



ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS

Inland Empire Chapter NEWSLETTER –October/November 2025

Inland Empire Chapter 2025 Officers

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Inland Empire Chapter News

Our October meeting featured a presentation by Mr. Dan Walsh, Chief Engineering Geologist for San Bernardino County's Geology & Mining Division. Mr. Walsh delivered an informative and well-attended presentation to geologists and students. (*See Page 2 of the October Meeting Summary*).

Upcoming AEG-IE Schedule Highlights

Due to circumstances beyond our control related to the recent government shutdowns, the virtual 2025 CBC Updates class, originally scheduled for Thursday, October 16, 2025, and jointly hosted by AEG-IE and CalGeo, has been postponed. As of this newsletter's release, a new date has not yet been determined. We will share updated scheduling information as soon as it becomes available. Thank you for your patience and understanding!

We're excited to announce a joint meeting with the San Diego Association of Geologists (SDAG) on November 19, 2025 (*See details below*); this will be followed by a holiday break in December. We'll kick off the new year with a North event hosted at the Old Spaghetti Factory in Rancho Cucamonga on January 14, 2026, details coming soon! In the meantime, enjoy the upcoming fall and winter festivities!

Last Call for Ballots

The 2026-2027 AEG-IE Officer Ballot has been emailed! Ballots may be submitted through **October 31, 2025**, to help elect the next group of officers for the upcoming two-year term. One of our Vice President positions is currently open, if you're interested in volunteering, consider submitting your

name as a write-in candidate! If you did not receive a ballot or if you have any questions, please contact Ms. Lisa Battiato at battiato@geoconinc.com.

Save the Date: AEG-IE & SDAG Joint Meeting November 19th

We're eagerly anticipating our annual joint meeting with the SDAG this November! This **SOUTH** meeting will be held at The Old Spaghetti Factory in San Marcos at 111 North Twin Oaks Valley Road (*See Meeting Announcement for more details*).

We're honored to welcome **Mr. Eldon Gath**, who will present:

"San Joaquin Hills, Santa Ana Mountains, Puente Hills, and the Whittier Fault: The Final(?) Grand Theory of Orange County's Tectonic Geomorphic Evolution."

October 2025, AEG-IE Meeting Summary

The AEG Inland Empire Chapter's October meeting featured a presentation by Mr. Dan Walsh at the AEG-IE NORTH venue, held at the Old Spaghetti Factory in Rancho Cucamonga, California. Mr. Walsh, Chief Engineering Geologist with the San Bernardino County Land Use Services Department, – Geology & Mining Division (SBC-GMD), drew a large and diverse audience of geologists and students with his engaging overview of the division's operations and responsibilities.

Mr. Walsh began by introducing the key personnel supporting the division. As Chief Engineering Geologist, he leads the team and oversees SMARA compliance, including mining permits, reclamation plans, inspection reports, financial assurances, geologic reviews, and decommissioning plans. He was joined by Engineering Geologists Frank Jordan and Elias Aparicio, who conduct mine inspections, review financial assurances, and manage geologic mapping and assessments. Michele Chastain, Senior Land Use Mining Technician, maintains the county's mining records and ensures regulatory compliance while managing communications with mine operators.

He reported that San Bernardino County oversees 85 mines, 81 active, 3 newly proposed, and 4 abandoned, with 12,000 acres disturbed and \$78 million in financial assurances. The county's mineral resources include rare earth elements, lithium, gold, silver, and construction materials. Notably, San Bernardino produces one-third of California's cement and one-fifth of the nation's cement supply and hosts the only active rare earth element mine in the U.S., offering a strategic advantage to assure U.S. supplies over China's limitations to this valuable resource.

Mr. Walsh also explained that the Surface Mining and Reclamation Act (SMARA), enacted in 1975, ensures a steady supply of mineral resources while minimizing environmental and public health impacts. The California Department of Conservation's Division of Mine Reclamation (DMR) and the State Mining and Geology Board (SMGB) jointly oversee SMARA's implementation.

