James (Jim) R. Geisbush, Ph.D., P.E., BC.PLW, F.ASCE
Large Diameter Pipeline Technical Lead

CAREER SUMMARY

Senior Engineer with over 30 years' experience in design, management, construction, and maintenance of water/wastewater projects including developing and leading large diameter pipeline and tunnel inspections, developing maintenance, repair strategies, and designs for large diameter pipelines, and providing field support and direction during repair activities; pumping system designs for potable water, raw water, and wastewater systems; fire system design, including pumping and storage; water transmission, distribution, and treatment; wastewater collection, conveyance, and treatment; water reuse; groundwater recharge; constructed wetlands; and developing design concept reports and master plans. Strongly recognized for providing technical field support, direction, and project management for maintenance and construction projects.

PROFESSIONAL EXPERIENCE

Woolpert **Phoenix, AZ** **(2026 to Present)**
Large Diameter Pipeline Technical Lead
Provide technical direction in large diameter pipeline and appurtenance condition assessment, maintenance, and reliability. Subject Matter Expert in planning and design of wastewater collection systems, water distribution systems, water transmission systems, Sanitary Sewer Evaluation Surveys (SSES), and condition assessment of water/wastewater pipelines. Provide direction for planning and engineering of large diameter water conveyance systems, scheduling and sequencing for system outages for inspections and maintenance, provide best practices for predictive maintenance, means and methods for protection, repair, and replacement, and interpreting inspection data for determination of repair and replacement needs.

Central Arizona Project (CAP) **Phoenix, AZ** **(2017 to 2025)**
Senior Civil Reliability Engineer, Maintenance Control Department
Provide direction and leadership of engineering and maintenance crews for developing maintenance plans, inspection protocols, leading inspections, and developing repairs for large diameter pipes and tunnels, developing plans for the execution of construction and maintenance projects, analyzing data on pipeline failure modes, and developing models for reliability centered maintenance of pipelines, and life cycle cost analyses for pipeline maintenance.

- ***Steel Pipeline Life Cycle Costs Analysis*** – Provided technical leadership of the engineering team to analyze alternatives for maintaining two large diameter steel pipelines, developed the inspection protocols and investigations, designed the dewater procedures, access, and provided field support for inspections and prepared the condition assessment reports for this $400M USD project.
- ***Salt River Siphon Repair*** – Provide technical leadership of the engineering team to inspect, investigate, and develop plans for inspecting and repairing the 21-ft diameter steel pipe, and provided field support and direction during construction for this $6.5M USD project.

Central Arizona Project (CAP) **Phoenix, AZ** **(2009 to 2017)**
Senior Civil Engineer, Engineering Services Department
Provide direction and leadership for detailed designs (plans and specifications) for various engineering problems and engineering analyses, developing scopes and schedules for various

projects, developing plans for the execution of construction and maintenance projects, and providing engineering expertise on various projects for large water systems.

- ***Mark Wilmer Pumping Plant Discharge Manifold and Pipe Relining*** – Provided technical leadership of the engineering team to inspect, investigate, and develop plans and specifications for relining two 12-ft diameter steel discharge pipes on up to 45-degree slopes to replace the failing lining, and provided field support and direction during construction for this $12M USD project.
- ***Centennial Wash Siphon Repair*** – Provided technical leadership of the engineering team to analyze distress in one of the world's largest prestressed concrete pipes, developed the repair specifications and drawings, and provided field support and direction during construction.
- ***Flowmeter Analysis*** – Provided technical leadership of the engineering team (Electrical, Controls, and Civil Engineers) to analyze CAP's custody transfer and pumping plant flowmeters, and coordinated the findings into a final document that was ultimately used to prepare a project document (plans and specifications) to replace 73 large diameter flowmeters at sites of varying conditions, and provided field support and direction during construction.

Central Arizona Project (CAP) Phoenix, AZ (2006 to 2009)
Project Manager, Engineering Services Department

Managed various capital improvement projects and extraordinary maintenance projects entailing managing multi-disciplinary design teams, establishing scopes of work and design fees, establishing project budgets, preparing technical assessments and reports, routinely perform Quality Control reviews on design projects, coordination of asset construction projects with scheduled and unscheduled maintenance work, and reviewing technical designs of water/wastewater projects for technical issues as well as constructability issues.

