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September and October 2021



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Advances in the Geology of the Sacramento and Northern San Joaquin Basins

since PSAAPG Miscellaneous Publications 41 and 43

Volume 1



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Business Card

Hello Pacific Section Geoscientists,

On behalf of all the PS-AAPG and AAPG, I would like to extend a sincere and wholehearted thanks to the 2019-2020 Executive Committee and their families for their dedicated and tireless work over the past two years. Thank you, Becca Schempp, Richard Behl, Plamen Ganev, Wanjiru Wilder, Lisa Alpert, Simarjit Chehal, Tony Reid, Larry Knauer, Mike Clark, Cynthia Huggins, Cole Heap, Karla Tucker, and the leadership in the local geological societies. A special mention goes to Renee Richards and Joh Schwalback for their hard work and tireless dedication to the PS-AAPG. They have done so much to keep the PS-AAPG Convention alive and thriving. Plamen Ganev has been nominated to President-Elect, while Lisa and Simmie will continue filling their essential and critical roles as our Treasurers. Our exceptional Newsletter will continue thanks to Tony's willingness to continue as Editor in Chief.



The PS-AAPG looks forward to maintaining its excellent programs, and we will focus this year's programs and challenges on several fronts:

- 1. 2022 Convention and build more momentum for publications.
- 2. Expanding public outreach to include open communications to local public officials, as well as providing information to our members and local officials as to the benefits of O&G to the local community and humanity.
- 3. Preserving, documenting geological and historical documents through the CA Well Sample Repository.
- 4. Work with members and local societies to forge PS-AAPG's future given the proposed merger of the AAPG and SPE.

The greatest challenge we face as an organization and community is our way forward as a professional society. With the proposed merger of AAPG and SPE, we may have the great task of rewriting our future. The PS-AAPG, the oldest (and wisest) of the AAPG Sections, was founded in 1924, and is now just shy of its 100-year anniversary.

The founding of the PS-AAPG is historically noteworthy and fascinating. Early in 1924, Earl Gaylord, Roy Collom, J. A. Taff, and the Gester brothers, discussed the subject of creating the PS-AAPG. Earl enlisted the services of Frank Hudson to promote the idea in southern California. In June 2024, Roy Collom, Howell Gester, Bob Moran, Dan Nolan, and J. A. Taff were appointed to a committee to prepare the by-laws for a California association of AAPG members. Frank Hudson thus became the de facto first President of the PS-AAPG in 1924. One year later (March 26, 1925), after petitioning the AAPG (formed in 1917 in Tulsa, OK), the Pacific Section officially and proudly became the first chartered section of AAPG.



Mr. Frank Hudson, First President of PS-AAPG (1924). 1890-1967.

On May 25, 2021, AAPG President, Rick Fritz, announced that the AAPG and SPE organizations are to formally explore a merger to create a new organization. This *New-org* will be the preeminent professional organization for geoscientists and engineers working in the energy industry. Page 7 is a detailed account of the current thinking of AAPG and their timeline going forward on the merger. I met with AAPG executive Leadership recently (9-21-2021) and little more clarity was given. AAPG expects will provide updates in the near future and expects to have the merger voted on by members in 2022. A general timeline is depicted below.

Process Timelin	ie
Element	Target Completion Date
 Develop a "Straw Model" of a Consolidated Organization Mission and Vision Corporate & Governance Structure Member / stakeholder input Strategic Foundation Membership Model Due Diligence and Financial forecast Communications strategy & champions 	June – September 2021
Stage Gate 1: Governance Approval of "Straw Model" Agreement to proceed Adjustments to model	September 2021
Chart and Manage the Pathway to Approval Finalize governance and membership models Member vote schedule Brand strategy "Integration teams" Preliminary organization design	September – March 2022
State Gate 2: Approval by the Memberships	Q1 2022
 Finalize Organizational Design and Deliverables Governmental approvals Closing documents 	March – June 2022
Final Governance Approvals of transaction documents	NLT June 30, 2022
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Since PS-AAPG is the smallest (and shrinking) Section in AAPG, it would behoove us to be strategic in planning our way forward. Should the merger be approved by the membership of AAPG and SPE, there are many possible paths we might take. We would like to hear from you and decide on a practical and logical future path (email me your thoughts at GeologistVaughn@gmail.com). As energy scientists, and above all, stewards of the earth, we have an opportunity to recreate ourselves. I believe we have a moral duty to society to serve and educate our community and broaden our reach to encompass the future energy needs of those that we serve.

