



MEETING MINUTES

July 13, 2021
Virtual Meeting

Attendees (based on RSVP list):

Name of Attendees	Company / Agency	Email Address
Adam Brown	West Yost Associates	abrown@westyost.com
Alex Park	HydroScience Engineers	apark@hydroscience.com
Alexandra Watson	HydroScience Engineers	awatson@hydroscience.com
Andrew Sneed	American Ductile Iron Pipe/American Spiral Weld Pipe (Attn: Andrew Sneed)	asneed@american-usa.com
Babak Gerami	East Bay Municipal Utility District	babak.gerami@ebmud.com
Ben Wright	Black & Veatch	wrightb@bv.com
Bill Brick	CDM Smith	brickwd@cdmsmith.com
Bill Maggiore	EBMUD	bill.maggiore@ebmud.com
Bob Allen	Trident Environmental and Engineering, Inc.	ballen@Tridenteng.com
Bonneau Dickson	Consulting Sanitary Engineer	dickson.bonneau@gmail.com
Brad Conder	Aegion Corporation	bconder@aegion.com
Bryan Perkins	Contra Costa Water District	perkins.bryan@gmail.com
Casey Smith	SAK Construction, LLC	Csmith@sakcon.com
Celia Kitchell	Delta Diablo	celiak@deltadiablo.org
Chris Delp	ACWD	chris.delp@acwd.com
David Katzev	EBMUD	david.katzev@ebmud.com
Dru Nielson	McMillen Jacobs Associates	nielson@mcmjac.com
Emily Sing	EBMUD	esing@ebmud.com
Evan Choy	Castro Valley Sanitary District	evan@cvsan.org
Jacob Monroe	Advanced Drainage Systems	jacob.monroe@ads-pipe.com
James Kohne	Woodard & Curran	jkohne@woodardcurran.com
Jimmy Dang	Oro Loma Sanitary District	jdang@oroloma.org
Jon Marshall	Carollo Engineers	jpmarshall@carollo.com
Joseph Barnes	EBMUD	joseph.barnes@ebmud.com
Joseph Wong	East Bay Municipal Utility District	joseph.wong@ebmud.com
Justin Reeves	Murray Smith	justin.reeves@murraysmith.us
Justin Reeves	McMillen Jacobs Associates	reeves@mcmjac.com
Justin Waples	Central Contra Costa Sanitary District	jwaples@centralsan.org

Minutes by Alexandra Watson, HydroScience Engineers
Secretary, Nor Cal PUG

Page 1 of 6

***The information disseminated on behalf of industry individuals/organizations via PUG is not necessarily the opinion of PUG, nor has PUG verified comprehensiveness or validity of the information. ***

Karla Castro	City of Hayward	karla.castro@hayward-ca.gov
Kevin Kai	BC	H2O4U@HOTMAIL.COM
Kevin Smith	EBMUD	kevin.smith@ebmud.com
Kevin Yoshiki	Central San	kyoshiki@centralsan.org
Kourosh Iranpour	Harris & Associates	kourosh.iranpour@weareharris.com
Landon Lochrie	Castro Valley Sanitary District	LANDON@CVSAN.ORG
Lilian Leung	EBMUD	lilian.leung@ebmud.com
Lindsey Olson	West Yost Associates	lolson@westyost.com
Marisa Boyce	EBMUD	marisa.boyce@ebmud.com
Mariza Sibal	City of Hayward	mariza.sibal@hayward-ca.gov
Michelle Stovall	Tanner Pacific, Inc	mstovall@tannerpacific.com
Mike Dadik	Carollo Engineers	mdadik@carollo.com
Mike Garcia	Forterra	mike.garcia@forterrabp.com
Nancy McWilliams	Solano Irrigation District	nmcwilliams@sidwater.org
Nealsen Cayanan	Central Contra Costa Sanitary District	ncayanan@centralsan.org
Norman Joyal	McMillen Jacobs Associates	joyal@mcmjac.com
Parker Ewing	Central Contra Costa Sanitary District	pewing@centralsan.org
Richard Davis	Harris & Associates	Richard.Davis@weareHarris.com
Robert Le	HydroScience Engineers	rle@hydroscience.com
Robs	EBMUD	roberts.mcmullin@ebmud.com
Rosemary Smud	Carollo Engineers	rsmud@carollo.com
Rudy Portugal	Dublin San Ramon Services District	portugal@dsrsd.com
Sandra Mulhauser	EBMUD	sandra.mulhauser@ebmud.com
Sean O'Reilly	Dublin San Ramon Services District	oreilly@dsrsd.com
Serge Terentieff	EBMUD	serge.terentieff@ebmud.com
Seth Carpenter	Central Contra Costa Sanitary District	scarpenter@centralsan.org
Stephanie Douglass	Mott MacDonald	stephanie.douglass@mottmac.com
Steven Delight	DSRSD	delight@dsrsd.com
Sue Murphy	Solano Irrigation District	smurphy@sidwater.org
Sue Murphy	Solano Irrigation District	smurphy@sidwater.org
Sukhpreet Mann	Dublin San Ramon Services District	mann@dsrsd.com
Tammy Dirker	AqueoUSVets	tdirker@aqvets.com
Uday Sant	Brown and Caldwell	usant@brwncald.com
Uriel Romero	Solano Irrigation District	uromero@sidwater.org
Veronica Alvarez	Redzone Robotics	Valvarez@redzone.com
Weizhi Cheng	City of Burlingame	wcheng@burlingame.org
Zaeem Raza	City of San Jose - Public Works	zaeem.raza@sanjoseca.gov