- ***Potable Water Systems*** – Provide project management on the design and construction of three pipelines and eight treatment systems to provide potable water at 11 remote pumping plants.
- ***Trashrakes Systems*** – Provide project management on the design and construction of trashrakes for the removal of debris from the canal at three pumping plants and one turnout.
- ***Project Management*** – Manage technical design aspects in the creation of construction documents, including scopes and budget, for a variety of capital improvement projects, including construction management and contract administration during construction
- ***Quality Control*** – Provide technical design review for various capital improvement and maintenance projects, including review of construction drawings and specifications for constructability, as well as inter-disciplinary compatibility.

HDR Engineering Phoenix, AZ (2002 to 2006)
Project Manager, Water Business Group

Managed and lead various water/wastewater projects entailing leading multi-disciplinary design teams, provided technical design of water/wastewater projects, and technical report writing, detailed hydraulic designs and numeric modeling for a multitude of water/wastewater designs, including preparing construction drawings and specifications, establishing scopes of work and design fees, preparing proposals, and routinely performed Quality Control reviews on water/wastewater projects, as requested.

- ***Fire System Design*** – Lead design teams on various fire protection systems, including computations for hydraulic analysis, preparing construction drawings and specifications, and providing final inspection
- ***Pipeline Design*** – Lead design teams in preparing hydraulic analysis and creating construction drawings and specifications for many distribution and transmission pipelines

- ***Pump Station Design*** – Lead several design teams on complex pump station and lift station facility designs in preparing hydraulic analysis and creating construction drawings and specifications. Projects include sewage lift stations and forcemains, landfill leachate pumping and forcemain systems, potable water pumping systems, stormwater pumping systems, and groundwater pumping systems.
- ***Pump Station Design*** – Prepared Design Guidance Manuals for the City of Phoenix to use in constructing pump stations, lift stations, pressure reducing stations, and forcemains throughout their distribution and collection systems
- ***Wastewater Design*** – Lead several design teams on large wastewater collection and conveyance systems including preparing hydraulic analysis, pipeline design, hydraulic structures, canal crossings, and creating construction drawings and specifications
- ***Project Management*** – Managed technical design aspects in the creation of construction documents, including scope and budget, of water/wastewater projects, and provided construction management and contract administration on various water/wastewater construction projects
- ***Quality Control*** – Provide technical engineering support for designs of various water/wastewater systems including hydraulic design and review of construction drawings and specifications for constructability, as well as inter-disciplinary compatibility

EDUCATION

Ph.D., Civil Engineering, Arizona State University
M.S., Civil Engineering, University of Arizona
B.S., Civil Engineering, Washington State University

PROFESSIONAL REGISTRATION

Civil Engineer – State of Arizona Registration Number 31681
Civil Engineer – State of California Registration Number 79461
Project Manager Professional – Project Management Institute Number 522260

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- Fellow – American Society of Civil Engineering
- Governor – Utility Engineering and Survey Institute (UESI) – American Society of Civil Engineers
- Past-Chair of the Executive Committee – Pipeline Division – Utility Engineering and Survey Institute – American Society of Civil Engineers
- Past-Secretary – Phoenix Branch – American Society of Civil Engineers
- Past-Chair – Water Resources Technical Committee – Environment and Water Resources Institute (EWRI) – Arizona Section of American Society of Civil Engineers
- Member – American Water Works Association (AWWA)
- Member – Association for Materials Protection and Performance (AMPP)
- Member – Project Management Institute (PMI)
- Member – Tau Beta Pi

PUBLICATIONS (abbreviated)