Since I am the PS-AAPG representative to the national AAPG, I will work with the PS-AAPG Executive Committee to collect member input and put the strongest ideas to a deciding vote. Personally speaking, although I do see the necessity and some benefits in AAPG and SPE merging, this news saddens me. PS-AAPG was forward thinking in becoming the first Section of the AAPG, so let's think to the future once more. No matter the path forward, PS-AAPG will carry on with its mission of education, convention meetings, publications, membership, and networking. That is not going to go away because of the AAPG-SPE merger. So please renew your memberships!

As the new global political and energy map is being re-written, and ill-informed masses turn their backs on our profession, we must stay strong, vigilant and remind ourselves that we help provide for the energy needs of billions of people around the globe. When I think of the attack on oil and gas, I can't help but ponder on Sun Tzu's The Art of War, Chapter 2, no.6, Waging War: "There is no instance of a country having benefited from prolonged warfare". The open, multi-directional assault on our industry is destined to hurt not just our Country, but the citizens of our one world. We geologists have the advantage of thinking in Geological Time, and collectively, we can help create and tend to the wellbeing of our planet.

Additional article background and resources:

Page 6

-Earl Gaylord was Chief Geologist of the Pacific Oil Co. (National Petroleum News, V15, no.2); Roy Collom was an Executive at Marland Oil Company (Bull. AAPG. V33. No.5); J. A. Taff was Chief Geologist at Southern Pacific Railroad (Bull. AAPG. V28. No.7); George Gester was Chief Geologist at Standard Oil (Bull. AAPG. V44. No.1); Howell Gester was a Geologist at Standard Oil (The Napa Valley Register, 1967); Frank Hudson was a Director at Shell Oil (Bull. AAPG. V53. No.5); Roy Collom was the Chief Geologist at Marland Oil Company (Bull. AAPG. V33. No.5); Bob Moran was Ohio Oil Company's West Coast Consultant (Bull. AAPG. V46. No.4); Dan Nolan was Chief Geologist at General Petroleum (National Petroleum News, V15, no.4).

-General History of PSAAPG: MP 36: C. F. Green (ed.) 62 Years History of the Pacific Section of Petroleum Geologists, 1924-1985).



Text of AAPG President Rick Fritz's Announced that the AAPG and SPE Organizations are to Formally Explore a Merger to Create a New Organization May 25, 2021

Dear Member,

Today we are announcing the intention of the AAPG and SPE organizations to formally explore a merger to create a new organization, which will be the preeminent professional organization for geoscientists and engineers working in the energy industry.

Background

On 11 February 2021, a group of volunteer leaders from SPE and AAPG held a meeting to explore opportunities for deeper cooperation and partnership amid a challenging COVID-impacted market environment and large-scale restructuring within the energy sector. This meeting led to the formation of a team to conduct a preliminary evaluation of the possible benefits and opportunities of a merger of our two organizations.

Current Status

This past week, the SPE Board of Directors and the AAPG Executive Committee both voted unanimously to move forward with defining how a new organization will serve engineers and geoscientists working in oil and natural gas might be structured. This is the beginning of what is likely to be a year-long process.

The reasons for considering a merger are many:

- The organizations have a long history of successful collaboration.
- Traditional lines between the disciplines have been blurred with many companies having reorganized into combined subsurface geoscience and engineering teams. Oil and gas exploration and development faces an uncertain future that is not driven by supply and demand but rather public perception and acceptance; this is an industry-wide challenge that we are best-equipped to navigate together. We need to position ourselves to help our members play a prominent role in an evolving energy sector. The companies that support our programs are concerned about the resources required to support volunteerism and the financial commitments needed to support all of the oil and gas-related professional societies.
- This new organization would become the professional community of choice for generations of energy professionals committed to driving long-term change.
- In a post-COVID environment, speed to market, efficiency, and innovation will continue to be paramount. A consolidated organization can leverage economies of scale and adopt new ways of working from the outset.

