



ENERGY CORPORATION

September 14, 2020

Sent Via Email Only - Clerkoftheboard@ventura.org

Ventura County Board of Supervisors
COUNTY OF VENTURA
800 S. Victoria Ave., L#1740
Ventura, CA 93009-1740
Attn: Clerk of the Board

RE: September 15, 2020 Agenda Item No 41: Certification of the 2040 General Plan Final Environmental Impact Report (State Clearinghouse No. #2019011026) and Adoption of the 2040 General Plan (Planning Division Case No. PL17-0141)

Dear Chair Long and Honorable Supervisors:

This letter provides comments on behalf of ABA Energy Corporation ("ABA") on the 2040 General Plan ("GPU") and the Final Environment Impact Report ("FEIR"). The comments set forth herein are in addition to my comment letter dated August 31, 2020 that was received via email by the Clerk of the Board before 3:00 pm on August 31, 2020 (as confirmed by transmittal emails contained in the record), but that was not uploaded to the website for Comments on this Agenda item until the morning of September 2, 2020, due to no fault of ABA. ABA hereby asserts that the Board is required to consider its entire comment letter as a part of the record as it was delivered in a timely manner before the deadlines imposed by the County for consideration on this Agenda item.

For clarification, ABA renews each and every objection and argument in opposition set forth in my August 31, 2020 comment letter, and further joins in and adopts the comments, comment letters and evidence submitted by and on behalf of those associations, oil and gas industry groups and companies being filed today, September 14, 2020, concerning the constitutional, legal and procedural failures that occurred at the hearing on September 1, 2020 and as they affect the hearing to be held on September 15, 2020, concerning the GPU and FEIR and incorporates same into this letter as though fully set forth.

Respectfully submitted,

Alan B. Adler, President



September 14, 2020

VIA ELECTRONIC MAIL

Supervisor Steve Bennett
Supervisor Linda Parks
Supervisor Kelly Long
Supervisor Robert O. Huber
Supervisor John C. Zaragoza
Hall of Administration
800 S. Victoria Ave., L#1740
Ventura, CA 93009-1740
clerkoftheboard@ventura.org

Re: September 15, 2020 Agenda Item No 41: Certification of the 2040 General Plan Final Environmental Impact Report (State Clearinghouse No. #2019011026) and Adoption of the 2040 General Plan (Planning Division Case No. PL17-0141)

Dear Ventura County Board of Supervisors:

On behalf of Aera Energy LLC ("Aera"), we submit the following comments regarding Board of Supervisors September 15, 2020 Agenda ("Board Agenda") Item 41, continued from September 1, 2020 Item 39. We request that these comments be included in the record of proceedings for the above-captioned matter.

A. The Board Agenda Misinforms and Misleads the Public

Regarding Item 41, the Board Agenda states that there will be a "continued public hearing." The public is thus reasonably led to believe that additional public comment will be considered at the September 15, 2020 hearing. Many citizens are likely to attend the meeting expecting to be heard based on the title of Item 41. It would be unfair and a violation of due process to prevent them from addressing the Board of Supervisors ("Board") at the continued public hearing.

B. Public Comment on Item 41 Must Be Permitted

To the extent the Board intends to prohibit public comment on Item 41, such prohibition would be unlawful, and we strongly encourage the Board to reconsider such a course of action. The Board has a duty to open the public hearing on Item 41, given the Board's conduct with respect to this matter on September 1, 2020. After the Board closed public comment on Item 41 (then identified as Item 39) on September 1, 2020, the

Board raised numerous, substantive issues without providing adequate notice to the public regarding those issues and without giving the public an opportunity to comment on those issues. We provide a non-exhaustive recitation of these issues below.

1. *September 1, 2020 Board Item No. 34*

Board Item No. 34 was presented to the public *for the first time* on September 1, 2020. Item No. 34 revised certain recreational policies in the proposed 2040 General Plan and added an entirely new recreational policy. These changes were presented during the Board's consideration of Item 41 (then identified as Item 39) *after* the Board closed public comment. Thus, the public was given no opportunity to meaningfully review or comment on this matter.

2. *September 1, 2020 Board Item No. 35*

Board Item No. 35 was presented to the public *for the first time* on September 1, 2020. Item No. 35 added a new policy to the proposed 2040 General Plan. This change was presented during the Board's consideration of Item 41 (then identified as Item 39) *after* the Board closed public comment. Thus, the public was given no opportunity to meaningfully review or comment on this matter.

3. *New General Plan Policy COS-CC: Climate Emergency Council*

The Board's actions with respect to Policy COS-CC: Climate Emergency Council ("Policy COS-CC") present a number of substantive issues. First, it does not appear that Policy COS-CC was disclosed and reviewed in accordance with the requirements of the California Environmental Quality Act ("CEQA"). There is no evidence in the record of proceedings indicating that Policy COS-CC was evaluated in the environmental impact report prepared for the proposed 2040 General Plan ("EIR").

Second, it does not appear that the public was given any opportunity to review or comment on Policy COS-CC. For example, key matters relating to the formation and duties of the Climate Emergency Council called for under COS-CC were not presented at all during the September 1, 2020. Instead these key matters are *just now* being presented for the Board's consideration on September 15, 2020. The public is entitled to review and comment on this new information that the Board's own staff admits has never before been made available.¹

¹ The September 15, 2020 staff report admits that the specifics with respect to the Climate Emergency Council were omitted and that this information was not among the proposed revisions set for the Exhibit 2.8, Recommended Revisions to the 2040 General Plan, prior to or during the September 1 public hearing. Additionally, this information does not appear in Exhibit 2.3, CEQA Findings, Mitigation Measures and Statement of Overriding Consideration. Slides 5 and 6 of unnumbered Exhibit "BOS Action on 9-1-20" presented at the September 1 public hearing contain a note from Planning Staff stating that "[t]he additional

4. *The “Newly Compiled” Final Form of Proposed 2040 General Plan*

Finally, of overarching concern is the fact that the public has not been given the opportunity to review and comment on the compilation of the final form of the proposed 2040 General Plan. The proposed final compilation was released on the afternoon of September 11, 2020. The fact that some of this documentation was presented to the public on September 1, 2020 does not remedy the situation. The documentation presented on September 1, 2020 was incomplete and replete with errors, amounting to an incomprehensible jumble of documents that failed to afford the public with a meaningful opportunity to review and comment. The final form of the proposed 2040 General Plan should be the subject of public comment now that it can at least be reviewed as a final integrated document.

C. *The Board’s Actions of September 1, 2020 Triggered Further Review*

On September 1, 2020, the Board considered, and proposed for adoption, new and revised general plan policies—namely Item 34, Item 35 and COS-CC. These new and revised policies were never reviewed and considered by the Ventura County Planning Commission (“Planning Commission”). These matters must be returned to the Planning Commission and the proposed 2040 General Plan cannot be approved until the Planning Commission has made a recommendation on these matters to the Board. *See* Cal. Gov’t Code § 65354. Further, these revised policies were never considered in the 2040 General Plan’s environmental review. CEQA requires that a sufficiently defined project be fully considered and analyzed in a draft EIR—project changes made after environmental review is completed violates CEQA’s procedural and substantive mandates.

D. *The Board Must Consider Ventura County’s Increased Housing Obligations*

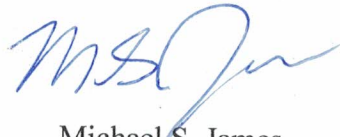
As Aera has previously urged Ventura County (“County”) in its prior comment letters, the County must analyze the environmental impacts of the 2040 General Plan along with the impacts of the pending Housing Element Update. Failure to do so results in improper piecemealing and project segmentation. The Southern California Association of Governments’ (“SCAG”) sixth cycle draft Regional Housing Needs Assessment (“RHNA”) allocation numbers were updated on September 3, 2020. This allocation identifies more than 24,000 additional dwelling units within Ventura County, and 1,259 of those units must be accommodated in unincorporated County areas. Yet, as

details regarding the terms, duties, and membership composition of the Climate Emergency Council were inadvertently not included in the following exhibits as part of your Board package.” These slides and the “inadvertently” forgotten mitigation measure and language was not revealed to the public until hours after the close of public comment. In addition, the “inadvertently” forgotten language was not even disclosed to the Board until 10:25 p.m., immediately prior to the tentative vote, with no opportunity to either re-open the public comment process or to allow Board deliberations.

detailed in our prior letters, the 2040 General Plan proposes a land use plan that does not even acknowledge, let alone consider and accommodate, SCAG's RHNA allocations.

Aera once again appreciates the opportunity to bring these important issues to the attention of the County and the opportunity to participate in this process, to the extent that the deficiencies identified herein have allowed.

Sincerely,



Michael S. James
Senior Counsel
Aera Energy LLC

Enclosures

MusickPeeler

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LOS ANGELES
ORANGE COUNTY
SAN DIEGO
SAN FRANCISCO
SANTA BARBARA COUNTY
VENTURA COUNTY

September 14, 2020

VIA EMAIL: clerkoftheboard@ventura.org

Supervisor Kelly Long, Chair
Supervisor Bob Huber
Supervisor John C. Zaragoza
Supervisor Steve Bennett
Supervisor Linda Parks

Ventura County Board of Supervisors

Re: Agenda Item 41 (and Agenda Items 35 and 42), September 15, 2020

Continued Consideration and Certification of the 2040 General Plan Final Environmental Impact, Adoption of the 2040 General Plan Except for the Housing Element, Planning Division Case Number PL17-0141 (State Clearinghouse No. #2019011026) and Integrally Related General Plan Update Matters

Dear Honorable Chair Long and Supervisors:

We write to you on behalf of our client coalition of agricultural property and mineral owners in Ventura County. We earlier identified the coalition members for your Board with specificity. This letter supplements our letters on behalf of the coalition to the Planning Commission dated July 9, 2020 and July 15, 2020, and our letter to you dated August 31, 2020.

In our prior correspondence, we respectfully requested that the Planning Commission and your Board extend the hearings on the Ventura County 2040 General Plan Update (“GPU”) and Final Environmental Impact Report (“Final EIR”) until such time as you could comply with the central mandate of the California Environmental Quality Act (“CEQA”), which is to prioritize informed public input and decisionmaking. These are far from normal times. Our lives are governed by a once-in-a-century pandemic and now raging wild fires; business as usual is inappropriate. However, in response to our requests, we have witnessed:

- An extraordinarily rushed process, even were the world not afflicted by cataclysmic events, that has repeatedly relied on the dumping by the County of thousands of pages of essential new documents, with at best 72 hours, and in some instances no time, for public review and comment;

MusickPeeler

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- A Final EIR that gave short shrift to important public and agency comments, and that failed in its fundamental task, which was to provide the required evidentiary foundation for its conclusions;
- A series of seemingly intentional Brown Act and Public Records Act violations that appear to have been orchestrated and designed to support your freight-train-like hurry;
- The absence of any independent Planning Commission recommendation, revealing only that the Planning Commissioners were of the mistaken belief that they had no authority, let alone a legal obligation, to exercise their own judgment in this matter;
- Substantive new additions to the General Plan Update following the close of any public opportunity for input or environmental review, including most recently the insertion of highly detailed rules and a hasty timeline dictating the membership of the newly significant Climate Emergency Council;
- Stripping out integral zoning ordinance amendments, the Housing Element, and potentially now also material Building Code updates from the General Plan process that will be considered by your Board in mere weeks after General Plan action, thus ensuring that the public is kept in the dark and cannot meaningfully engage here;
- Violations of the constitutional procedural and substantive due process and equal protection rights of your affected constituents;
- A failure to achieve the State's minimum recommended outreach to our disadvantaged and Spanish-speaking communities, including no translation of any of the basic General Plan documents into Spanish *before* your adoption of them; and
- A repeated refusal to engage in a financial analysis of the impacts of the proposed General Plan policies so that the communities impacted by your actions can understand the consequences before they suffer them.

To date, your Board has appeared to sublimate all legal, practical and moral standards in favor of some undisclosed self-imposed deadline to adopt a defective General Plan Update today. Many of us have never before witnessed such heedless abandon by a legislative body. You are capable of far better. Your constituents deserve your best effort.

