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BOARD FOR PROFESSIONAL ENGINEERS, LAND SURVEYORS, AND GEOLOGISTS

BULLETIN

FEATURES

IN EVERY ISSUE

Message From the Executive Officer

RICHARD B. MOORE, PLS

As always when a new year surfaces, there are new laws that become effective that the Board for Professional Engineers, Land Surveyors, and Geologists (Board) must implement. In 2016, the changes are for the most part the result of our legislative sunset review process. In this edition of the Board's *Bulletin*, there is an in-depth article on the recent sunset review, including legislative changes. Following the Board's introduction of the *Notice of Department Designation* form for public agencies last July, we received numerous inquiries pertaining to what is meant, and what is not meant, by the term "responsible charge." Our Assistant Executive Officer and a former Board member provided articles in an effort to assist licensees with understanding the scope of the laws that guide their professional actions.

Over four years and approximately 25,000 exams later, the Board is well into the transition to computer-based test administration. In 2014, the National Council of Examiners for Engineering and Surveying (NCEES) began their transition on an international level by offering both the fundamentals of engineering and surveying exams by computer-based administration. And, it is our understanding that the National Association of State Boards of Geology (ASBOG) is beginning to evaluate this option for future administrations of the national geologist examinations. Inside this edition, our Licensing Manager provides insight into additional transition steps we expect to encounter through 2016 and into the following year.

Lastly, our staff and Board members have kept themselves busy with ABET visits to quite a few universities throughout California and professional outreach engagements in the latter half of this year.

Please take the time to peruse these articles and sign up for the Board's e-mail subscriber list. It can be found at **www.bpelsg.ca.gov**, under "Quick Hits." This is the simplest way for practicing professionals, applicants, and other interested parties to stay in touch with what's happening at the Board.

The Board's Sunset Bill: What it Means to You. What it Means for Us.

Legislation enacted in 1994 put in place a procedure and schedule for the Legislature to assess the effectiveness of, or need for, State involvement in the various occupational areas currently regulated by the Department of Consumer Affairs (DCA) and its various boards. Pursuant to this law, independent boards become inoperative, according to a specified schedule, on January 1 of a given year. Thus, the boards and their regulatory authorities "sunset," unless the Legislature passes laws to either reinstate the board or extend its sunset date.

The Board is pleased to report that its Sunset Bill (AB 177 [Bonilla]) was signed into law by Governor Brown on October 2, 2015. The bill extends the statutory provisions for the continued operation of the Board until January 1, 2020, at which time the Board is scheduled to undergo another sunset review. A significant benefit of the sunset review process is the ongoing evaluation of Board activities and the various changes and improvements developed as a result of this evaluation.

With the passing of the Sunset Bill this year, new legislation will take effect January 1, 2016, that will better assist the Board in its efforts to protect California's consumers.

So how does passage of the Sunset Bill affect the Board's operations? The Sunset Bill extends the operations of the Board until January 1, 2020 (Business and Professions Code sections 6710, 6714, and 8710). It also helps the Board progress toward meeting the 2015–2018 Strategic Plan goals. The goals were developed with input from licensed professionals and other stakeholders.

Strategic Plan Goal: Laws and Regulations

Clarify conflicting laws and regulations

One change made by the Sunset Bill relates to written contracts. Written contracts have been required to be executed since January 1, 2001, for professional engineers, land surveyors, and geologists and geophysicists since January 1, 2014. Having a written contract executed prior to the commencement of any work is critical in protecting both the client and the licensee during a project. A written contract may be the only clear indicator of what the scope of work and expectations are agreed upon by both parties. Sections 6749, 7839.2, and 8759 were clarified to state that there has to be a description of the procedure for both parties to terminate a written contract, rather than any party. This will ensure a better mechanism for both the client and the licensee to have a procedure in place that is equal for both parties entering into an agreement for services.

Strategic Plan Goal: Laws and Regulations

Seek legislation to merge the Geology/Geophysics Fund with the Engineers/Land Surveyors Fund

Since the former Board of Geologists and Geophysicists (BGG) was eliminated in 2009, the Board had focused on integrating the responsibilities of the BGG into its overall operations. During the time period required to merge the staff and functions of the two boards, the money collected from and expended on the Geologist and Geophysicist Program was maintained separately from the rest of the Board's funding. This division of funds is the only remaining remnant of the merger in 2009. The Sunset Bill merges the two funds into one, beginning July 1, 2016. This merger will allow the Board's functions to be fully integrated and will provide for more financial stability and accountability. Board staff

(continued on page 3)

The Board's Sunset Bill (continued from page 2)

will be performing a fee structure evaluation to determine the appropriate levels of fees once the merger is effective; any changes to the fees will be done through the administrative rulemaking process that allows for public input.

Strategic Plan Goal: Enforcement

Reduce the timeline for processing and resolving complaints against licensees

The Sunset Bill adds sections 6775.2, 7860.2, and 8780.2, which require licensees to respond to written requests from Board staff to cooperate with investigations against the licensees. This will better assist the Enforcement unit in obtaining sufficient information to determine whether or not violations of the Board's laws have occurred. There are times when there may be critical information that can only be obtained from the licensee; information that may be essential in determining if there are violations committed that could pose a threat to public safety or in determining that violations have not occurred. In addition, this requirement will assist Enforcement staff in avoiding significant delays in processing investigations, which occur from either multiple attempts to obtain responses from licensees, or referrals of cases to the Division of Investigation to assist in eliciting responses.

Enforcement staff is looking forward to enhancing its ability to complete complaint investigations more efficiently with the addition of sections 6775.2, 7860.2, and 8780.2, which become effective on January 1, 2016.

Strategic Plan Goal: Applications/Examinations

Examine the appropriateness of current education/experience requirements

The Sunset Bill revises the language in sections 7841 and 7841.2 that describes the educational requirements for licensure as a geologist and certification as a geologist-in-training. The new text requires an applicant to have graduated from a college or university with a major in geological sciences or any other discipline that, in the opinion of the Board, is relevant to geology.

Why is this important? The requirement that a geologist must have an undergraduate degree in geological sciences has been problematic in that an applicant for licensure does not have a clear expectation of what coursework under the broad umbrella of geological sciences is sufficient to qualify for a license. Typically, it is not until after an applicant has graduated that he or she is advised that the requirements for licensure are not met because after review of the coursework, his or her degree is deemed inadequate.

