# ATTACHMENT 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 14 2012

OFFICE OF
RESEARCH AND DEVELOPMENT

Mr. Jeff E. Wojahn
President, Encana Oil and Gas (USA), Incorporated
370 17th Street
Suite 1700
Denver, CO 80202

Dear Mr. Wojahn:

Thank you for your letter of January 10, 2012, to Lisa P. Jackson, Administrator of the U.S. Environmental Protection Agency, in which you raised several concerns about the external peer review process for the EPA's draft report, "Investigation of Ground Water Contamination near Pavillion, Wyoming." Because the peer review of the draft report is being arranged by the Office of Research and Development, your letter was referred to me. I would also like to respond to the letter of January 6, 2012, that was sent to me by Mr. John Schopp, Vice President of the North Rockies Business Unit of Encana.

The EPA is fully committed to meeting the highest standards of scientific integrity, objectivity and transparency in conducting our investigation in Pavillion. This commitment also applies to the peer review of the draft report. Responses to the specific concerns that you raised in your letter about the peer review are found below:

1. *Peer review and classification of the draft report.* I share your view that the peer review of the draft report should be conducted in a highly rigorous manner by an independent group of experts. The Agency has determined that the draft report best meets the definition of Influential Scientific Information (ISI), and as such should be subjected to a higher degree of peer review than information that may not have a clear and substantial impact on decision making. Although the draft report has not been classified as a Highly Influential Scientific Assessment (HISA), which is an assessment that synthesizes information from multiple studies or analyses, it is being treated by the EPA as if it were a HISA for the purpose of the peer review. The Agency is following the requirements for a HISA, as described in the Office of Management and Budget's Peer Review Bulletin, with respect to the expertise, balance, conflict of interest and independence of the reviewers; transparency; and public involvement (i.e., providing opportunities for the public to nominate reviewers, submit written comments on the report, and attend a public meeting where oral presentations on scientific issues can be made to the peer reviewers). Although not required by the Peer Review Bulletin, the EPA is also providing an opportunity for the public to provide comments on the draft charge.

2. *Technical comments and charge to the peer reviewers.* The EPA fully intends to provide all comments submitted during the public comment period and at the peer review meeting to the panel for their consideration. Comments submitted during the public comment period are

publicly available in the docket.[1] The charge to the reviewers will indeed include questions relating to data quality, scientific uncertainties and interpretation of the results.

3. *Technical disciplines represented on the panel.* The EPA considers the disciplines listed in the *Federal Register* notice requesting public nominations of peer reviewers[2] to be sufficiently broad to ensure that the panel has the requisite experience for a thorough and rigorous review of the draft report.

The letter from Mr. Schopp raised two related concerns, each of which is addressed below:

1. *Scope of the review and charge to the reviewers.* The EPA is interested in receiving comments on the technical aspects of the investigation, including the collection and analysis of data, and the conclusions. Regarding the charge to the peer reviewers, the panel will be asked to opine on issues relating to data quality, scientific uncertainties, and interpretation of the results, as well as on the methods used. As noted above, the public has the opportunity to comment on the draft charge.

2. *Public availability of data.* Mr. Schopp questioned the integrity of the EPA's methods and the quality of the data used in reaching its conclusions, noting that only selected data had been released during the EPA's discussions with stakeholders. He also stated that Encana had not yet received a response to a series of Freedom of Information Act (FOIA) requests submitted by the company in mid-December to obtain all information available to the Agency in preparing the report, as well as copies of all internal and external communications relating to the study.

   As I indicated at the beginning of this letter, the EPA stands firmly behind the scientific integrity of the Pavillion investigation. With respect to transparency, we have already shared a considerable amount of information in direct communications with Encana, the State of Wyoming, and other parties. The EPA's Pavillion website contains volumes of information from the investigation, including raw laboratory data and reports, standard operating procedures, monitoring well drilling and sampling information, and quality assurance documents. The public comment period was extended for an additional 45-day period to March 12, 2012. In addition, stakeholders can provide comments on the draft charge to the reviewers, as well as oral and written comments at the public peer review meeting. We are confident that the public has sufficient time and information to provide meaningful comments on the EPA's draft report.

   Regarding the FOIA requests, in December, 2011, Encana sent four FOIA requests regarding the "Pavillion Field Area" to multiple EPA offices: Region 8, Region 3, Robert S. Kerr Environmental Research Center, and the Office of Research and Development. The requests seek a broad range of documents related to the EPA's investigation of ground water contamination in the Pavillion area.

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[1] http://www.regulations.gov/#!docketDetail;D=EPA-HQ-ORD-2011-0895

[2] Petroleum engineering (natural gas, oil), petroleum geology (particularly in hydraulic fracturing and well testing mechanical integrity), hydrology/hydrogeology (in or near drilling areas), geophysics, environmental engineering (related to drilling and its effects), water quality (studies of contaminated ground water, etc.), organic/inorganic chemistry and geochemistry (chemical fate and transport, oxidation/reduction reactions, hydraulic fracturing chemistry and/or gas-liquid exchange and solubility), laboratory and/or field research on physical and biogeochemical processes in subsurface environments, computer-based research on physical and biogeochemical processes in subsurface environments, laboratory and/or field-based research in hydraulic fracturing.