This recitation of the most troubling aspects of your deficient proceedings is not meant to substitute for the detailed and reasoned letters submitted for your consideration by us, and by other commenters, including VCEDA, Ventura County CoLAB and its many community partners, the Western States Petroleum Association, California Resources Corporation, Aera Energy, Carbon California Company, and ABA Energy. We expressly concur in their comments.

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We also respectfully request that you take the additional time necessary to correct the Brown Act defects that undermined your September 1, 2020 hearing, and that threaten its September 15, 2020 continuation. To that end, please be advised that our Zoom registration to comment on agenda item 41 during your September 15, 2020 meeting was denied, with notice that no public comment is allowed. Despite that rejection, we continue to reserve all rights to identify and provide additional comments to your Board in this matter.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jane Ellison Usher", written in a cursive style.

Jane Ellison Usher
for MUSICK, PEELER & GARRETT LLP

cc: Laura K. McAvoy, Esq., Musick Peeler & Garrett

ADAMS BROADWELL JOSEPH & CARDOZO

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*Not admitted in California.
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September 14, 2020

Via E-Mail and Overnight Mail

Chair Long and Board Members
c/o Clerk of the Board of Supervisors
County of Ventura
800 S. Victoria Avenue
Ventura, CA 93009
Email: clerkoftheboard@ventura.org

Via Email Only

Dave Ward, AICP, Planning Director (dave.ward@ventura.org)
Susan Curtis, General Plan Update Manager (susan.curtis@ventura.org)

Re: Comments on Agenda Item No. 41:
Continued Public Hearing for the Sole Purpose of Considering
Certification of the 2040 General Plan Final Environmental
Impact Report and Associated Actions (PL17-0141)

Dear Chair Long and Board Members, Mr. Ward, Ms. Curtis:

We write on behalf of California Works Labor Management Cooperation Trust ("California Works") regarding the County of Ventura ("County") Board of Supervisors' ("Board") Agenda Item No. 41, *Continued Public Hearing for the Sole Purpose of Considering Certification of the 2040 General Plan Final Environmental Impact Report, Including Adoption of Related Findings and Documents Pursuant to the California Environmental Quality Act, Repeal Existing General Plan Except for the 2014-2021 Housing Element, and Approval and Adoption of the 2040 General Plan and 2040 General Plan Background Report (Planning Division Case Number PL17-0141)* (collectively, the "Project"), being considered at the September 15, 2020

Board Hearing. These comments are submitted consistent with the Board's instructions for providing written public comments in advance of the hearing.¹

California Works is a non-profit organization formed by the State Building and Construction Trades Council, a council of labor unions representing over 450,000 California construction and industrial workers, including members of the Tri-County Building and Construction Trades, and companies that hire California union workers. California Works has been, and continues to be, strongly committed to workforce education, training and certification efforts that enable the quality workmanship necessary to ensure that industrial and other development is constructed and operates safely. California Works is also concerned with policies that protect public health and the environment, and which provide job opportunities for working families and disadvantaged communities in the region where the workers and their families live, work and recreate.

We continue to object to the County's proposed certification of the Final Environmental Impact Report ("FEIR"), including the proposed adoption of related findings and documents pursuant to the California Environmental Quality Act ("CEQA"),² proposed repeal of the existing General Plan, and proposed approval and adoption of the 2040 General Plan and accompanying background report. We also object to the County's decision to prohibit public comment at the September 15, 2020 Board Hearing. We incorporate by reference all written and oral comments submitted to the County objecting to the Project by any other commenting party, person or agency.³

¹ County of Ventura, Public Comments for Board of Supervisors' Meetings, <https://www.ventura.org/board-of-supervisors/agendas-documents-and-broadcasts/public-comments/> (last visited Aug. 31, 2020) ("If you wish to make a written comment on a specific agenda item by E-Mail or Mail, please submit your comment via email by 3:30 p.m. on the day prior to the Board Meeting.").

² Pub. Resources Code §§ 21000 *et seq.*; 14 Cal. Code Regs. §§ 15000 *et seq.*

³ This comment letter is submitted to exhaust remedies under administrative law principles, Gov. Code § 65009(b) and Pub. Resources Code § 21177, concerning the Project and incorporates by this reference all written and oral comments submitted on the Project by any commenting party or agency. It is well-established that any party, as California Works does here, who participate in the administrative process can assert all factual and legal issues raised by anyone. *See Citizens for Open Government v. City of Lodi* (2006) 144 Cal.App.4th 865, 875. We reserve the right to supplement these comments at later proceedings on the Project. Gov. Code § 65009(b); Pub. Resources Code § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield* (2004) 124 Cal. App. 4th 1184, 1199-1203; *see Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121.

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California Works submitted written comments to the County on August 31, 2020, and oral comments at the September 1, 2020 Board Hearing, which concurred with prior objections raised by other commenters and identified additional deficiencies in the FEIR which require recirculation under CEQA and a further public hearing.⁴ Specifically, the County failed to analyze the wildfire mitigation measures and alternatives raised by the California Board of Forestry and Fire Protection in a recirculated EIR.⁵ The County also failed to analyze potential mitigation measures related to energy use in existing buildings, vehicle use and travel behavior, landfill waste, and agriculture uses that could further reduce greenhouse gas impacts before declaring them significant and unavoidable.⁶ These comments are not addressed in the September 15 Board Staff Report, and the CEQA violations we identified have not been remedied.

The Board also made substantial changes to the 2040 General Plan and FEIR after the close of public comment at the September 1, 2020 hearing which require recirculation under CEQA and additional public comment under the Brown Act.⁷ However, the Agenda for the September 15, 2020 Board Hearing states that the Board is not permitting any further public comment on these items,⁸ and the Staff Report recommends Project approval without recirculation.⁹ These actions would constitute two separate violations of law.

⁴ Letter to Chair Long and Board Members, Board of Supervisors, Ventura County from Andrew J. Graf, Adams Broadwell Joseph & Cardozo re: Comments on Agenda Item No. 39: Public Hearing to Consider Certification of the 2040 General Plan Final Environmental Impact Report and Associated Actions (Aug. 31, 2020).

⁵ *Id.* at pp. 3-4.

⁶ *Id.* at pp. 4-5.

⁷ Board of Supervisors, County of Ventura, Summary Minutes (Sept. 1, 2020) pp. 13-18 (*hereinafter* “September 1 Summary Minutes”), *available at* https://ventura.granicus.com/DocumentViewer.php?file=ventura_ca9e8e66372c1462ca6b42119aa981ee.pdf&view=1.

⁸ Board of Supervisors, County of Ventura, Regular Meeting Agenda (Sept. 15, 2020) p. 10 (*hereinafter* “September 15 Meeting Agenda”), *available at* https://ventura.granicus.com/DocumentViewer.php?file=ventura_254dcf9b98d9741872c0ea64f761ebe7.pdf&view=1 (“**PUBLIC COMMENT TO THE HEARING IS CLOSED; ONLY FINAL PROJECT DOCUMENTS ARE BEING CONSIDERED FOR APPROVAL**”) (emphasis in original).

⁹ Letter to Board of Supervisors, County of Ventura from Dave Ward, Planning Director, Ventura County Planning Division re: Continued Public Hearing for the Sole Purpose of Considering Certification of the 2040 General Plan Final Environmental Impact Report, Including Adoption of Related Findings and Documents Pursuant to the California Environmental Quality Act, Repeal of Existing General Plan Except for the 2014-2021 Housing Element, Approval and Adoption of the 4925-004j

First, the County would violate CEQA because the changes it made to the 2040 General Plan and FEIR constitute significant new information requiring recirculation of the FEIR. Second, the County would violate the Brown Act because it made substantial changes to the 2040 General Plan and FEIR at the September 1, 2020 Board Hearing, but it is not affording the public an opportunity to provide comments on the changes during the continued public hearing. The Board must correct these deficiencies before approving the 2040 General Plan and FEIR.

A. THE COUNTY MUST RECIRCULATE THE FEIR BECAUSE IT ADDED SIGNIFICANT NEW INFORMATION TO THE 2040 GENERAL PLAN

An EIR requires recirculation when significant new information is added after the public comment period but before certification.¹⁰ Significant new information includes: (1) new significant environmental impacts, (2) a substantial increase in the severity of an environmental impact unless new mitigation measures are adopted that reduce the impact to a level of insignificance, and (3) to address new, feasible alternatives and mitigation measures which are considerably different from others previously analyzed and would clearly lessen the significant environmental impacts of the project.¹¹

At the September 1, 2020 Board Hearing, the County made numerous substantive changes to the proposed 2040 General Plan without analyzing the potentially significant environmental impacts resulting from these changes under CEQA. Specifically, the Board added new language, new policies, new programs, and a new maps to the 2040 General Plan and made significant revisions to existing policies, programs, and revised existing land use maps.¹² In addition, the Board made several substantive changes to the FEIR, including amendments to mitigation measures.¹³ Each of the changes constitute changes to the 2040 General Plan Project made after the close of the CEQA public comment period. Individually and collectively, these changes constitute significant new information requiring

2040 General Plan and 2040 General Plan Background Report (Planning Division Case Number PL17-0141); All Supervisorial Districts (Sept. 15, 2020) p. 3, *available at* <http://bosagenda.countyofventura.org/sirepub/cache/2/abocgi55yuapyxegkp3hyn4v/154297809142020122012347.PDF>.

¹⁰ 14 Cal. Code Regs. § 15088.5(a)

¹¹ *Ibid.*

¹² September 1 Summary Minutes at pp. 13-18.

¹³ *Ibid.*

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recirculation because the County modified the underlying Project to without analyzing the environmental impacts or mitigation measures resulting from these changes in the EIR.

In order to comply with CEQA, the County must revise and recirculate the Draft EIR to analyze the impacts, mitigation measures, and potential alternatives to the proposed changes in 2040 General Plan and FEIR that were adopted by the Board after the close of the CEQA public comment period.

B. FAILURE TO PERMIT PUBLIC COMMENT ON AGENDA ITEM NO. 41 WOULD VIOLATE THE BROWN ACT

At the September 1, 2020 Board Hearing, the Board approved a motion to, among other things, close the public testimony on the Project and tentatively approve the recommended actions on the 2040 General Plan, FEIR and related documents. However, the Board also directed staff to make 12 specific additions and revisions to these documents, which the Board described in the motion but which were not before the Board at the time the motion was made.¹⁴ The September 15 Staff Report explains that, following the September 1 Board Hearing, County staff revised various policies and programs in the draft 2040 General Plan.¹⁵

Despite making significant revisions to the 2040 General Plan and FEIR at the September 1 Board Hearing, the Board intends to consider the 2040 General Plan, FEIR, and related documents for approval at the September 15 Board Hearing without receiving any public comment.¹⁶ The Board's refusal to permit public comment would constitute a violation of the Brown Act.

¹⁴ *Ibid.*

¹⁵ September 15 Staff Report, p. 3.

¹⁶ September 15 Meeting Agenda at p. 10 (“**PUBLIC COMMENT TO THE HEARING IS CLOSED; ONLY FINAL PROJECT DOCUMENTS ARE BEING CONSIDERED FOR APPROVAL.**”) (emphasis in original); *see also* email from Zoom to Andrew J. Graf, Adams Broadwell Joseph & Cardozo re: Your registration for webinar Board of Supervisors’ Meeting for September 15, 2020 at 8:30 a.m. has been denied (Sept. 14, 2020) (“Unfortunately, you requested to speak on item 41 regarding the continued hearing of the 2040 General Plan. As stated on the agenda, this specific item is continued from September 1, 2020 and ‘Public Comment to the Hearing is Closed; Only Final Project Documents are being considered for approval’. As such, we are unable to grant your request to speak.”) (attached as **Exhibit 1**).