The Board pursued this change in statute as a first step in clarifying the education requirements for a geology license. The next step is to make changes to the implementing of regulations to clearly define specific educational requirements for a college or university degree. The rulemaking proposal to amend the regulations will be available for public review and comment in 2016.

The updated laws are available on the Board's website, **www.bpelsg.ca.gov**.

Board Subscribers List Reminder

Receiving e-mail notifications regarding meetings, legislation, or e-news from the Board couldn't be easier. Simply join our subscribers list on the Board's website. You will then be connected to new issues of the Board *Bulletin*, notified when the Board holds meetings, and receive information related to consumers, candidates, or licensees.

Joining the subscribers list can be done in just a few easy steps:

1. Visit the Board's website at **www.bpelsg.ca.gov**.
2. Click on "Join Our Email List" in the "Quick Hits" section.
3. Enter your e-mail address and the specified text or audio link to validate submission of your data.
4. Click on "Submit," then you will receive a confirmation e-mail.

What Does It Mean to Be 'In Responsible Charge'?

Nancy Eissler, Assistant Executive Officer

The Professional Engineers Act, the Professional Land Surveyors' Act, and the *Board Rules and Regulations* all use the phrase "responsible charge." It's defined as "the independent control and direction, by the use of initiative, skill, and independent judgment …" and as "making or reviewing and approving" the final professional decisions before they are implemented. But what does that really mean from a practical practice perspective?

President Harry S. Truman is famous for having a sign on his desk in the Oval Office that said "The Buck Stops Here." Essentially, that's what it means for a licensee to be in responsible charge—the buck stops with you. Being in responsible charge means you are the one who makes the final engineering or land surveying decisions before they are implemented, whether you do that by performing the work yourself or by reviewing and approving the work that is done by someone else. You are making the final decision about whether the work is done appropriately and in compliance with the laws, regulations, and standards that apply for the specific project. This applies if you are drawing plans or a map, or preparing calculations, a report, or a legal description—or even orally directing someone on how to perform the work.

But how about what isn't "responsible charge"? The laws specify certain things that the term "responsible charge" does not refer to. It does not include the concept of financial liability—and this works both ways: Just because you are in responsible charge does not always mean you are financially liable, and just because you are financially liable does not necessarily mean you were in responsible charge. The term also does not include management control in a hierarchy of licensees if each licensee is exercising his or her own independent judgment and decision-making on projects. This goes back to President Truman's sign—which licensee is making or reviewing and approving the final decisions? If your boss is a licensee, but you make all of the final decisions on your own projects, then you are in responsible charge; but if your boss reviews your work and can make changes to it, then he or she is in responsible charge. Finally, responsible charge does not include administrative and management functions, such as accounting, personnel matters, marketing of services, or goal setting.

For information about responsible charge specific to using computer software for analysis and design, read the article below, "The Professional Engineer's Responsibility for Computer Analysis/Design," by Dr. Gregg E. Brandow, Structural Engineering Technical Advisory Committee member.

The Professional Engineer's Responsibility for Computer Analysis/Design

By Gregg E. Brandow, Ph.D., P.E., S.E., Structural Engineering Technical Advisory Committee Member

The number of computer software "tool kits" for professional engineers is expanding rapidly. Engineers need to know that their responsibilities for the analyses and designs that result from these programs remain in their hands, whether done personally or by a subordinate or a consultant. The engineer's "responsible charge" extends to both computer results and their application to the final project design. Engineers are responsible for appropriate use of the software, the accuracy of the software itself, the relationship between results and the design methodologies, and ultimately whether the design has the level of conservancy that the engineer feels is appropriate for the project. This article explores the challenges that engineers face when using software and the "responsible charge" role of professional engineers as viewed by their licensing boards.

The concept of responsible charge and what constitutes a reasonable level of diligence to be in responsible charge of computer analyses and design bring up several questions:

(continued on page 5)

The Professional Engineer's Responsibility for Computer Analysis/Design (continued from page 4)

1. Who is responsible for computer calculations?

The professional engineer at the computer software company has no direct link to the project, the calculations for the project or the project plans, and thus is not in responsible charge. He has legal responsibilities for his product, the software, but nothing that the Board has jurisdiction over.

The Board clearly mandates that all calculations, whether by hand or on a computer, must be prepared by, or under the responsible charge of, a licensed engineer. When these calculations are presented to the public or the building department, they must include the engineer's name, signature, and stamp. In the Board Rules, Section 404.1, the "Responsible Charge Criteria" is defined as:

> *In order to evaluate whether an engineer is in responsible charge, the following must be considered: The professional engineer who signs engineering documents [plans, calculations, reports] must be capable of answering questions asked by individuals who are licensed by the Board in the appropriate branch of professional engineering relevant to the project and who are fully competent and proficient by education and experience in the field or fields of professional engineering relevant to the project. These questions would be relevant to the engineering decisions made during the individual's participation [including all calculations and computer calculations] in the project, and in sufficient detail to leave little question as to the engineer's technical knowledge of the engineering performed.*

In engineering offices, junior engineers or technicians often build the computer models, perform calculations, and evaluate the results. In extreme cases, the computer work is done in another office or even overseas. The engineer who is in responsible charge of the project must realize that he or she is also in responsible charge of the computer work no matter where it is being done or by whom. The concept of responsible charge essentially means that he or she is familiar with and knowledgeable about every step of the process.

2. What does an engineer need to do to exercise responsible charge over computer calculations?

The decision to use computer software on the specific design of a project is at the discretion of the engineer in responsible charge, and he or she makes all the decisions as to whether the software meets the project design requirements. For example, he or she needs to understand:

a. The theoretical assumptions upon which the software is based.
b. The design assumptions upon which the software is based.
c. The modeling techniques required to properly model the project with the software.
d. The results and their application to the project.

Computer software is only one "tool" that the engineer may rely upon, and it should not limit him or her from using judgment, other methodologies, or even other computer software programs. Ultimately, the engineer's design should not be based solely on a "black box" computer solution that he or she may not be able to verify or feel comfortable with. If the engineer does not trust or understand a software package, he or she simply should not use it.

3. What is the purpose of calculations?

I was taught that calculations are a method to prove (to yourself or the building department) that your design is adequate. This doesn't mean that your calculations are theoretically exact, just that your assumptions and methods produce a safe and serviceable design.