The EPA has already provided to Encana and publicly posted[3] an extensive amount of information relating to Pavillion, including information responsive to many of Encana's requests. The EPA plans on a "rolling release" of documents responsive to your FOIA requests. When clearly releasable documents are identified before a final response is ready, the EPA will release these documents in stages.

To complete the response to the FOIA requests, however, will involve searches by as many as 150 people in numerous EPA offices. Our rough estimate is that there will be from 100,000 to 200,000 responsive documents that span over a four year period. Collecting, reviewing, and producing the remaining responsive material will take a significant amount of time.

Because the requests seek voluminous records, and because responding will involve search and review efforts in multiple EPA offices by many personnel, "unusual circumstances" exist so that responding will require significantly more than 20 business days [*See* 40 C.F.R. §§ 2.104(c) and (d)]. Additionally, the EPA anticipates that its costs of responding to the requests will substantially exceed $250.00, and that estimated costs will be required as provided per 40 C.F.R. § 2.107(j). For these reasons, we have advised Encana's attorneys that we will contact them as soon as practicable regarding the time frame for response, the EPA's estimated cost of the response, and the prepayment that we require.

Since December 16, 2011, Region 8 legal staffers have been in frequent contact with Encana's attorneys regarding the FOIA requests in an effort to clarify the scope of the requests and to consolidate the requests to permit the EPA to respond as if they were a single request. This approach is designed to ensure consistency and efficiency, reduce duplication of effort, and provide the responsive records to Encana as soon as practicable. The EPA still awaits final clarification from Encana as to the scope of the requests.

In closing, I would like to emphasize that we take very seriously our responsibility to meet the highest standards of scientific integrity and transparency in conducting our investigation. We look forward to a rigorous and independent peer review of our draft report, and we welcome comments on the draft report from Encana and our other stakeholders.

Sincerely,

Paul T. Anastas

Paul T. Anastas
Assistant Administrator

[3] http://www.epa.gov/region8/superfund/wy/pavillion/

# ATTACHMENT 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 19 2012

THE ADMINISTRATOR

The Honorable Matthew H. Mead
Governor of Wyoming
State Capitol, 200 West 24th Street
Cheyenne, Wyoming 82002-0010

Dear Governor Mead:

Thank you for your letters of December 20, 2011, and January 16, 2012, regarding our groundwater investigation at the Pavillion field in Wyoming. As I stated when we last spoke by phone, I share your belief that a collaborative approach is the most appropriate course of action at this site. The EPA has made every effort to work cooperatively with the State of Wyoming and other parties, and you have my commitment that we will continue to do so. At the same time, I am concerned that your letters do not recognize the rigorous, transparent and objective approach that has marked our involvement at Pavillion to date.

Our investigation of drinking water at Pavilion has been underway since 2009 and has been supported by an extensive commitment of scientific resources. We have conducted four phases of sampling, each of which was designed in consultation with the State. We have been measured and careful in our conclusions. Upon the completion of sampling from the deep monitoring wells, the EPA career scientists engaged in a meticulous evaluation of the data. That evaluation is reflected in our draft report. Our draft findings were subject to intensive review within the EPA and reflected limited consultation with outside experts.

The evidence supporting the likely role of fracturing in the observed contamination is exhaustively presented in our draft report. I draw your attention to the careful language with which our conclusions are couched. We make clear that the causal link to fracturing has not been demonstrated conclusively, and that our analysis is limited to the particular geologic conditions in the Pavillion gas field and should not be applied to fracturing in other geologic settings.

At my direction, our staff delayed the release of our draft report by several weeks to assure that a technical review could be conducted by the State, Encana and other parties. Our staff has shared extensive data with the State and devoted many hours to meeting with your experts and the Pavillion Technical Work Group. I met personally with Encana leadership and the EPA staff met at length with Encana technical representatives. We are continuing to expend significant effort responding to outstanding questions and requests.

As I have previously expressed to you, the EPA welcomes the State's willingness to support additional scientific investigation at Pavillion. This could include additional sampling of the EPA monitoring wells and further study of the potential fate and transport of contaminants in the Wind River formation. We are in discussions with our fellow agency, USGS, about partnering on additional sampling of the monitoring wells and understand that the State has approached USGS as well. We look forward to



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meeting with the State, USGS and other parties to discuss how we can best work together to meet our common scientific objectives.

As a science-driven agency, we take seriously our obligation to meet high standards of scientific integrity and have carefully evaluated the questions raised about our sampling methods at Pavillion. I am enclosing a document that reviews the principal technical concerns you and others have expressed. Based on this careful review, the EPA stands behind the quality and reliability of our data.

At the same time, we have been clear that our report is a draft and that we plan to solicit public comment and convene an independent panel of experts to peer review the draft report. Peer review is the accepted tool for resolving issues about the adequacy of scientific methods and conclusions.

