

Sri Rajah, PhD, PE, GE, S.E., P.Eng., ENV SP, BC.PLW, F.UESI, F. ASCE

Principal Engineer & Discipline Leader Seismic Analysis and Design, CDM Smith

Dr. Rajah has over four decades of experience in civil engineering, technical, and project management leadership roles with specialized focus in structural, geotechnical, seismic, and hydraulic aspects of pipeline engineering, providing design, evaluation, condition assessment, risk assessment, failure analysis, and litigation support services. As a recognized national leader within the North American pipeline industry, he has worked on conveyance pipelines with diameters of up to 156 inches, tunnels with diameters of up to 168 inches, and penstocks with internal pressures up to 83 bar (1200 psi), and has experience with various pipeline materials. Dr. Rajah has significant experience in the pipeline condition assessment and asset management studies of large diameter pipeline assets, as well as in the risk assessment and risk mitigation studies for existing and new large diameter pipeline assets. He has led several unique, multi-disciplinary, and award winning projects in his career, and has published over 68 technical papers related to pipeline design. Sri is a principal engineer with CDM Smith and also serves as the firm's discipline leader and subject matter expert for seismic analysis and design.

Prior to the formation of the Utilities Engineering and Surveying Institute (UESI), Dr. Rajah has had an extensive and continuous history of volunteering with ASCE, particularly with the Pipeline Division, as a contributing member and in various leadership roles (secretary, vice-chair, and chair) for multiple technical and task committees, as an associate editor of the ASCE Journal of Pipeline Systems Engineering and Practice from its inception in 2009 to 2020, and as a volunteer member in various conference steering committees and in technical program committees. In 2014, he served as the conference co-chair of the Pipelines 2014 Speciality Conference held in Portland, Oregon.

With the formation of the UESI in 2015, Dr. Rajah continued to volunteer with several technical and administrative committees in various volunteer leadership roles, including on UESI Standards and Publications Council (USPC) (formerly known as Standards Division of UESI) (Chair: 2016 to 2022; Past-Chair: 2022 to present); Codes and Standards Committee (CSC) of ASCE (UESI representative since 2018; Chair: 2024 to 2025; and Past-Chair (2025 to present); and as one of the governors on the UESI Board (2023 to 2026).

Award Winning Projects

2025 Canadian Project of the Year Under \$300M Award from the Tunneling Association of Canada (TAC) (**Project:** Annacis Island WWTP Outfall Project, Metro Vancouver, BC; **Role:** Lead Pipeline/Seismic Engineer)

ACEC British Columbia (ACEC-BC) 2025 Award of Merit, ACEC-BC, 2025 (**Project:** Annacis Island WWTP Outfall Project, Metro Vancouver, BC; **Role:** Lead Pipeline/Seismic Engineer)

ASCE 2010 Region 8 Civil Engineering Achievement Honor Award Honorable Mention for the 'Minor Project of the Year', ASCE Region 8, 2010 (**Project:** Snoqualmie Falls Long-Term Construction Cofferdams; **Role:** Lead Design Engineer)

ACEC Washington 2010 Silver Award for 'Original or Innovative Application of New or Existing Techniques', ACEC Washington, 2010 (**Project:** Snoqualmie Falls Long-Term Construction Cofferdams Project; **Role:** Lead Design Engineer).

Education

Ph.D. – Civil
(Geotechnical)
Engineering, University
of Washington, 1996

ME – Civil (Structural)
Engineering, Asian
Institute of Technology,
1988

B.Eng. – Civil
Engineering (First Class
Honours), University of
Peradeniya, 1984

Registration

Professional Engineer
(Civil): Washington
(1998), California,
Florida, Oregon, and
British Columbia
(Canada)

Professional Engineer
(Geotechnical): Oregon
(2005)

Professional Engineer
(Structural): Oregon
(2003)