4. Are computer calculations exact?

There are several factors to review:

a. There are no exact answers. Software is built around methods that are usually numerical approaches to solving a defined problem. Computer analyses, just like hand calculations, are based on assumptions, methods, and design procedures, all built on approximations of the "real" physical nature of the problem, forces, and constraints. The difference from hand calculations is more calculations (millions) can be done quickly and many digits of "accuracy" can be presented. So forget exact answers and look at whether the answers are appropriate for the problem.
b. Assumptions and approximations are required that will affect the final results. Many problems require multiple analyses to determine the sensitivity of the solution to variations in the approximations. Several computer runs may be required to assure

(continued on page 16)

Legislation and Regulation News and Updates

Every legislative session, the Board tracks and analyzes bills that impact the Board's operations and the licensed professions the Board regulates and the statutes that determine that authority. We consistently strive to identify, analyze, and advertise at public Board meetings the bills introduced that may change the landscape of our statutory authority. For more information on upcoming Board meetings and to download meeting materials, go to **www.bpelsg.ca.gov/about_us/meetings/index.shtml**. The following is a summary of tracked legislation and current regulations:

Legislation

Assembly Bill 177 (Bonilla)

Professions and vocations: Engineers

Introduced: January 26, 2015

Laws: Business and Professions Code, relating to professions and vocations

Bill summary: The Professional Engineers Act, the Geologist and Geophysicist Act, and the Professional Land Surveyors' Act provide for the licensure and regulation of engineers, geologists, geophysicists, and land surveyors by the Board. This bill would extend these provisions until January 1, 2020. This bill would merge the Geology and Geophysics Account and the Professional Engineer's and Land Surveyor's Fund into one fund. The bill would also add, as a cause for disciplinary action, if a licensee fails to respond to a written request from the Board to cooperate in the investigation of a complaint.

For more information about our Sunset Bill (AB 177) and all its changes, read the article "The Board's Sunset Bill: What It Means to You. What It Means for Us." on page 2.

Assembly Bill 320 (Wood)
Environmental engineer.

Introduced: February 13, 2015

Laws: Amend section 6732 of the Business and Professions Code, relating to engineers

Bill summary: The bill, which is sponsored by the Professional Engineers in California Government, would create an "Environmental Engineer" title license. The bill would set forth the intent of the Legislature that the Board be responsible for defining environmental engineering through rulemaking and that the Board adopt standardized examination materials applicable to environmental engineering, as specified.

Senate Bill 284 (Cannella)
Limited liability partnerships.

Status: August 10, 2015—Chaptered by Secretary of State-Chapter 157, Statutes of 2015

Introduced: February 19, 2015

Laws: Amend sections 6738 and 8729 of the Business and Professions Code

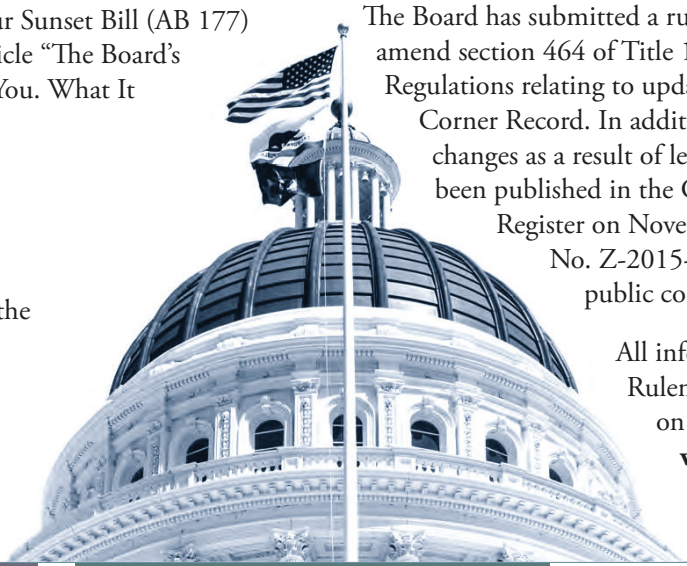
Bill summary: This bill, which was sponsored by the American Council of Engineering Companies of California, extends the operation of engineering and land surveying limited liability partnership provisions until January 1, 2019.

Regulations

The Board has submitted a rulemaking proposal to amend section 438 of Title 16 of the California Code of Regulations relating to the removal of outdated language regarding the Fundamentals of Engineering examination and the Fundamentals of Surveying examination. In addition, this proposal makes other changes as a result of legislation. The regulation has completed its 45-day comment period, and staff are finalizing the rulemaking package for final approval.

The Board has submitted a rulemaking proposal to amend section 464 of Title 16 of the California Code of Regulations relating to updating language regarding the Corner Record. In addition, this proposal makes other changes as a result of legislation. The Notice has been published in the California Regulatory Notice Register on November 13, 2015 (Register 2015, No. Z-2015-1029-01), and is now open for public comment.

All information pertaining to the Rulemaking File can be found on the Board's website at **www.bpelsg.ca.gov/about_us/rulemaking.shtml**.



Exam and Application News and Updates

California State-Specific Examinations

Over the course of the last five years, the Board has been working on progressively offering its examination candidates a more flexible agenda toward licensure. In 2011, the Board administered its first examination through the computer-based testing (CBT) format with the Geotechnical Engineer examination. By the end of 2012, all of the Board's State-specific examinations were being administered through the CBT format (using Prometric, Inc.'s testing centers nationwide).

In 2015, the Board began administering the Geotechnical Engineer examination with a flexible scheduling format that allows the candidate to schedule their examination anytime in 2015 that a Prometric test site has availability for them, instead of being administered on only one day. This means that once an applicant is eligible to schedule for an examination, that applicant can choose an examination date at any time within that examination cycle that is convenient for him or her. With this format, the candidate does not have to wait to schedule on only one day a year or two days a year (depending on the examination). We are currently reviewing the possibility of transitioning other licensing examinations to flexible scheduling. It is anticipated that by 2017, the State-specific Civil Engineer examinations will be administered through this flexible scheduling format.

National Examinations

The National Council of Examiners for Engineering and Surveying (NCEES) is the national vendor for the Board in providing its national examinations for engineering and land surveying. In 2010, in order to streamline the process, the Board first required applicants applying for national examinations to go through the NCEES online registration system to schedule national examinations. One year later, in 2011, NCEES began administering the national exams at test sites in California.

