | 0.557 | 0.264 | 4.0 |
| 4 | 0.554 | 0.263 | 4.0 |
| 5 | 0.552 | 0.263 | 4.0 |

| | STRAIN @ MAX (In/In) | MAXIMUM LOAD (lbf) | FLEXURAL STRENGTH (psi) | FLEXURAL MODULUS (psi) |
|--------------------|-------------------------|-----------------------|-------------------------------|------------------------------|
| 1 | 0.0366 | 53.1 | 8134 | 631077 |
| 2 | 0.0365 | 57.3 | 8889 | 683614 |
| 3 | 0.0417 | 53.1 | 8199 | 646051 |
| 4 | 0.0454 | 54.2 | 8486 | 644657 |
| 5 | 0.0397 | 51.0 | 8019 | 639945 |
| Mean | 0.0400 | 53.7 | 8345 | 649069 |
| Standard Deviation | 0.0038 | 2.3 | 349 | 20180 |
| Minimum | 0.0365 | 51.0 | 8019 | 631077 |
| Maximum | 0.0454 | 57.3 | 8889 | 683614 |

F353-1-5.is_flex



Wednesday, November 13, 2013

FLEXURAL PROPERTIES OF PLASTICS
 ASTM D790
 3 POINT BEND

INSTRON CORPORATION
 BLUEHILL V. 2.26

OPERATOR NAME:
 E. CARRILLO

TEMPERATURE (F) / HUMIDITY (%)
 71 / 50

RATE (in/min)
 .110

SAMPLE ID:

L758-LT, SAMPLE SOAKED IN DETERGENT (.1%) FOR 1 YEAR

| | WIDTH (in) | THICKNESS (in) | SUPPORT SPAN (in) |
|---|---------------|-------------------|----------------------|
| 1 | 0.549 | 0.258 | 4.0 |
| 2 | 0.549 | 0.259 | 4.0 |
| 3 | 0.551 | 0.259 | 4.0 |
| 4 | 0.554 | 0.259 | 4.0 |
| 5 | 0.556 | 0.259 | 4.0 |

| | STRAIN @ MAX (in/in) | MAXIMUM LOAD (lbf) | FLEXURAL STRENGTH (psi) | FLEXURAL MODULUS (psi) |
|--------------------|-------------------------|-----------------------|-------------------------------|------------------------------|
| 1 | 0.0477 | 43.2 | 7090 | 556367 |
| 2 | 0.0458 | 43.6 | 7104 | 556450 |
| 3 | 0.0470 | 44.2 | 7176 | 556871 |
| 4 | 0.0450 | 43.0 | 6947 | 559209 |
| 5 | 0.0457 | 45.6 | 7340 | 532212 |
| Mean | 0.0462 | 43.9 | 7132 | 552222 |
| Standard Deviation | 0.0011 | 1.1 | 143 | 11246 |
| Minimum | 0.0450 | 43.0 | 6947 | 532212 |
| Maximum | 0.0477 | 45.6 | 7340 | 559209 |

F353-1-6.is_flex



Wednesday, November 13, 2013

FLEXURAL PROPERTIES OF PLASTICS
 ASTM D790
 3 POINT BEND

INSTRON CORPORATION
 BLUEHILL V. 2.26

OPERATOR NAME:
 E. CARRILLO

TEMPERATURE (F) / HUMIDITY (%)
 71 / 50

RATE (in/min)
 .110

SAMPLE ID:

L758-LT, SAMPLE SOAKED IN SOAP (.1%) FOR 1 YEAR

| | WIDTH (in) | THICKNESS (in) | SUPPORT SPAN (in) |
|---|---------------|-------------------|----------------------|
| 1 | 0.549 | 0.262 | 4.0 |
| 2 | 0.549 | 0.262 | 4.0 |
| 3 | 0.557 | 0.262 | 4.0 |
| 4 | 0.550 | 0.263 | 4.0 |
| 5 | 0.553 | 0.263 | 4.0 |