Vision for a New Organization

Combining our two strategically important organizations will allow the new organization to:

- Build on a shared legacy of engineering and geoscience technology and knowledge management in the petroleum industry.
- Preserve our core technical and discipline strengths while reflecting the model of multi-disciplinary teams used in E&P organizations today.
- Build from these core strengths to expand our coverage on key emerging issues to better serve our members as the industry evolves, such as sustainability and digitalization.
- Serve members worldwide who will need new skills, networks, and experiences to flex into new jobs that will be critical to the world's energy future.
- Provide a "one-stop-shop" for the current and future energy workforce and other stakeholders.

We will be stronger together, both financially and as the preeminent professional organization for geoscientists and engineers. However, we believe it makes sense for our organizations to explore the possibilities of a merger to prepare ourselves for this rapidly changing future. We fully acknowledge and appreciate that much work must be done before both organizations are ready to make a final commitment. Member/stakeholder feedback and engagement are critical components of the process. Our planned time frame is given below:

- Develop a proposed model for a consolidated organization (June–October 2021)
 - -Gather member/stakeholder input
 - -Define corporate, governance, and membership structure
 - -Financial forecast and due diligence
- Governance approval of the proposed model by respective boards (October 2021)
- Adjust and further outline organization (November 2021–March 2022)
 - -Finalize governance and membership models
 - -Branding strategy
 - -Preliminary organization design
- Define the most probable integration teams
- Obtain approval by the respective memberships (Q2-2022)
- Finalize the organizational design and deliverables for merger (April–June 2022)

Updates from AAPG Website:

October 1, 2021 [Merger to go to members for approval]

In late September, the SPE Board of Directors and the AAPG Executive Committee agreed to bring the potential merger to its members for vote in early 2022. The decision was based on the work done by the steering committee on mission and vision, governance, membership structure, and geographical components of the potential new organization.

October 12, 2021 [SEG considers joining with SPE and AAPG]

SEG creates SEG Strategic Options Task Force to examine which strategic option is in the best interest of the membership including considering joining AAPG-SPE potential merger. The task force will start regular meetings with members of the AAPG-SPE Merger Steering Committee to evaluate the opportunity.

Call For Papers

Geology of the Sacramento Basin and Northern San Joaquin Basin

The PSAAPG is calling for new papers on the Sacramento and northern San Joaquin basins, to be published in compact disc format as volume 2 of our 2021 CD, Advances in the Geology of the Sacramento and Northern San Joaquin Basins since PSAAPG Miscellaneous Publications 41 and 43. Volume 2 will be dedicated to the late Alvin A. Almgren and honor his pioneering research on these basins, which has benefited and inspired scores of students and professionals for more than seven decades. We anticipate publication of volume 2 in the middle or later part of 2022.

Potential topics may include:

- Outcrop studies at the west and east basin margins
- Neogene geology and sequence stratigraphy
- Natural gas discoveries and development activities since 2000
- Reinterpretation of old fields
- Sequence stratigraphy of Upper Cretaceous section in the Sacramento Basin
- Case studies using 3-D seismic, gravity and magnetics
- Exploration history of the Central Valley gas province
- Neogene tectonics
- Sutter Buttes volcanism and intrusion, and other basin volcanism
- CO2 sequestering in abandoned gas fields
- Origins of overpressure in deep Sacramento Basin and effects on exploration and production
- Jurassic and Lower Cretaceous geology and northern Sacramento Basin
- Produced water injection and other regulatory activities

If you have a manuscript, or are able to prepare one by mid-2022, and are interested in publishing your work in this new volume, please contact Tony Reid (<u>editor@psaapg.org</u>)

or Scott Hector (<u>Scott.Hector@gmail.com</u>).



MOUNT DIABLO INTERPRETIVE ASSOCIATION

PRESS RELEASE

Contact Information

Northern California Geological Society Noelle Schoellkopf 924-314-9592 noelleprince@sbcglobal.net Mount Diablo Interpretive Association Stephen Smith 925-325-0805 eagleeyedesign@att.net

Release Date: October 1, 2021

Two New Publications Highlight the Geology of Mount Diablo

Recently published are a geologic volume and a companion geologic map and guide to Mount Diablo geology. The volume provides modern geologic insights on the origin and history of the mountain and its place in the regional tectonic setting on the North America plate boundary. The integrated trail and geological map is the first of its kind for Mount Diablo and introduces visitors to Mount Diablo State Park's unique earth history.