In 2014, NCEES began administering the Fundamentals of Engineering (FE) examination and Fundamentals of Surveying (FS) examination through the CBT format and with flexible scheduling throughout the year. The candidate could choose the time that works best for them. Once the candidate successfully passes the examination, they may then apply for Engineer-in-Training (EIT) or Land Surveyor-in-Training (LSIT) certification with our Board.

Through this same format, NCEES will be administering the Practice of Surveying (PS) examination through the CBT format beginning fall 2016. If this is successful, other national examinations may follow.

Board's Application Processing Changes

In order for the Board to accommodate the new methods of registration, scheduling, and administration of its examinations, our internal processes must also adapt to the changes. For example, there are currently two examination cycles in which examinations are administered (spring and fall). As the Board transitions to providing a more flexible scheduling format, the submittal and processing of applications will be processed on a fluid, continuous basis. This will result in reviewing our current evaluation process and adjusting as necessary how the applications are processed. We must also work with our system administrators to accommodate any changes being made by NCEES. We will attempt to make these transitions with as little disruption to processing times as possible by providing early notifications of any changes. We understand the importance of communication, acceptable timelines, and accurate processing of applications, so we will be making every effort to plan new processes to accommodate the change.

Keeping Up With the Changes

Please monitor the Board's website (**www.bpelsg.ca.gov**), subscribe to our e-mail subscriber mailing list, and follow us on **Facebook** and **Twitter** to stay current.

National Association News

NCEES

The National Council of Examiners for Engineering and Surveying (NCEES) is a national nonprofit organization dedicated to advancing professional licensure for engineers and surveyors. It develops, administers, and scores the examinations used for engineering and surveying licensure in the United States. To learn more about NCEES, visit ***http://ncees.org/about-ncees/****.*

Update on October 2015 exam results: **http://ncees.org/about-ncees/news/update-on-october-2015-exam-results/**

For more NCEES news, visit **http://ncees.org/about-ncees/ncees-news/all-news/**.

ABET

ABET is a not-for-profit, nongovernmental accrediting agency for programs in applied science, computing, engineering, and engineering technology.

ABET accreditation provides assurance that a college or university program meets the quality standards of the profession for which that program prepares graduates. ABET accredits programs, not institutions. It provides specialized accreditation for post-secondary programs within degree-granting institutions already recognized by national or regional institutional accreditation agencies or national education authorities worldwide.

ABET accreditation is voluntary, and to date, more than 3,400 programs at nearly 700 colleges and universities in 28 countries have received ABET accreditation.

To find out if a program is ABET-accredited, do an online search at ***http://main.abet.org/aps/Accreditedprogramsearch.aspx.***

Visits and Accreditation

ABET accreditation is a review process to determine if educational programs meet defined standards of quality. Once achieved, accreditation is not permanent—it is renewed periodically to ensure that the quality of the educational program is maintained.

In the United States, academic accreditation is voluntary, decentralized, and carried out by many nongovernmental, nonprofit organizations. The process of academic accreditation typically culminates in an external quality review by a team of professional experts from academe or industry. These experts volunteer their time, professional knowledge, and experience to this process of quality assurance and ongoing improvement to education in their disciplines.

ABET accreditation is not a ranking system. It is a form of quality assurance for programs in the areas of applied science, computing, engineering, and engineering technology. ABET accreditation is recognized globally as evidence that a program meets the standards set by its technical profession.

ABET offers accreditation to **programs only**, not to degrees, departments, colleges, institutions, or individuals.

ABET is a **federation of member professional and technical societies**. These societies and their individual members collaborate through ABET to develop standards of quality, known as "ABET Criteria," on which review teams base their evaluations of programs under consideration for accreditation.

This year, ABET teams visited nine colleges and universities across California, reviewing 34 different programs. Some schools had only one program to review, while others had as many as 10 programs to review.

These Board representatives participated in the visits: Jerry Silva; Betsy Mathieson, P.G., CEG; Mohammad Qureshi, P.E., Ph.D.; and Karen Roberts, P.E., S.E., who are current Board members; Mike Donelson, P.E., a Staff Senior Registrar for Engineering, and Laurie Racca, P.G., the Staff Senior Registrar for Geology.

1) What is your overall impression of the value of the Board's participation in the ABET event? Was it time well spent for a Board Member? Or, might staff time be better spent at future visits?

(continued on page 9)

National Association News (continued from page 8)

JERRY: My role at my company is compliance manager, and I'm to review how our company meets the requirements set forth by the agency in my Area of Responsibly. In this case, I got to see the agency [ABET] address concerns how the institution is meeting those requirements and how the students are being communicated about the requirements. It was interesting how ABET was asking the questions from the president to the administrators about their role and about staffing and budgets; how professors were meeting the requirements for students and the institution and the documentation requirements.

KAREN: My ABET evaluation visit as an observer was a very rewarding experience for me as an engineer.

BETSY: I think that attending an ABET visit is an essential part of every Board member's education about the rigor of the academic requirements for licensure. Anyone who has attended college should feel privileged to get an in-depth behind-the-scenes look at the complexity of curriculum development, staffing, facilities, student evaluation, and student culture at a college or university.

LAURIE: I found it very useful. The universities seemed to be appreciative at the effort we took to attend. I got the impression that it reinforced to their management that ABET accreditation is important. It was very useful to me to understand the process since there is no accreditation process for geology. It helped me to focus my efforts reviewing the qualifications for geology licensure for possible changes to the laws or regulations. Additionally, it gave me some tools I will use when reviewing transcripts for applicants going forward.

2) What was your overall impression of the value of the Board's reliance on ABET? Did your participation in the event alter that view?

BETSY: I knew next to nothing about ABET before attending the visit so had no impression of the value of the Board's reliance on ABET [prior to the visit]. The ABET evaluation team that I observed was very small—only three evaluators plus one observer/trainee for two accredited programs—but they were well-prepared, diligent, persistent, and fair in their evaluation. Witnessing the uncovering of potential shortcomings in academic programs and the detailed, multifaceted review by the evaluators to confirm or deny those potential shortcomings assured me that the particular team I observed was performing a reliable assessment. Witnessing the results of the required preparation and documentation by the university faculty, staff, and students convinced me that without a rigorous certification audit, weak academic programs could operate undetected. I believe the Board's reliance on ABET is appropriate and essential.

JERRY: ABET serves a role and my participation only strengthens my view in the importance.

