



**MEETING MINUTES**

**April 13, 2021**  
Virtual Meeting

**Attendees:**

<b>Name of Attendee(s)</b>	<b>Company / Agency Name</b>	<b>Email Address</b>
Aaron Johnson	DSRSD	johnson@dsrsd.com
Abraham Zamora	City of San Jose	abraham.zamora@sanjoseca.gov
Adam Brown	West Yost	abrown@westyost.com
Alan Kam	West Valley Sanitary District	akam@westvalleysan.org
Alexandra Watson	HydroScience Engineers	awatson@hydroscience.com
Amanda Lei	City of San Jose	amanda.lei@sanjoseca.gov
Andrew Baile (USD)	Unions Sanitary District	andrewb@unionsanitary.ca.gov
Bijan Khamanian	Hobas Pipe	BKhamanian@hobaspipe.com
Bob Allen	Trident Environmental & Engineering	ballen@tridenteng.com
Brad Conder	Aegion	bconder@aegion.com
Casey Claborn	City of San Jose	cvclaborn@gmail.com
David Leath	City of San Jose	david.leath@sanjoseca.gov
Dru Nielson	McMillen Jacobs Associates	nielson@mcmjac.com
Dustin La Vallee	EBMUD	dustin.lavallee@ebmud.com
Edgar Benitez	Forterra	edgar.benitez@forterrabp.com
Evan Choy	CVSAN	evan@cvsan.org
Glenn Hermanson	Woodard and Curran	ghermanson@woodardcurran.com
I. Reneo	Delta Diablo	ireneo@deltadiablo.org
Jacob Ferriera	Aegion	jferriera@aegion.com
James Bowland	Kennedy & Jenks	jamesbowland@kennedyjenks.com
James Thompson	City of San Jose	james.thompson@sanjoseca.gov
James Kohne	Woodard and Curran	jkohne@woodardcurran.com
Jason Fitch	Central San	jfitch@centralsan.org
Jason Junkert	Jacobs	Jason.Junkert@Jacobs.com
Jeffrey Jackson	City of San Jose	jeffrey.jackson@sanjoseca.gov
Jen Glynn	Woodard and Curran	jglynn@woodardcurran.com
Jeremy Hynum	McGuire and Hester	jhynum@mcguireandhester.com
Jesus Almaguer	San Francisco Water	jalmaguer@sflower.org
Joe Hepburn	West Yost	jhepburn@westyost.com
John Goodwin	West Yost	jgoodwin@westyost.com
Jose Montes	City of San Jose	jose.montes@sanjoseca.gov
Kaitlyn Leong	NV5	Kaitlyn.leong@nv5.com

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Kevin Morales	Central San	kmorales@centralsan.org
Kruti Vyas	City of San Jose	kruti.vyas@sanjoseca.gov
Landon Lochrie	CVSAN	LANDON@CVSAN.ORG
Linda Franso	City of San Jose	linda.franso@sanjoseca.gov
Lindsey Olson	West Yost	lolson@westyost.com
Lorimer Ancheta	City of San Jose	lorimer.ancheta@sanjoseca.gov
LYNN TO	City of San Jose	lynn.to@sanjoseca.gov
Madison Veggian	Woodard and Curran	mveggian@woodardcurran.com
Matt Lemmon	Napa Sanitary District	mlemmon@napasan.com
Matthew Lim	San Francisco Department of Public Works	Matthew.Lim@sfdpw.org
Mayra Cervantes	City of San Jose	mayra.cervantes@sanjoseca.gov
Mike Garcia	Forterra	mike.garcia@forterra.com
Monique Sico	City of San Jose	monique.sico@sanjoseca.gov
Nancy McWilliams	Solano Irrigation District	nmcwilliams@sidwater.org
Nealsen Cayanan	Central San	ncayanan@centralsan.org
Nohemi Sanchez	Central San	nsanchez@centralsan.org
Oranis Pimentel	Mott MacDonald	oranis.pimentel@mottmac.com
Parker Ewing	Central San	pewing@centralsan.org
Patrick Johnston	West Yost	pjohnston@westyost.com
Pete Bellows	Brown and Caldwell	pbellows@brwnaald.com
Rachel Philipson	Brown and Caldwell	rphilipson@brwnaald.com
Raul Hernandez	City of Oakland	rhernandez2@oaklandca.gov
Ray Cunanan	City of San Jose	ray.cunanan@sanjoseca.gov
Rudy Portugal	DSSRSD	portugal@dsrsd.com
Samantha Daigle	Jacobs	samantha.daigle@jacobs.com
Sheryl Chia	Kennedy Jenks	sherylchia@kennedyjenks.com
Steve Caldwell	Napa San	Scaldwell@Napasana.com
Steven Delight	DSRSD	delight@dsrsd.com
Sukhpreet	DSRSD	mann@dsrsd.com
Tammy Dirker	Aqvets	tdirker@aqvets.com
Tay Nguyen	City of Hayward	tay.nguyen@hayward-ca.gov
Thanh Vo	City of San Jose	thanh.vo@sanjoseca.gov
Titus Raceles	City of San Jose	titus.raceles@sanjoseca.gov
Veronica Alvarez	Red Zone	alvarevero@gmail.com
Wen Chen	City of Oakland	wchen@oaklandca.gov
Xiangquan Li	Kennedy Jenks	xiangquanli@kennedyjenks.com
Zaeem Raza	City of San Jose	zaeem.raza@sanjoseca.gov
Zaheer Shaikh	Harris and Associates	zaheer.shaikh@weareharris.com