New Volume: Regional Geology of Mount Diablo, California: Its Tectonic Evolution on the North America Plate Boundary: Geological Society of America Memoir No. 217, 488 pages. Edited by Raymond Sullivan, Doris Sloan, Jeffrey R. Unruh and David P. Schwartz. https://rock.geosociety.org/Store/detail.aspx?id=MWR217

Over the past 150 years, Mount Diablo has served as a window into the evolution of the plate boundary relationships in northern California. Memoir 217, published by the Geological Society of America, is a compilation of 17 new research papers, by 33 contributing authors, on the geology of Mount Diablo. This new expansive color volume was assembled under the leadership of Ray Sullivan, Professor Emeritus of Geology at San Francisco State University. Its publication commemorates the 75th anniversary of the Northern California Geological Society. Save Mount Diablo and members of the Northern California Geological Society provided much of the funding for the book.

The Memoir includes the most recent interpretation of the structure of the mountain and explains its recent uplift. Mount Diablo might look like a volcano, but the peaks of the mountain are composed mainly of ancient oceanic rocks and the flanks of younger sedimentary rocks. Papers in the volume include a study of the landscape, details of the rocks, geologic history of the area, mining and petroleum discoveries, as well as the age and origin of volcanic ash beds in the younger sedimentary rocks on the flanks. The main sources of these ash beds are from Nevada, Yellowstone, Cascade Range and Sonoma. A short phase of volcanic activity occurred some 7½ million years ago on the

east side of Mount Diablo, forming a series of prominent domes along Marsh Creek Road. The conclusion: "while the rocks are old, the mountain itself is young".

According to Ray Sullivan, the lead editor, "the new work contains the most complete studies on the geology of Mount Diablo. They point to the origin of Mount Diablo as a relatively recent event in the long and complex geological history of the California Coast Ranges."

GSA Memoir 217 is available for purchase at <u>https://rock.geosociety.org/Store/detail.aspx?id=MWR217</u>. NCGS and GSA members are entitled to discounts on the volume (\$49 instead of \$70). View the table of contents at <u>https://rock.geosociety.org/store/TOC/MWR217.pdf</u>

New Map: Geologic Guide to Mount Diablo State Park by the Mount Diablo Interpretive Association. Available at <u>https://www.mdia.org</u> or at the Mount Diablo State Park Summit and Mitchell Canyon Visitor Centers.

The need for a simplified geological guide to Mount Diablo to accompany Memoir 217 was recognized by the Northern California Geological Society, Mount Diablo Interpretive Association, and California State Parks. A folded two-sided guide, edited by Greg Bartow, is now available, that consists of an updated geologic map with roads and trails on one side, and a description of the geology on the other side. The updated geologic map, by Russell Graymer and Victoria Langenheim of the U.S. Geological Survey, also appears in Chapter 1 of GSA Memoir 217. The guide includes a map showing the epicenters of 7,200 earthquakes that have occurred in the vicinity of Mount Diablo over the last 36 years. These earthquakes illustrate the active nature of the fault systems that continue to form Mount Diablo. Stephen Smith, President of Mount Diablo Interpretive Association, said, "This geologic guide will provide a new resource for visitors to appreciate the unique nature of the park."

Mount Diablo State Park draws more than 600,000 visitors each year to explore the park and take in the spectacular view. Mount Diablo Interpretive Association (MDIA) is a non-profit, all-volunteer organization that assists the California Department of Parks and Recreation in maintaining and interpreting Mount Diablo State Park. Through education, sponsored activities, and publications, MDIA fosters appreciation and the enlightened use of Mount Diablo State Park. Save Mount Diablo is a non-profit organization dedicated to the preservation of Mount Diablo peaks, surrounding foothills and watersheds through land acquisitions.

Copies of the geologic map can be purchased online at <u>https://www.mdia.org</u> for \$7.00 (shipping included), or for \$6.00 at the Visitor Centers at Mount Diablo State Park Summit and Mitchell Canyon.