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Under the Brown Act, public comment is required for all agenda items.¹⁷ There are generally only two exceptions to this rule: (1) if the agenda item has been continued from a prior hearing by no more than 5 days,¹⁸ or (2) “***on any item that has already been considered*** by a committee, composed exclusively of members of the legislative body, ***at a public meeting wherein all interested members of the public were afforded the opportunity to address the committee on the item***, before or during the committee's consideration of the item, ***unless the item has been substantially changed since the committee heard the item***, as determined by the legislative body.”¹⁹

In this case, the first exception does not apply because the Board continued the public hearing on the 2040 General Plan Update by more than 5 days.²⁰ The second exception also does not apply because the Board made substantial changes to the 2040 General Plan and FEIR after public comment closed. As discussed above, the Board added new language, policies, programs, and maps to the 2040 General Plan and made significant revisions to existing policies, programs, and maps after the close of the public comment period.²¹ In addition, the Board made several substantive changes to the FEIR, including amendments to mitigation measures.²²

Based on the changes to the 2040 General Plan and the FEIR, as reflected in Board's September 1 motion,²³ and the fact that the Board did not have the final approval documents before it at the September 1 hearing, “the item has been substantially changed” necessitating further public comment under Brown Act.²⁴

C. CONCLUSION

We urge the Board not to certify the 2040 General Plan FEIR, not to adopt the related findings and documents, pursuant to CEQA, not to repeal the existing General Plan and not to approve and adopt the 2040 General Plan and 2040

¹⁷ Gov. Code § 54954.3(a)

¹⁸ *Id.* § 54954.2(b)(3).

¹⁹ *Id.* § 54954.3(a) (emphasis added).

²⁰ September 15 Meeting Agenda at p. 10 (“**CONTINUED FROM SEPTEMBER 1, 2020 ITEM NO. 39**”) (emphasis in original).

²¹ September 1 Summary Minutes at pp. 13-18.

²² *Ibid.*

²³ *Ibid.*

²⁴ Gov. Code § 54954.3(a).

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General Plan Background Report. Instead, we urge the Board to remove this item from consideration at the September 15, 2020 Board Hearing and to direct staff to (1) correct the numerous deficiencies in the FEIR identified in the record, (2) recirculate for public review a revised draft EIR that complies with CEQA, (3) schedule additional opportunities for public engagement which provide the public with legally required opportunities for public comment and adequate time to evaluate the revised 2040 General Plan and all related materials, and (4) assess the effect of the General Plan update on job opportunities for working families and disadvantaged communities.

Thank you for your consideration of these comments.

Sincerely,



Andrew J. Graf

AJG:lj1

EXHIBIT 1

From: [Zoom](#)
To: [Andrew J. Graf](#)
Subject: Your registration for webinar Board of Supervisors" Meeting for September 15, 2020 at 8:30 a.m. has been denied
Date: Monday, September 14, 2020 1:04:36 PM



Hi Andrew,

Your registration for the webinar below has been denied.

Topic: Board of Supervisors' Meeting for September 15, 2020 at 8:30 a.m.

Time: Sep 15, 2020 08:30 AM Pacific Time (US and Canada)

The host has sent you a message:

Unfortunately, you requested to speak on item 41 regarding the continued hearing of the 2040 General Plan. As stated on the agenda, this specific item is continued from September 1, 2020 and "Public Comment to the Hearing is Closed; Only Final Project Documents are being considered for approval". As such, we are unable to grant your request to speak. Please contact us at ClerkoftheBoard@ventura.org with any questions.

If you have any question, please contact the host at clerkoftheboard@ventura.org.

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-The Zoom Team



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September 14, 2020

Chair Kelly Long and Members of the Ventura County Board of Supervisors
Hall of Administration
800 South Victoria Avenue
Ventura, California 93009

RE: September 15, 2020 Agenda Item No. 41, as continued from September 1, 2020
Agenda Item Nos. 34, 35 & 39, and Agenda Items Nos. 35 and 42

Honorable Members of the Board:

The earlier procedural and substantive defects that have marked the General Plan Update and Final EIR process were compounded at and following the September 1, 2020 Ventura County Board of Supervisors (“BOS”) meeting. On behalf of California Resources Corporation, we submit this letter to demand that the BOS cure or correct the serious Brown Act violations from Items 34, 35 and 39 that undermined the validity of the September 1, 2020 meeting. In addition to the Brown Act violations, the public process in this matter continues to be severely compromised. We highlight the newest defects below.

1. The Board of Supervisors Violated the Brown Act.

The requirements of the Brown Act apply to the Board of Supervisors meeting held on September 1, 2020. (Gov. Code, § 54952.) The Brown Act requires an agenda to be available at least 72 hours prior to a meeting. This agenda must include a brief general description of *each* item of business. (Gov. Code, § 54954.2.) The public must have the opportunity to understand and comment upon the items up for deliberation in order to effectively discuss those items with the Board. (Gov. Code, § 54954.3.)

As is clear from the 967 comments on a wide range of issues that were submitted in association with Item 39, and the number of individuals that were unavailable for comment due either to technical difficulties or to the significant delay, the citizens of Ventura County were not given adequate opportunity to comment. The many aspects of the General Plan Update and the Final EIR will greatly impact the citizens of Ventura. Any attempt to diminish the public’s ability to effectively participate in the discussion on this issue cannot be tolerated.

A. The Board of Supervisors May Not Engage in Non-Public Deliberations regarding the Adoption of the General Plan Update.

Under the Brown Act, “[a]ll meetings of the legislative body of a local agency shall be open and public.” (Gov. Code, § 54953.) The purpose of the Brown Act is to ensure that local government conducts the public’s business openly, so that the public may be well informed. (*Id.*, § 54950.) Board of Supervisors Chair Kelly Long reiterated this critical element of public meetings during the meeting stating that: “it is very important that we have transparency and public input” during the process.

However, during a break in the public session, Supervisor Bennett could clearly be heard discussing the content of the General Plan Update. Supervisor Bennett is heard saying: “Hey John, real quick while we’re on this break...uh, yeah... if that’s the case we have to go back to the planning ... so this proposal of 2,500 up from 1,500 ...” before the audio feed was interrupted. The private conversation followed a proposal under agenda Item 39 to increase the currently proposed oil and gas set back of 1,500 feet to 2,500 feet, raised during public comments.

This discussion, apparently conducted between Supervisor Bennett and Supervisor Zaragoza, was clearly intended to be kept from the public, as Supervisor Bennett noted just after the public session resumed that he had just been told his mute button was not working and proceeded to test it. This private conversation is a concerning sign that non-public deliberations were occurring behind closed doors, and raises unacceptable risks regarding compliance with the Brown Act.

In response to a Public Records Act request, the County has also recently produced text messages between Supervisor Bennett and Supervisor Parks discussing the revision of maps included in the General Plan. (See Attachment.) Thus, it appears that a majority of the Supervisors have been having private discussions concerning Item 39 during the time that it was directly before the Board for deliberation.

The Brown Act prohibits “serial meetings” in which a series of individual contacts are conducted between Supervisors. “A majority of the members of a legislative body shall not . . . use a series of communications of any kind, directly or through intermediaries, to discuss, deliberate, or take action on any item of business that is within the subject matter jurisdiction of the legislative body.” (Gov. Code, § 54952.2(b)(1).) Individual conversations cannot be used to accomplish in stages what would be prohibited in one step. These serial meetings deprive the public of an opportunity to participate in transparent and open discussions; they result in the kind of secret deliberations that the Brown Act is designed to prevent.

B. The Public Was Improperly Required to Register for the Meeting.

The Brown Act also prohibits requiring registration to attend a public meeting. No in-person participation is available, the agenda notes that the building is closed to the

public, and notes that participants should attend online. However, none of the provided options for submitting comments are sufficient. The agenda notes that to comment via Zoom, a participant is required to register. Comments made while watching the livestream are only read at the “discretion of the chair” and thus this is not an adequate substitute for full and open participation. The agenda does not provide the necessary clarity required by the Brown Act that registration cannot be required to attend a public meeting.

A member of the public shall not be required, as a condition to attendance at a meeting of a legislative body of a local agency, to register his or her name, to provide other information, to complete a questionnaire, or otherwise to fulfill any condition precedent to his or her attendance.

If an attendance list, register, questionnaire, or other similar document is posted at or near the entrance to the room where the meeting is to be held, or is circulated to the persons present during the meeting, it shall state clearly that the signing, registering, or completion of the document is voluntary, and that all persons may attend the meeting regardless of whether a person signs, registers, or completes the document.

(Gov. Code, § 54953.3.) The Board of Supervisors did not adequately comply with this requirement to allow public participation in the current pandemic.

2. The Addition of Agenda Items 34 and 35, and Combining Them with Item 39, Precluded Planning Commission and Informed Public Comment.

On September 1, 2020, during its meeting, the Board of Supervisors acted to combine its consideration of Item 39, a hotly contested and debated General Plan Update which encompassed a large range of topics, with additional Items 34 and 35. However, Items 34 and 35 proposed further additions to the General Plan Update, which were never heard by the Planning Commission. The Planning Commission has a statutory obligation to make an independent review of the proposed general plan in making a written recommendation to the Board of Supervisors. Section 65354 of the Government Code provides that “[t]he planning commission shall make a written recommendation on the adoption or amendment of a general plan.” (Govt. Code § 65354; see also Govt. Code § 65103.) These items, introduced at the September 1, 2020 meeting, alter the General Plan but have not been reviewed by the Planning Commission.

Further, the subject matter of Items 34 and 35 was not introduced prior to the close of public comment on Item 39. The “staff report” to describe these items was held and delivered, not by staff, but by Supervisors Bennett and Parks, after public comment had been closed on the newly combined items. As a result, the public was deprived of an opportunity to comment in any meaningful way on Items 34 and 35. The public didn’t know the County or Board’s intention regarding these two added items.

3. The Creation of the Climate Emergency Council Occurred without Public Input.

Throughout the General Plan Update process, mitigation measure GHG-4 has called for the creation of a Climate Emergency Council (“CEC”), which will have significant input into the County’s work toward meeting its Climate Action Plan goals and obligations. However, without notice to the participating public, after the close of public comment on September 1, 2020, this measure was surprisingly and materially rewritten by the BOS during the hearing. It was not rewritten in general terms as would be common to a broad policy document like a General Plan Update, but with the specifics of membership that would be typical of an implementing resolution following weeks or months of staff consideration. Because this wholesale change took place after the close of the public comment period, the public was again deprived of any input. The Board is now seeking to extend its denial of process on this item, which is slated for separate consideration on September 15, 2020 as agenda item 35, in advance of the very creation of the CEC and the adoption of the EIR (agenda item 41) that support and justify it. The hurried timeline for appointment of the CEC members, which is the subject of item 35, can only be understood as another Board strategy for depriving the public of meaningful input into the General Plan Update, EIR and CEC-creation process.

4. None of the Revised General Plan Update and EIR Documents are Redlined, Disabling Informed Public Participation.

At its hearing on September 1, 2020, the Board conducted a tentative vote to approve the General Plan Update and Final EIR, subject to: (a) a significant number of revisions which were, at best, generally and confusingly described to the public at the September 1, 2020 meeting; and (b) the Board’s return to review and vote on the final documents, as revised, on its continued hearing of this matter on September 15, 2020. Late at night on Thursday, September 10, 2020, the revised documents were first made available to the public. The newly published documents, consisting of 24 new exhibits, include thousands of pages. None of the revisions to these pages are identified for the public. It is unreasonable and irresponsible for the Board to require the public to comb through these pages to find the changes, and to assume that this exercise of great importance could be accomplished by the public in the two working days that have been allotted to them. At this time, the public has simply been left behind and does not know what the Board is proposing to enact.

5. Outreach to the Spanish-Speaking Community Has Not Complied with the State Mandate.

Furthermore, despite the fact that over 40% of Ventura County identifies as Latino, neither the General Plan Update, nor the Final EIR has been made available in Spanish. Not even the Executive Summary or key excerpts have been provided in Spanish. This is contrary to the State’s requirement that “[a]ll communication should be done in the major languages spoken in the community. This includes any advertising and

written background materials as well as live interpretation at key public events. Some documents, such as the draft general plan or the draft environmental impact report, may be infeasible to translate in their entirety. In such cases, the planning agency should consider translating an executive summary into the major languages spoken in the community.” (*California General Plan Guidelines*, p. 32.) The County’s continued assertion that it need not provide *any* General Plan materials in Spanish does not conform to these Guidelines.