In this instance, we plan to convene a panel of five to seven experts in the relevant scientific and engineering disciplines. They will be unaffiliated with the EPA and screened carefully for conflicts of interest. We have this week published a Federal Register notice requesting public nominations of potential panelists. The EPA's contractor will review the submissions, contact selected candidates for additional information, and make the final selections after the 30-day nomination period closes. I encourage you to nominate qualified scientists and engineers from Wyoming to serve on the peer review panel. I expect that at least one person recommended by the State who meets the selection criteria will be named to the panel.

We are in the process of developing a charge for the panel and plan to share a draft with you and other interested parties to obtain feedback. After the charge is finalized, the panelists will meet publicly to consider and weigh their expert opinions on the charge questions. The public will have the opportunity to provide oral and written comments at that meeting. The panel will then submit their separate reports to the Agency, and of course those reports will be publicly available.

Your letter requests that we schedule a public listening session at a site convenient to Wyoming residents. I am pleased to report we plan to schedule the public peer review meeting in Cheyenne.

As requested by the State and Encana, we will soon announce an extension of the ongoing comment period on the draft report. To facilitate comment, we will be posting additional technical information on the EPA website, including written responses to the State's four-page list of questions. This comment period will later be augmented by the opportunity to comment to the peer review panel, as noted above.

In short, EPA will continue to act thoughtfully and transparently in our groundwater investigation. We greatly value our partnership with the State of Wyoming and are committed to continuing it. If you have further questions, please contact me or your staff may call Sarah Hospodor-Pallone, Deputy Associate Administrator for Intergovernmental Relations, at 202-564-7178.

Sincerely,

Lisa P. Jackson

Cc: Ken Salazar, Secretary of the Interior

Enclosure

# ATTACHMENT 3

**TEMKIN WIELGA & HARDT LLP**
1900 Wazee Street, Suite 303
Denver, Colorado 80202

December 12, 2011

**VIA EMAIL & REGULAR MAIL**

Regional Freedom of Information Officer
U.S. EPA, Region 8
1595 Wynkoop Street
Denver, CO 80202-1129
E-mail: **r8foia@epa.gov**

Re: Freedom of Information Act Request

To Whom It May Concern:

Pursuant to the Freedom of Information Act ("FOIA"), 5 U.S.C. § 552, the United States Environmental Protection Agency's ("EPA") FOIA implementing regulations, 40 C.F.R. Part 2, and any other applicable federal statutes, rules and regulations, Temkin Wielga & Hardt, LLP ("TWH") hereby requests the following records[1,2] from EPA related to EPA's investigation of water quality conditions in the Pavillion Field area in Fremont County, Wyoming:

1. Attachment 1 (the Monitoring Well Installation Work Plan Narrative) to the May 2010 Final Monitoring Well Installation Work Plan, Pavillion, Wyoming.

2. All records associated with the drilling, installation, or sampling of the two EPA deep monitoring wells. This request includes all records related to the analysis of cuttings, drilling mud and drilling fluids from samples of them taken at the time of drilling; related to the analysis of water used during drilling, well development or sampling; related to the analysis of water used (during drilling, installation, or sampling) after the time at which it was delivered to the EPA deep well locations and/or after its on-site storage; and also includes those related to sample preparation and QA/QC for those analyses.

1 "Records" as used herein is employed in its broadest sense and includes, but is not limited to, the original, each draft, and any non-identical copies of any written, recorded, electronic or graphic material of any kind, whether prepared by you or by any other person, that are in your possession, custody, or control or that of your agents, attorneys, or accountants.

2 In accordance with the President's directive in the January 21, 2009 Memorandum For The Heads of the Executive Departments and Agencies, EPA is required to provide records in a "form that the public can readily...use." Thus, please provide these records in their original form and in a format that can be manipulated.

3. All records of the methods and materials used in drilling the two EPA deep wells to join lengths of well casing together and the methods and chemicals used to clean and decontaminate well casing and down hole drilling and monitoring equipment before its being placed down hole, including verification swab samples.

4. All records on disposal of cuttings, drilling fluids, muds and other materials, and any other products or chemicals used in drilling and installation of the two EPA deep monitoring wells.

5. MSDSs for all products and other chemicals used in connection with drilling, installation, cleaning and decontamination, and sampling of the two EPA deep wells, including drilling chemicals, pipe dopes, solvents, cleaners, adhesives (including electrical or other tape), lubricants, and sealing agents.

6. Product specifications, including model names and numbers, and equipment serial numbers where applicable, for all equipment installed or placed in either of the two EPA deep monitoring wells, including pumps, motors, fittings, cements, grouts, steel, pipe dopes, down hole measurement equipment and cable, and other data loggers.

7. All records related to the Sampling and Analysis Plans, Quality Management Plans, and Quality Assurance Project Plans associated with the October 2010 Field Sampling Event, including documents, emails, or correspondence internal or external to EPA, related to the review and approval of these plans.

8. All records related to EPA's soil gas sampling efforts in the Pavillion Field area or any evaluation of the same.

9. All records concerning the source and preparation of the standards used for adamantane, 1,3-dimethyldamantane, 2-butoxyethanol, tris(2-butoxyethyl) phosphate, squalene, and terpinol in water samples from the Pavillion Field area.