Announcements:

- **PUG**
 - **PUG Membership Renewal**
The PUG new year has started in June. We are looking forward to this new year.
 - **Future Presentations for Monthly Meetings**
For future meetings, PUG is open to presentations for future topics. We are booked through December.
- **NASTT**
 - **September 27-28, 2021 - LIVE**
South Central Trenchless Technology Conference- Sugar Land, TX.
 - **November 8-10, 202 - LIVE**
No-Dig - North Vancouver, BC
- **UESI (ASCE Pipelines)**
 - **UESI Pipelines 2021 Conference -Virtual – Calgary, Alberta, Canada – August 3 – 6, 2021.**
- **WEFTEC 2021**
 - *October 16-20 Conference - LIVE - McCormick Place, Chicago and On-line*
 - *October 18-20 Exhibition*

General:

Reports: Due to connection issues there was not recap from the June meeting or treasure's report.

Project Discussions:

Project discussions were brief and included pipe and material cost (high and fluid and long lead)

Presentation: "Practical Approaches for Seismic Resiliency for Small and Midsize Agencies", Ahmed Nisar, InfraTerra, Inc.

Highlights from the presentation include:

- Provide background on seismic assessment of water and wastewater systems.
- Demonstrate simple and practical approaches for preliminary seismic assessment for the utility owner.

Overview:

A. **Seismic resiliency Studies:** provided backgrounds and identify sources of public information to help with the studies base on

1. Need
2. Challenges
3. Approach

1. Need:

- a. Water and wastewater pipelines and appurtenances equipment are essential and need resiliency planning and prioritization.

2. Challenges:

- a. Subject to Range of seismic hazards

Minutes by Alexandra Watson, HydroScience Engineers
Secretary, Nor Cal PUG

Page 3 of 6

- b. Range of Component Types
 - c. Designed Incrementally Using Evolving Seismic Design Standards
3. Approach:
- a. Perform regional Scale Planning Studies
 - b. Use publicly available data.
 - a) Work of Caution: Uncertainty:
 - c. Many sources and uncertainty
 - d. Need a detail site specific evaluations by experts in seismic evaluations of the water systems.

B. Process Key Steps:

1. Define recovery goals.
 2. Identify Key Assets.
 3. Asses significant hazards.
 4. Assess Vulnerabilities.
 5. Initiate planning.
1. **Define recovery goals** (Example of Oregon Resilience plan Timeline for the water and wastewater)
- Plan included a timeline when service shall be reinstalled after a seismic event.
- a. Supply (Example water system operation within 20-30%)
 - b. Backbone
 - c. Critical Facilities
 - d. Fire Suppression
 - e. Community Distribution
 - f. Distribution System
2. **Identify key assets includes data collection:**
- a. Data Collection system in GIS or Google Earth
 - b. Pipeline Details: plan & profile as-built, Joint Data and Repair records.
 - c. Facilities Data: Design drawings and specifications
 - d. Geotechnical reports
 - e. Ground Water Data

Identify Key assets based on Function:

- a. Supply (wells & reservoirs)
- b. Storage Tanks (steel or concrete, ground supported or elevated)
- c. Transmission (raw/potable)
- d. Pumping
- e. Distribution including service laterals.
- f. Appurtenances (Hydrants, valves & meters).