| | STRAIN @ MAX (In/In) | MAXIMUM LOAD (lbf) | FLEXURAL STRENGTH (psi) | FLEXURAL MODULUS (psi) |
|--------------------|-------------------------|-----------------------|-------------------------------|------------------------------|
| 1 | 0.0443 | 45.6 | 7259 | 581949 |
| 2 | 0.0498 | 47.6 | 7586 | 575787 |
| 3 | 0.0403 | 45.9 | 7203 | 575460 |
| 4 | 0.0500 | 45.1 | 7115 | 573403 |
| 5 | 0.0500 | 47.0 | 7375 | 575462 |
| Mean | 0.0469 | 46.3 | 7308 | 576412 |
| Standard Deviation | 0.0044 | 1.0 | 182 | 3237 |
| Minimum | 0.0403 | 45.1 | 7115 | 573403 |
| Maximum | 0.0500 | 47.6 | 7586 | 581949 |



Felt

National Liner uses quality liners manufactured by Applied Felts, because they partner with us to address the unique requirements of each National Liner CIPP job. As the world's largest independent manufacturer of 100% vertically integrated felt liners, Applied Felts is accredited ISO 9001:2008 and every phase of manufacturing – including a 28-stage testing system – is done in one location.

First, raw materials such as polyester fibers, polyurethane granules and other materials are tested for quality. Next, during the five-stage felt production process, a number of criteria including density, thickness, fiber distribution evenness, strength and weld-ability of the finished felt are tested. Applied Felts utilizes a “single pass” extruded process for the coating of the felt to ensure that no pinholes are present. During this phase, four separate tests are conducted to monitor coating uniformity, mass and weight distribution.

Once the felt has been coated, each roll is sampled and destructively tested across a total of nine quality characteristics, including density at various pressures, tensile strength, coating distribution and more. During production, the testing doesn't end. The liners are continually checked to ensure they satisfy the specifications of your order.

Finally, when the project is complete, a sample is cut from each finished liner and is tested across yet another seven criteria to make sure the circumference, density, length, coating integrity, weld strengths and other properties meet and exceed your exacting requirements.



APPLIED FELTS

Applied Felts Inc. 450 College Drive Martinsville, Virginia 24112
 Telephone (276) 656-1904 Fax (276) 656-1909
 E-mail: office@appliedfelts.com

Product Information

Cure-Line Pipe® Inversion Tube

DESCRIPTION

A multiple layer felt liner with impermeable coating conforming to ASTM-1216.

APPLICATION

Installation Method: Inversion
 Impregnation Method: Vacuum impregnation and pressure rollers

CURING METHODS:

| Resin Type | Coating | Warm Water < 50°C | Hot Water < 90°C | Steam < 110°C |
|-------------|--------------|-------------------|------------------|---------------|
| Polyester | Polyurethane | Yes | Yes | Yes |
| | PVC | Yes | N/A | N/A |
| Vinyl Ester | Polyurethane | N/A | Yes | Yes |
| | PVC | N/A | N/A | N/A |
| Epoxy | Polyurethane | Yes | Yes | Yes |
| | PVC | Yes | N/R | N/R |

N/A= Not applicable
 N/R= Not Recommended

| | |
|---------------------------------------|--------------------------|
| DIAMETER RANGE | Generally (6" to 80") |
| THICKNESS RANGE | 1.5mm to 100mm |
| AVAILABLE MANUFACTURED LENGTHS | Any length made to order |

This Product Information sheet gives general information. Exact coating type and thickness will depend on the specific types of resin being used. Please contact our Technical Team for specific advice.

NATIONAL LINER, L.L.C.
NATIONAL LINER™ INSTALLATION PROCEDURES

5.0 INSTALLATION PROCEDURES

5.01 Safety

The Contractor shall carry out this operation in strict accordance with all OSHA and manufacturer's safety requirements. Particular attention is drawn to those safety requirements involving working with scaffolding entering confined spaces and operations with hot media.

5.02 Pre-Installation

Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections. Before installing CIPP the existing pipe must be carefully inspected to determine the location of any conditions, which may prevent proper installation of the CIPP, and it shall be noted so that these conditions can be corrected. The Owner shall keep a videotape and suitable log for later reference.