10. All records related to the analytical method development done by the Robert S. Kerr Environmental Research Center ("Kerr") or Shaw Environment and Infrastructure Inc. ("Shaw") for all methods used in connection with water samples from the Pavillion Field area, including how detection limits were set.

11. All records related to the discrepancies in reporting limits and detections between or among the analytical results from EPA Region 3 (including the Region 3

Laboratory), EPA Region 8 (including the Region 8 Laboratory), Kerr, Shaw, and/or any other laboratory that EPA had analyze water samples from the Pavillion Field area.

12. All records related to the laboratory reports from Kerr or Shaw for water samples from the Pavillion Field area, including the full laboratory reports.

13. All records related to the chromatograms from EPA Region 8 (including the Region 8 Laboratory), EPA Region 3 (including the Region 3 Laboratory), Kerr Shaw, and/or any other laboratory that EPA had analyze water samples from the Pavillion area for all water samples from the Pavillion Field area and any records that provide an explanation for the reason the chromatograms are not available [Note: the only chromatograms provided to date are from Region 8 and are only for GRO/DRO and the "normal" 8260 and 8270 lists.]

14. All records related to mass spectra from EPA Region 8 (including the Region 8 Laboratory), EPA Region 3 (including the Region 3 Laboratory), Kerr, Shaw, and/or any other laboratory that EPA had analyze water samples from the Pavillion area for all water samples analyzed from the Pavillion Field Area using GC/MS, HPLC or equivalent methods, and any records that provide an explanation for the reason a mass spectra was not performed or available.

15. All records reflecting communications within EPA Region 8 (including the Region 8 Laboratory) regarding the Pavillion Field area.

16. All records reflecting communications with personnel at Kerr and/or Shaw regarding the Pavillion Field area.

17. All records reflecting communications with personnel at EPA Region 3 (including the Region 3 Laboratory) regarding the Pavillion Field area.

18. All records reflecting communications with EPA Headquarters regarding the Pavillion Field area.

19. All records reflecting communications with ATSDR regarding the Pavillion Field area, including: their analysis of EPA Region 8's Extended Site Investigation data for Pavillion area wells; the preparation of the August 31, 2010 "Health Consultation for Private Residential Well Water in the Pavillion Field;" and the preparation for the ATSDR presentation at the August 31, 2010 public meeting.

20. All records reflecting communications with private individuals, news outlets, reporters or media representatives, non-profit organizations or advocacy groups, or government officials (including local, state and federal executive or legislative branches) related to the Pavillion Field area.

If any part of this/these record(s) is not produced based on a claim of privilege or other exemption from disclosure, please prepare a privilege and/or exemption log describing, at a minimum: (i) the type of record withheld; (ii) the dates of creation of the record; (iii) the subject of the record; (iv) identity of the author and all recipients of the record; (v) the names of all people, entities and locations referenced in the record; and (vi) a detailed description of the basis upon which EPA is withholding the record and which specific statutory and regulatory provisions support the withholding. To the extent any responsive documents are withheld based upon a claim of privilege or exemption, please produce redacted copies of all non-privileged or non-exempt material contained within such documents.

EPA has twenty (20) business days to respond to this FOIA request. TWH confirms its willingness to pay reasonable costs associated with searching for, and copying the requested material; however, should these costs exceed $250, please contact me prior to proceeding.

Please contact me with any inquiries, notices or determinations at the address or telephone number above (or at 303-382-2901) or by email at brown@twhlaw.com.

Sincerely,

Nea Brown

Linnea ("Nea") Brown

cc: T. Sitz
A. Lensink

# ATTACHMENT 4

**TEMKIN WIELGA & HARDT LLP**
1900 Wazee Street, Suite 303
Denver, Colorado 80202

December 23, 2011

**VIA EMAIL & REGULAR MAIL**

National Freedom of Information Officer
U.S. Environmental Protection Agency
Office of Research and Development
1200 Pennsylvania Avenue, NW (2822T)
Washington, DC 20460
E-mail: **hq.foia@epa.gov**

Re: Freedom of Information Act Request

To Whom It May Concern:

Pursuant to the Freedom of Information Act ("FOIA"), 5 U.S.C. § 552, the United States Environmental Protection Agency's ("EPA") FOIA implementing regulations, 40 C.F.R. Part 2, and any other applicable federal statutes, rules and regulations, Temkin Wielga & Hardt, LLP ("TWH") hereby requests the following records[1,2] from EPA related to EPA's investigation of water quality conditions in the Pavillion Field area in Fremont County, Wyoming:

1. Attachment 1 (the Monitoring Well Installation Work Plan Narrative) to the May 2010 Final Monitoring Well Installation Work Plan, Pavillion, Wyoming.