This lack of outreach to the Spanish-speaking community, which may be disproportionately affected by the economic realities of the General Plan Update, has been an ongoing issue during the General Plan process. At the time of its September 1, 2020 hearing, the Board belatedly instructed staff to bring back cost figures to its September 15 hearing so that the General Plan Update could be translated into Spanish after-the-fact of its adoption into law. Unfortunately, even this effort has since been questioned. A new, separate item 42 has now been added to the September 15 agenda, apparently asking the Board whether it would like to rethink its translation instruction. What is most apparent is the manner in which the BOS agenda has been manipulated for two successive Board hearings, to separate, introduce and reevaluate matters pertinent to the General Plan Update, all disabling public participation.

The General Plan EIR drew significant public participation, and the public deserves to hear their elected officials discuss the issue in full. The backroom conversations, the failure to adequately inform the public of opportunities to participate in the Commission hearing virtually, and the failure to make participation equally available to all members of the County community is unacceptable. The County has 30 days to take corrective action under Government Code Section 54960.1. CRC requests that Item 39 be reopened and a new hearing conducted. Further, the members of the Board of Supervisors must clarify to the public the exact nature of all non-public conversations between the Supervisors regarding Item 39.

Please notify CRC of any intent to cure the defects identified above prior to the running of the 30-day period.

Sincerely,

A handwritten signature in blue ink, appearing to read "Matt Wickersham".

Matt Wickersham

cc: Jeffrey Dintzer, Alston & Bird
Adam Smith, California Resources Corporation
Bruce Carter, California Resources Corporation

ATTACHMENT

[California Resources Corporation Sept. 14, 2020 Comment Letter]

LEROY SMITH
COUNTY COUNSEL

MICHAEL G. WALKER
CHIEF ASSISTANT

ALBERTO BOADA
JEFFREY E. BARNES
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September 11, 2020

VIA U.S. MAIL AND E-MAIL: matt.wickersham@alston.com

Matt Wickersham
Alston & Bird
333 South Hope Street, 16th Floor
Los Angeles, California 90071-1410

Re: Response to Your Public Records Act Request Dated September 2, 2020

Dear Mr. Wickersham:

Attached hereto are the records responsive to your Public Records Act request to the Ventura County Board of Supervisors dated September 2, 2020.

Very truly yours,

A handwritten signature in black ink, appearing to read "JEFFREY E. BARNES", written over a series of horizontal lines.

JEFFREY E. BARNES
Principal Assistant County Counsel

9:18 ↗



Steve >

Tuesday 10:24 AM

Thanks!

Tuesday 4:15 PM

You're not muted

Thanks my mute button is on but I keep getting reports it is not. It must be broken.

Tuesday 10:00 PM

Still just seeing wording to mapping is only re naval base

But when it says in the additional revisions shown on the following slides that covers the other map changes correct?

Thank you and goodnight

Closed session!!



Linda >

Tue, Sep 1, 10:24 AM

Thanks!

Tue, Sep 1, 4:15 PM

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Tue, Sep 1, 10:00 PM

Still iust seeind



iMessage





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the following slides
that covers the other
map changes
correct?

Thank you and
goodnight

Closed session!!



iMessage



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September 14, 2020

Chair Kelly Long and Members of the Ventura County Board of Supervisors
Hall of Administration
800 South Victoria Avenue
Ventura, California 93009

Re: September 15, 2020 Agenda Item No. 41: Certification of the 2040 General Plan
Final Environmental Impact Report and Adoption of the 2040 General Plan (Planning
Division Case No. PL17-0141)

Honorable Members of the Board:

On behalf of California Resources Corporation, we appreciate the opportunity to submit the following report regarding Agenda Item 41, continued from September 1, 2020 Items 34, 35 and 39.

The General Plan Update that the Board is considering will have far reaching impacts on this county's economic health and wellbeing. A number of public comments point to two recent health studies on impacts to birth outcomes from oil and gas operations, in support of the setback requirements proposed in the General Plan Update, and suggest that the current 1,500 foot setback proposed in Mitigation Measure PR-1 should be increased to 2,500 feet,. However, ***neither study provides any reliable evidence that abnormal birth outcomes are caused by exposure to oil and gas drilling.***

Dr. Garabrant reviewed the recent studies by Tran, et al. and Gonzales, et al. referred to in public comments regarding the General Plan Update. Dr. Garabrant is an Emeritus Professor of Epidemiology and Occupational Medicine at the University of Michigan School of Public Health, and Emeritus Associate Professor of Medicine at the University of Michigan School of Medicine. He has extensive experience in both the field of medicine and environmental science, and has published numerous peer-reviewed articles on environmental exposure and human health. Attached as Exhibit 1 is a report from Dr. David Garabrant that highlights the extreme flaws and problematic assumptions contained within both studies.

These studies defy common sense and should not serve as support for a decision that will put Ventura County citizens out of work and local companies out of business.

Sincerely,



Matt Wickersham

Enclosure

Alston & Bird LLP

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September 15, 2020 Agenda Item No. 41: Certification of the 2040 General Plan Final
Environmental Impact Report and Adoption of the 2040 General Plan (Planning Division
Case No. PL17-0141)
September 14, 2020
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cc: Jeffrey Dintzer, Alston & Bird
Adam Smith, California Resources Corporation
Bruce Carter, California Resources Corporation

EXHIBIT 1

[California Resources Corporation Sept. 14, 2020 Comment Letter]

DAVID H. GARABRANT, P.L.L.C.

3063 GEDDES AVENUE
ANN ARBOR, MICHIGAN 48104

734-646-2692

DAVID H. GARABRANT, M.D., M.P.H.

Mr. Jeffrey Dintzer
Alston & Bird, LLC
333 S. Hope Street, Suite 1600
Los Angeles, CA 90071

September 12, 2020

Dear Mr. Dintzer,

At your request, I have reviewed the recent publications regarding residential proximity to oil and gas development (OGD) and birth outcomes in California:

Gonzalez DJX, Sherris AR, Yang W, Stevenson DK, Padula AM, Baiocchi M, et al. Oil and gas production and spontaneous preterm birth in the San Joaquin Valley, CA: A case-control study. *Environ Epidemiol.* 2020;4(4):e099. Epub 2020/08/25.

Tran KV, Casey JA, Cushing LJ, Morello-Frosch R. Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006-2015 Births. *Environ Health Perspect.* 2020;128(6):67001. Epub 2020/06/04.

My Qualifications

I am Emeritus Professor of Epidemiology and Occupational Medicine at the University of Michigan School of Public Health, and Emeritus Associate Professor of Medicine at the University of Michigan School of Medicine. I am board certified in occupational and environmental medicine and internal medicine. I am also qualified as a specialist in the field of epidemiology, especially as it relates to the study of diseases related to exposures to chemical agents. While I have been on the faculty of the University of Michigan, I have served as Director of Occupational Medicine (1988-94), head of the Occupational Health Program (1992-95), Director of the Center for Occupational Health and Safety Engineering (1990-95), Director of the Occupational & Environmental Epidemiology program (2001-2007), and Founding Director of the Risk Science Center (2003-2017). My research since 1980 has focused on the long-term health effects of chemicals on humans and I have published over 360 research articles, book chapters, and abstracts related to this area. My full curriculum vitae is attached.

Overview of Studies of the Relationship Between Oil and Gas Drilling and Birth Outcomes

The central issue in looking for associations between oil and gas drilling (OGD) and birth outcomes is assessing the temporal relationship between the exposure of the pregnant woman to emissions from OGD and the risk of an abnormal birth outcome. The birth outcomes of interest in these studies (term birth weight [tBW], low birth weight [LBW], preterm birth [PTB], and small for gestational age [SGA]) are defined in part by the gestational age of the fetus at the time

the birth outcome is observed ¹. In order for an association between an OGD-related exposure and an abnormal birth outcome to be interpretable with respect to causation, the chemical agent must be known to be capable of causing the birth outcome at the concentrations observed and the exposure must occur during a gestational time when the fetus is susceptible to the effect.

Exposure Assessment

In order to find reliable associations between exposure to OGD-related emissions² and abnormal birth outcomes it is essential to have accurate information on these emissions, including specific chemical and non-chemical constituents, concentration, exposure pathways (air, water, soil evaporation), and accurate temporal information on when the emissions were present at the location of the pregnant mother. In addition, since air pollutant concentrations are dependent on wind direction and distance, meteorological information (with accurate temporal information) is essential. Since exposure to water contaminants may be dependent on hydrogeological factors, hydrogeological information is essential for some emissions.

There are two approaches to assessing exposures. The first is to model exposures at receptor locations (i.e., the residential location of the pregnant woman during gestation) based on measured emissions from the OGD sites, air dispersion modeling, and hydrogeological modeling of groundwater movement and evaporation. The second is to measure the participants' exposures by personal monitoring techniques. The first approach does not account for exposures from sources other than the OGD site and is inherently limited because it cannot evaluate the participant's true exposure from all sources. While the first approach may be appropriate to

¹ *Birth outcomes evaluated in Gonzalez 2020 and Tran 2020*

- Gestational age is the elapsed time between the last menstrual period and the date of interest.
- Full term birth is a pregnancy that completes 39 weeks of gestation.
- Term birth weight (tBW) is the birth weight (in grams) among pregnancies that complete ≥ 37 weeks of gestation.
- Low birth weight (LBW) is a birth < 2500 grams (regardless of the gestational age).
- Preterm birth (PTB) is a birth occurring before 37 weeks (< 37 weeks) of gestation.
- Small for gestational age (SGA) is a birth weight less than the US sex-specific 10th percentile of weight for each week of gestation.

² *The potential emissions from OGD activities include:*

- Air pollutants:
 - particulate matter (PM) with an aerodynamic diameter of < 2.5 μm (PM_{2.5})
 - diesel PM
 - nitrogen oxides (NO_x)
 - secondary ozone formation
 - mercury
 - volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene and xylene (BTEX) from truck traffic, drilling, hydraulic fracturing, production, and flaring
- Water contaminants that can contaminate potable water via leaks and spills or evaporate:
 - gas-phase hydrocarbons
 - chemicals mixed in drilling fluids
 - naturally occurring salts, metals, and radioactive elements within shale that surface with wastewater
 - recovered oil and gas
- Noise pollution associated with well pad construction, truck traffic, drilling, pumps, flaring of gases, and other processes
- Light pollution from night-time activities

evaluate dispersion of environmental pollutants in surrounding areas, it is not appropriate to evaluate adverse health effects at the personal level because of potential exposure misclassification.

Neither of the studies at issue (Gonzalez, 2020; Tran, 2020) has adequate information on emissions from OGD sites, with reliable temporal information, to provide any reliable estimate of any study participant's exposure at any point during gestation. Moreover, neither of the studies made any measurements of any participant's personal exposure at any point during pregnancy. Thus, neither study can establish that any pregnant woman was exposed to any specific agent from OGD at any specific time during gestation. Instead of measuring exposures, both studies simply calculated the distance from each pregnant woman's residence to OGD sites and created a summary score of how many OGD sites were within a specified radius. These scores are not reliable indicators of exposure of any pregnant woman to any specific chemical or physical agent from OGD sites, nor do they account for exposures from other sources such as highways, vehicle traffic, agricultural activities, or other industrial and commercial activities. It is unknown whether these exposure scores accurately reflect true exposures.

Exposure studies that have examined the relationships among outdoor air, indoor air, and personal air show that volatile organic compounds (VOCs), metals, PM_{2.5}, NO₂, and other pollutants are often higher in personal air than in indoor air, and are often higher in indoor air than in outdoor air (Adgate, 2007; Adgate, 2002; Baxter, 2013; Bonanno, 2001; Clayton, 2002; Evans, 2000; Janssen, 1998; Rojas-Bracho, 2000; Sexton, 2004; Shrestha, 2019; Wallace, 1986; Wallace, 1989; Wallace, 1988). In addition, outdoor air concentrations are often poorly correlated with personal air concentrations. There are many reasons for these relationships. First, personal air concentrations are affected by smoking, use of household chemicals (paints, furniture polish, spot removers, waxes, window cleaner, ammonia, pesticides, etc.), cooking (VOCs, particulates, NO₂), personal use of gasoline powered tools (lawnmowers, leaf blowers, edgers, etc.), occupational exposures, and other sources. Indoor air is affected by heating and air conditioning systems, ventilation rates, attached garages (gasoline vapors), wood and coal stoves (VOCs, particulates, PM_{2.5}, NO₂), indoor pets, whether windows are open or shut, the age of the dwelling, single versus multiple family dwellings, cleaning habits (sweeping, vacuuming, dusting), and other factors. Outdoor air is affected by local traffic, freeways, wildfires, wind and weather conditions, temperature, season, nearby industries, agriculture, construction, and other factors. Because of these differences, outdoor air concentrations cannot be assumed to reliably reflect any individual's personal exposure to any pollutant. The assumption in the Tran and Gonzalez studies that exposure scores based on the distances to OGD sites accurately reflects any individual's true personal exposure to any of the agents at issue is unfounded, has not been tested by any measurements, and is unlikely to be true.