KAREN: I gained a tremendous appreciation for the accreditation process, the volunteer evaluators, and the institutions who must prepare for an evaluation. The ABET evaluation process is very thorough and rigorous. The evaluators on my team were very knowledgeable and professional, and I feel very confident in their integrity. The effort required by the institutions to achieve and maintain their accreditation is quite impressive. I gained an increased confidence in the process through my visit, and feel that the Board's reliance on ABET accreditation is well-founded.

LAURIE: I feel that the reliance is well placed as I served as an observer on two teams for back-to-back weeks. The effort that the teams spend in preparation (pre-visit) and while on site is enormous. It would be difficult (if not impossible) for BPELSG staff to provide anything comparable in reviewing programs as part of the process of qualifying professionals for licensure. I was very impressed with how consistent the teams were in their approach. There were differences in style; however, the substance of their reviews, the professionalism with which they were conducted, and their desire to help the universities continually improve their programs was the same.

MIKE: I have participated in more than four ABET accreditation visits. These ABET Observer visits were from a wide cross-section of schools; however, each visit has brought unique learning and knowledge transfer opportunities.

(continued on page 10)

National Association News (continued from page 9)

3) Any other thoughts?

JERRY: Mine was a small school, and pretty much has a fairly flat management structure. That poses strengths and some areas of opportunities and because students seemed engaged and knew their professors and administrators well.

BETSY: Serving as an ABET observer is a major time commitment. I spent about two hours in advance reviewing written material provided by ABET and by the university through ABET (I could have spent more time but felt adequately prepared with the skimming of the documents that I did). During the visit I (and the evaluators) put in an 11-hour day on Sunday, a 14-hour day on Monday, and a four-hour day on Tuesday. Apparently, some observers skip the Tuesday activities because the evaluators spend Tuesday morning writing up conclusions that have been reached by the end of the day on Monday. Tuesday, however, also includes a presentation to the University president, provost, department chair, and program chairs. Witnessing that milestone in the evaluation process allowed me to see the first step in conveying findings to the university (the meeting is followed up with a written report, responses from the university, and a final decision).

LAURIE: Much of the evaluators' work is done before and after the visit, but seeing the evaluators at work on campus for two and a half days allows Board observers to learn the requirements imposed on a college or university, the procedures used to evaluate an academic program's compliance with those requirements, and ABET's method of working with a college or university to improve compliance. I found the opportunity to ask questions very useful for my evaluation of the geology qualifications (for possible changes).

MIKE: ABET Observer opportunities assist the Registrars in the understanding of latest trends within the students and faculty at the university.

ASBOG

The National Association of State Boards of Geology (ASBOG) is a not-for-profit, nongovernmental accrediting agency that serves as a connective link among the individual state geologic registration licensing boards for the planning and preparation of uniform procedures and the coordination of geologic protective measures for the general public.

One of ASBOG's principal services is to develop standardized written examinations for determining qualifications of applicants seeking licensure as professional geologists.

Council of Examiners Workshop and Annual Meeting

The National Association of State Boards of Geology (ASBOG) hosted a Council of Examiners workshop and the 2015 Annual Meeting, from November 11–14, in Newark, Delaware. ASBOG serves as a connective link among the individual state geologic registration licensing boards for the planning and preparation of uniform procedures and the coordination of geologic protective measures for the general public.

One of ASBOG's principal services is to develop standardized written examinations for determining qualifications of applicants seeking licensure as professional

(continued on page 11)

Enforcement Actions

Citations Issued to Licensees: Fiscal Year 2015–16 (July–September)

Citations are issued to licensed engineers, land surveyors, geologists, and geophysicists when the severity of a violation may not warrant suspension or revocation of the licensee's right to practice. When a fine is levied with a citation, payment of the fine does not constitute admission of any violations charged but represents a satisfactory resolution of the matter, pursuant to Business and Professions Code section 125.9(d). Code sections numbered in the 6700s, 7800s, and 8700s refer to the Business and Professions Code; those numbered in the 400s and 3000s refer to Title 16 of the California Code of Regulations. You can read the laws on the Board's website, **www.bpelsg.ca.gov/laws/index.shtml**. All final citations are matters of public record. For a copy of the final citation order or if you have any questions, you may contact the Board's Enforcement Unit at **BPELSG.Enforcement.Information@dca.ca.gov** or (916) 263-2284. Please include the name of the cited person and the citation number in your request.

Cited Person	Citation No.	Violation Code Section(s)	Date Final	Fine Amount	Status of Fine
Alexander, Darryl	10435-L	8780(b),(d),(g); 464(c)	8/5/2015	$1,200	Paid
Avila, Albert	10440-L	6775(h); 463(a)	9/25/2015	$250	Paid
Bailey, Christopher	10434-L	8780(b)	8/5/2015	$1,500	Paid
Ciremele, Chris	10419-L	8762; 8762(c); 8767; 8780(b)	9/9/2015	$1,000	Paid
Ciremele, Chris	10420-L	8759(a)(4),(5); 8764; 8780(b)	9/9/2015	$1,500	Paid
Correia, William	10446-L	6749(a)	9/25/2015	$0	N/A
Fahrion, Jay	10445-L	8767	9/25/2015	$1,000	
Fiero, James	10272-L	8780(b)	8/21/2015	$250	
Kaino, Kenneth	10432-L	6775(c)	7/23/2015	$2,500	Paid
Kakavas, Michael	10437-L	6749(a)(3),(4),(5)	8/6/2015	$1,000	
Kenitzer, Frank	10438-L	8759(a); 8762(c); 8771(a); 8780(g)	8/9/2015	$1,500	Paid
Mac Lellan, Brian	10441-L	8792(a)	9/25/2015	$1,000	Paid
Mell, Dale	10439-L	8759(a)	9/25/2015	$1,000	
Mobin, Pervez	10433-L	6749(a); 6775(f)	7/23/2015	$1,000	Paid
Naim, Soleiman	10442-L	6749(a)(3),(5)	9/25/2015	$500	Paid
Orosco, Andrew	10429-L	8761; 8762(c); 8764(b),(d),(g); 8767; 8780(b),(g)	7/19/2015	$4,500	
Turner, Philip	10409-L	8761; 8780(d); 404.2	7/19/2015	$3,500	Paid
Warren, David	10443-L	8759(a)	9/25/2015	$500	Paid
Wong, Gary Timothy	10430-L	6787(a); 8759(a)(3),(5); 8780(b)	7/19/2015	$2,250	Paid

(continued on page 12)

National Association News (continued from page 10)

geologists. State boards of registration are provided with uniform examinations that are valid measures of competency related to the practice of the profession.