2. Field Activity notes, memoranda, logs, core logs, mud gas logs, well construction diagrams, associated well construction permits, data (including porosity measurements and water levels) and all other records related to the drilling, installation, or sampling of the two EPA deep monitoring wells. This request includes all records related to the analysis of cuttings, drilling mud and drilling fluids from samples of them taken at the time of drilling; to the analysis of water used during drilling, well development or sampling; to the analysis of water used

1 "Records" as used herein is employed in its broadest sense and includes, but is not limited to, the original, each draft, and any non-identical copies of any written, recorded, electronic or graphic material of any kind, whether prepared by you or by any other person, that are in your possession, custody, or control or that of your agents, attorneys, or accountants.

2 In accordance with the President's directive in the January 21, 2009 Memorandum For The Heads of the Executive Departments and Agencies, EPA is required to provide records in a "form that the public can readily...use." Thus, please provide these records in their original form and in a format that can be manipulated.

(during drilling, installation, or sampling) after the time at which it was delivered to the EPA deep well locations and after its on-site storage; and also to the analysis of sample preparation and QA/QC for those analyses. This request excludes records posted on the EPA's website before January 5, 2012.

3. All records of the methods and materials used in drilling the two EPA deep wells to join lengths of well casing together and the methods and chemicals used to clean and decontaminate well casing and down hole drilling and monitoring equipment before being placed down hole, including verification swab samples. This request excludes records posted on the EPA's website before January 5, 2012.

4. All records on disposal of cuttings, drilling fluids, muds and other materials, and any other products or chemicals used in drilling and installation of the two deep monitoring wells. This request excludes records posted on the EPA's website before January 5, 2012.

5. MSDSs for all products and other chemicals used in connection with drilling, installation, cleaning and decontamination, and sampling of the two EPA deep groundwater wells, including drilling chemicals, pipe dopes, solvents, cleaners, adhesives (including electrical or other tape), lubricants, and sealing agents. This request excludes records posted on the EPA's website before January 5, 2012.

6. Product specifications, including model names and numbers, and equipment serial numbers where applicable, for all equipment installed or placed in the deep monitoring wells, including pumps, motors, fittings, cements, grouts, steel, pipe dopes, down hole measurement equipment and cable, and other data loggers. This request excludes records posted on the EPA's website before January 5, 2012.

7. All records related to the Sampling and Analysis Plans, Quality Management Plans, and Quality Assurance Project Plans associated with the October 2010 Field Sampling Event, including documents, emails, or correspondence internal or external to EPA, related to the review and approval of these plans. This request excludes records posted on the EPA's website before January 5, 2012.

8. All records related to EPA's soil gas sampling efforts in the Pavillion Field area or any evaluation of the same. This request excludes records posted on the EPA's website before January 5, 2012.

9. All records concerning the source and preparation of the standards used for adamantane, 1,3-dimethyldamantane, 2-butoxyethanol, tris(2-butoxyethyl) phosphate, squalene, and terpinol in water samples from the Pavillion Field area. This request excludes records posted on the EPA's website before January 5, 2012.

10. All records of the analytical method development done by the Robert S. Kerr Environmental Research Center ("Kerr"), Shaw Environment and Infrastructure Inc. ("Shaw"), or the Office of Research and Development ("ORD") or any of its contractors for all methods used in connection with water samples from the Pavillion Field area, including how detection limits were set. This request excludes records posted on the EPA's website before January 5, 2012.

11. All records related to the discrepancies in reporting limits and detections between or among the analytical results from Kerr, Shaw, EPA Region 3 Laboratory, and EPA Region 8 Laboratory, or any other laboratory that EPA had analyze water samples from the Pavillion Field area. This request excludes records posted on the EPA's website before January 5, 2012.

12. All records related to the laboratory reports from EPA Region 8, EPA Region 3, Kerr, Shaw, ORD (including its contractors), or any other laboratory for water samples from the Pavillion Field area, including the full laboratory reports. This request excludes records posted on the EPA's website before January 5, 2012.

13. All records related to the chromatograms from EPA Region 8, EPA Region 3, Kerr, Shaw, ORD (including its contractors) or any other laboratory for all water samples from the Pavillion Field area and any documents that provide an explanation for the reason the chromatograms are not available. This request excludes records posted on the EPA's website before January 5, 2012.

14. All mass spectra from EPA Region 8, EPA Region 3, Kerr, Shaw, ORD, and any other laboratory for all water samples analyzed from the Pavillion Field Area using GC/MS, HPLC or equivalent methods, and any documents that provide an explanation for the reason a mass spectra was not performed or available. This request excludes records posted on the EPA's website before January 5, 2012.

15. All records of and related to citizens' complaints.

16. All records from January 1, 2005 to present reflecting communications within ORD (including the Kerr Laboratory) regarding the Pavillion Field area, including those copied to or sent to others.

17. All records from January 1, 2005 to present reflecting communications with personnel at Shaw or at any ORD contractor regarding the Pavillion Field area.

18. All records from January 1, 2005 to present reflecting communications with personnel at EPA Region 3 (including the Region 3 Laboratory) regarding the Pavillion Field area.

19. All records from January 1, 2005 to present reflecting communications with EPA Region 8 (including the Region 8 Laboratory) regarding the Pavillion Field area.