- Geisbush, J. (2015), “Repairing the World's Largest Prestressed Concrete Pipe – A Case Study of the Central Arizona Project's Centennial Wash Siphon”, ASCE Pipelines Conference, Baltimore, Maryland, August 23-26, pp. 1376-1386.
- Geisbush, J. (2016), “Condition Assessment of Critical Transmission Pipelines at the Central Arizona Project”, ASCE Pipelines Conference, Kansas City, Missouri, July 17-20, pp. 334-343.
- Geisbush, J. (2020), “Performing a reliability centered maintenance workshop on the world’s largest prestressed concrete pipes”, ASCE Pipelines Conference, San Antonio, Texas, August 9–12, 2020, pp. 343-351.
- Geisbush, J., and Ariaratnam, S., (2023). “Reliability Centered Maintenance (RCM): Literature Review of Current Industry State of Practice”, Journal of Quality in Maintenance Engineering, Vol. 29, No. 2, pp. 313–337. https://doi.org/10.1108/JQME-02-2021-0018
- Geisbush, J., Carpenter, G., Foster, J., McGrew, D. (2023), “Using Life Cycle Cost Analyses (LCCA) to Evaluate Large Diameter Water Pipeline Maintenance Strategies”, ASCE Pipelines Conference, San Antonio, Texas, August 12-16, 2023, pp. 312-321.
- Geisbush, J. (December 2023). Developing Reliable, Long-Term Maintenance Strategies for Large Diameter Water Pipelines. *Uptime*, 16-20.
- Geisbush, J., and Ariaratnam, S., (2023). “Failure Prevention in Large-Diameter Water Pipelines Using Reliability-Centered Maintenance”, Water 2023, 15(24), 4283. https://doi.org/10.3390/w15244283
- Geisbush, J., and Ariaratnam, S., (2024). “Determining a Reliability Centered Maintenance (RCM) Analysis Model for Large Diameter Prestressed Concrete Water Pipelines”, Global Journal of Engineering and Technology Advances, 2024, 19(02), 069-080. https://doi.org/10.30574/gjeta.2024.19.2.0047
- Geisbush, J., Using Reliability Centered Maintenance (RCM) Analyses to Develop Large Diameter Water Pipeline Maintenance Strategies, Doctoral Dissertation, Arizona State University, Tempe, Arizona, 2024.
- Geisbush, J., and Ariaratnam, S., (2024). “Determining Maintenance Strategies for Large Diameter Water Pipelines Using Reliability Centered Maintenance (RCM)”, NASTT No-Dig Conference, Providence, Rhode Island, May 14-17, 2024.
- Geisbush, J., Collins, C., and Arjun, M., (2024). “Developing and Executing Large Diameter Water Pipeline Physical Entry Inspection Protocols”, ASCE Pipelines Conference, Calgary, Alberta, CA, July 28-31, 2024, pp. 420-428.
- Zhao, Y., Ma, P., Bu, J., Ma, B., Zhou, H., Liu, K., Geisbush, J., Haoliang, W., (2024). “Mitigating aging infrastructure risks: An optimized epoxy resin system for water supply pipeline rehabilitation”, *Polymer*, Vol. 315 (1):1227791. https://doi.org/10.1016/j.polymer.2024.127791.
- Madhuri, A., and Geisbush, J., (2025). “A Review of the Challenges to Large Diameter Water Pipeline Maintenance Inspections”, ASCE Pipelines Conference, Tampa, Florida, August 10-13, 2025, pp. 593-600.

Volunteer Activities

American Society of Civil Engineers:

- Governor – UESI Board of Governors (2023-Present)
- Past-Chair of the Executive Committee – Pipeline Division – UESI
- Pipeline Division Executive Committee – UESI (2017-2022)
- Member – AdCom – Pipelines Division – UESI
- Past-Secretary – Phoenix Branch – Arizona Section of ASCE
- Past-Chair – Water Resources Technical Committee – Arizona Section of ASCE — Environment and Water Resources Institute (EWRI)
- UESI Pipelines Conference Volunteer Positions:
    - Track Chair (2016)
    - Technical Co-Chair (2017)
    - Conference Co-Chair (2020)
    - Steering Committee (2021-2022)
    - Sponsorships and Exhibits Co-Chair (2023)
- Co-Chair of the Task Committee for the Manual of Practice (MOP) for “Pipeline Route Selection in Rural and Urban Areas”
- Member – AZASCE Infrastructure Report Card Review Committee

Water Research Foundation:

- Project Advisory Committee Member – WRF Project #4735, “Application of Finite Element Modeling to Large-Diameter Steel Pressure Pipes Buried in Any Type of Backfill Material”
- Project Advisory Committee Member – WRF Project #5109, “Application of Finite Element Analysis in the Design of Large-Diameter Buried Pressure Pipes – Special Cases”
- Project Contributor – “Project Delivery Performance Evaluation and Decision Support Tool for Water and Wastewater Capital Projects” – #4685
- Project Contributor – “Technology and Innovation for Assessing Operability and Full Closure of High Consequence Valves” – #5241