New Publication from the Pacific Section AAPG

Outcrops that change the way we practice Petroleum Geology

Pacific Section AAPG Guidebook #81

Compilation Editor Richard J. Behl

Volume Layout & Technical Editors Victoria Thomas Vaughn Thompson

PS-AAPG Guidebook # 81

Outcrops that change the way we practice petroleum geology: 2020 Pacific Section AAPG/SEPM/SEG Conference



Guidebook #81 is available for purchase NOW Cost: \$36.00 PUBLICATIONS PACIFIC SECTION AAPG P. O. BOX 1072 BAKERSFIELD, CA 93302

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SANDE OIL FIELD GEOLOGY

New Publication "FROM WESTON TO CRESTON – A Compendium of Witnessed US Meteorite Falls – 1807 to 2016" by Frank Cressy

The violent display of blazing light and explosive sounds ending with meteorites crashing to the ground is an unforgettable event to those who witness it firsthand. This book summarizes the fall histories of nearly 170 witnessed meteorite falls that have occurred in the United States since the first documented fall at Weston, Connecticut in 1807. It is written not only for the collector of these rare objects, but also for those interested in the history and the growth of the branch of science known as Meteoritics. The accounts of the fall phenomena and recoveries associated with these extraordinary events are the focus of the book. However, the book is more. The reader will learn about those individuals responsible for the growth of the science and their contributions, together with interesting facts and coincidences about these visitors from space; 257 pages with over 300 color photos plus maps, figures and illustrations.

Soft Cover books \$36.00; for ordering, contact: fcressy@prodigy.net



The Saga of 934-29R, Elk Hills Oil Field

Tony Reid Pacific Section AAPG Editor-in-Chief

The last edition of this newsletter contained descriptions of key deep wells in the San Joaquin Valley written by Bill Rintoul. One of the wells, 934-29R, located in the Elk Hills Oil Field, had multiple drilling and completion operations in the years following Bill's writing. I am familiar with many of these activities as I worked for the Unit Operator of Elk Hills, Bechtel Petroleum Operations, Inc., the contract operator for the field's majority owner, the US Department of Energy (DOE). My goal is to write about some of the aspects of the well's history that I experienced, supplemented with dates and depths from the CalGEM online history. Others who worked on the well for Bechtel, including Geoff Nicholson and Mark Wilson, will have additional recollections.

The drilling history consists of the original hole and several redrills.

Original Hole

Well 934-29R was to be a deep test of the 29R Anticline in the western portion of the field. If possible, the well was to reach a drill depth of 25,000 feet with the borehole kept near vertical while drilling. A huge drilling rig, Parker No. 182, was brought in from Oklahoma where it had drilled to depths of 30,000 feet or more. The rig was immense, with a drill floor 32 feet above ground level, a towering derrick and draw works capable of running thousands of feet of large diameter heavy walled casing necessary for the high pressures to be encountered.

The rig spud on May 30, 1985. My first memorable experience was near TD. Drilling below 22,500 feet was very slow, with frequent trips to replace bits. By August 2, 1987, only 7 feet were made over a two-day interval. DOE decided to take a last core and to call TD. The cored interval, from 24,402 to 24,426 feet, progressed much quicker than drilling, and although there were half-hearted discussions about coring our way to 25,000 feet, TD was called at 24,426 feet. For the final wireline logs, a Schlumberger logging unit with lots of cable came over from Ventura. We knew the bottom hole temperatures were high – later measured at 404 degrees F – so most of the log runs were with Hot Hole tools. Nonetheless, on every logging run, part or all the tools would burn out. The logging engineer – Jeff Little – would field repair the tools, replacing the burned-out parts, and back in the hole the tool went. On most runs, we only obtained a few hundred feet of log before burn-out occurred. After 6 days and numerous log runs, we were able to



Parker Drilling Rig No. 182 at well 934-29R. Photo taken by the author in 1987. The rig floor is 32 feet above the ground level. Note the slide to the right, used for quick evacuation of the rig.

patch together the complete log suite from TD to the casing shoe at 17,400 feet. I don't remember the final logging bill – maybe Geoff or Mark does – but it was huge!

Most formation tops below the middle Temblor are not obvious because microfossil recovery was rare in the section penetrated and dipmeters, run in oilbased drilling muds, were of little use. The only clear indication for formation age is at TD, and is based on the occurrence of belemnoids, cephalopods common in Cretaceous rocks. In the final 934-29R core, the fine-grained sandstone contained abundant faint dark outlines shaped like cross sections of a ball-point pen. I would like to show photos of the core except most of it is in now in Washington D.C. as lamp bases and bookends. What little core is left is in the Elk Hills Core Warehouse.



Photo of a Belemnoid, from Wikipedia.