Tran (Tran, 2020) counted the number of active oil and gas wells within 1 km of the study participant's address and combined this with monthly production volume (barrels of oil and oil equivalent, or BOE) to create an exposure index during each trimester of gestation. Exposure to production volume of active wells was then categorized as a) no active wells, b) 1-100 BOE/day (moderate), and c) more than 100 BOE/day (high). Tran also counted the number of inactive wells within 1 km of the participant's address and categorized exposure as a) no

inactive wells, b) one inactive well, c) 2-5 inactive wells, or d) 6 or more inactive wells. There were no assessments or measurements of any specific chemical or physical agent.

Gonzalez (Gonzalez, 2020) counted the number of wells within 10 km of the mother's residence that were in preproduction or production during each trimester of gestation, then estimated exposure to each well as the inverse of the distance squared ($\text{exposure} = 1/\text{distance}^2$). These "exposures" were then summed for each trimester of each pregnancy and were categorized into exposure tertiles (tertiles 1, 2, and 3). Births without exposure in each trimester comprised a separate unexposed category (tertile 0). There were no assessments or measurements of any specific chemical or physical agent.

Neither Tran nor Gonzalez validated their exposure metrics to demonstrate that they were related to measured exposures at any residential site or, more importantly, to the actual exposures of any study participants. Both studies ignored meteorology and whether any participant's residence was upwind or downwind of any wells. Both studies ignored relevant hydrogeology and whether participants' residences were up-gradient or down-gradient from the wells. Thus, the exposure metrics used by Tran and Gonzalez reflect only their modeling assumptions and are not validated by any exposure measurements.

Birth Outcomes Assessment

The birth outcomes at issue are not independent of each other, as they based on assessing only two things: the duration of gestation and the weight at birth. These measures are compared to the frequency distributions in the general population to determine whether the duration of gestation is normal (PTB); whether the birth weight is low (LBW); whether for gestations of ≥ 37 weeks the birth weight is low (tBW); and whether the birth weight is lower than newborns of the same gestational age (SGA). These outcomes are correlated in many ways: preterm births (PTB) have low birth weights (LBW), newborns with low term birth weight (tBW) also have low birth weight (LBW), and newborns that are small for gestational age (SGA) have low birth weights (LBW) and low term birth weights (tBW). Because the three measures derived from birth weight (LBW, tBW, SGA) are all related, it is inappropriate to report them as though they are independent measures of adverse effects.

Covariates and Alternate Causes of Abnormal Birth Outcomes

Numerous factors may adversely affect birth outcomes, including maternal age, smoking, drug use, alcohol, infections during pregnancy (rubella, Zika), pharmaceuticals, malnutrition, poverty, lack of access to health care, prenatal care, maternal disease, pregnancy complications (gestational diabetes, hypertension), and genetics. Tran adjusted for individual level covariates of the infant (sex, month and year of birth) and the mother (age, race/ethnicity, educational attainment, prenatal care, and parity) and for area-level variables of urban/rural status, modeled NO₂ concentration, and income concentrations (derived from the census tract of residence). Gonzalez adjusted only for maternal age, race/ethnicity, educational attainment, parity, and birth year.

Thus, neither study assessed confounding due to smoking, drug use, alcohol, infections during pregnancy, pharmaceuticals, malnutrition, poverty, lack of access to health care, maternal disease, pregnancy complications, or genetics. The extent to which the observed associations

between OGD proximity and birth outcomes were biased by these potential confounders cannot be determined, and there is no reason to believe these factors did not cause spurious associations.

Results - Gonzalez 2020

Gonzalez reported only one birth outcome – spontaneous preterm birth. They reported a statistically significant increased risk of preterm birth for exposure tertile 3 during the gestational weeks 28-31, only in Hispanic and non-Hispanic Black women and only in women with < 12 years of education. There was no association between preterm birth during gestational weeks 20-27 or weeks 32-36 and any category of exposure to oil wells. In sensitivity analyses that examined different categories of distance to wells, there was no association between preterm birth and wells within 3 km (eTable 13). The positive association was essentially uniform in analyses that included wells within 5, 10, and 15 km. These analyses indicated that close wells (within 3 km) were not associated with preterm births, whereas far away wells were, regardless of whether they were within 5, 10, or 15 km. The authors did not explain how distant wells could affect birth outcomes while more proximal wells did not, nor did they provide any explanation for how wells might adversely affect only Hispanic and non-Hispanic Blacks but not non-Hispanic Whites, or why the associations were seen only in births to women of low education. These paradoxical and unexplained findings raise serious questions about the reliability of the Gonzalez study.

The major weaknesses of the Gonzalez study include no measurements of exposure to any specific agent, lack of assessment of confounding by numerous important causes of birth outcomes, and unexplained inconsistencies in the relationship between the exposure metric and preterm birth.

Results - Tran 2020

Tran reported statistically significant associations between well production volume and low birth weight (LBW) for moderate exposure (1-100 BOE/day) but not high exposure (more than 100 BOE/day). When participants were stratified by urban versus rural residence, there was a statistically significant positive association between LBW and high exposure in rural participants, but no positive association between LBW and high exposure in urban participants. In fact, among urban participants, there was a statistically significant inverse association (OR = 0.93, 95% CI 0.88-0.98) (Table S4) between LBW in trimester 3 and high exposure. These unexplained inconsistencies in findings for LBW argue against a causal interpretation. It is unexplained and unlikely to be true that OGD emissions cause LBW in rural births yet protect against them in urban births.

Tran reported no statistically significant positive association for preterm birth (PTB) in any trimester, at either moderate or high exposure, in either rural or urban participants. In fact, among urban participants, there was a statistically significant inverse association (OR = 0.82, 95% CI 0.77-0.88) (Table S5) between PTB in trimester 3 and high exposure. The authors did not explain how high exposure to OGD emissions might protect against PTB in urban participants, nor is this likely to be true. These results directly contradict the positive association reported by Gonzalez (described above) and the discrepancy between these two studies has no evident explanation other than that the results in Gonzalez may simply be spurious.

Tran reported statistically significant positive associations between small for gestational age (SGA) births and high exposure in rural participants, but not for moderate exposure in rural participants. Among urban participants, there were statistically significant associations between both moderate and high exposure and LBW, but the association was no stronger for high exposure than for moderate exposure. The associations seen in urban participants were quite small (odds ratios between 1.03 and 1.04) even though they were statistically significant and showed no evidence of dose-response. The associations seen in rural participants were stronger in the high exposure group and showed evidence of dose-response. The differences between the rural and urban participants were unexplained by the authors.

Tran reported no statistically significant differences in term birth weight (tBW) in either moderate or high exposure for among urban participants. Among rural participants tBW increased slightly in the moderate exposure group, then decreased significantly in the high exposure group. The differences between the rural and urban participants were unexplained by the authors.

Overall, the Tran study provided no association between OGD related exposures and the duration of gestation (PTB). Tran reported no consistent findings of adverse effects of OGD related exposures on the three measures derived from birth weight (LBW, tBW, SGA). Tran made no attempt to evaluate or explain the reasons for inconsistencies in the results for these three measures (LBW, tBW, SGA), nor did they make any attempt to determine which of these birth outcomes, if any, were significantly associated with OGD related exposures after adjusting of the other outcomes.

The statistically significant findings rarely showed evidence of increasing strength with increasing exposure (i.e., dose response) and the differences between urban and rural participants often were greater than the underlying associations. The reasons for these urban/rural differences were unexplained by the authors and they suggest that unmeasured confounders associated with urban/rural status were more strongly associated with birth outcomes than were the exposures.

Conclusions

Neither the Tran nor the Gonzalez study provides any reliable evidence that abnormal birth outcomes are causally associated with exposure to oil and gas drilling. Both studies have inadequate and unvalidated estimates of exposure that provide no reliable assessment of any study participant's exposure to OGD related chemicals or physical agents. Neither study assessed any participants' personal exposures from other sources, or from all sources combined (including OGD and other sources), to any chemical or physical agent, nor could they assess whether personal exposure from any source played any causal role in any birth outcome.

Neither study adequately controlled for other known causes of abnormal birth outcomes and neither study provides assurance that the reported results are not spurious because of confounding from these other factors. The associations reported in these studies may simply reflect unjustified modeling assumptions about their exposure metrics, uncontrolled confounding by other exposures, and unjustified assumptions about a lack of confounding by unmeasured covariates rather than causal relationships.

Because of these limitations these studies should not be relied upon in assessing the health risks to California residents from oil and gas development. Please feel free to contact me if any further comments or explanations are needed.

Sincerely,

A handwritten signature in blue ink, reading "David H. Garabrant". The signature is fluid and cursive, with the first name "David" being the most prominent.

David H. Garabrant, MD, MPH
Emeritus Professor of Occupational Medicine and Epidemiology,
The University of Michigan
Ann Arbor, Michigan

References

1. Adgate JL, Mongin SJ, Pratt GC, Zhang J, Field MP, Ramachandran G, et al. Relationships between personal, indoor, and outdoor exposures to trace elements in PM(2.5). *Sci Total Environ*. 2007;386(1-3):21-32. Epub 2007/08/19.
2. Adgate JL, Ramachandran G, Pratt GC, Waller LA, Sexton K. Spatial and temporal variability in outdoor, indoor, and personal PM2.5 exposure. *Atmospheric Environment*. 2002;36:11.
3. Baxter LK, Dionisio KL, Burke J, Ebel Sarnat J, Sarnat JA. Exposure prediction approaches used in air pollution epidemiology studies: key findings and future recommendations. *J Expos Science Environ Epidemiol*. 2013;23(6):654-9.
4. Bonanno LJ, Freeman NCG, Greenberg M, Liou PJ. Multivariate analysis on levels of selected metals, particulate matter, VOC, and household characteristics and activities from the Midwestern States NHEXAS. *Applied Occupational and Environmental Hygiene*. 2001;16(9):859-74.
5. Clayton CA, Pellizzari ED, Quackenboss JJ. National Human Exposure Assessment Survey: analysis of exposure pathways and routes for arsenic and lead in EPA Region 5. *J ExpoAnalEnviron Epidemiol*. 2002;12(1):29-43.
6. Evans GF, Highsmith RV, Sheldon LS, Suggs JC, Williams RW, Zweidinger RB, et al. The 1999 Fresno particulate matter exposure studies: comparison of community, outdoor, and residential PM mass measurements. *J Air Waste Manag Assoc*. 2000;50(11):1887-96. Epub 2000/12/09.
7. Gonzalez DJX, Sherris AR, Yang W, Stevenson DK, Padula AM, Baiocchi M, et al. Oil and gas production and spontaneous preterm birth in the San Joaquin Valley, CA: A case-control study. *Environ Epidemiol*. 2020;4(4):e099. Epub 2020/08/25.
8. Janssen NA, Hoek G, Brunekreef B, Harssema H, Mensink I, Zuidhof A. Personal sampling of particles in adults: relation among personal, indoor, and outdoor air concentrations. *Am J Epidemiol*. 1998;147(6):537-47. Epub 1998/04/01.
9. Rojas-Bracho L, Suh HH, Koutrakis P. Relationships among personal, indoor, and outdoor fine and coarse particle concentrations for individuals with COPD. *J Expo Anal Environ Epidemiol*. 2000;10(3):294-306. Epub 2000/07/26.
10. Sexton K, Adgate JL, Ramachandran G, Pratt GC, Mongin SJ, Stock TH, et al. Comparison of personal, indoor, and outdoor exposures to hazardous air pollutants in three urban communities. *Environ Sci Technol*. 2004;38(2):423-30. Epub 2004/01/31.
11. Shrestha PM, Humphrey JL, Carlton EJ, Adgate JL, Barton KE, Root ED, et al. Impact of Outdoor Air Pollution on Indoor Air Quality in Low-Income Homes during Wildfire Seasons. *International journal of environmental research and public health*. 2019;16(19). Epub 2019/09/25.