Mr. Walsh highlighted that city and county agencies regulate land use and reclamation through local ordinances. He noted the public safety risks posed by approximately 12,000 abandoned mine features across the county. While the county directly manages about 14% of the land, its jurisdiction expands to 96% under SMARA's lead agency designation. He emphasized the importance of Financial Assurance duties, which ensure reclamation funds are available if an operator fails to comply. Operators must annually submit a Financial Assurance Cost Estimate (FACE) and provide a financial mechanism, such as a bond or line of credit, payable to the county and the Department of Conservation.

Reclamation goals include protecting water and air quality, minimizing erosion and flooding, and restoring mined lands for safe and beneficial reuse, such as open space, wildlife habitat, agriculture, or development. Mr. Walsh also detailed the geologic review process, which evaluates planning projects for geologic hazards, ensures regulatory compliance, and supports emergency preparedness across county departments. He stressed adherence to standards such as the County Development Code, California Building Code, and fault rupture investigation guidelines. For seismic design categories C through F, geotechnical investigations must assess hazards like liquefaction, slope instability, and fault displacement, unless waived based on reliable adjacent data.

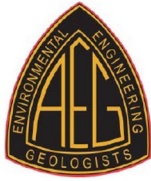
Looking ahead, Mr. Walsh announced plans to hire engineering geologists and an inspector in early 2026 to support the division's growing efforts. He showcased visuals of various mine types and features encountered by his team and outlined future projects, including updating the development code, streamlining report submission guidelines, and launching a parcel-level interactive mapping tool similar to Riverside County's "Map My County." The presentation concluded with a Q&A session with AEG members.



Mr. Dan Walsh showcases various mine projects within the county.



There was strong interest from professionals and many questions were posed by attendees.



ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS

INLAND EMPIRE CHAPTER

NOVEMBER 2025 MEETING ANNOUNCEMENT

Greetings AEG Inland Empire Chapter Members

We hope you will join us for our annual 2025 AEG Inland Empire and San Diego Association of Geologists (SDAG) joint meeting. The meeting will be held Thursday, November 20th, at the Old Spaghetti Factory in San Marcos. This will be a special “SOUTH” venue of our roving AEG-IE meeting locations. Looking forward to seeing you there!

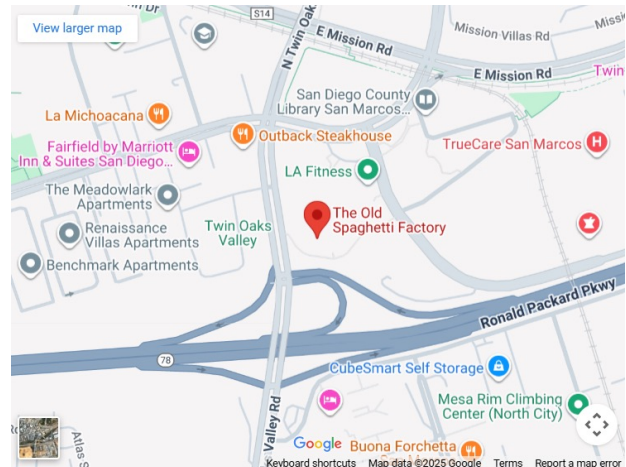
Meeting date:

Thursday, November 20, 2025

Location: **Old Spaghetti Factory**

**111 North Twin Oaks Valley Road
San Marcos, CA 92069**

Time: 6:00 pm Social Hour
7:00 pm Dinner
8:00 pm Presentation



Cost: \$45 per person with advance online registration for AEG members,
\$55 without registration (RSVP or at the door) and non-members,
\$20 for students with a valid student ID and current AEG Student membership.