After several months of evaluation, cased-hole testing began in March of 1989. The only significant hydrocarbons were from an upper Eocene interval called the Oceanic Sand, at a depth of 17,100 to 17,365 feet. A completions engineer brought a sample of the first oil recovered into our trailer (Bechtel staff worked in trailers at the 11G office complex off Taft Highway), an amazing clear pale light blue liquid. We talked about making mementos containing a drop of the oil in clear plexiglass, but by the next morning the oil had turned to a not-so-attractive brown, and the memento idea was forgotten. The well was put on production in September 1989, and quickly peaked at 95 BOPD, 382 BWPD, and 1,800 MCFPD. Oil gravity was 44 degrees API. However, production dropped rapidly and was no longer commercial.

Redrill 2

DOE decided to redrill 934-29R to an up-dip location in hopes of obtaining better production from the Oceanic Sand. I am aware of only one up-dip redrill, and data on CalGEM's site supports a single up-dip redrill. Nonetheless, this redrill is call RD 2. Although the well history is incomplete and pages are obviously missing, forms filed with the State for RD 2 continue to list the TD as 24,426 feet, so I doubt there was a RD 1. One explanation may be on a "Report of Correction or Cancellation" form, dated December 27, 1989, that cancels a previous application to plugback and redrill 934-29R. So even though the work was cancelled, maybe this earlier redrill plan was formalized as RD 1 in order to avoid confusion with the later RD 2.

Redrill 2 got underway in September 1993, kicking off from the original hole at 12,700 feet. The target was north of the original hole. TD was called at 17,566 feet on December 30, 1993. Five intervals were perforated and tested from 14,475 feet to 16,918 feet. Production results were less than in the original hole, and the perforated intervals were abandoned.

Redrill 4

Redrill 4 turned out to be another reminder for me that nothing is ever for sure in the well drilling business. After Occidental purchased DOE's interest in the Elk Hills field, I was assigned to work exploration within the field boundaries. In reviewing some of the field's more unusual wells, I came across a Santos Sand oil



The Parker rig in western Elk Hills at well 934-29R, looking west. Note the Temblor Range in the background. Photo by the author in 1987.

producer located not too far from 934-29R. The well had produced about 20 BOPD with no decline for years. The net productive thickness was too thin to justify an offset well. However, a horizontal well could have 10 or 20 times the effective production thickness, but a grass-roots well could still not be justified. There sat 934-29R, idle. So a plan was hatched to kick off from the original hole and drill a lateral to the west, toward the producing well.

In preparation for drilling, the well was renamed 934H-29R in September 1999. In the first attempt to drill the lateral began in the Summer of 1999, with a window cut in casing at 9,307 feet. After progressing to horizontal and drilling at 9,805 feet the bottomhole assembly become stuck. It was finally retrieved, but the hole was viewed as too unstable to continue, and was subsequently abandoned. This initial attempt at the lateral section is probably RD 3, although no specific reference in the history labels it as such. For RD 4, a new kick-off point was at 9,200 feet. Drilling was successfully completed on January 20, 2000, with a final TD of 12,068 feet (measured depth). The lateral section was 2,200 feet in length, at depth of 9,680 feet TVD, or about 8,260 feet TVDSS, with most of the lateral section in the Santos Sand. Expectations were high, but on testing, very little fluid or gas were recovered. Even after several stimulation attempts, the well continued to have very low productivity. In my view, whatever formation damage that had occurred could not be fixed. I'm sure others thought the fault was with the geologist, who should have been run off.

Epilog

In 2002, 934H-29R was recompleted as a development well in the Carneros Sandstone, a proven gas and condensate zone at Elk Hills. Current production is 100 to 150 MCFPD.



From the Bakersfield Californian, October 21, 2021:

Newsom Administration Proposes 3,200-foot Buffer Zone Between Oil Wells and Sensitive Sites

By John Cox

The Newsom administration, in a long-anticipated move against California's oil industry, unveiled a proposal Thursday for a 3,200-foot buffer zone between new oil and gas wells and sensitive locations like homes, schools and churches.

Existing wells would be allowed to remain, but if they're located within the buffer, the operator would have to install monitoring equipment and vapor containment systems to make sure petroleum emissions are not risking the health of nearby residents.

The proposed setback distance is greater than what was called for by environmental justice advocates for whom 2,500-foot setbacks have been a rallying cry for about two years. They point to studies showing a link between proximity to oil production and a variety of serious illnesses and harmful health outcomes.