National Council of
Examiners for
Engineering and
Surveying (NCEES)
Record

Honors/Awards

Fellow, Utility Engineering and
Surveying Institute (UESI),
ASCE, 2025

Stephen D. Bechtel Pipeline
Engineering Award, ASCE,
2023

ASCE Pipeline Division Award
of Excellence, ASCE, 2021

Washington Mining and
Mineral Resources Research
Institute Fellowship (1990)

Studies In the Region
Scholarship by the
Government of the Royal
Netherlands (1986-1988)

First Class Honors Degree in
Civil Engineering, University of
Peradeniya (1984)

Honor Award for Excellence in Structural Engineering, 2005 Outstanding Civil Engineering Projects Program, ASCE Seattle Section (**Project:** Scour Impacted Water Transmission Pipelines in River and Slough Crossings, Everett, Washington; **Role:** Lead Design Engineer/Assistant Project Manager)

Sample Pertinent Professional Experience

Dr. Rajah has over three decades of multi-disciplinary, civil engineering experience, with particular emphasis on large diameter pipelines and dams. The below subsections present a short list of representative projects pertaining to UESI divisions: Pipelines, Utility asset management, and Utility risk management. A long form resume is available upon request.

Pipeline (Pipelines, Tunnels, and Aqueducts)

As a recognized national leader within the North American pipeline industry, he has worked on conveyance pipelines with diameters of up to 156 inches, tunnels with diameters of up to 168 inches, and penstocks with internal pressures up to 83 bar (1200 psi), and has experience with various pipeline materials, including steel, DI, concrete (RCP, RCCP, BWP, PCCP), PVC, fiberglass, and HDPE. A brief list of representative project experience is listed below:

Lead Pipeline/Seismic Engineer, Annacis Island Wastewater Treatment Plant (AIWWTP) Outfall and Transient Mitigation Project, Metro Vancouver, British Columbia, Canada, 2015-present. The project involved constructing a new 4.2-meter diameter outfall tunnel from the Annacis Island Wastewater Treatment Plant (WWTP) to the Fraser River, passing beneath liquefaction-susceptible soils. The tunnel connects to a 2.5-meter diameter outfall diffuser pipeline located within seismically vulnerable subsurface soils in the Fraser River, designed to accommodate Stage V (18.9 m³/s) and Stage VIII (25.3 m³/s) flows from the plant. Subsurface soils at the outfall pipeline location are susceptible to lateral and vertical permanent ground displacements (PGDs) of up to 1.96 meters and 0.56 meters, respectively, due to potential liquefaction and lateral spreading hazards during the design-level (2,475-year) seismic event. Dr. Rajah developed the preliminary and final designs for the steel outfall pipe, utilizing '*steel pipe for crossing faults (SPF) segments*' with wave forms to accommodate the anticipated PGDs. He also provided engineering support during construction, which was substantially completed in 2025. *The project received the 2025 Canadian Project of the Year Under \$300M Award from the Tunneling Association of Canada (TAC) and the 2025 Award of Merit from the Association of Consulting Engineering Companies British Columbia (ACEC-BC).*

Subject Matter Expert (SME) for Seismic/Structural/Pipeline, Stage Gate 1 Expert Advisory Panel (EAP), Pitt River Water Supply Tunnel, BC., Metro Vancouver, Burnaby, British Columbia (2025-2025) (CONFIDENTIAL). Dr. Rajah served as one of the three members invited to serve on the Expert Advisory Panel (EAP) for the Pitt River Water Supply Tunnel Project.