California uses the Fundamentals of Geology (FG) and Practice of Geology (PG) exams developed by ASBOG as two of the three written tests used to qualify geologists for licensure. The ASBOG FG and PG exams are supplemented by the California Specific Examination (CSE).

The Board was represented at the ASBOG Council of Examiners (COE) workshop by Laurie Racca, P.G., Senior Registrar for Geology and Geophysics. The COE focused on reviewing the candidate comments and the statistical performance of questions from the fall 2015 FG and PG test administration. The COE does this to determine if any substandard questions need to be eliminated or rescored prior to generating the geology candidates' final scores.

The COE also took the spring 2016 test and evaluated the questions scheduled to be on the next examination. When time permitted, members of the COE wrote new questions to be included on future exams.

The Annual Meeting of ASBOG member states was held on November 14. Board member Betsy Mathieson, P.G., CEG, represented the Board and cast California's vote on issues requiring member state approval.

Enforcement Actions (continued from page 11)

Citations Issued to Unlicensed Individuals: Fiscal Year 2015–16 (July–September)

Citations are an alternative to criminal prosecutions that the Board can use to enforce the laws prohibiting the unlicensed practice of engineering, land surveying, geology, and geophysics, or other activities for which a license is required. When a fine is levied with a citation, payment of the fine does not constitute admission of any violations charged but represents a satisfactory resolution of the matter pursuant to Business and Professions Code section 125.9(d). Code sections numbered in the 6700s, 7800s, and 8700s refer to the Business and Professions Code; those numbered in the 400s and 3000s refer to Title 16 of the California Code of Regulations. You can look up the code sections and read the laws on the Board's website, **www.bpelsg.ca.gov/laws/index.shtml**. All final citations are matters of public record. For a copy of the final citation order or if you have any questions, you may contact the Board's Enforcement Unit at **BPELSG.Enforcement.Information@dca.ca.gov** or (916) 263-2284. Please include the name of the cited person and the citation number in your request.

Cited Person	Citation No.	Violation Code Section(s)	Date Final	Fine Amount	Status of Fine
Badal, Samson	10416-U	6732; 6787(h)	8/20/2015	$250	Paid
Goodwin, Robert	CG 2012-13	7872(a)	9/11/2015	$1,500	Paid
Moore, Holly	CG 2012-18	6787(a),(g); 7872(a),(g); 8792(a),(i)	9/11/2015	$0	N/A
Sommers, Stephen	10425-U	6787(a),(g); 8792(a),(i)	6/3/2015	$22,000	Paid
Strong, Benjamin	CG 2012-14	7872(a),(g)	9/11/2015	$2,500	
Sutter, Mike	10426-U	8792(a),(i)	6/4/2015	$8,000	

Formal Administrative Disciplinary Decisions: Fiscal Year 2015–16 (July–September)

A formal disciplinary decision is considered formal administrative disciplinary action against a licensee. It results from the Board's adoption of a proposed decision prepared by an administrative law judge following a hearing, a stipulated settlement agreement, or a default decision following a full investigation and the filing of an accusation. An accusation is a formal legal document that notifies a licensee of the Board's charges and allegations of violations against the licensee and that requests a disciplinary order be issued. The licensee is entitled to contest the charges at a formal hearing before an administrative law judge or to agree to a stipulated settlement. A final disciplinary decision contains findings and determinations or statements of advisements, waivers, and culpability and a disciplinary order. If there are findings of violations, the order may include revocation or suspension of the license, a stayed revocation or suspension of the license with a probationary period and terms and conditions or probation, or a public reproval. In the alternative, the decision may find that no violations or violations of a de minimus nature occurred and order the dismissal of the accusation. All final disciplinary decisions are matters of public record. For a copy of the final decision or if you have any questions, you may contact the Board's Enforcement Unit at **BPELSG.Enforcement.Information@dca.ca.gov** or (916) 263-2284. Please include the name of the respondent and the case number in your request.

Respondent	Case Number	Effective Date	Disciplinary Order
Cosper, Joshua David	1103-A	8/21/2015	Revocation, stayed; probation
Godina, Richard	1076-A	7/17/2015	Revocation, stayed; probation
Kim, Michael Mun	1107-A	8/21/2015	Revocation, stayed; probation
Lacuesta, Alfredo	1051-A	8/21/2015	Revocation of license
Sims, Robert Reynold	1026-A	7/17/2015	Public reproval
Yen, William Chao-Hsiang	1072-A	7/17/2015	Revocation, stayed; probation

OUTREACH VISITS

Geology News

The Board places great importance on providing information to future professionals in the disciplines we license. Laurie Racca, P.G., Senior Registrar for Geology and Geophysics, has been focusing on outreach to geology students, encouraging them to get their Geologist-In-Training (GIT) Certification soon after graduation.

Working with the professors and department chairs, Laurie's fall visits have included geology departments at California State University (CSU), Chico; University of the Pacific; CSU, San Bernardino; and University of California, Riverside. The Board has also started requesting that the four-year schools invite students from the local community colleges to attend.

Students are introduced to the Board and the concept of professional licensure, and learn why working toward professional licensure will benefit their careers. They learn about the Board's website and how to find the laws and regulations pertaining to geology licensing in California, and where to get information about the examinations and applications. The emphasis of these events is on how to qualify for GIT Certification and what steps students need to take to eventually obtain professional licensure.

Laurie will also take time to meet with the department chairs and professors to explain how the National Association of State Boards of Geology (ASBOG) and California examination plans are used, and how topics important to becoming licensed fit into the curriculum. The goal of these visits is to start an ongoing dialogue with the university geoscience departments to increase awareness of the requirements for geology licensure.

UOP Geology Department

On October 20, 2015, Laurie spoke to the University of the Pacific (UOP) geology students on "Taking Steps Toward a Promising Career in Geology," the value of EIT Certification, and the process to professional licensure.

Inland Geological Society

Laurie spoke at the Inland Geological Society meeting on November 5, 2015. It was a lively roundtable discussion and presentation focusing on the evolution of licensing laws and regulations, a review of key concepts regarding geology licensure, and the importance of mentoring young professionals. Laurie emphasized the importance of protecting the public and service to the geology and geophysics professions by keeping up to date with the Board's activities.