(A) Bypass

Bypass Pumping: The contractor shall provide for the flow of sewage around the section of sewer lines designated for lining. The bypass shall be made by plugging the line at an existing upstream manhole and pumping or directing the flow to a downstream manhole or adjacent sanitary sewer system. The pump(s) and bypass lines shall be of adequate capacity and size to handle the flow. Raw sewage shall be routed back to the sanitary sewer system.

(B) Cleaning

Pre-Installation Cleaning: It shall be the responsibility of the Contractor to remove all debris which is located within the sewer pipe and dispose of the debris in accordance with all applicable laws and regulations.

(C) Pre-Inspection

Pre-Installation Television Inspection: It shall be the responsibility of the Contractor to video (TV) inspect the sewer pipe immediately before the insertion of the impregnated tube to

assure that the pipe is clean and existing pipe conditions are acceptable for lining.

5.03 Resin Impregnation

The Contractor will designate a location where the tube will be impregnated. The volume of resin used for tube impregnation should be sufficient to fill the volume of air voids in the tube with additional resin in the range of 5 to 10% for polymerization shrinkage and the loss of resin through cracks and irregularities in the original pipe wall. A vacuum impregnation process and a roller system shall be used to remove air from the tube and uniformly distribute the resin throughout the tube.

5.04 Inversion Using Hydrostatic Head

The resin-impregnated tube shall be inserted through an existing manhole by means of an inversion ring or standpipe, capable of applying the hydrostatic head required to fully extend the tube to the next designated manhole or termination point. The tube shall be inserted into the inversion standpipe: the tube shall be turned inside out and attached to the inversion standpipe so that a leak-proof seal is corrugated. The inversion head shall be adjusted to a sufficient height to invert the tube from manhole to manhole and to hold it tight against the existing pipe wall, producing dimples at side connections and flared ends at the manhole. Care shall be taken not to overstress the tube at the elevated curing temperatures, which may cause damage or failure prior to cure.

5.05 Inversion Using Pressurized Air

The resin-impregnated tube shall be installed through an existing manhole by means of a guide chute or specialized air chamber that allows for controlled air pressure to fully extend the tube to the next designated manhole or termination point. The tube shall be turned inside out at the front of the guide chute or air chamber and the inversion air pressure shall be adjusted to a sufficient level to invert the tube from one manhole to the other and hold it tight against the existing pipe. Care shall be taken not to overstress the tube at the elevated curing temperatures, which may cause damage or failure prior to cure.

5.06 Pulling Resin-Impregnated Tube into Position

Resin-impregnated tubes that are designed to be installed by the pulled-in-place method may be designed with or without an inner plastic coating. The resin-impregnated tube shall be pulled into place using a power winch. The tube should be pulled through an existing manhole or

approved access to fully extend to the next designated manhole or termination point. Care should be exercised not to damage the tube as a result of friction during the pull-in process. If the tube has an inner plastic coating it is attached to a vertical standpipe of sufficient height for curing with water. For air or steam cure the tube is attached at both ends to an appropriate manifold for controlling the air and/or steam pressures. If the tube does not have an inner plastic coating then it will be inflated with the inversion of an inner calibration hose into the center of the resin-impregnated tube. The calibration hose may be inverted with the use of a vertical standpipe for water cure and with the use of a guide chute or pressure chamber for air/steam cure. Either method of installing the calibration hose and inflating the resin-impregnated tube tightly against the existing pipe shall be according to ASTM F1743. The acceptable longitudinal elongation shall not be more than 5% of the overall length measured after the tube has been inflated and/or the calibration hose has been installed.

5.07 Curing Using Circulated Heated Water

After the tube installation process is completed, the Contractor shall supply a suitable heat source and water recirculation throughout the section to uniformly raise the water temperature above the temperature required to effect a cure of the resin system. The manufacturer of the resin system shall recommend the temperature/time cure cycle for the installed liner that will include an initial heat up and post cure, as necessary.

The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing water supply. Another such gauge shall be placed between the layers of the impregnated tube in the upstream, downstream, and intermediate manholes to determine the temperature during curing. Water temperature in the line during the curing period shall not be less than 130 degrees F or more than 200 degrees F as measured at the heat source return line. Initial cure may be considered complete when the exposed portions of the CIPP appear to be hard, and the remote sensing device indicates the temperatures to be adequate, as recommended by the manufacturer of the resin system.