20. All records from January 1, 2005 to present reflecting communications with ATSDR regarding the Pavillion Field area, including: their analysis of EPA Region 8's Extended Site Investigation data for Pavillion area wells; the preparation of the August 31, 2010 "Health Consultation for Private Residential Well Water in the Pavillion Field;" and the preparation for the ATSDR presentation at the August 31, 2010 public meeting.

21. All records from January 1, 2005 to present reflecting communications with private individuals, news outlets, reporters or media representatives, non-profit organizations or advocacy groups, or government officials (including local, state and federal executive and legislative branches), related to the Pavillion Field area. This request excludes those records produced in response to Requests 15-20.

If any part of this/these record(s) is not produced based on a claim of privilege or other exemption from disclosure, please prepare a privilege and/or exemption log describing, at a minimum: (i) the type of record withheld; (ii) the dates of creation of the record; (iii) the subject of the record; (iv) identity of the author and all recipients of the record; (v) the names of all people, entities and locations referenced in the record; and (vi) a detailed description of the basis upon which EPA is withholding the record and which specific statutory and regulatory provisions support the withholding. To the extent any responsive documents are withheld based upon a claim of privilege or exemption, please include those documents on the privilege/exemption log with an indication that they contain non-privileged or non-exempt material contained within such documents.

EPA has twenty (20) business days to respond to this FOIA request. TWH confirms its willingness to pay reasonable costs associated with searching for, and copying the requested material; however, should these costs exceed $1,000, please contact me prior to proceeding.

Please contact me with any inquiries, notices or determinations at the address or telephone number above (or at 303-382-2901) or by email at brown@twhlaw.com.

Sincerely,

Nea Brown

Linnea ("Nea") Brown

# ATTACHMENT 5

**TEMKIN WIELGA & HARDT LLP**
1900 Wazee Street, Suite 303
Denver, Colorado 80202

December 12, 2011

**VIA EMAIL & REGULAR MAIL**

Regional Freedom of Information Officer
U.S. EPA, Region 3
1650 Arch Street (3CG10)
Philadelphia, PA 19103
E-mail: **r3foia@epa.gov**

Re: Freedom of Information Act Request

To Whom It May Concern:

Pursuant to the Freedom of Information Act ("FOIA"), 5 U.S.C. § 552, the United States Environmental Protection Agency's ("EPA") FOIA implementing regulations, 40 C.F.R. Part 2, and any other applicable federal statutes, rules and regulations, Temkin Wielga & Hardt, LLP ("TWH") hereby requests the following records[1,2] from EPA Region 3 (including the Region 3 Laboratory) related to EPA's investigation of water quality conditions in the Pavillion Field area in Fremont County, Wyoming:

1. All records associated with the drilling, installation, or sampling of the two EPA deep monitoring wells. This request includes all records related to the analysis of cuttings, drilling mud and drilling fluids from samples of them taken at the time of drilling; related to the analysis of water used during drilling, well development or sampling; related to the analysis of water used (during drilling, installation, or sampling) after the time at which it was delivered to the EPA deep well locations and/or after its on-site storage; and also those related to sample preparation and QA/QC for those analyses.

2. All records related to the source and preparation of the standards used for adamantane, 1,3-dimethyldamantane, 2-butoxyethanol, tris(2-butoxyethyl)

1 "Records" as used herein is employed in its broadest sense and includes, but is not limited to, the original, each draft, and any non-identical copies of any written, recorded, electronic or graphic material of any kind, whether prepared by you or by any other person, that are in your possession, custody, or control or that of your agents, attorneys, or accountants.

2 In accordance with the President's directive in the January 21, 2009 Memorandum For The Heads of the Executive Departments and Agencies, EPA is required to provide records in a "form that the public can readily...use." Thus, please provide these records in their original form and in a format that can be manipulated.

phosphate, squalene, and terpinol in water samples taken from the Pavillion Field area.

3. All records of the analytical method development done by the Robert S. Kerr Environmental Research Center ("Kerr"), Shaw Environment and Infrastrucutre Inc. ("Shaw"), Region 3, or Region 8 for all methods used in connection with the Pavillion Field area, including how detection limits were set.

4. All records related to the discrepancies between the analytical results from Kerr or Shaw as compared with other laboratories that analyzed water samples from the Pavillion Field area, including records related to the discrepancies in the reporting limits and detections.

5. All records related to Region 3 laboratory reports for water samples from the Pavillion Field area, including the full laboratory reports.

6. All records related to Region 3 water samples from the Pavillion Field area, including chromatograms from the water sampling.

7. All records related to Region 3 mass spectra from water samples analyzed from the Pavillion Field area using GC/MS or HPLC methods and any documents that provide an explanation for the reason the chromatograms are not available.

8. All records reflecting communications within EPA Region 3 (including the Region 3 Laboratory) regarding the Pavillion Field area.

9. All records reflecting communications with personnel at EPA Region 8 (including the Region 8 Laboratory) regarding the Pavillion Field area.