Food: Italian

RSVP: Register and pay online on the SDAG website (this meeting only). AEG members, should select “Member” on the SDAG form <https://sandiegogeologists.org/Meetings>.
Registrations cannot be accepted after 6pm Monday, November 17th

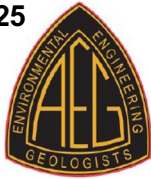
Topic and speaker:

“San Joaquin Hills, Santa Ana Mountains, Puente Hills, and Whittier fault: The final (?) grand theory of Orange County’s tectonic geomorphic evolution”

Eldon Gath, PG, CEG

**President, Senior Consultant & Founder
Earth Consultants International**

See more presentation details on following page



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INLAND EMPIRE CHAPTER

***"San Joaquin Hills, Santa Ana Mountains, Puente Hills,
and the Whittier fault: The final(?) grand theory of
Orange County's tectonic geomorphic evolution"***

Eldon Gath, PG, CEG

Senior Consultant of Earth Consultants International



ABSTRACT

As my home, it has always puzzled me by how unstudied Orange County really has been. Sure there are geologic maps, and we can see the geomorphology out there, but do we really understand it? And why not? Hence my decades (career) long effort to generate that understanding and communicate it to others as best I can. This was never a solitary effort, there are too many to name who have helped in many ways: trench scraping, field trips, discussions, suggestions, and sometimes laughter. To them I am deeply appreciative, but any errant conclusions within this talk are not their fault.

Orange County California is home to over 3 million people making it the sixth densest county in the U.S. From its high point atop Santiago Peak it is 5,689 ft (1,734 m) down to the coastline at Laguna Beach, a distance just shy of 100,000 feet (30,000 m). The San Joaquin Hills at (height) and Puente Hills at (height) bound the west and northern county. But at 3 Ma, none of this expensive real estate yet existed; Orange County was part of the Pacific Ocean. This talk will try to explain how this came to be, by starting the clock at 3 Ma and ticking our way up to today.

The Santa Ana Mountains are an indenter (think hydraulic piston) driving northwesterly at ~6 mm/yr by the Elsinore fault. As they close the basin, the entire Cretaceous - Pliocene sedimentary section is folded, faulted and piled onto the front of the indenter. Meanwhile the Puente Hills thrust forms in response to north-south compression against the San Gabriel Mountains. As the compression tightens by 1 Ma, other structures begin to emerge as transpressional folds and faults; the San Joaquin Hills and the Peralta Hills, while the Whittier fault accommodates about 3 mm/yr of right-lateral strain as the basin slides out to the west.

ABSTRACT (cont.)

Today, the indenter is in full train-wreck mode as it completes the collision with the Puente Hills in Santa Ana Canyon. We can see this expressed in both the geology and geomorphology of the Canyon. As that collision has tightened, the uplift rate of the Puente Hills has tripled to ~3 mm/yr today. Today we see extensive landsliding in the Canyon area due to that jump in uplift rates for already crushed and seismically weakened Puente Formation rocks, as well as hundreds of small faults, fractures and folds any of which could be candidates to accommodate (minor) deformation in a future earthquake. Orange County is a happening place.

SPEAKER BIO

Eldon Gath is President and Senior Consultant of Earth Consultants International since founding the company in 1997. As a consultant he has worked on projects in Turkey, Panama, Costa Rica, Taiwan, Japan, Mexico, Papua New Guinea and hundreds in California. He is also a Past-President (1987) of the South Coast Geological Society (SCGS), an Honorary Member (2012) and currently serves as the SCGS Board Treasurer. He was President (1996-1997) of the Association of Environmental and Engineering Geologists (AEG) and U.S. National Group Leader (2014-2018) and North American Vice-President (2017-2018) of the International Association for Engineering Geology and the Environment (IAEG). In 2014-2015 he was the AEG/Geological Society of America's (GSA) Richard H. Jahns Distinguished Lecturer in Applied Geology. Along the way he has acquired other notable distinctions such as outstanding paper awards (2010 Burwell from GSA & 2012 Holdredge from AEG), outstanding presentation awards (1995 Aki from S.C. Academy of Sciences and 2008 Hanson from American Association of Petroleum Geologists (AAPG)), Johnston Service award from AEG (2008), GSA Fellow (2011), and others from the National Academy of Sciences, American Geological Institute, and the European Geosciences Union. To date, he has 56 published papers, co-edited 7 SCGS Field Trip Guidebooks, has presented 61 times at professional conferences, and 230+ times at schools, professional societies, and community meetings.