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TO: Ken Levine, Director, Texas Sunset Advisory Commission
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From: Luther Smith, CAE
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A handwritten signature in black ink, appearing to read "Luther Smith", is placed above the typed name and title.

Date: August 16, 2018

RE: Comments for Texas Sunset Staff Report Texas Board of Professional Geoscientists

The Soil Science Society of America's (SSSA) Certified Professional Soil Scientist (CPSS) Board and Council of Soil Science Examiners (CSSE) would like to provide comments regarding the Texas Sunset Staff Report for the Texas Board of Professional Geoscientists.

SSSA has over an 82 year history of representing soil science and the professionals involved with over 6,000 members world wide. It's CPSS Program has been certifying individuals since 1977 and the CSSE has been developing and providing the soil science exams, Fundamentals and Professional Practices, for certification and licensing programs since the late 1990's. There are 10 states including Texas that license soil scientists, two that utilize state level certification boards (Florida and Ohio) and the balance offer certification through our national CPSS Program. Our CPSS certification requirements mirror the requirements for Texas Professional Geoscientist. (Addendum)

SSSA through its CSSE and CPSS Programs fully supports and encourages licensing of soil scientist to protect the public health, safety, welfare, and the state's natural resources by ensuring only qualified persons carry out the public practice as soil scientists.

We support the report submitted by the National Association of State Boards of Geology (ASBOG) and encourage the Commission to review and fully consider its recommendations.

We encourage the Commission to reconsider and not abolish the Texas Board of Professional Geoscientists and not repeal the Texas Geoscience Practice Act.

We do not support the recommendation 1.1.

1.1 Abolish the Texas Board of Professional Geoscientists and repeal the Texas Geoscience Practice Act

Reasoning:

1. The Report states that Professional Geoscientists provide valuable services: “In its first and only review of the board, Sunset staff found that professional geoscientists provide valuable assessments and research related to groundwater, subsurface concerns, and other areas.” This indicates that the professionals doing the work are not the issue.
2. The Report indicates that the Program is net revenue producing to the State.
3. There are over 4,500 licensed professionals with the potential to more than double in size if the exemptions would be removed or reduced.
4. The current large number of exemptions for specific groups and practices as outlined in the report has negatively impacted by over 50% the number of professional geoscientists. The report states that “over 10,000 geoscientists” were anticipated when the program started but due to over 6,000 professionals qualifying for exemptions and only about 4,500 currently licensed, it never achieved its goal. The numbers indicate that it may have achieved the goal without the exemptions or less of them.
5. The Act has potentially prevented public harm by having qualified professionals doing soil science work. The Report states: “However, a historical lack of meaningful enforcement action, no measurable impact on public protection, and more direct oversight of geoscientists’ work provided by other state agencies’ render ongoing state regulation of geoscientists unnecessary to protect the public.” Though written as a reason to abolish the act, this statement really supports keeping the act since it has prevented public harm and there has not been a need for enforcement actions.

Direct Impact of Professional Soil Scientists and Contribution to the Public’s Health, Safety, and Welfare (including financial and environmental) in Texas

Texas soils are one of the state’s most critical resources and therefore, the care and management of Texas soils by professional soil scientists registered to practice in the state is essential. Texas soils have characteristics unique to the state that local soil scientists are expert in understanding and applying for protection not only of this critical resource, but in providing essential water quality benefits through nutrient, chemical, and plant management in soils, economic benefits from ecological services provided by soils, such as stormwater management, sustainable vegetation requiring less nutrient and pesticide inputs, and support of community green spaces that bring people to points of commerce in the state.

The benefits of effective soils management in the rural expanses of Texas are well known, from food and range production, to forest management, and watershed protection. These benefits are realized through the specialized education, training, and licensure of soil scientists. Soil scientists must know and understand the integration of chemistry, physics, biology, geology, and geography in a package that necessary for restoration and management of both urban and rural soil resources.

Soil Science Examples:

1. For the design and construction of the GW Bush Library in Dallas, a professional soil scientist was brought in specifically to assist in the design of the Texas Blackland Prairie desired by Laura Bush for the Presidential Center. Prior to the professional soil scientist being brought into the design, golf course soils were being considered by non-soil scientists; a system that would have failed according to the Lady Bird Johnson Wildflower Center.
2. For Memorial Park in Houston, a professional soil scientist was part of the park rehabilitation design that demonstrated existing soils and resources were perfect for re-building public areas within the park rather than importing soil that would require extensive management with great expense. The result is savings of millions of dollars in park construction, and even more with management based on the findings, recommendations, and design by a certified professional soil scientist.
3. For the Waller Creek Green Corridor in Austin, a professional soil scientist was utilized to understand the varying soil types and designs for riparian sections of the new Waterloo Park; for public venues and soils that will resist compaction, for gardens, and for green roofs: all soil designs that will be more effective than artificial systems originally considered for the park, and at much less expense.
4. At Fort Hood, a professional soil scientist was employed to develop effective bioremediation measures for petroleum-contaminated soils using existing on-site resources rather than imported and costly systems designed for use in other regions of the country – not Texas. The result was a very effective, cost-efficient program for Ft. Hood resulting in clean soils that could be re-used on site.
5. Professional soil scientists are critical for crop production and range management in Texas to maximize yield with diminishing resources and the threat of changing climates. Agricultural examples using the expertise of professional soil scientists include:
 - a. Evaluation of a proposal for application of oilfield brine wastes on rangeland, considering salinity of brine water, soil texture and chemical properties, and salinity tolerance of existing vegetation. Found the application would cause irreparable damage to the rangeland in the given climatic conditions. Given the soil characteristics, depth, and proximity to a river, found a potential for leaching into the water table associated with the river.
 - b. Evaluation of restored soil profiles following pipeline construction: requirement was to segregate topsoil and subsoil and replace in correct order. The professional soil scientist who was the expert witness in the case between an energy company and land owner/producer showed that the soil materials were mixed, creating an unfavorable environment for rangeland restoration.