## Announcements:

- **PUG**  
*Future Presentations for Monthly Meetings – For future meetings, PUG is open to presentations for future topics.*
- **NASTT**
  - **March 28 – April 1, 2021: NASTT 2021 Live - No-Dig Show** in Orlando, Florida at the Orange County Convention Center.
    - *Did anyone attend? Bijan – Hobas Pipes (East Coast People attended, pre-recorded presentations)*
    - *How did it go? (live classes were about 8 to 10 people, videos available online for \$895)*
  - **September 27-28, 2021: Live - South Central Trenchless Technology Conference – Sugar Land, TX.**
  - **November 8-10, 2021 LIVE - No-Dig** North Vancouver, BC
- **UESI (ASCE Pipelines)**
  - **UESI Pipelines 2021 Conference -Virtual – Calgary, Alberta, Canada – August 3 – 6, 2021.**
  - **Public Sector Utility Scholarship deadline is March 31, 2021. Early bird registration deadline is May 19, 2021.**
- **Trenchless Technology Road Show 2021**
- **May 11, 12, 13, 18, and 20, 2021 - Virtual**
  - *Early bird pricing through April 10<sup>th</sup>!*
  - <https://www.cattrenchlessroadshow.ca/>
- **WEFTEC 2021**
- **October 16-20 Conference - LIVE - McCormick Place, Chicago and On-line**
- **October 18-20 Exhibition**

## General:

**March 2021 Meeting Minutes:** An overview of the March meeting was presented (by Alexandra Watson).

**Financial Update:** The current total in the organization account as of March 31, 2021 is \$69, 457 (Dustin La Vallee)

## Project Discussions:

1. (John Goodwin) - City of Sacramento Design storage project combined storm and sewer storage using pipes ranging between 60" to 120".
2. (Bob Allen) - West County Wastewater District pipe bursting project under construction.
3. Someone (not identified) asked if anyone interested in visiting a micro-tunnel project 36" diameter in San Mateo area? The project is a few thousand feet in length and will be ongoing the rest of the year. No response at the time.
4. (James Kohne) - What is the largest pipe diameter on CIPP or contact that will know?
  - a. Madison Veggian mentioned that there is an article that advertised for CIPP up to 72" but it is not happening in practice yet due to structural integrity.
  - b. Jacob Ferriera mentioned to contact Cindy Preuss with Aegion for CIPP questions.

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**Presentation: ““Systematic Analysis of Siphon Operations and Assessment”**, Veronica Alvarez – Red Zone.

***Highlights from the presentation include:***

The presentation was about different operations and maintenance approaches on various siphons and the economic impact it can create for the utility owner and contractors. The first approach that will be centered around cleaning siphons that have not been maintained and where minimal information is available. Secondly, the methodology of inspection and the various means that can be attempted dependent on the technology used. Lastly the combined approach of both inspection and cleaning will be discussed and evaluated.

***Overview:***

The topic will cover Siphon Basics, Siphon Design, O&M Issues, Siphon Operations Maintenance which includes cleaning, inspection, and Inspection to clean approach. Reports and project outcomes.

**A. Siphon Basics**

- Siphons/depressed sewers referred to” bellies” or “sags”.
- Siphons conveyed wastewater flow in the pipelines in complex areas usually near bodies of water, subways, tunnels, and fixed structures.
- Siphons are built as last resource when continuous grade via gravity design is not feasible.
- Flow navigates pipe until reaches pressurized flow and create foul odors and odors can be minimize by adding airlines if the designer adds the airlines.

**B. Siphon Design**

- Designers shall consider O&M aspect such as access, cleaning post-design for maintenance.
- Siphons can be single barrel, double or multi barrels and number of barrels depends on the agency requirements on hydraulic efficiency, maintenance, emergency events, and bypass requirements.
- Designers shall consider future life span of the pipe and consider the maintenance and operations impacts.
- Poor design can lead to blockage sediments build up and direct impact on minimum velocities which is critical.

**C. O&M issues encounter when inspecting or cleaning siphons:**

- Access locations for siphons: Can the equipment enter the restricted areas such as near rivers, railroads, under highways, or bridges. Can the equipment enter site or locations near the access area, and sensitive environmental areas where permits are required before cleaning or inspecting the siphon?

- Pipe materials determines how to clean and what type cleaning such as dewatering process.
- Siltation increases source of odors.
- Debris type
- Permitting is always an issue.
- Hydrant Access is important since a lot of locations are remote.
- Confined Space requirements
- H2S levels shall be monitor specially on siphons without air jumpers due to have high H2S levels and need to follow OSHA safety requirement for the crew and follow confines space requirements as well.
- Bypass requirements.