5.08 Curing Using Steam

After the tube installation process is completed, the Contractor shall supply suitable steam generating equipment that is capable of distributing steam throughout the section to uniformly raise the temperature above the temperature required to effect a cure of the resin system. The manufacturer of the resin system shall recommend the temperature/time cure cycle for the installed liner that will include an initial heat up and post cure, as necessary.

The steam generating equipment shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing steam supply, as well as internal pressure of the steam in the liner. Another such gauge shall be placed between the layers of the impregnated tube in the upstream, downstream, and intermediate manholes to determine the temperature during curing. Initial cure may be considered complete when the exposed portions of the CIPP appear to be hard, and the remote sensing device indicates the temperatures to be adequate, as recommended by the manufacturer of the resin system. The curing of the CIPP must take into account the existing pipe material, the resin system, materials of construction of the liner, and ground conditions (temperature, moisture level, and thermal conductivity of the soil).

5.09 Cooling Down for Water and Steam

The Contractor shall cool the hardened cured-in-place-pipe to a temperature below 100 degrees F before relieving the water column or internal steam pressure. For water curing, cool water may be added to the water column while draining hot water from a small hole at the end of the CIPP so that a constant water column height is maintained until cool-down is completed. For steam cure, cool water may also be introduced into the section to replace a mixture of air/steam being relieved from a small hole at the end of the CIPP. For either curing method, pressure shall be maintained inside the CIPP during cool down and careful attention shall be taken not to cool too quickly to eliminate the possibility of thermal shock or otherwise damaging the newly installed CIPP.

5.07 Service Connection

After curing, the Contractor shall reinstate the existing live building laterals designated by the Construction Engineer. All lateral services shall be reinstated within hours of beginning the inversion process. This shall generally be done without excavation from the interior of the pipe by means of a television camera and a cutting device that reinstates the building laterals to not less than 90% of their original capacity. The Contractor shall certify that he has a minimum of two (2) complete working units plus spare key components on the site before each inversion.

5.08 Fit/Finish

The finished pipe shall be continuous over the entire length of the sewer section. The finished liner will tightly conform to the walls of the existing (host) pipe, therefore, it is the Contractor's responsibility to verify the section lengths and pipe dimensions. No gap or annular space between the

finished liner and the host pipe shall be allowed or be visible at the manhole, sewer service connection, or other exposed points within the finished liner section. The finished liner shall be homogenous throughout and free of any protrusions, holes, cracks, etc., which in the opinion of the Engineer will affect the liner's structural integrity, hydraulic performance, future maintenance access, and overall line performance. After the work is completed, the Contractor shall provide the Engineer with a videotape showing both the before and after conditions of the liner including the reinstated building lateral connections.

5.09 Inspection Practices

For each installation length designated by the purchaser in the purchase agreement, the preparation of CIPP samples is required from one of the following methods:

The sample should be fabricated from material taken from the fabric tube and the resin system used, and cured in a clamped mold, placed in the downtube when heated water is used, and in the silencer when steam is used. When the CIPP is constructed of oriented continuous or discontinuous fibers to enhance the physical properties of the CIPP, this method of sample preparation is recommended in order to allow testing in the appropriate orientation (axial or circumferential) of the CIPP. This method is also recommended when large-diameter CIPP is installed that may otherwise not be prepared with any other representative method.

Alternatively, samples may be cut from a section of the cured CIPP at an intermediate manhole or at the termination point that has been installed through a like diameter section of pipe or other tubular restraining means. The restraining pipe or tube must be held in place by a suitable heat sink, such as sandbags.

For either sample method, the CIPP samples must be large enough to provide a minimum of three specimens and a recommended five specimens for flexural testing in accordance with Section 8.3.1 of ASTM D5813. For internal pressure or other applications tensile testing (ASTM D638) may be required and should be carried out in accordance with Section 8.3.3 of ASTM D5813.

Installed CIPP wall thickness measurements shall be measured from the representative samples and measured in accordance Section 8.1.2 of ASTM D5813.