- c. Development of a drip irrigation, crop rotation, and cropping system for combined limited-irrigated/dryland disposal of treated wastewater, a professional soil scientist provided expert witness testimony to regulatory agency to justify application rate on the basis of crop water balance, and that drip irrigation is not subsurface injection, that it would not fracture formations, and that water would not leach into groundwater.
- d. Collection of data on an irrigation system using suction lysimeters to demonstrate near-saturated soil conditions did not exist, so there was no potential gradient to transport any treated wastewater below root zone, and provide testimony to the regulatory agency on the safety of the system for public water supplies.
- e. Evaluation of effects of pipeline construction and cropping management practices on soil depth – a professional soil scientist was the expert witness in the arbitration case between an energy company and land owner/producer. Erosion from poor tillage and crop management practices were found to be responsible for decreased depth of soil over pipeline on shoulder of hill.
- f. In determining appropriate soil management for pipeline reclamation, professional soil scientists will focus on decreasing sediment load to waters adjacent to the rights-of-way. In addition, correct reclamation of pipeline rights-of-way is essential to ensure that the pipeline does not have reduced cover or exposure due to the wrong soil management tactics being used, which greatly increases public safety along these managed corridors.

Without the licensing of professional soil scientists practicing in Texas, and understanding Texas's unique soils, unqualified individuals will attempt to manage systems ineffectively and often with negative results that include increased erosion, poor water management, vegetation stress, and increased management of sites that stress economic and energy reserves.

Continuation of the Texas Geoscience registration with respect to soil science is essential. It is also important that Texas A&M University and Texas Tech University continue to educate and provide trained soils professionals to fully manage a critical resource that, if allowed to degrade, could result in significant environmental and fiscal problems in the state.

Although our first recommendation is to keep the current Geoscientists Board and Practice Act, we would support an alternative that was recommended in the ASBOG comments, keep the Geoscience Practice Act but merge the Geoscience Board with the Engineering Board.

From the ASBOG comments:

“2. Recommendation

The National Association of State Boards of Geology strongly urges the Commission to reconsider, at a minimum, the repeal of the Geoscience Practice Act. Additionally, in lieu of abolishing the TBPG, we recommend that the Commission consider retaining the current TBPG, strengthening its regulatory enforcement capabilities and/or consider combining this Board with the Texas Board of Professional Engineering (TBPE) to further allow economy of scale and provide the necessary oversight and uniformity of enforcement.”

Addendum

SSSA’s Certified Professional Soil Scientist (CPSS)

Requirements:

1. Pass the Fundamentals in Soil Science Exam and Professional Practice Exam (same exams used by Texas Geoscience; SSSA Council of Soil Science Examiners (CSSE) provides the exams to Texas Geoscience).
2. Minimum of a BS degree in Soil Science with >15 semester credits in core courses of which >9 in upper level coursework and >45 semester credits in supporting core courses.
3. Minimum of 5 years of experience.
4. 5 references.
5. 30 hours of continuing education every two years with one hour required in ethics.
6. Signature of an ethics statement.

Certifying Board:

The CPSS Certifying Boards have members from a cross section of the profession representing academia, government and private practice with no one group in control. There is one National Board setting policy and procedures. We have two state based certifying boards in Florida and Ohio that work in concert with the National Board to implement the policies and procedures of the CPSS program.

Council of Soil Science Examiners (CSSE):

The CSSE is made up subject matter experts (SMEs) representing a cross section of the profession in academia, government and private practice.

The CSSE develops and delivers the soil science fundamentals and professional practice exams. These exams are utilized by 10 state soil science licensing programs, including Texas Geoscience, as well as the CPSS certification programs.

Exams are developed using nationally accepted exam development and scoring guidelines.

CSSE Exam Process:

Develop and Maintain Performance Objectives (POs) – a group of soil scientists identifies what a practicing soil scientist needs to know and be able to do. Prior to publishing, POs are sent to practicing soil scientists for input/peer review of the document.

The POs are then used to write exam questions to measure an applicant's knowledge, and each exam question must link with a PO, which also provides a guide to exam applicants to understand the base knowledge that they are expected to understand. A review of POs is conducted every 3 to 5 years to maintain relevancy within the science and by surveying the soil science community.

An exam question bank is maintained with annual review and editing of questions.

An exam psychometrician is retained to conduct exam statistical reviews and provide scoring.