Technical Review Engineer/SME for Yard Piping, Los Angeles Department of Water and Power (LADWP) Fairmont Sedimentation Plant, Los Angeles County, California (2025-Present). The Fairmont Sedimentation Plant, one of the largest water treatment facilities in the U.S., delivers 465 million gallons per day to over 4 million residents. As part of CDM Smith's \$1.3 billion progressive design-build joint venture, Dr. Rajah serves as technical review engineer and SME for all yard piping design. Responsibilities include: Conducting technical review and design for the temporary relocation of approximately

Certifications

Construction Documents Technologist (CDT), Construction Specifications Institute

URS Project Manager Certification, URS

Envision Sustainability Professional, Institute for Sustainable Infrastructure

Permit Required Confined Spaces, HDR

Professional Activities (Partial List)

Fellow, American Society of Civil Engineers (ASCE)

Past-Chair (2022-Present), Chair (2015-2022), ASCE/UESI Standards and Publications Council

Chair (2007-Present), ASCE Technical Committee on Pipeline Location and Installation

Chair (2016-Present), ASCE Task Committee on Seismic Design of Buried Water and Wastewater Pipelines

Associate Editor (2009-2020), ASCE Journal of Pipeline Systems Engineering and Practice

Secretary (2008-Present), ASCE Task Committee on Thrust Restraint Design of Buried Pipelines

Member, American Water Works Association (AWWA)

1,850 feet of 87-inch diameter aqueduct (LAA#2) and permanent yard piping installations, including approximately 500 feet of 121-inch and about 1,400 feet of 144-inch diameter steel aqueduct, 400 feet of 6×13-foot concrete channel, and all treatment plant piping offset 5 feet from structures; Providing review and feedback to multidisciplinary teams to ensure constructability, regulatory compliance, and long-term reliability. The temporary aqueduct relocation design is scheduled for completion in March 2026, with overall plant commissioning targeted for Summer 2031.

Utility Asset Management

Dr. Rajah has participated in several condition assessment and asset management studies of large diameter pipeline assets. He has also served as the structural risk assessment lead and/or technical advisor for condition assessment programs (e.g., Providence Water, City of Phoenix) for PCCP and other pipe materials, and has served as review engineer for carbon fiber reinforced polymer (CFRP) renewals/repairs of distressed pipes as part of asset management programs of large diameter pipelines. A brief list of representative project experience is listed below:

Lead Structural Engineer, Transmission Main Inspection and Assessment, Phoenix, Arizona. The City of Phoenix has 260 miles of large water transmission mains defined as 42-inch and greater, of which approximately 150 miles are prestressed concrete cylinder pipelines (PCCP). City has undertaken an on-going condition assessment program to assess the structural risks present and implementing a repair/replacement for its PCCP mains. Dr. Rajah has served as the structural risk assessment lead for the City's ongoing PCCP Transmission Main Inspection Program and has developed an MS/Excel based structural risk assessment tool for creating structural risk curves for distressed PCCP. He has provided structural engineering services for the project, which includes the structural condition assessment, development of the structural risk curves to assist in identifying and prioritizing maintenance actions, developing and reviewing structural repair solutions, and identifying utility protection solutions for use during construction. (2012 to 2015)

Technical Advisor, Engineering and Construction Services for the Inspection of the 102-inch and 78-inch Transmission Main, Providence Water, Rhode Island. Served as the technical advisor and reviewed structural conditions revealed during inspections of the PCCP transmission mains, wire break data gathered and existing risk assessment curves from previous risk assessment studies and provided technical advice to the condition assessment team. (2015-2017)

Utility Risk Management

Dr. Rajah has served in several risk assessment and risk mitigation studies for existing and new large diameter pipeline assets, as the structural risk assessment lead and/or technical advisor. He developed an MS/Excel based structural risk assessment tool for creating structural risk curves for distressed PCCP. A brief list of representative project experience is listed below:

Technical Advisor (Seismic Design Specialist/ PCCP Structural Specialist), PCCP Relining Project, Metropolitan Water District (MWD) of Southern California, Los Angeles, California. Dr. Rajah serves as a technical advisor on the subjects of seismic design and PCCP design, for the preliminary design to reline the 35 miles long, 84- to 150-inch diameter, pre-stressed concrete cylinder pipe (PCCP) (Sepulveda Feeder Pipeline)

with coiled steel liner. He completed fault crossing analyses for the preliminary design of the steel liner rehabilitating the 96-inch ID PCCP pipes of the Sepulveda Feeder crossing the Newport-Inglewood Fault at multiple locations. (2018 – to date)