(continued on page 15)

Board Speakers Available

Are you planning an event and are looking for qualified and interesting speakers? Contact the Board for Professional Engineers, Land Surveyors, and Geologists. As part of our outreach effort, the Board has speakers available to present at meetings and events; speakers include:

- Executive Officer Ric Moore, PLS
- Assistant Executive Officer Nancy Eissler
- Senior Registrar Susan Christ, P.E.
- Senior Registrar Mike Donelson, P.E.
- Senior Registrar Laurie Racca, P.G.
- Enforcement Manager Tiffany Criswell

Our Enforcement, Licensing, Examination, and Outreach departments all have speakers authorized to represent the Board. Current and former Board members may also appear on the Board's behalf, depending on availability.

To request a speaker, we need to know:

- Size of audience
- Date and location of event
- Time, length, and type of presentation and proposed subject matter

For more information, contact the Board's Outreach Administrator Brooke Phayer, at **Brooke.Phayer@dca.ca.gov** or (916) 263-2239.

Interview With a Geology Pioneer, Bennie W. Troxel, P.G., CEG

Laurie Racca, P.G., Senior Registrar Geology and Geophysics

I was first introduced to the concept of licensing geologists by a professor at California State University (CSU), Fresno, while I was a geology student working on my Bachelor's degree. My structural geology professor, Dr. Roland H. Brady III (PG 5721), had worked in private consulting and tried very hard to prepare his students for the professional world. As I would later find out, he was following the example of one of his mentors, Bennie W. Troxel. Bennie had advised Roland while he worked on his Ph.D. thesis at the University of California, Davis.

Roland introduced his CSU Fresno geology students to Bennie as part of a field trip to the Salt Spring Hills just outside of Death Valley National Park. Bennie talked to the students as if we were his peers, and along with Dr. Brady, spent a lot of time patiently giving us hands-on instruction in geologic field techniques.

Bennie had a long career with the California Division of Mines and Geology and is well known for making fundamental contributions to the understanding of continental extensional tectonics with his research partner, Lauren A. Wright. Their pioneering studies in the Death Valley region documented some of the earliest evidence of low-angle normal faults. His famous willingness to work with and teach generations of students and professionals is part of his legacy, and his influence continues to this day. Scores of geology students in California still benefit from his knowledge through a number of university classroom and field courses based upon the work of Lauren and Bennie. Bennie was issued California PG #937 and CEG #370 in 1970. He is now retired.

One of the first projects I was tasked with when I joined the Board staff was to review the education requirement for licensure as a professional geologist (PG). The requirement for "graduation with a major in geologic sciences" became part of the Geologist and Geophysicist Act in 2004, replacing the original qualification language drafted in 1968. Although a major in geologic sciences may seem quite straightforward, the language has been problematic in that an applicant for a PG license does not have a clearly defined expectation of what degrees and coursework are acceptable.

As part of my research into the history of geology licensure in California, I've learned that members of the American Institute of Professional Geologists (AIPG) were involved in shaping the original 1968 legislation establishing the registration and licensing of professional geologists in California. When I found out that Bennie Troxel helped to establish the California Section of AIPG in 1964, serving as the first Secretary-Treasurer, I contacted Dr. Brady to find out whether Bennie had ever discussed the topic of geology licensure with him. I was pleasantly surprised to find out that Bennie was living just a short drive from the Board's offices. He graciously agreed to have lunch and discuss his perspectives on geology licensure and geology as a profession.

(continued on page 15)

Photo by Roland H. Brady III, Ph.D., P.G.

Geology and Geophysics Registrar Laurie Racca looking at a geologic map of the Cima Volcanic Field with Bennie W. Troxel. October 2015.

Interview With a Geology Pioneer (continued from page 16)

How did you become interested in geology?

I was in the Army Air Corps, and when I got out of the service, I started taking classes at Compton Junior College. I took an introductory geology class from Bill Putnam, and I liked it. I graduated from UCLA in 1951 and went to work for the California Division of Mines and Geology when I graduated.

What can you tell me about the original geology licensure law?

Licensing was a response to the landslides in the Los Angeles area in the 1950s. The city and other local agencies established qualification boards for geologists. State licensing was desired by geologists in order to bring the profession and pay in line with engineering. I think that we made a mistake by not providing an option for university professors with Ph.D.s a way to get licensed. After all, they have a great influence because they are teaching future geologists.

What education or coursework do you think is important for success as a geologist?

Geomorphology and structural geology. [At this point, Bennie took away my pen and started sketching out a structural map on the back of a napkin to illustrate his point.]

What advice would you give geology students and young geologists just starting their careers?

Your map is not the solution; it is an outline of the problem.

When you look back on your career, what are you most proud of?

I am most proud of people like him [pointing to Dr. Brady]! What I mean is that I am most proud of working with and teaching students.

Note: At the time of Bennie's cessation of active practice in the field of geology, the option to apply for retired status was not an option available to those in his disciplines. Today, any former licensee that meets the designated criteria may apply to have their license "retired."

Outreach Visits (continued from page 13)

Engineering News

The Board's two professional engineers, Susan Christ, P.E., and Mike Donelson, P.E., Senior Registrars for Professional Engineers, have been focusing on outreach to students, encouraging them to get their Engineer-In-Training (EIT) Certification soon after graduation.

Cal Poly San Luis Obispo

On November 10, 2015, Susan and Mike spoke to the senior design class at California Polytechnic State University (Cal Poly), San Luis Obispo. The presentation was video-captured for students abroad. Topics included the purpose, composition, and history of the Board; the laws and rules, including a discussion of title versus practice acts and the two title authorities of structural engineer and geotechnical engineer; licensing and exams; and application preparation and submittal. An educational assignment was delivered prior to the presentation to the students that asked general application and licensing questions to direct the presentation topics. During the meeting, students also had time to ask questions and discuss any concerns.

The Board's Senior Registrars for Professional Engineers Susan Christ, P.E., and Mike Donelson, P.E., speaking at Cal Poly, San Luis Obsipo.

If you would like to have any of our Board staff speak at or attend a school function, see the "Board Speakers Available" article on page 13.

In Memoriam

In celebration of the lives and contributions of the following professionals, the Board would like to recognize professionals licensed as engineers, land surveyors, or geologists who recently passed away. Below is list of individuals who have departed between July and September 2015. This list may not include all those who have recently passed away as we rely on information from the public, other licensees, and family members. Please contact the Board regarding individuals who have recently passed.