Important to address the issues above prior to begin the work.

## **Siphon Operation & Maintenance**

### **D. Siphon Clean Approach**

1. A clean first approach or clean only approach is typical for smaller line 21".  
Some utility owners may choose post-CCTV to verify the contractor clean the siphon, but the pipe must be dewatered. Sonar readings are more expensive,
2. Pipe material important to consider the type of cleaning.
3. Hydrant access: if hydrant access is not available use recycler trucks will be beneficial.
4. Recycler truck (do not work well with industrial debris or illegal dumping while breaking the debris).
5. High cost for larger lines

### **Sample Project: Clean Only**

- City of San Bernardino
- Double barrel siphon 18" diameter
- Siphon had been causing flooding.
- Cleaning was done with recycler truck.
- Post construction CCTV traditional done.
- Project lasted 6 weeks vs estimated 2 weeks.

### **E. Inspection Approach**

- Live flows vs no flow
- Number of barrels
- Access restrictions
- Depth of flow will determine which what type of equipment to use.
- Sonar (easier approach when dewater is not available or bypass is not an option)
- Laser or sonar with CCTV combination inspection if corrosion is suspected and line is not running full.

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## **F. Equipment Used**

- Traditional CCTV - requires dewatering pros clear visual image to determine the structural integrity of the siphon. No deflection determines with CCTV.
- Sonar Equipment - no video inspection it is easier specially if dewatering is not available and where bypass is not an option (usually under busy roadway) will determine large voids on the pipe crown. Can calculate deflection with Sonar and Laser equipment.
- Sonar scans provides data that measures the depth of water and debris below the water line.

### **Sample Project - Inspection Only**

- City of Los Angeles
- Double barrel 42" VCP siphon, 540 ft in length
- Railroad R/W; flow control channel
- Restricted access - 9 months of coordination.
- Inspected with Sonar to determine debris volume, debris illegal industrial dumping.
- City crews was able to clean the siphon and pushed out the debris.

## **G. Inspection to clean Approach**

- When budget restrictions are not as tight can be ideal.
- Determine which inspection method – usually sonar is preferred to avoid dewatering process.
- Determine type of debris are in the siphon.
- Determine the cleaning locations and equipment to use.
- Additional factor H2S ventilation needed and special permits.

### **1. Example Project - City of San Diego**

- 4-barrel siphon, RCP, 61" 370 ft each
- Running under waterway
- Flow was minimal in one, flow diverted into this barrel to allow for sonar equipment.
- Finding carpet factory upstream had been dumping waste into WV causing obstruction in barrels.
- Recycler truck not favorable due to industrial debris
- Debris pushed and vacuumed out.

### **2, Example City of Chicopee**

- 520 feet of 14" and 24" double barrel
- Operations issues traffic control, police escort, time limitations, located near highway.
- Sonar determines low debris in siphon and extra money left to inspect other siphons in the district.

## H. Reports

### 3D Sonar report

- Full length of pipe
- Deflection
- Modify per client specifications every (3 feet or 10 ft)
- Corrosion level show as a color scale - yellow (least corrosive) to red (high corrosive)
- Tabular form Maximum debris measurements, deviations of shapes and ovality, corrosion, full length of the pipe, water levels, debris levels.

### Q & A

- 1) Mike Garcia: Forterra - are the cities looking at the deflections of the plastic pipes after 1-year postconstruction and 10-year-old pipes.
  - a) RedZone has seeing a lot of studies of the ovality of plastic pipes installed using a combination of sonar and laser. Sonar inspection under water and laser above water level resulting in a full 360 degrees pipe inspection and any deviations will be view with the inspection. Inspections 1 year post construction.
- 2) James Kohne: What to avoid when designing a siphon?
  - a) Avoid siphons under railroad – maintenance issue and a lot of permit requirements.
  - b) Siphons causes a lot of odors if there is not air jumper present.
  - c) Pipe material important and it will help to determine the cleaning process. Hydro vs. mechanical methods.
- 3) James Thompson: What assessment method(s) do you recommend for smaller diameter siphons, 6"-10"?.
  - a) Recommendation to clean first and CCTV if necessary.
- 4) Parker Ewing: Has anyone experienced installing grit traps upstream of a siphon to limit the number of grit/debris that enters the siphon?
  - a) There was a project in Hawaii.
- 5) Mike Garcia – Forterra: What time of material are you commonly seeing for inspections nowadays: corrugated, plastic, and rigid pipe? and if it is rigid pipe assuming like spot repair?
  - a) Rigid pipe the city started to spend more money on the larger diameter assets such as pipes 42" or larger. Cities already have a maintenance program in place for rigid pipes.
  - b) Plastic pipe condition assessment started to be established for inspections on the lines municipality already have an assessment program in place.

Veronica Alvarez email: [valvarez@redzone.com](mailto:valvarez@redzone.com), Phone 310-886-9890

### **Next Meeting:**

The next meeting is scheduled for Tuesday, May 11, 2021. "The topic will by "HDPE Pipe Bursting 101" with Collins Orton.

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