"Residents of environmental justice communities in Kern County, like those living in Lamont, Arvin, Lost Hills who have for decades been suffocated with dangerous gases from the oil facilities surrounding their homes, are finally receiving good news," Nayamin Martinez, executive director of Central California Environmental Justice Network, said in a news release.

Some activist organizations went a step further, saying the state should halt new permits for work such as maintenance of existing wells near sensitive sites.

Oil industry representatives argued that even a 2,500-foot buffer was unsupported by science and potentially costly, and that ultimately such measures make the state still more dependent on relatively lightly regulated oil production overseas.

"The arbitrary, unscientific setbacks contained in the draft ordinance will result in more climate noncompliant crude being tankered into our crowded ports from Saudi Arabia and Iraq who are totally exempted from California's climate programs," CEO Rock Zierman of the California Independent Petroleum Association wrote in an email. "So not only will Californians lose their jobs, see decreased local tax revenue and export more of their wealth to foreign countries, but greenhouse gas emissions will increase as well. Not sure that is a legacy this governor wants."

A 60-day public review launched Thursday. A formal rule-making process codifying the setbacks is expected to take about a year.

LATEST MOVE

Gov. Gavin Newsom, under intense pressure from climate and environmental-justice advocates, announced nearly two years ago his administration would work toward establishing a standard oil buffer zone.

Thursday's proposed rule is one of several steps he has taken as part of his stated intention of phasing out oil and gas in California, including a de-facto ban on the controversial oilfield technique known as fracking. At the same time, his administration has failed to deliver a long-promised plan for helping oil-producing areas like Kern that rely on petroleum for thousands of good-paying jobs and vital property-tax revenues.

His plan for helping Kern's "just transition" away from oil and gas production was supposed to have been presented in July. His office said in August it was up for "final review," but two months later it still has not been released.

On Thursday, after speaking in Los Angeles County about the proposed setback, Newsom issued a news release saying the proposed rule would protect the more than 2 million California residents living within a half-mile of oil drilling sites.

"We are committed to protecting public health, the economy and our environment as we transition to a greener future that reckons with the realities of the climate crisis we're all facing," he stated in the release.

His office was unable to offer an estimate of how much money it might cost oil companies to comply with the newly proposed requirements for monitoring emissions, noise, light, dust and water quality, as well as new systems for containing vapors. After the end of the public comment period, the agency that issued Thursday's proposal, the Californian Geologic Energy Management Division, expects to launch an analysis of the measure's economic impacts.

HEALTH EFFECTS

Multiple studies have shown a correlation between proximity to oil and gas wells and health problems including adverse birth outcomes, heart disease and respiratory diseases including asthma. The idea of establishing the setbacks at 3,200 was put forward by a 15-member public-health panel selected by the University of California, Berkeley together with Physicians, Scientists and Engineers for Health Energy.

In unincorporated areas within Kern County, no oil or gas wells may be drilled within 210 feet of sensitive areas such as housing, schools, hospitals or places of public assembly. But wells may be drilled 100 feet away from a non-oil-related commercial building or a major or secondary highway.

Arvin's buffer, or setback zone, is 600 feet for sensitive receptors, or 300 feet from other structures. In the city of Carson, the setback must measure at least 750 feet. But these buffers do not generally apply to wells drilled prior to the adoption of a setback standard.

California Natural Resources Secretary Wade Crowfoot, speaking with reporters by phone Wednesday, said Colorado's 2,000-foot setback remains the nation's strongest protection against harmful effects of living near an oil or gas well. He noted, however, that even that rule does not require additional equipment or monitoring on existing wells within the buffer.

Assemblyman Vince Fong, R-Bakersfield, said in a news release the governor should have consulted energy experts before moving forward with a proposal that increases costs, reduces energy production and puts jobs at risk.

"We should be encouraging more energy production for Californians, in California, and by Californians; this regulatory action does the exact opposite," he stated.

The county's chief administrative officer, Ryan Alsop, said in a news release Newsom needs to understand his energy policies fall hardest on Kern.

"All the administration's energy production objectives run through Kern County, with our residents and their families paying the heaviest price," Alsop stated.