Any additional or alternative tests required by the specifying engineer shall be mutually agreed upon by the installer and owner prior to the installation of the CIPP.

5.10 Clean Up

After the installation work has been completed and all testing acceptable, the Contractor shall clean up the entire project area. The Contractor shall dispose of all excess material and debris not incorporated into the permanent installation.

Hot Air Curing Procedure for 6" through 24" Diameter Piping

INSTALLATION PROCEDURE

1. Set up traffic safety equipment per the traffic safety plan and the flow diversion equipment as required.
2. Confirm that the existing pipeline is free of debris and excessive inflow by CCTV inspection. While CCTV inspection is in progress, make the set up for inverting and processing the liner.
3. Once the existing pipeline is confirmed ready for lining, bring the saturated tube end out of the truck and attach to the inversion unit (AIU). Attach or position the downtube support hose and use the air flow from the heater truck to invert the tube through the support hose and ready to enter the pipeline to be rehabilitated.
4. Begin the inversion process by smoothly opening the air supply valve on the AIU and allowing the air to flow being careful not to allow the liner to exceed the tube manufacturer's maximum recommended cold pressure. Adjust the rate of air entering the AIU to keep the liner moving but at as steady and controllable rate as possible.
5. Once the liner enters the downstream manhole, let it fully invert. Remove excess material leaving the length necessary to install sample tube and end discharge can.
6. Install the upstream and downstream end cans.
7. At the upstream end, connect the hot air discharge hose to the inlet end can. Connect a thermal wire from the inlet can and the bottom host pipe – liner interface to one of the thermocouple readers. At the downstream end, connect the hot air discharge hose to the outlet control station (OCS). Place two thermowires in the bottom of the host pipe – liner interface and connect the two wires to the remaining thermocouple reader.
8. Set the outlet control valve and begin adding air until the required expansion pressure is read on the OCS's gauge. It is recommended that the liner be inflated to the tube manufacturer's recommended minimum expansion pressure (or head). *Note: When water is observed actively entering the pipeline under an external hydrostatic head, the minimum expansion pressure for curing should be increased by an amount equal to the hydrostatic pressure (1 psi for each 2.3 feet of water above pipe invert).*
9. Once the site required pressure inside the liner is achieved, begin adding steam to the air stream until a temperature of approximately 190°F is read on the thermowire at the air inlet fitting indicating that the air-steam mixture entering the liner is at this temperature. Monitoring the pressure and temperature at the outlet end, adjust the outlet control valve as required to maintain the pressure within 1 psi of the recommended pressure. Maintain the temperature entering at 190°F until an exotherm is observed at the downstream end on the thermowire (or the liner is hardened at all observable points).
10. Once the exotherm has been observed, post curing should begin. Smoothly bring the temperature of the air-steam mixture entering the liner to a temperature in the range of 230°F to 260°F by increasing the amount of steam to the air stream. If the equipment being utilized, site accessibility, or other site specific parameters inhibit the ability to achieve this temperature range, then the installation crew is advised to seek the highest temperature possible above the 190°F already accomplished, given the circumstances encountered.

11. Post-curing is complete when the temperature at the downstream end's bottom interface thermowire has been at or above 125°F for at least 90 minutes. *Higher interface temperatures may achieve total curing in less time; but, in no case should the time from reaching an internal air temperature at the outlet end of 190°F be less than 60 minutes.*
12. Once the post-curing is completed, the cooldown process should begin. Smoothly bring the temperature of the air down by ceasing to add steam to the air stream and increasing the air flow from the compressor as required to keep the pressure constant (the same as it was during the curing process) as the liner is cooled. Continue the cool-down process until all the interface thermowires read below 100°F for at least 15 minutes. If the heater truck is so equipped, a heat exchanger can be used to cool the air further so as to make the cooldown proceed more quickly. However, the cooldown rate of the liner should be no greater than those given below for the respective thickness ranges:

| | |
|-------------------|--------------------|
| 4.5mm – 16.5mm - | 7.5°F / 15 minutes |
| 16.5mm – 22.5mm - | 6.0°F / 15 minutes |

13. Once cooldown has been completed, the internal pressure can be released and the ends opened. Inspect immediately with a CCTV for any defects. If no defects are found, the service connections can then be re-instated; otherwise take the proper corrective action(s) for the defect(s) found per the direction given in the Liner System's Operations Manual.