10. All records reflecting communications with personnel at Kerr and/or Shaw regarding the Pavillion Field area.

11. All records reflecting communications with EPA Headquarters regarding the Pavillion Field area.

12. All records reflecting communications with ATSDR regarding the Pavillion Field area.

13. All records reflecting communications with EPA Region 8, Headquarters, EPA contractors, private individuals, news outlets, reporters or media representatives, non-profit organizations or advocacy groups, and government officials (including

local, state and federal executive or legislative branches) regarding the Pavillion Field area.

If any part of this/these record(s) is not produced based on a claim of privilege or other exemption from disclosure, please prepare a privilege and/or exemption log describing, at a minimum: (i) the type of record withheld; (ii) the dates of creation of the record; (iii) the subject of the record; (iv) identity of the author and all recipients of the record; (v) the names of all people, entities and locations referenced in the record; and (vi) a detailed description of the basis upon which EPA is withholding the record and which specific statutory and regulatory provisions support the withholding. To the extent any responsive documents are withheld based upon a claim of privilege or exemption, please produce redacted copies of all non-privileged or non-exempt material contained within such documents.

EPA has twenty (20) business days to respond to this FOIA request. TWH confirms its willingness to pay reasonable costs associated with searching for, and copying the requested material; however, should these costs exceed $250, please contact me prior to proceeding.

Please contact me with any inquiries, notices or determinations at the address or telephone number above (or at 303-382-2901) or by email at brown@twhlaw.com.

Sincerely,

Nea Brown

Linnea ("Nea") Brown

# ATTACHMENT 6

**TEMKIN WIELGA & HARDT LLP**
1900 Wazee Street, Suite 303
Denver, Colorado 80202

December 12, 2011

**VIA EMAIL & REGULAR MAIL**

FOIA Officer
c/o Pamela Daggs, Administrative Support Specialist
Robert S. Kerr Environmental Research Center
P.O. Box 1198
Ada, OK 74821-1198
daggs.pam@epa.gov

Re: Freedom of Information Act Request

To Whom It May Concern:

Pursuant to the Freedom of Information Act ("FOIA"), 5 U.S.C. § 552, the United States Environmental Protection Agency's ("EPA") FOIA implementing regulations, 40 C.F.R. Part 2, and any other applicable federal statutes, rules and regulations, Temkin Wielga & Hardt, LLP ("TWH") hereby requests the following records[1,2] from EPA related to EPA's investigation of water quality conditions in the Pavillion Field area in Fremont County, Wyoming:

1. All records associated with the drilling, installation, or sampling of the two EPA deep monitoring wells. This request includes all records related to the analysis of cuttings, drilling mud and drilling fluids from samples of them taken at the time of drilling; related to the analysis of water used during drilling, well development or sampling; related to the analysis of water used (during drilling, installation, or sampling) after the time at which it was delivered to the EPA deep well locations and/or after its on-site storage; and also related to sample preparation and QA/QC for those analyses.

---

1 "Records" as used herein is employed in its broadest sense and includes, but is not limited to, the original, each draft, and any non-identical copies of any written, recorded, electronic or graphic material of any kind, whether prepared by you or by any other person, that are in your possession, custody, or control or that of your agents, attorneys, or accountants.

2 In accordance with the President's directive in the January 21, 2009 Memorandum For The Heads of the Executive Departments and Agencies, EPA is required to provide records in a "form that the public can readily...use." Thus, please provide these records in their original form and in a format that can be manipulated.

2. All records concerning the source and preparation of the standards used for adamantane, 1,3-dimethyldamantane, 2-butoxyethanol, tris(2-butoxyethyl) phosphate, squalene, and terpinol for water samples from the Pavillion Field area.

3. All records related to the analytical method development done by the Robert S. Kerr Environmental Research Center ("Kerr") or Shaw Environment and Infrastructure Inc. ("Shaw") for all methods used in connection with the Pavillion Field area, including how detection limits were set.

4. All records related to the discrepancies between or among the analytical results from Kerr, Shaw, EPA Region 3 laboratory, EPA Region 8 laboratory and any other laboratories that analyzed water samples from the Pavillion Field area including records related to the discrepancies in the reporting limits and detections.

5. All records related to the laboratory reports for water samples from the Pavillion Field area, including the full laboratory reports.

6. All records related to the water samples from the Pavillion Field area, including chromatograms.

7. All records related to mass spectra from EPA Region 8 (including the Region 8 Laboratory), EPA Region 3 (including the Region 3 Laboratory), Kerr or Shaw for all water samples analyzed from the Pavillion Field Area using GC/MS, HPLC or equivalent methods, and any documents that provide an explanation for the reason mass spectra was not performed or available.

8. All records reflecting communications within Kerr and/or Shaw regarding the Pavillion Field area.

9. All records reflecting communications with personnel at EPA Region 8 (including the Region 8 Laboratory) regarding the Pavillion Field area.

10. All records reflecting communications with personnel at the EPA Region 3 (including the Region 3 Laboratory) regarding the Pavillion Field area.