American Water Works Association:

- Quality Advisory Committee Member for 2nd Edition of AWWA Manual of Water Supply Practice M77 “Condition Assessment of Water Mains”
- Member – Utility Collaboration Subcommittee of the AWWA Water Main Condition Assessment Committee

US Bureau of Reclamation:

- Technical Reviewer – “PCCP: Condition Assessment, Repair, and Replacement Strategies”, Research & Development Office, Science & Technology Program Report No. ST-2019-7108-01
- Contributing Team Member and Reviewer – “Econometric Analysis and Cost Forecasting for Relining Large Pipes”, Research & Development Office, Science & Technology Program Report No. ST-2021-19155-01
- Contributing Team Member and Reviewer – “USACE-CERL and Reclamation Survey123 Facility Corrosion Inspection and ArcGIS Mapping”, Technical Memorandum No. 8540-2022-73
- Project Advisory Committee Member – “National Pipeline Infrastructure Database (PIPEiD)”

Project Advisory Committee Member – “Developing National Water Use Models & Water Loss Program”, United States Geological Survey (USGS) and Virginia Polytechnic Institute

UESI Board of Governor
President-Elect Application

James (Jim) Geisbush, Ph.D., P.E., BC.PLW, F.ASCE

Summary Statement

Feb 2025

ASCE and the Pipeline Division of UESI have played an immense role in my development as a Civil Engineer. I have enjoyed being on the leadership within the institute by way of the Pipeline Division by serving on the Executive Committee for five years and then on the Board of Governors for the past three years. I have seen the tremendous knowledge and understanding of utility engineering possessed by members of the institute while serving and I want to be able to continue guiding the institute to further disseminate utility engineering and survey knowledge to the engineering and construction community. I want to strengthen the relationships among the divisions comprising the institute as well as strengthen relationships with other institutes, especially those that share similar infrastructure objectives, such as the Construction Institute and the Geo-Institute.

By striving to expand the institute's impact on utility infrastructure engineering and construction, I hope to promote deeper engagement amongst our members and ensure UESI remains the premier organization for uniting industry, academia, and public agencies. I would like to see more interaction between the divisions in UESI, and more collaborative publications by having the divisions support each other and provide input on the various publications from each division. The Pipeline Division publishes several MOP's a year – I think having input from all the divisions will be significant in promoting the entire institute by bringing together the extreme wealth of knowledge within the institute spread across the divisions. UESI is responsible for developing educational material such as standards and manuals of practice for buried utilities, regardless of the utility.

UESI provides professionals working in utilities, pipelines, and surveying with opportunities to participate in technical activities, conferences, and networking as well as develop internationally recognized standards. I also want to promote and help develop additional Certification Programs within the institute for more formal education and professional development for utility engineers and use those programs to gain new members to the institute. We started with the Board Certified Pipeline Engineer – Water (BC.PLW) and later this year will roll out the certification for the Project Utility Engineer (BC.PUE). I would like to see a similar certification for Trenchless Technologies within the next two years.

I want to support programs and initiatives to promote innovative practices and technologies that will make utility projects safer and more efficient. As an example, I promoted various trenchless technologies for maintenance of our pipeline systems at the water district where I spent most of my career, in particular condition assessment and maintenance/rehabilitation practices – which would fit very well with a trenchless technology certification program.

While serving as a governor on the Board of Governors we have been focusing on creating more opportunities for professional development, expanding member involvement, and beginning and strengthening local chapters. It is imperative we provide educational and growth opportunities for the next generation of utility engineers. One way the institute has been doing that is by providing scholarships to undergraduate civil and construction engineering students so they can attend the Pipelines Conference. I want to make sure we continue to do that, but also further support the student competition and have industry companies (consultants, contractors, and owner agencies) participate more to grow the competition.

I want to continue to be on the leadership board driving for new initiatives and greater education promoting utility engineering to engineers, students, and utilities. With my experience working at a water district and having worked as a consultant earlier in my career, and now again, I bring a unique blend of experience to the institute leadership. I want to continue to develop UESI into an industry leading global organization, having utility engineers from around the world participate in the institute, the Pipelines Conference, and the various technical committees within the institute to further the dissemination and sharing of utility engineering and survey practice.