12. Tran KV, Casey JA, Cushing LJ, Morello-Frosch R. Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006-2015 Births. *Environ Health Perspect.* 2020;128(6):67001. Epub 2020/06/04.
13. Wallace L, Pellizzari E, Hartwell T, Zelon H. Concentrations of 20 volatile organic compounds in the air and drinking water of 350 residents of New Jersey compared with concentrations in their exhaled breath. *Journal of Occupational Medicine.* 1986;28(8):603-8.
14. Wallace LA. Major sources of benzene exposure. *Environmental Health Perspectives.* 1989;82:165-9.
15. Wallace LA, Hartwell TD, Whitmore R, Pellizzari ED. The California team study:breath concentrations and personal exposures to 26 volatile compounds in air and drinking water of 188 residents of Los Angeles, Antioch, and Pittsburg, CA. *Atmospheric Environment.* 1988;22(10):2141-62.

ATTACHMENT

David H. Garabrant, MD, MPH, MS, FACOEM, FACPM
Emeritus Professor of Occupational Medicine and Epidemiology
The University of Michigan School of Public Health

Education and Training

High School: Westfield High School
Westfield, New Jersey
1965 – 1968

Undergraduate: Tufts University
Medford, Massachusetts. Sept 1968 – June 1972
B.S., Chemical Engineering, June 1972

Graduate: Tufts University School of Medicine
Boston, Massachusetts. Sept 1972 – June 1976.
M.D. received June 1976

Internship: Medicine Intern
Georgetown University Hospital
Washington, D.C.
July 1976 – June 1977

Fellowship Internal Medicine, Ambulatory Care
Georgetown University Hospital
Washington, D.C.
September 1977 – June 1978

Residency: Occupational Medicine
Harvard School of Public Health
Boston, Massachusetts
September 1978 – June 1980
M.P.H. degree received June 1979
M.S. in Physiology (Occupational Medicine) received June 1980

Internal Medicine
Boston University Medical Center
Boston, Massachusetts
July 1980 – June 1981

Certification and Licensure

Licensure District of Columbia, 1978, (Certificate - 10775) (inactive)
Maryland, 1977, (Certificate - D-20626) (inactive)
Massachusetts, 1978, (Certificate - 42987) (inactive)
California, 1982, (Certificate - G-47344) (inactive)
Michigan, 1989, (Certificate - 054132) (active)

Board Certification Internal Medicine, 1981
Preventive Medicine, 1982
Subspecialty certification, Occupational Medicine, 1982

Academic, Administrative, and Clinical Appointments

Teaching Assistant in Medicine, Boston University School of Medicine, July 1980 – June 1981

Assistant Professor, University of Southern California School of Medicine, August 1981 – June 1988

Associate Professor, University of Southern California School of Medicine, June 1988 – November 1988

Associate Professor, University of Michigan School of Public Health, December 1988 – June 1996

Associate Professor of Medicine, Department of Medicine, University of Michigan School of Medicine, December 1989 – September 2002

Visiting Faculty, University of Indonesia School of Medicine, August 1995 – June 1996 (Sabbatical)

Professor of Occupational Medicine, University of Michigan School of Public Health, June 1996 – September 2007

Associate Professor, Department of Emergency Medicine, University of Michigan School of Medicine, September 2002 – September 2007.

Professor of Epidemiology, University of Michigan School of Public Health, June 2003 – September 2007

Founding Director, University of Michigan, Center for Risk Science and Communication, 2004 – 2018.

Emeritus Professor of Occupational Medicine and Epidemiology, University of Michigan School of Public Health, September 2007 – present

Emeritus Associate Professor of Emergency Medicine, University of Michigan School of Medicine, September 2007 – present

Honors And Awards

Graduated Magna Cum Laude, Tufts University, 1972.

Tufts University, Tau Beta Pi Engineering Honor Society, 1971

Awarded Training Grant for Study and Research in Occupational Medicine from the National Institute for Occupational Safety and Health, 1978, renewed 1979

Recipient of Preventive Oncology Academic Award, National Cancer Institute, 1987–1992

Chair, Safety and Occupational Health Study Section, National Institutes of Health, 1995–96.

Excellence in Research Award, University of Michigan School of Public Health, April 28, 2006

Top Docs 2006. Hour Detroit Magazine

Emeritus Professor, University of Michigan, September 2007

Research Excellence Award. University of Michigan Risk Center, October 16, 2007.

Franzblau, A., L. Zwica, K. Knutson, Q. Chen, S.-Y. Lee, B. Hong, P. Adriaens, A. Demond, **D. Garabrant**, B. Gillespie, J. Lepkowski, W. Luksemburg, M. Maier, and T. Towey, 2009, "An Investigation of Homes with High Concentrations of PCDDs, PCDFs and/or Dioxin-Like PCBs in House Dust," *J. Occupational and Environ. Hygiene*, 6:188-199. Best Indoor Environmental Quality Paper Award for 2009 awarded by American Industrial Hygiene Association.

Memberships in Professional Societies

American Occupational Medical Association 1982–88. Elected to fellowship, 1986

Western Occupational Medical Association, 1982–88

Board of Directors, 1984–88

Chairman, Educational Affairs Committee, 1986–88

American College of Preventive Medicine, 1985–present. Elected to fellowship, 1986

American Academy of Occupational Medicine, 1985–88

American College of Occupational and Environmental Medicine, 1988–present.

Elected to fellowship, 1988

Michigan Occupational Medical Association Board of Directors, 1989–91

Society for Epidemiologic Research, 1988–present

Michigan Public Health Association, 2001–present

Society for Risk Analysis, 2002–present

International Epidemiological Association, 2002–present

American Chemical Society, 2008–present

Editorial Positions, Boards, and Peer-Review Service

State of Washington Department of Labor and Industries. Chemically Related Illness Scientific Advisory Board. 1994–95.

Charter member, Safety and Occupational Health (SOH) Study Section for the National Institutes of Health, 1992-1996. Chairman, 1995–96.

Chair, Clinical Sciences Special Emphasis Panel. Alcohol and Toxicology (ZRG4) Study Section for the National Institutes of Health, November 1996.

Chair, NCI Review Panel on Breast Cancer and the Environment on Long Island. National Institutes of Health, January 31, 1997.

Member, NCI Review Panel on Regional Variation in Breast Cancer Rates in the United States. National Institutes of Health, Rockville, MD, November 9, 1998.

Member, NIOSH Special Emphasis Panel on Disease, Disability, and Injury Prevention Control Grants, National Institute for Occupational Safety and Health, Florence KY. February 21–23, 1999.

Member, NIEHS Special Emphasis Panel on Superfund Basic Research Projects, National Institute of Environmental Health Sciences, Research Triangle Park, NC. October 25–27, 1999.

Chair, NIOSH Site Visit to University of Washington Educational Resource Center. Seattle, Washington, November 7–9, 2001.

Chair, NIOSH Special Emphasis Panel on Training Programs in Occupational Health and Safety. St. Petersburg, Florida. February 17–20, 2002.

Mickey Leland National Urban Air Toxics Research Center, Houston, Texas. Appointed to Scientific Advisory Board, 2002–2009.

Member, NIH Special Emphasis Panel/Scientific Review Group 2006/10 ZLM1 ZH-P (O1), July 14, 2006

Member NIEHS Special Emphasis Panel/Scientific Review Group 2007/10. National Institute of Environmental Health Sciences, Research Triangle Park, NC. July 11–14, 2007.

Member, American Cancer Society Peer Review Committee on Physician Training Award in Preventive Medicine. American Cancer Society, Atlanta, Georgia. 2008–2012

Institute of Medicine of the National Academies of Sciences. Participant – GAO Workshop on Cancers Added to the World Trade Center Health Program (WTCHP) List of Covered Conditions. Washington, D.C. October 21, 2013.

Scientific Journal Board of Editors:

Journal of Occupational Medicine, Editorial Board. 1987-1992

Medical Journal of Indonesia, Editorial Board. 2000–present

Journal of Environmental and Public Health. 2009-2011

Reviewer, Scientific Manuscripts:

American Journal of Epidemiology
American Journal of Industrial Medicine
Chemosphere
Critical Reviews in Toxicology
Environmental Health Perspectives
Environmental Science and Technology
Epidemiology
Journal of Exposure Science and Environmental Epidemiology
Journal of Occupational and Environmental Medicine
Journal of the National Cancer Institute
Risk Analysis

Teaching

Attending Physician, Occupational Medicine Outpatient Clinic, University of Michigan Medical Center, Ann Arbor, Michigan, 1989-2011

Director, Occupational and Environmental Epidemiology Program, University of Michigan School of Public Health 2001-2007

Ph.D. Thesis Committee Member

N. Seixas, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1990

A. Rocskay, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1991

N. Nelson, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1992

Carol Burns. The epidemiology of systemic sclerosis: a population based case control study. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1994

Jane Krebs. Mortality at an automotive stamping and assembly facility. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1995. Doctoral Committee Co-Chair.

Jacqueline Kurtz. An evaluation of peer and professional trainers in an occupational health and safety training program. Ph.D. in Environmental and Industrial Health, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1995

Jon Fryzek. A case-control study of DDT and related compounds and pancreas cancer. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1996. Doctoral Committee Co-Chair.

Stephen Martin. 1,1 dichloro-2,2-bis(p-chlorophenyl)ethylene, testosterone levels and lipid profile in African American farmers and farm workers. University of Michigan, School of Public Health, Ann Arbor, Michigan, 2001.

Jeanette Jane Rainey. Epidemiological and environmental co-factors linked to endemic Burkitt's lymphoma in Kenya. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan 2005

Gena Pauline Kucera. Hormone replacement therapy and nonsteroidal anti-inflammatory drugs on the risk of colorectal cancer in women. Ph.D. in Environmental and Industrial Health, University of Michigan, School of Public Health, Ann Arbor, Michigan, 2006. Doctoral Committee Chair.

Aaron Sussell. Incidence And Prevalence Of Occupational Contact Dermatitis In Automobile Manufacturing. PhD in Environmental Health Sciences, University of Michigan School of Public Health, 2007.

Andrea Steege. Access to health care among migrant farm workers. University of Michigan, School of Public Health, Ann Arbor, Michigan, 2009. Doctoral Committee Co-Chair.

Qixuan Chen. Bayesian Model Based Approach to Complex Survey Data Analysis. Department of Biostatistics, University of Michigan, School of Public Health, Ann Arbor, Michigan, 2009.

Committee, Organizational, and Volunteer Service

Director, Occupational Medicine, University of Michigan School of Public Health, Ann Arbor, Michigan, December 1988-94

Member, School of Public Health Executive Committee, University of Michigan, Ann Arbor, Michigan, 1989-1991.

Director, Center for Occupational Health, Safety, and Engineering, University of Michigan, Ann Arbor, Michigan, 1990-1995

Associate Director, Center for Occupational Health, Safety, and Engineering, University of Michigan, Ann Arbor, Michigan, 1995-2000

Director, Division of Occupational Health, University of Michigan School of Public Health.
1992 -1995

Member, Executive Committee, Department of Environmental and Industrial Health, University
of Michigan School of Public Health, Ann Arbor, MI. January 1992-1995.

Chair, Curriculum Committee, Department of Environmental and Industrial Health, University
of Michigan School of Public Health, 1996-97.

Chair, Advisory Committee on Academic Rank, University of Michigan School of Public
Health, 1997-99. Member 1996-97, 1999-00.

Member, Executive Committee, University of Michigan School of Public Health. 2000-2003.