Project Engineer, Pacific Gas and Electric Company, EB/ PH 5 Pit 3 Dam Start-up - Vibration Evaluation, Burney, California. A newly built 96-inch diameter low head penstock (bypass pipe) exhibited vibration during dam startup activities under various design flows. Dr. Rajah performed a 3-D finite element analysis of the bypass pipe and completed the fatigue evaluation using Modified Goodman Approach to show that the bypass pipe could be safely operated over its design life. (2010-2011)

Sample Pertinent Publications

Dr. Rajah has published over sixty eight (68) technical papers in refereed journals and national technical conferences. Sample publications representing each UESI division's purpose statements are included below. A complete list of publications is available upon request.

Pipeline (Pipelines, Tunnels, and Aqueducts)

Rajah, S. "Axial Resistance in shallow Buried and Deep Buried Pipelines Subjected to Ground Deformation", For the Proceedings of the 2025 ASCE|UESI Pipeline Division Specialty Conference "10 years of excellence in sharing knowledge, driving innovation and growth", ASCE, August 2025.

Heubach, W. F., McReynolds, M, and Rajah, S. "Development of a Prescriptive Approach for Water Main Seismic Design Guidelines", For the Proceedings of the 2019 ASCE Pipeline Division Specialty Conference "Pipeline Engineering — Concepts in Harmony", ASCE, Nashville, Tennessee, July 2019.

Utility Asset Management

Rajah, S., Plattsmier, J., McDonald, B. and Conroy, A.D., "Development of a Risk Assessment Tool for Managing PCCP Assets with Broken Wires." Proceedings of the 2014 ASCE Pipeline Division Specialty Conference "From Underground to the Forefront of Innovation and Sustainability", ASCE, Portland, Oregon, August 2014.

Rajah, S., Urlich, C.M., Clark, R., and Galatas, J., "A Case History of Scour Impacted Pipelines in River Crossings, Part II - Structural Repairs." Proceedings of the 2005 ASCE Pipeline Division Specialty Conference "Optimizing Pipeline Design, Operations, and Maintenance in Today's Economy", ASCE, Houston Texas, August 2005.

Utility Risk Management

Rajah, S. "Seismic Fragility Evaluation of Water Pipelines Part 2: Framework for Practical Applications." For the Proceedings of the 2017 ASCE Pipeline Division Specialty Conference "Reliability and Resiliency Through Sustainable Design and Construction", ASCE, Phoenix, Arizona, August 2017 .

Rajah, S., Nasr, S., Ferguson, K., and Ey, C.J., "Seismic Fragility Evaluation of Water Pipelines, Part 1: Current Practice." Proceedings of the 2012 ASCE Pipeline Division Specialty Conference "Innovations in Design, Construction, Operation and Maintenance – Doing More with Less", ASCE, Miami Beach, Florida, August 2012.

LIST OF PAST VOLUNTEER ACTIVITIES (Sri Rajah)

The following is a list of my past volunteer activities to Utility Engineering and Surveying Institute (UESI); UESI Divisions, Pipeline Division (PLD), Surveying and Geomatics Division (SGD), UESI Standards and Publications Council (USPC) (formerly Standards Division (SD)), Utility Asset Management Division (UAMD), Utility Risk Management Division (URMD); American Society of Civil Engineers (ASCE) and other professional organizations such as American Waterworks Association (AWWA), ASTM International (ASTM), and Structural Engineers Association of Washington (SEAW).