Cautionary Note: These guidelines are given to inform the reviewer of our standard approach to the curing of the liner using hot air. You should be advised, however, that the actual jobsite conditions present at the time of the work being performed may warrant modifications to this written procedure. The training of a CIPP crew teaches the installation team to recognize these site specific changes and to react accordingly in an effort to achieve the best quality CIPP possible.

Abby Yung

From: [REDACTED]
Sent: Tuesday, April 25, 2023 5:39 PM
To: Abby Yung
Subject: RE: Cost Estimates Request - CIPP/lining the laterals

Hello Abby

Most of our project are 6" and above. The projects we have completed only reconnect the laterals.

But for some budgeting on 6" a typical unit price would be around \$ 130.00 / LF

Hope this helps

Thanks

[REDACTED]

From: Abby Yung <ayung@markthomas.com>
Sent: Tuesday, April 25, 2023 5:06 PM
To: Abby Yung <ayung@markthomas.com>
Subject: RE: Cost Estimates Request - CIPP/lining the laterals

Good Evening!

Would you be able to inform me of your intentions regarding the provision of the cost estimate?
Thank you.

Abby Yung
Associate Sanitary Engineer
(415) 969-0250 cell
MARK THOMAS

From: Abby Yung
Sent: Monday, April 24, 2023 1:33 PM
To: Abby Yung <ayung@markthomas.com>
Subject: Cost Estimates Request - CIPP/lining the laterals

Good afternoon!

I hope this message finds you well.

The District is currently working, researching, and budgeting on a Laterals CIPP program; to line the District's problematic laterals. I am reaching out to inquire a rough cost estimate/quote for lining these laterals. Based on the TABLE below, with different qty requested, please provide the est. COST per LF. I understand the cost may vary in future, nevertheless, any information you could provide me with by tomorrow would be greatly appreciated.

Thank you for your time and I look forward to hearing back from you.

Used 31 ft for all lower laterals with 4 inches in diameter (size)

| Lower Laterals to be lined/CIPP: | Quantity: | CIPP Length(ft) per laterals | Cost per LF: | Total Cost: |
|----------------------------------|-----------|------------------------------|--------------|-------------|
| Option 1: | 1,000 | 31 | | |
| Option 2: | 2,000 | 31 | | |
| Option 3: | 5,000 | 31 | | |

Abby Yung

Associate Sanitary Engineer
(415) 969-0250 cell

MARK THOMAS

markthomas.com

Consolidated Tables Summary:

Summary of SSOs and Emergency Events:

| | SSO events | Emergency Calls | Calls/Day |
|--|------------|-----------------|-----------|
| Total BEFORE Lateral Service Started (8 Years, 2007-2014) | 117 | 6350 | 2.2 |
| Total AFTER lateral Service Started (8 Years, 2015-2022) | 85 | 1580 | 0.5 |
| % Reduction of Events | 27% | 75% | 75% |

District-Wide Lateral Cleaning Frequency:

| Laterals Cleaning Frequency: (Months) | Number of Laterals: | Annual Frequency |
|--|---------------------|------------------|
| 3 | 1 | 4 |
| 6 | 10 | 20 |
| 11 | 1 | 1 |
| 12 | 4849 | 4849 |
| 15 | 25 | 20 |
| 24 (2 Years) | 60 | 30 |
| 36 (3 Years) | 51 | 17 |
| 60 (5 Years) | 79 | 16 |
| 72 (6 Years) | 1 | 1 |
| Not on Cleaning Schedule: | 11256 | 0 |
| To be Clarify: | 7 | 7 |
| Total Laterals: | 16340 | 4965 |