Member, Student Recruitment Committee, Department of Environmental Health Sciences,
University of Michigan School of Public Health, 2001-03

Founding Director, Center for Risk Science and Communication, University of Michigan School
of Public Health, 2003-present

Member, Search Committee for Dean of University of Michigan School of Public Health, 2004-
05

Member, Executive Committee, University of Michigan School of Public Health, 2006-07

Member, Office of the Vice President for Research Conflict of Interest Committee, University of
Michigan, Ann Arbor, Michigan, 2009-2012

Member, Dean's Advisory Council, University of Michigan School of Public Health, 2012-
present

Visiting Professorships, Seminars, and Extramural Invited Presentations

1. "Colon Cancer and Job Activity." Invited Paper at Occupational Epidemiology Forum,
sponsored by USC, UCLA, and UC Irvine Schools of Medicine. Irvine, CA, 1983.
2. Annual Meeting of the Western Occupational Medical Association, "Pulmonary disease in
borax workers", San Francisco, California, 1982.
3. 4th Annual Rocky Mountain Conference on Occupational and Environmental Health,
"Respiratory symptoms from borax and boric acid aerosols", Park City, Utah, 1982.
4. American Occupational Medical Association Annual Meeting, "Occupational cancer", Los
Angeles, California, 1984.
5. "Respiratory Effects of Borax Dust." Invited Paper at Occupational Epidemiology Forum,
sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA, 1984.
6. Panel Chairman. "Health Issues for Women in the Workplace." Annual Scientific
Meeting, American Occupational Medical Association, Los Angeles, CA, 1984.
7. "Occupational Cancer." Postgraduate Education Conference at the American Occupational
Medical Association Basic Curriculum Course, Salt Lake City, UT, 1984.
8. "Epidemiology for the Occupational Physician." Postgraduate Education Conference at the
Annual Scientific Meeting, American Occupational Medical Association, Los Angeles,
CA, 1984.

9. "Contact Dermatitis from Aziridine Hardener in Printing Ink." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA, 1985.
10. Western Occupational Medical Association Conference, "Epidemiology of occupational cancer", Stanford University, Palo Alto, California, 1985.
11. "Toxicology." Workshop on evaluation of workers compensation patients exposed to hazardous chemicals. Postgraduate Education Conference. Presented by the State of California Division of Industrial Accidents and USC School of Medicine, Los Angeles, CA, 1985.
12. Special Studies Unit, Division of Occupational Safety and Health, Department of Industrial Relations, State of California, Sacramento, California, 1985.
13. V International Symposium, Epidemiology in Occupational Health, "Cancer mortality in the aircraft manufacturing industry", Los Angeles, California, 1986.
14. Epidemiology and cancer registries in the Pacific Basin V, "Cancer risks in the aircraft manufacturing industry", Kauai, Hawaii, 1986.
15. "Cancer Mortality in the Aircraft Manufacturing Industry." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA, 1986.
16. "Occupational exposure to electromagnetic fields and adult leukemia." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA 1987.
17. "Studies of electromagnetic fields and cancer risk." Seminar at Joint Symposium sponsored by Fred Hutchinson Cancer Research Center, University of Washington School of Medicine and Department of Preventive Medicine, USC. Seattle, WA, 1987.
18. "Electromagnetic fields and cancer risk," and "Exposure assessment in occupational and residential studies of ELF and leukemia." Invited lecturer, International Agency for Research on Cancer, Lyon, France, May 1988.
19. California Cancer Registries Conference 1988: Innovations in Research, "Coding and use of cancer registry data to look for occupational cancers", Newport Beach, California, October 1988.
20. 32nd Annual Western Occupational Health Conference, "When is cancer work related?", Irvine, California, October 1988.
21. "Toxicology of chrome." Invited guest, Aerospace Hazardous Waste Minimization Symposium, Los Angeles, CA, May 1988.
22. "Medical/Ethical Pitfalls of Occupational Medicine From a Clinicians Standpoint." Invited speaker, Southern California Edison Company, Oxnard, CA, July 1988.
23. "Prospective Study of Respiratory Effects of Formaldehyde in Medical Students". Invited speaker, UC Irvine, Department of Community and Environmental Medicine. October 20, 1988.
24. Invited lecturer, California Cancer Registries Conference 1988: Innovations in Research. Lecture topic: "Coding and Use of Cancer Registry Data to Look for Occupational Cancers", Newport Beach, California, October 1988.
25. Lecturer, "Physical Activity and Colon Cancer Risk", seminar sponsored by the University of Michigan, Ann Arbor, Michigan, September 1989
26. Chairperson, 41st Annual Selby Discussional, School of Public Health, University of Michigan, Ann Arbor, Michigan, September 1989

27. Lecturer, "Lung Disease in Borax Miners: Was Borax the Culprit?". School of Public Health, University of Michigan, Ann Arbor, Michigan, October 1989
28. Session Reporter, "Human Health Impacts of Halogenated Biphenyls and Related Compounds". University of Michigan, Ann Arbor, Michigan, November 8-9, 1989
29. Keynote Speaker, Joint Annual Meeting of The Michigan Occupational Medical Association, The Detroit Michigan Association of Occupational Health Nurses, and The Michigan Industrial Hygiene Society, "Electromagnetic Fields and Leukemia". Dearborn, Michigan, November 1989.
30. Lecturer, "Physical Activity and Colon Cancer". Ford World Headquarters, Dearborn, Michigan, January 1990.
31. Lecturer, "Multiple Chemical Sensitivities", press briefing at Dow-Elanco. Midland, Michigan, March 1990.
32. Speaker, "Man made mineral fibers and lung cancer". Presented at Pulmonary Division Grand Rounds, University of Michigan Medical Center, Ann Arbor, Michigan, December 7, 1990.
33. Speaker, "Epidemiologic study of end users of man-made mineral fiber". Report to Annual Scientific Session of the Thermal Insulation Manufacturers Association. Del Mar, California, October 30, 1990.
34. Conference Chairman, 42nd Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, November 8-9, 1990.
35. Invited speaker, "DDT and pancreas cancer". National Institute for Occupational Safety and Health, Cincinnati, Ohio, January 29, 1991.
36. Invited speaker, "Case control study of pancreas cancer among chemical manufacturing workers". University of Cincinnati School of Medicine, Department of Environmental Health Seminar Series. January 30, 1991.
37. Invited speaker, Epidemiologic studies of morbidity of man-made mineral fiber workers". In: Man-made mineral fibers: status of health risk assessment. Course given by the Department of Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health. Baltimore, Maryland, March 4, 1991.
38. Invited speaker, "Electromagnetic fields and cancer". Annual meeting of the Semiconductor Industry Safety Association. Phoenix, Arizona, April 15, 1991.
39. Invited presentation, "DDT and pancreas cancer in a case control study of chemical workers." Society for Epidemiological Research Annual Meeting. Buffalo, New York, June 1991.
40. Conference Chairman, 43rd Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, November 1991.
41. Invited Faculty, National Cancer Institute, Division of Cancer Prevention and Control. 1992. Cancer Prevention and Control Academic Course. "Surveillance and special populations: occupations exposed to asbestos". August 7, 1992.
42. Conference Chairman, 44th Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, November 1992.
43. Invited speaker, Occupational Health Symposium Co-Sponsored by Bay Medical Education and the University of Michigan Center for Occupational Health and Safety. Saginaw, Michigan, March 12, 1993. "Occupational Cancers".
44. Invited speaker, Department of Epidemiology, University of Michigan Department of Epidemiology, March 18, 1993. "Recent Studies on EMF and Cancer".

45. Invited speaker, First Annual Cancer Conference. Recent Advances in Colorectal Carcinoma. Sponsored by the American Cancer Society, Detroit, Michigan, April 14, 1993. Epidemiology of Colorectal Cancer.
46. Conference Chairman, 45th Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, September 1993.
47. Invited speaker. Michigan State Medical Society Annual Meeting. "Electromagnetic Fields and Health". Detroit, Michigan, November 11, 1993.
48. Invited presentation. "Occupational exposures and urogenital cancers among leather workers". National Cancer Institute Workshop on Occupational Exposures and Urogenital Cancers. May 23-24, 1994, Rockville, Maryland.
49. Conference Chairman, 46th Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, October 13-14, 1994.
50. University of Michigan Comprehensive Cancer Center Grand Rounds. "DDT and Related Compounds and Pancreas Cancer. October 21, 1994.
51. Western Ohio Occupational Medical Association Annual Scientific Meeting. "Integration of Residents into Occupational Medicine Training". Toledo, Ohio, March 11-12, 1995.
52. Invited Speaker. BASF Corporation Isocyanates Review. Respiratory Disease from TDI and MDI. Wyandotte, Michigan, April 6, 1995.
53. Invited Speaker. Department of Public Health, Wellington School of Medicine. "DDT and pancreas cancer". July 28, 1995, Wellington, New Zealand.
54. Invited Speaker. First Annual Jakarta International Epidemiology Course. "Occupational Disease Epidemiology". December 4-15, Jakarta, Indonesia.
55. Invited Speaker. Faculty of Public Health, University of Indonesia. "Current Issues in Occupational Health". December 19, 1995, Depok, West Java, Indonesia.
56. Invited Speaker. Department of Cardiology, Faculty of Medicine, University of Indonesia. "Preparing an International Manuscript" April 9, 1996. National Cardiac Center, Harapan Kita Hospital, Jakarta, Indonesia.
57. Invited Speaker. Editorial Board of the Medical Journal of Indonesia. "Publishing in the International Medical Literature" April 9, 1996. University of Indonesia School of Medicine, Jakarta, Indonesia.
58. Invited Speaker. "Guidelines for Publishing in the International Medical Literature". May 21, 1996. Department of Internal Medicine Grand Rounds, University of Indonesia School of Medicine, Jakarta, Indonesia.
59. Invited Speaker. Symposium of Occupational Safety and Health to Anticipate the Era of Free Trade in the Year 2020. "Occupational Safety and Health in Developed Industrial Countries". May 23, 1996, University of Indonesia School of Medicine, Jakarta, Indonesia.
60. Invited Faculty, National Cancer Institute, Division of Cancer Prevention and Control. 1996 Cancer Prevention and Control Academic Course. "Special Populations and the Environment. High Risk Populations: Asbestos". August 9, 1996.
61. Invited Speaker. "Epidemiology of Pancreatic Neoplasia". Symposium: Current Concepts in Pancreas Cancer. Barbara Ann Karmanos Cancer Institute. Detroit, MI. September 12, 1997
62. Invited Speaker. "DDT and Related Materials and Pancreatic Cancer". NIEHS Center for Molecular and Cellular Toxicology, Wayne State University Institute of Chemical Toxicology. October 16, 1997.