Organization	Position	Committee	Approx. Period	Relevance to UESI Division (P- Primary; S – Secondary)				
				PLD	SGD	USPC (SD)	UAM D ⁴	URM D ⁵
ASCE	Governor (2023- to date)	<i>UESI Board of Governors</i>	2023 – Present	P	P	P	P	P
ASCE	Past Chair (2022- to date); Chair (2016-2022)	<i>UESI Standards and Publications Council (formerly UESI Standards Division) Executive Committee (ExCOM)</i>	2015 – Present	P	P	P	P	P
ASCE	<i>Past-Chair (2025- to date); Chair (2024-2025); UESI Rep (2018 – to date;</i>	<i>ASCE Codes and Standards Committee (CSC)</i>	<i>2018-Present</i>	P	P	P	P	P
ASCE	<i>Associate Editor</i>	<i>ASCE Journal of Pipeline Systems Engineering and Practice</i>	<i>2009-2020</i>	P	-	P	P	P
ASCE	<i>Conference Co-Chair</i>	<i>ASCE Pipeline Division Speciality Conference “Pipelines 2014, Portland, Oregon”</i>	<i>2011-2014</i>	P	P	P	P	P
ASCE	Chair (2007 – Present) Vice-Chair (2005-2007) Member (1999-to date)	<i>UESI Pipeline Location and Installation Technical Committee (Oversight technical committee for the task committees on: Seismic design, Thrust restraint design, Inspecting pipeline installation, Pipe bedding, backfill & shoring, Sustainable design, Buried Flexible Steel Pipe, and Seismic Qualification of Nonstructural Components.</i>	1999 – Present	P	-	-	-	-
ASCE	<i>Chair & Parent Tech. Committee Chair</i>	<i>ASCE Task Committee on Seismic Design of Buried Water & Wastewater Pipelines</i>	2016 – Present	P	-	-	-	S
ASCE	<i>Secretary & Parent Tech Committee Chair</i>	<i>ASCE Task Committee on Thrust Restraint Design of Buried Pipelines</i>	2008 – Present	P	-	-	-	-
ASCE	<i>Parent Tech Committee Chair & Member</i>	<i>ASCE Task Committee on Rewrite of MOP 117 – Inspecting Pipeline Installation</i>	2017 – to date	P	-	-	-	-
ASCE	<i>Parent Tech Committee Chair & Member</i>	<i>ASCE Task Committee on Pipe Bedding, Backfill, and Shoring (Currently inactive committee)</i>	2015- to date	P	-	-	-	-
ASCE	<i>Parent Tech Committee Chair & Member</i>	<i>ASCE Task Committee on Sustainable Design of Buried Pipelines</i>	2009- to date	P	-	-	-	-

Organiza- tion	Position	Committee	Approx. Period	Relevance to UESI Division (P- Primary; S – Secondary)				
				PLD	SGD	USPC (SD)	UAM D ⁴	URM D ⁵
ASCE	Liaison Member	ASCE Standard Committee “ASCE 15: Direct Design of Buried Precast Concrete Pipe SIDD”	2021- to date	P				
ASCE	Voting Member	ASCE/UESI/ANSI 91 Structural Testing and Evaluation of Pipeline Systems (STEPS): Assessment for Earthquakes and Other Geohazards Standard Committee	2022- to date	P				S
ASCE	Associate Member	ASCE/SEI 81: Shake Table Testing Standard for Nonstructural Components Standard Committee	2026 – to date	P				S
AWWA	Member	AWWA Standards Subcommittee - C900, PVC Pipe	2010-2015	P	-	-	-	-
ASTM	Voting Member	ASTM Standard Committee F17 on Plastic Piping Systems	2000-2017	P	-	-	-	-
	Voting Member	ASTM Standard Committee F36 on Technology and Underground Utilities	2000-2017	P	-	-	-	-
	Voting Member	ASTM Standard Committee E60 on Sustainability	2014-2017	P	-	-	-	-

In addition to the above committee activities, I have also served on several other technical/task committees as a member and has volunteered time for various other ASCE and UESI causes. A partial summary list follows:

- Organized, and/or served as a moderator and/or speaker, preconference workshops at several ASCE/UESI Pipelines Conferences (e.g., Pipelines 2022; Pipelines 2021; Pipelines 2020 (2); Pipelines 2019; Pipelines 2018; Pipelines 2015; Pipelines 2014; Pipelines 2013; Pipelines 2011; and Pipelines 2010).
- Served in several Pipelines Conference Steering Committees (e.g., Conference Co-Chair (2014); Past Chair (2015); and Sponsoring Technical Committee Chair¹ (as Chair of Pipeline Location & Installation Technical Committee)).
- Served in several Pipelines Conference Technical Program Committees in different capacities, e.g., Track Chair (2013); Moderator (several conferences); and Reviewer (almost all conferences since 1997)
- Served in the UESI Board ad-hoc committee that revised UESI bylaws during its 2021 revision.
- Served in the UESI Board ad-hoc committee that revised UESI Policies and Procedures, during its 2021 revision
- Currently serving in the CSC ad-hoc committee that is revising the Procedures Guide for ASCE Codes and Standards Committee (CSC), Standards Councils, and Standards Council ExCOMs.

¹ This past practice has not been adopted by UESI, yet.

Purpose Statement

Sri Rajah, Ph.D., P.E., S.E., G.E., BC.PLW, F. UESI, F. ASCE

As a longtime volunteer of the Pipeline Division, I witnessed the formation of the Utilities Engineering and Surveying Institute (UESI). Since its formation, the growth of the technical divisions of the UESI: Pipeline Division (PLD), Surveying and Geomatics Division (SGD), Utility Asset Management Division (UAMD), Utility Risk Management Division (URMD) as well as the UESI Standards and Publications Council (USPC) (formerly Standards Division (SD)) has been phenomenal. During this initial period of growth, I had the opportunity to serve as the chair of the USPC (till October 2022), to represent the UESI in the Codes and Standards Committee (CSC) of ASCE, and to serve as one of the governors on the UESI Board, while continue contributing to the technical activities of the PLD. These roles provided me the unique opportunity to not only contribute to the individual committee functions, but also to observe and learn where opportunities for improvement may exist.

If elected as UESI President Elect/Governor, I will work towards promoting the following ideas:

- Expanding the purpose and technical areas of each division (PLD, UAMD, URMD, and SGD) by identifying potential collaborative efforts with various ASCE Institutes (e.g., with GI and SEI), CTA divisions (e.g., IRD), and external organizations (e.g., AWWA).
- Expanding the purpose and technical areas of each division (PLD, UAMD, URMD, and SGD) to widen the scope of that division without impinging on the focus areas of other divisions within UESI. For example,
 - Expand the UAMD purpose and technical areas to include and/or maximize water/wastewater infrastructure asset management technical areas.
 - Expand the URMD purpose and technical areas to include and/or maximize water/wastewater infrastructure risk management technical areas (e.g., seismic fragility assessment of pipelines; seismic and other risk assessment; impacts of geohazards on pipelines).
- Promote new and sustain current UESI publications—including Committee Reports, Pre-Standards, Manuals of Practice, and Standards—by actively seeking collaborative technical and standards-related initiatives with various ASCE Institutes (such as GI and SEI) and CTA divisions. IRD), and external organizations (e.g., AWWA).
- Continue making efforts form new local UESI chapters, support existing chapters, and continue working towards increased public awareness of UESI products, to increase the UESI membership (Institute members, & student members) as well as organizational members – and promote UESI within the ASCE community.

I am thankful to the UESI and its membership, for the volunteer opportunities entrusted to me so far, as these assignments have provided me immense personal satisfaction, not only from contributing to the advancement of the civil engineering profession, but also from giving back to the community at large. I look forward to the opportunity to continue serve the UESI, in this critical role as the President Elect of the UESI Board of Governors.