Name	License Number	Years of Service
Engineer		
Alan Seymour Brengle	E 10092	36
Richard Lavern Double	CR 770	38
Robert H. Goslow	M 13502	50
Charles Michael Jenkins	P 1508	30
Lloyd Eiji Sakakihara	C 23192	42
James Douglas Springer	C 35486	33
Phyllis Lillian Thompson	C 64454	12
Land Surveyor		
John Edward Combs	L 4861	35
Multiple Licenses		
Richard Leroy Fultz	C 27868 L 3870	38 44
Matthew Cyril Fox	I 3560 MF 3531	45 37
Kevin Eugene Hanley	C 59493 TR 2099	16 14
Jon Dana Raggett	C 23450 S 2247	42 37

Contact Us

California Board for Professional Engineers, Land Surveyors, and Geologists

2535 Capitol Oaks Drive, Suite #300, Sacramento, CA 95833

ADMINISTRATION		
Executive Officer	Ric Moore	(916) 263-2222
Assistant Executive Officer	Nancy Eissler	(916) 263-2222
Administration Supervisor	Jeff Alameida	(916) 263-2222
ENFORCEMENT AND COMPLAINTS		(916) 263-2284
FINGERPRINTING	Jen Mueller	(916) 263-2283
EIT (FE) OR LIST (FS) CERTIFICATION	Linda Liu	(916) 263-2232
GIT (FG) CERTIFICATION	Dolly Kampfraat	916) 263-1855
PE, PLS, PG, OR PGP LICENSURE QUALIFICATIONS OR APPLICATIONS		
PE/PLS Evaluator 1: Last Names A–G		(916) 263-1157
PE/PLS Evaluator 2: Last Names H–N		(916) 263-2252
PE/PLS Evaluator 3: Last Names O–Z		(916) 263-1436
PG/PGp Evaluator 4: All Geologists and Geophysicists		(916) 263-1855
LICENSE RENEWAL	Vicki Kerezst	(916) 263-2268
OUTREACH	Brooke Phayer	(916) 263-2239
SENIOR REGISTRARS (FOR PROFESSIONAL LICENSES)		
Engineers (Civil, Structural, and Geotechnical)	Susan Christ, PE	(916) 263-2247
Engineers (Other Than Civil)	Michael Donelson, PE	(916) 263-2248
Geologists and Geophysicists	Laurie Racca, PG	(916) 263-2406
Land Surveyors		(916) 263-2222
WEBMASTER	Celina Calderone	(916) 263-2230

The Professional Engineer's Responsibility for Computer Analysis/Design (continued from page 5)

the results account for the upper and lower bounds caused by the variations in the approximations.

c. Engineering materials need to be modeled with an understanding of the unique characteristics of each material, such as creep, cracking, or variation of material strength and stiffness.

d. The engineer must evaluate whether the results are conservative or unconservative and adjust the design appropriately.

I have often heard engineers and even non-engineers say: "Give five engineers a problem, and they will give you five different solutions." We accept this and chalk it up to engineering judgment or the art of engineering. This also extends to solutions derived from computer software programs. Here, you would presume that there would be more agreement but different software, different modeling assumptions, and different interpretations of results may result in widely different solutions. The role of the engineer in responsible charge is to create a design using the most appropriate computer software, using the software in an intelligent manner, and using the results with engineering judgment.

Military Service Question on Applications

Assembly Bill 1057 enacted Business and Profession Code section 114.5, which requires all boards, bureaus, committees, and commissions within the Department of Consumer Affairs to ask whether an individual is serving in, or has previously served in, the military. Answering this question is optional; however, if you have served in the military, please complete and return the form with your renewal coupon. Also, answering this question is not a condition for licensure, and, therefore, should not restrict or delay the licensee's renewal from being processed and is not considered grounds for denial if not completed or returned.

If you have not responded already, please find and complete the form below and send to the:

Board for Professional Engineers, Land Surveyors, and Geologists
2535 Capitol Oaks Drive, Suite 300
Sacramento, CA 95833-2944

STATE OF CALIFORNIA
dca
DEPARTMENT OF CONSUMER AFFAIRS

Business and Profession Code Section 114.5 requires all boards, bureaus, committees and commissions within the Department of Consumer Affairs to ask whether an applicant or licensee is serving in, or has previously served in, the military. Answering this question is optional but if you have checked "YES" below, please complete and return this insert with your renewal coupon.

Are you currently serving, or have you previously served, in the military? YES ☐

If checked YES, please return this form with your renewal, completing the information below.

Name: _____

License Type: _____

License Number: _____

California Board for Professional Engineers, Land Surveyors, and Geologists
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www.bpelsg.ca.gov

Board Calendar

JANUARY

1/1: New Year's Day

1/14–15: Board Meeting

1/18: Martin Luther King Jr. Day

1/21: UCLA Engineering and Technical Fair

1/28–29: Fresno Geomatics Conference for Land Surveyors

FE/FS (EIT/LSIT) Exams: Continuous Testing

FEBRUARY

2/6: NCEES Member Board Administrators Meeting

2/15: President's Day

2/18: Chico Engineering Career Fair

2/19–20: NCEES Board of Directors Meeting

FE/FS (EIT/LSIT) Exams: Continuous Testing

MARCH

3/3–4: Board Meeting

3/31: Cesar Chavez Day

FE/FS (EIT/LSIT) Exams: Continuous Testing

BOARD FOR PROFESSIONAL ENGINEERS, LAND SURVEYORS, AND GEOLOGISTS

BULLETIN

Social Media: Board Facebook and Twitter Pages

The Board is asking for your help in getting the word out regarding the launch of its Facebook and Twitter pages. The Board is now posting information of interest to postsecondary institutions and students on a regular basis. This information includes regulatory changes, updates to our website, interesting articles, useful resources, and a host of other Board-related data.

For those institutions that communicate with students through e-mail or some other means, we invite you to share this information with them. The Board is anxious to use these social media outlets as an ongoing way to reach our stakeholders. Thank you for your assistance in spreading the word.

Please take a few minutes to "like" us on Facebook and follow us on Twitter:

Facebook - www.facebook.com/pages/The-Board-for-Professional-Engineers-Land-Surveyors-and-Geologists/107020752801578

Twitter - twitter.com/CA_Engineers

STATE OF CALIFORNIA
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