Identify Key assets based on Structure:

- a. Source (wells & reservoirs)
- b. Storage Tanks (steel or concrete, ground supported or elevated)

- c. Treatment plants and pump stations (basins, buildings, plant piping, disinfection, and pipping)
- d. Transmission & distribution (steel, concrete, pre-stressed concrete, HDPE, PVC, & canals)
- e. Appurtenances (Hydrants, valves & meters)

3. **Assess significant hazards:**

- a. Surface fault rupture (various slides with pictures of surface rupture)
- b. Ground shaking (peak ground acceleration & peak ground velocity)
- c. Liquefaction
- d. Earthquake landslides

Check the www.usgs.gov website to find further general information and maps.

4. **Assess vulnerabilities:** Pipe vulnerability includes:

- a. Pipe material (HDPE)
- b. Joint Types
 - i. Good Performers: strong and /or ductile pipes with joints stronger than pipe barrel (welded, ERDIP)
 - ii. Worse Performers: brittle pipes with weak joints (lead to caulked CI, rubber gaskets which will lead to loos of compression and leaks at joint)

5. **Initiate Planning:**

- a. Field observation and investigation

6. **Pipeline Repairs Estimates**

Ground shaking / wave propagation transient Planning:

Ground deformation/ground failure

7. **Define Backbone:**

- a. Find the critical elements of the system that service the entire region, identify tanks and main transmission pipe, identify creek crossings, earthquake faults within the system and mitigate first known critical system.
- b. Pre-earthquake mitigation primary backbone and secondary backbone system as redundant system or have a mitigation plan.
- c. For the backbone infrastructure it is recommended to have a good plan, so the utility services are available within 24 hours of seismic activity.
- d. Vulnerability Assessment -Tanks
 - i. Seismic Response of Steel Tank: Elephant feet also knows as “compression buckling”
 - ii. If tank has bottom penetrations the elephant feet “buckling causing weak connection and leading to failure in the tank.
 - iii. Consider adding flexibility to the structure during the design.

- iv. Elevated Tanks – Seismic Performances. Cross braces (are tension) may need to be upgraded the braces during the retrofit.

8. Vulnerability Assessment

- a. Bottom penetrations
- b. Expansion joints
- c. Baffles due to sloshing
- d. Chain mechanisms
- e. When liquefaction happens, sand enters the system causing it to plug and adding to the problem.

9. Seismic Assessment – Non- Structural and Equipment

- a. Identify as significant cost post-earthquake recovery cost
- b. Anchor equipment to prevent failure FEMA has a lot of detail regarding anchorage
- c. Polymer tanks need to be anchored
- d. Electrical cabinet

Q & A:

- 1) (Chat) Is Oregon applying the goals to featuring infrastructure projects or is just handling current infrastructure in case an earthquake happens? Do they have new earthquake guidelines due to the locations?

Nisar: Oregon was in zone 3 now Oregon is higher risk, and the fault is offshore
In the pacific northwest the municipalities are taking systemic risk seriously and active developing modeling.

- 2) (Mike Garcia – Forterra) Are cities in Northern California proactive developing and/or upgrading the utility system?

Nasir: Yes, municipalities in Northern California are proactive: EBMUD has done a lot of improvements, City of San Francisco, and the City of Hayward has been a pioneer upgrading the system.

- 3) Do you have the link to share for FEMA retrofit details?

- a. Link will be provided.

Thank you to Ahmed Nisar for a great presentation and contribution to PUG monthly meeting.

Ahmed Contact information: (510) 684-6306, email: anisar@infraterra.com

Next Meeting:

The next meeting is scheduled for Tuesday, August 10, 2021. **“Mechanical Fittings and Repairs on High Density Polyethylene Pipe (HDPE)”**, Mike Scholz, JCM Industries.