63. Invited speaker. "Occupational Asthma". Symposium: Global Management of Airway Disease. University of Michigan Medical School, Division of Pulmonary and Critical Care Medicine. May 9, 1998 Livonia, Michigan.
64. Invited Speaker. "Occupational and Environmental Cancer". Annual Scientific Meeting of the Michigan Occupational and Environmental Medicine Association. September 11, 1998. Traverse City, Michigan
65. Invited Speaker. Epidemiology of Natural Rubber Latex Allergies in Health Care Workers. International Conference on Natural Rubber Latex Sensitivity. San Francisco, CA. Feb 9-10, 2001
66. Invited Speaker. Measurement of physical activity in the occupational setting. American Society for Preventive Oncology 25th Annual Meeting. New York City, NY. March 12, 2001.
67. Invited Speaker. XVI World Congress of Epidemiology. Montreal, Quebec. Risk of Solvent Exposure among Women with Scleroderma. August 20, 2002.
68. Invited Speaker. "Research studies of pesticide exposed populations." National Institute of Environmental Health Sciences, Division of Extramural Research and Training (DERT) Science Retreat. Wilmington, NC. November 21-22, 2002.
69. Invited presentation. Williams JM, Garabrant DH. Assessment of sight and hearing protection use in high school vocational, technical, and industrial education programs. Best Practices in Occupational Safety and Health, Education, Training and Communication. 6th International Conference, Scientific Committee on Education and Training in Occupational Health, ICOH. Baltimore, MD. October 28-30, 2002.
70. Invited presentation. Garabrant DH. Environmental and familial risks to pancreas cancer. University of Texas M.D. Anderson Cancer Center, Division of Cancer Prevention and Program in Cancer Prevention & Control. Houston, Texas. April 25, 2003.
71. Invited discussant. Garabrant DH. Manufacturing Science in Regulated Environments. Presented at the International Symposium on Development and Manufacturing Needs in Health Care Industries in the 21st Century. University of Michigan College of Engineering. Ann Arbor, Michigan September 19, 2003
72. Invited Speaker. Garabrant DH. 2003 Carey Pratt McCord Lecture. "Latex allergy in health care workers". Presented at the annual meeting of the Michigan Occupational and Environmental Medicine Association. Royal Oak, Michigan. November 6, 2003.
73. Invited Speaker. Garabrant DH. "The Michigan Dioxin Exposure Study". MidMichigan Medical Center-Midland Family Practice Department and Continuing Medical Education Department. Ann Arbor, Michigan. May 20, 2004.
74. Invited Speaker. Garabrant DH. "Biomarkers and Risk Assessment". Presented at the Association of Schools of Public Health Conference on Environmental Health Risk: Assessment, Management, and Communications. Minneapolis, Minnesota. July 11-13, 2004.
75. Keynote Speaker. Garabrant DH. "The University of Michigan Dioxin Exposure Study". Michigan Epidemiology Conference 2005. Ann Arbor, Michigan. March 11, 2005.
76. Invited Speaker. Garabrant DH. "Meta-Analysis as a Tool for Understanding Asbestos-Related Disease". Presented at the AIHce 2005 Annual Conference of the American Industrial Hygiene Association and American Conference of Governmental Industrial Hygienists. Anaheim, CA May 25, 2005

77. Invited Speaker. Garabrant DH. Mesothelioma risks among auto mechanics. Annual Scientific Meeting of the Michigan Occupational and Environmental Medicine Association. Lansing, MI. September 22, 2005.
78. Invited Speaker. Garabrant DH. "The University of Michigan Dioxin Exposure Study". Michigan's Premier Public Health Conference. Partnerships: Working Together to Improve the health of Michigan's Citizens. Michigan Association for Local Public Health. Grand Rapids, MI October 12, 2005
79. Moderator. Garabrant DH. Session IV Exposure Assessment. First Annual Air Toxics Research Workshop. Mickey Leland National Air Toxics Research Center. Houston, Texas. October 17, 2005.
80. Invited Speaker. Garabrant DH. Biomonitoring in Epidemiology Studies. Michigan Society of Toxicology Fall 2005 Meeting. Lansing, MI. November 4, 2005.
81. Invited speaker. DH Garabrant. Cohort mortality study of transmission and chassis workers. American Osteopathic College of Occupational and Preventive Medicine Mid-Year Conference. Pittsburgh, Pennsylvania. March 18, 2006.
82. Invited Speaker, Grand Rounds. Garabrant DH. Environmental and genetic factors in pancreas cancer. Department of Medicine, University of California, Irvine Medical Center, March 28, 2006.
83. Invited Presentation. Franzblau A, Garabrant D. The University of Michigan Dioxin Exposure Study: Project Overview. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
84. Invited Presentation. Olson K, Garabrant D. Prevalence of Exposure Routes in The University of Michigan Dioxin Exposure Study: Food Consumption, Recreational and Household Activities, Occupations and Demographics. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
85. Invited Presentation. Adriaens P, Garabrant D. Measurements of Soil Concentrations of PCDDs, PCDFs, and PCBs From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
86. Invited Presentation. Zwica L, Garabrant D. Measurements of Household Dust Concentrations of PCDDs, PCDFs, and PCBs From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
87. Invited Presentation. Hedgeman E, Garabrant D. Measurements of Serum Concentrations of PCDDs, PCDFs, and PCBs From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
88. Invited Presentation. Garabrant D. Environmental Factors That Explain Variation in Serum Dioxin Concentrations in a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
89. Invited Presentation. Chang S-C, Garabrant D. Analysis of Patterns in PCDD, PCDF, and PCB Soil Concentrations From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
90. Invited Presentation. Lepkowski J, Garabrant D. Survey methodology in an environmental exposure study: methods to assure sound inference. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
91. Invited Presentation. Garabrant D. Factors that predict serum dioxin concentrations in Michigan, USA. Dioxin 2007. Tokyo, Japan. September 3, 2007.

92. Invited Presentation. Chen Q, Garabrant D. Serum 2,3,7,8-TCDD concentration in a Michigan, USA population with no unusual sources of exposure. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
93. Invited Presentation. Knutson K, Garabrant D. Linear regression modeling to predict household dust TEQ and TCDD concentration. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
94. Invited Presentation. Hong B, Garabrant D. Impact of the changes in WHO TEF values from 1998 to 2005 on the total TEQ values in serum, household dust and soil. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
95. Invited Presentation. Franzblau A, Garabrant DH. Human exposure to dioxins from clay: a case report. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
96. Invited Presentation. Jolliet O, Garabrant D. Effect of age and historical intake on blood dioxin concentrations: pharmacokinetic modeling to support statistical analyses. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
97. Invited Presentation. Towey T, Garabrant, D. Multivariate statistical analysis of dioxin profiles to explain source contributions to serum dioxins. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
98. Invited Presentation. Trinh H, Garabrant D. spatial distribution of dioxins from an incinerator; a validation study. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
99. Invited Presentation. Garabrant DH. Biomonitoring Results from the University of Michigan Dioxin Exposure Study. The NAS and WHO on Dioxin and Dioxin-like Compounds: International Policy Implications and Potential Impact, Michigan State University, September 19, 2007.
100. Invited Presentation. Garabrant, DH. Factors that predict serum dioxin concentrations in Michigan, USA. 17th Annual Conference of the International Society for Exposure Assessment, Durham, NC. October 16, 2007.
101. Garabrant D. Effective messages in concerned communities: the dioxin exposure study. 2007 Bernstein Symposium. Nanotechnology and Health: Evidence and Impact. University of Michigan Risk Science Center. October 26, 2007.
102. Invited Presentation. Garabrant, DH. Factors that predict serum dioxin concentrations in Michigan, USA. Society for Risk Analysis 2007 Annual Meeting. San Antonio, TX, December 9-12, 2007..
103. Invited Presentation. Garabrant D. The University of Michigan Dioxin Exposure Study project overview. Society for Risk Analysis 2007 Annual Meeting. San Antonio, TX, December 9-12, 2007.
104. Invited Presentation. Garabrant D. Chlorpyrifos exposure, inhibition of butyrylcholinesterase, and paraoxonase (PON1) activity in pesticide manufacturing workers. EPICOH-NEUREOH 2008 Conference, San Jose, Costa Rica, June 11, 2008.
105. Invited Presentation. Jolliet O, Wenger Y, Adriaens P, Chang C-W, Chen Q, Franzblau A, Gillespie BW, Hedgeman E, Hong B, Jiang X, Knutson K, Lepkowski J, Milbrath MO, Reichert H, Towey T, Garabrant, D. Explaining age dependency using pharmacokinetic modeling in the analysis of blood TCDD concentrations. Dioxin 2008 Conference, Birmingham, England, August, 2008.
106. Invited Presentation. Garabrant DH. Project overview and results of linear regression models of serum dioxin levels. Dioxin 2008 Conference, Birmingham, England, August, 2008.

107. Invited presentation. Garabrant DH. Cancer Mortality among U.S. Automotive Transmission Manufacturing Workers Exposed to Metal Working Fluids,” 2008 MRF SYMPOSIUM. October 5-8, Dearborn, Michigan.
108. Invited Presentation. Jiang X, Chen Q, Garabrant D, Hong B, Gillespie B, Lepkowski J, Franzblau A, Adriaens P, Demond A. Logistic Regression Models of High Serum Dioxin Level. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
109. Invited Presentation. Hong B, Garabrant D, Jiang X, Chen Q, Franzblau A, Gillespie B, Lepkowski J, Adriaens P, Demond A. Factors that Predict Serum Concentration of 2,3,7,8-TCDD in People from Michigan, USA. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
110. Invited Presentation. Gillespie B, Reichert H, Chen Q, Franzblau A, Lepkowski J, Adriaens P, Demond A, Luksemburg W, Garabrant D. Estimating Population Percentiles Using the Turnbull Estimator When Some Data Are Below the Limit of Detection. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
111. Invited Presentation. Garabrant D, Hong B, Jolliet O, Chen Q, Jiang X, Franzblau A, Lepkowski J, Adriaens P, Demond A, Hedgeman E, Knutson K, Towey T, Gillespie B. Public Health Impact of Dioxin Exposure Pathways in the UMDES, Based on Linear Regression Models. Dioxin 2009 Conference, Beijing, China, August 27, 2009..
112. Invited Presentation. Franzblau A, Hedgeman E, Jiang X, Chen Q, Hong B, Knutson K, Towey T, Adriaens P, Demond A, Gillespie B, Jolliet O, Lepkowski J, Garabrant D. The University of Michigan Dioxin Exposure Study: An Investigation of Serum Outliers for TEQ, 2,3,7,8-TCDD, 2,3,4,7,8-PeCDF, and PCB-126. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
113. Invited Presentation. Franzblau A, Garabrant D, Gillespie B, Jiang X, Adriaens P, Demond A, Jolliet O, Lepkowski J. Implications of the EPA’s new preliminary remediation goals for residential soil based on the University of Michigan Dioxin Exposure Study. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
114. Invited Presentation. Garabrant D, Jiang X, Franzblau A, Adriaens P, Demond A, Gillespie B, Jolliet O, Lepkowski J, Hao W. The University of Michigan Dioxin Exposure Study: Relationship between residential soil, household dust, and serum dioxin levels. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
115. Invited Presentation. Hao W, Jolliet O, Jiang X, Garabrant D, Franzblau A, Adriaens P, Demond A, Gillespie B, Lepkowski J. The University of Michigan Dioxin Exposure Study: Dioxin intake due to fish and game consumption in a dioxin-contaminated area. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
116. Invited Presentation. Hao W, Jolliet O, Jiang X, Chang C-W, Towey T, Wenger Y, Garabrant D, Franzblau A, Adriaens P, Demond A, Gillespie B, Lepkowski J. The University of Michigan Dioxin Exposure Study: A pharmacokinetic modeling approach to investigate the predictors of serum TCDD concentration. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
117. Invited Presentation. Evidence of dioxin exposure in Michigan residents exposed to contaminated soils. The 37th Annual Summer Meeting of the Toxicology Forum. The Aspen Institute, Aspen, Colorado. July 12, 2011.
118. Invited Presentation. Garabrant DH. Improving measures in epidemiology: prospective cohort study of chlorpyrifos manufacturing workers. Symposium ILSI Argentina – ILSI HESI – SETAC Capitulo Argentino. Advances in Epidemiology: the impact of pesticides. September 28, 2011. Argentine Scientific Society, Buenos Aires, Argentina.

119. Invited Presentation. Garabrant DH. The University of Michigan Dioxin Exposure Study: Predictors of human serum dioxin concentrations in Midland and Saginaw Michigan. Society of Toxicology of Canada 43rd Annual Symposium. Montreal, Canada. December 4-6, 2011.
120. Invited Presentation. Franzblau A, Broadwater K, Luksemburg W, Maier M, Jiang X, Garabrant DH, Demond A. Serum Concentrations of Polychlorinated Dibenzo-p-dioxins Among Users of Ball Clay. Joint ISEE, ISES and ISIAQ Environmental Health Conference. 19-23 August 2013, Basel, Switzerland.
121. Invited presentation: Garabrant DH. Biomonitoring of chlorpyrifos excretion, butyryl cholinesterase activity, and acetyl cholinesterase activity among chlorpyrifos manufacturing workers. In: Use of spot biomonitoring samples for environmental epidemiology. International Society of Exposure Sciences 25th Annual Meeting. Henderson, NV October 22, 2015.
122. Invited presentation. Garabrant DH and Pastula SS. A comparison of asbestos fiber potency and elongate mineral particle (EMP) potency in humans. Monticello Conference. October 18, 2017. Charlottesville, Virginia.

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8. Peters JM, Garabrant DH, Wright WE, Bernstein L, Mack TM. Uses of a cancer registry to assess occupational cancer risks. *National Cancer Institute Monograph* 1985; 69:157-161.
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