Problematic Lateral Defect Analysis:

| Year | No. of Emergency Calls | Broken Pipe | Uti. Wk. | Debris | Grease | Offset | On-Site | Others | PL-CO | Root Intru | Van dalism | Grand Total |
|--------------|------------------------|-------------|----------|-----------|-----------|-----------|------------|-----------|----------|------------|------------|-------------|
| 2015 | 117 | 1 | | 4 | 1 | 10 | 46 | 9 | | 46 | | 117 |
| 2016 | 161 | 2 | | 7 | 4 | 6 | 56 | 22 | 1 | 63 | | 161 |
| 2017 | 131 | 1 | | 11 | 1 | 4 | 55 | 7 | | 52 | | 131 |
| 2018 | 111 | 2 | | 4 | 3 | 5 | 35 | 12 | | 50 | | 111 |
| 2019 | 158 | | 2 | 7 | 1 | 6 | 65 | 21 | 1 | 53 | | 158 |
| 2020 | 125 | | | 7 | 2 | 4 | 61 | 12 | | 38 | | 125 |
| 2021 | 172 | 4 | | 2 | 3 | 7 | 59 | 32 | | 63 | 1 | 172 |
| 2022 | 150 | 2 | | 3 | 2 | 9 | 57 | 17 | | 60 | | 150 |
| 2023 | 40 | | | | 1 | 1 | 12 | 6 | | 14 | | 40 |
| Total | 1165 | 12 | 2 | 45 | 18 | 52 | 446 | ## | 2 | 439 | 1 | 1165 |

Item 11.A.

Future Development Projects:

Prep. Date:

4/27/2023

| Items | Descriptions: | Phase | IA | Fees | Estimated Construction | Remarks |
|-------|---|--------------------|---------------|-----------|------------------------|--|
| 1 | Atria Cupertino (Westport) - Senior Living | Building | Sent | 1.9 Mil. | 2023 | |
| 2 | Canyon Crossing Redevelopment | Building | Sent | 312 K | on-hold | |
| 3 | Hamptons Apartments | On-hold | Drafted | * | on-hold | |
| 4 | Leon Townhomes - 7 Townhomes | Planning | Drafted | 97 K | Q4 2023, 2024 | |
| 5 | Vallco - Redevelopment (RISE) - 709 residential units and 37,000 SF of commercial space | Planning - Phase 1 | Drafted | 1.67 Mil. | * | |
| 6 | Marina Plaza (DeAnza Ventures) | Planning | Drafted | * | * | |
| 7 | 20860 McClellan Road Lot Split - Seven new homes | Building | To be Drafted | * | * | Changed from Planning to Building; Plan received |
| 8 | 1655 S. DeAnza Redevelopment (2 Parcels into 34 residential units) | Planning | * | * | * | |
| 9 | 10619 S De Anza Blvd - Mixed Use (2090 SF Commercial & 11 Residential Units) | Planning | * | * | * | |

* Not enough information from developer to determine.

SSOs

| Start Date | Location | Cause of SSO | Cat | Main/Lat | Spill Volume (Gal) | Spill Recovered (Gal) | Volume of Wash Water Used (Gal) |
|------------|----------|--------------|-----|----------|--------------------|-----------------------|---------------------------------|
| None | | | | | | | |

PLSDs (Private Lateral Sewage Discharge)

| Start Date | Location | Cause of PLSD | Main/Lat | Spill Volume (Gal) | Spill Recovered (Gal) | Volume of Wash Water Used (Gal) |
|------------|----------|---------------|----------|--------------------|-----------------------|---------------------------------|
| None | | | | | | |

Emergency Calls - Causes

| Call Rec'd Business Hours | # of Calls | Call Rec'd After Hours | # of Calls | Call Rec'd Weekend | # of Calls |
|---------------------------|------------|------------------------|------------|--------------------|------------|
| Root Intrusion | 5 | Root Intrusion | 1 | Root Intrusion | 1 |
| Onsite | 0 | Onsite | 3 | Onsite | 1 |
| Grease | 0 | Grease | 0 | Offset | 1 |
| Offset | 0 | Offset | 0 | Debris | 0 |
| Others | 1 | Others | 3 | Others | 0 |
| Pump station | 1 | Pump Station | 1 | Pump Station | 0 |
| Total: | 7 | Total: | 8 | Total: | 3 |

Repairs

| Address | Main/Lat | Description of Work |
|-----------------|----------|---|
| Pierce PS | PS | Generator repair |
| Country Club PS | PS | Site preparation for generator including minor concrete, conduits, chain link fence, asphat repair & work light pole. |