Details on the rule issued Thursday by CalGEM can be found online at https://www.conservation.ca.gov/ calgem/Pages/Public-Health.aspx. Public comments can be sent by email to CalGEMRegulations@ conservation.ca.gov or mailed to 801 K St., Sacramento, California (ATTN: Public Health Regulations) by Dec. 21.

Editor's Note: Neighborhood encroaches on pumping well in southwest Bakersfield



I took this photograph Oct 23, 2021, that shows several homes under construction in the Stockdale's Highgate neighborhood adjacent to this Bellevue Field oil well. The well was drilled in 1966, several decades before anybody lived in the area, and still produces commercial quantities of oil from the Stevens Sand. Oil pumps became a common sight in several Bakersfield neighborhoods as the city expanded westward into areas of petroleum development.

Member Society News

Alaska Geological Society www.alaskageology.org

P. O . Box 101288 Anchorage, AK 99510

Virtual monthly meeting are held at 11:45 am. Thursday, November 18, 2021 Speaker and topic to be announced on the website

President: President-Elect: Vice-President: Secretary: Treasurer: Past-President: Laura Gregersen Sarah King Ben Rickards Heather Beat Corey Ramstad Andy Dewhurst

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Coast Geological Society www.coastgeologicalsociety.org P. O. Box 3055 Ventura, CA 93006

Virtual meetings continue through the end of 2021. Meetings are the third Tuesday of the month and start at 6 pm.

November 16: Dayanthie Weeraratne, CSUN, Seismic Tomographic Imaging of California Borderland December 21: Daniel Limonadi, JPL, Current and Future Earth Observations and Modeling

President: Vice President: Secretary: Treasurer: Membership chair: Webmaster/Tech Support: Scholarship Logistics: Renee Richards Jerry Nichols Justin Brochert Blake Foreshee Eric Heaton John Abeid Eiko Kitao David Arellano president@coastgeologicalsociety.org vicepresident@coastgeologicalsociety.org secretary@coastgeologicalsociety.org treasurer@coastgeologicalsociety.org membership@coastgeologicalsociety.org scholarship@coastgeologicalsociety.org logistics@coastgeologicalsociety.org

Los Angeles Basin Geological Society www.labgs.org

Virtual meetings continue at 12:00 noon the fourth Thursday of the month. Go to the LABGS web site for the like to join the meeting.

October 28: Scott Prior, Retired, The Demontian (upper Miocene) Sandstone Play in the Northern Los Angeles Basin

November and December: no talks due to the Holidays

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(Continued on next page)

Northern California Geological Society www.ncgeolsoc.org

803 Orion #2 Hercules, CA 94547-1938

Two New Publications Highlight the Geology of Mount Diablo: see the Press Release on page 10 of this newsletter

Virtual meetings held via ZOOM at 6:30 pm on the fourth Wednesday of the month.

October 27: Donald G. Hill, Ph.D., Consulting Petrophysicist, Emeritus Adjunct Professor, University of Southern California, Use and Abuse of Wireline Measurements for Potash Exploration & Reserves Estimates November 17: Dr. Carolyn Driedger, USGS, Vancouver Station, WA, New information on lahars from USGS Task Force

No December meeting due to the Holidays

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geology @ andrewalden.com

Northwest Energy Association www.nwenergy.us

P. O. Box 6679 Portland, OR 97228

Contact: Jim Jackson or John Armentrout

No activities are planned at this time. Check the website for the latest information.

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Sacramento Petroleum Association

P. O. Box 1844 Folsom, CA 95630 Contact: Pam Ceccarelli 916-439-0400

As of October 2021, in-person meeting have resumed at the Club Pheasant in West Sacramento. Meetings are held at noon on the third Wednesday of the month.

President: Vice-President: Secretary Editor/Treasurer Jerry Reedy Scott Hector Derek Jones Pam Ceccarelli JWR5532@aol.com Scott.Hector@gmail.com djones@gasbiz.com pc626@comcast.net

(Continued on next page)

Member Society News

P. O. Box 1056 Bakersfield, CA 93302 Contact: Mark Korte-Nahabedian marknahabedian@gmail.com

In person monthly meeting have resumed. Meetings are on the second Tuesday of the month at 6:30 pm at the American Legion Hall, 2020 H Street, Bakersfield. Check the web site for the next meeting details.

- President: Past President: President-Elect: Vice-President: Secretary: Treasurer: Webmaster:
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