Mainline Maintenance

| Size of Pipe | 4" | 6" | 8" | 10" | 12" | 14" | 15" | 16" | 18" | > 20" | Total | FY2022-23 YTD | FY2022-23 Annual Schedule | % Complete (YTD/Annual Schedule) |
|------------------------|----|--------|--------|-------|--------|-----|-------|-----|-------|-------|---------|---------------|---------------------------|----------------------------------|
| Mainline Cleaning (ft) | 0 | 18,140 | 89,085 | 4,869 | 18,649 | 0 | 4,669 | 247 | 2,448 | 2,512 | 140,619 | 1,258,735 | 1,673,032 | 75% |
| Easement Cleaning (ft) | 0 | 4,205 | 16,095 | 875 | 101 | 0 | 1,366 | 247 | 1,138 | 0 | 24,027 | 173,666 | 217,684 | 80% |
| CCTV (ft) | 0 | 4,780 | 8,965 | 759 | 3,230 | 0 | 795 | 0 | 0 | 0 | 18,529 | 156,212 | 207,880 | 75% |

Lateral Maintenance

| Activity | # of Laterals | FY2022-23 YTD | FY2022-23 Annual schedule | % Complete (YTD/Annual schedule) |
|------------|---------------|---------------|---------------------------|----------------------------------|
| Cleaning | 414 | 4,694 | 6,436 | 73% |
| CCTV | 16 | 125 | | |
| Inspection | 26 | 236 | | |

FOG Inspection - Limited due to Restaurant closures (COVID -19)

| | # of Inspections | YTD FY2022-23 | FY2022-23 Annual Schedule | % Complete (YTD/Annual schedule) |
|------------------|------------------|---------------|---------------------------|----------------------------------|
| Performed | 23 | 235 | | |
| Completed | 20 | 196 | 265 | 74% |
| Follow up Needed | 1 | | | |

**CUPERTINO SANITARY DISTRICT
MEETING/EVENT SCHEDULE**

Item 12.A.

| | | | | | | | |
|--|-----------------|----------|---------|---------------------------------------|------------|--------|----------|
| <p align="center"><u>MAY 2023</u></p> <p>05/03: 1st Regular Meeting 05/08: TAC 05/11: TPAC 05/17: 2nd Regular Meeting</p> | MAY 2023 | | | | | | |
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | 1 | 2 | 3 1 st Regular Meeting | 4 | 5 | 6 |
| | 7 | 8 TAC | 9 | 10 | 11 TPAC | 12 | 13 |
| | 14 | 15 | 16 | 17 2 nd Regular Meeting | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| | 28 | 29 | 30 | 31 | | | |

| | | | | | | | |
|--|------------------|--------------------|---------|---------------------------------------|-----------|--------|----------|
| <p align="center"><u>JUNE 2023</u></p> <p>06/05: TAC & SCCSDA 06/07: 1st Regular Meeting 06/08: TPAC 06/21: 2nd Regular Meeting</p> | JUNE 2023 | | | | | | |
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | | | | 1 | 2 | 3 |
| | 4 | 5 TAC SCCSDA | 6 | 7 1 st Regular Meeting | 8 TPAC | 9 | 10 |
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | 18 | 19 | 20 | 21 2 nd Regular Meeting | 22 | 23 | 24 |
| | 25 | 26 | 27 | 28 | 29 | 30 | |

| | | | | | | | |
|---|------------------|-----------|---------|---------------------------------------|------------|--------|----------|
| <p align="center"><u>JULY 2023</u></p> <p>07/05: 1st Regular Meeting 07/10: TAC 07/13: TPAC 07/19: 2nd Regular Meeting</p> | JULY 2023 | | | | | | |
| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | | | | | | 1 |
| | 2 | 3 | 4 | 5 1 st Regular Meeting | 6 | 7 | 8 |
| | 9 | 10 TAC | 11 | 12 | 13 TPAC | 14 | 15 |
| | 16 | 17 | 18 | 19 2 nd Regular Meeting | 20 | 21 | 22 |
| | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 31 | | | | | | |