11. All records reflecting communications with personnel at EPA Headquarters regarding the Pavillion Field area.

12. All records reflecting communications with personnel at ATSDR regarding the Pavillion Field area.

13. All records reflecting communications with private individuals, news outlets, reporters or media representatives, non-profit organizations or advocacy groups, , and government officials (including local, state and federal executive or legislative branches) regarding the Pavillion Field area.

If any part of this/these record(s) is not produced based on a claim of privilege or other exemption from disclosure, please prepare a privilege and/or exemption log describing, at a minimum: (i) the type of record withheld; (ii) the dates of creation of the record; (iii) the subject of the record; (iv) identity of the author and all recipients of the record; (v) the names of all people, entities and locations referenced in the record; and (vi) a detailed description of the basis upon which EPA is withholding the record and which specific statutory and regulatory provisions support the withholding. To the extent any responsive documents are withheld based upon a claim of privilege or exemption, please produce redacted copies of all non-privileged or non-exempt material contained within such documents.

EPA has twenty (20) business days to respond to this FOIA request. TWH confirms its willingness to pay reasonable costs associated with searching for, and copying the requested material; however, should these costs exceed $250, please contact me prior to proceeding.

Please contact me with any inquiries, notices or determinations at the address or telephone number above (or at 303-382-2901) or by email at brown@twhlaw.com.

Sincerely,

Nea Brown

Linnea ("Nea") Brown

# ATTACHMENT 7

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 8**
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8ENF-L

February 16, 2012

***By email and First Class Mail***
Linnea Brown, Esq.
Temkin Wielga & Hardt LLP
1900 Wazee Street, Suite 303
Denver, Colorado 80202
Email: brown@twhlaw.com

Re: Encana's Consolidated Freedom of Information Request regarding the Pavillion Field Area
FOIA Request Number 08-FOI-00114-12

Dear Ms. Brown:

In December 2011 Encana sent separate Freedom of Information Act (FOIA) requests regarding the "Pavillion Field Area" to each of several United States Environmental Protection Agency (EPA) offices: Region 8, Region 3, the Robert S. Kerr Environmental Research Center, and the Office of Research and Development (ORD).[1] Through a series of overlapping and redundant inquiries, these requests sought: (1) "all communications" within, to, or from EPA concerning the Pavillion field; (2) multiple types of technical documents; and (3) all documents "related to" several categories of technical information. Since receiving your requests we have been diligently working to manage the complex task of responding. This task is complex because of the overlap among and within your requests, the breadth of many of the requests, the voluminous nature of the documents sought, and their location in multiple EPA offices. To date EPA has clarified some of the ambiguities in your requests, administratively consolidated the four original requests into a single request to allow a more efficient response, prepared to conduct the massive search and review dictated by your "all communications" and "related to" requests, and publicly posted online more than seven hundred documents, many of which are described by your request. At each stage we clearly communicated our progress to you through extensive written correspondence and telephone conversations.

Your assistance in discussions concerning interpretive issues and consolidating the requests has been helpful, but your letter dated February 8, 2012 contains inaccuracies. It accuses EPA of a

[1] These four requests were assigned tracking numbers 08-FOI-00076-12, 03-FOI-00216-12, HF-FOI-00469-12/08-FOI-00090-12, and 08-FOI-000089-12, respectively.

"continued failure to expeditiously and fully respond" to your requests, despite our early production of hundreds of the technical documents you specifically seek and the impossibility of completing a response to your requests within a few short weeks. You assert that the "delays are untenable under FOIA," although we informed you early in our dialogue about this matter that under EPA's regulations, the breadth of your requests creates "unusual circumstances," for which FOIA specifically allows a longer response time. Despite the fact that the requests for "all communications" would involve a very large number of attorney-client communications and other FOIA privileged documents, with associated costly and time-consuming review needs, you declined to narrow your request to exclude any records exempt from disclosure under FOIA. Aside from altering the timetable for your FOIA request to not initially seeking redacted documents, you have not narrowed the scope of your request in any meaningful respect. Accordingly, I must disagree with your characterizations of EPA's efforts to date.

In the remainder of this letter we provide a comprehensive update on the status of our response to your requests, including information regarding specific documents.

**Consolidation of the original four FOIA requests**

As we previously indicated, to ensure consistency and efficiency and reduce duplication of effort, we have administratively consolidated the four original requests under a new tracking number: **08-FOI-00114-12**. This letter and its Attachment 1 restate Encana's consolidated FOIA request in full.

To ensure that the consolidation would accurately capture your requests, various EPA attorneys discussed it with you in considerable detail, along with related questions of clarification and narrowing of scope. On January 13, 2012, you sent an email with a table consolidating the four original FOIA Requests (Attachment 1; for future reference, referred to as the Consolidated FOIA Request Table).[2] The Consolidated FOIA Request Table contains *italic text* in areas where you modified the original four FOIA requests. After you sent the January 13 email containing the Consolidated FOIA Request Table, you provided additional clarification in a January 13 conversation with Michelle Marcu, EPA attorney, as follows:

1. In addition to the modifications set forth in the Consolidated FOIA Request in *italic text*, Encana agreed to narrow and clarify the scope of the original four FOIA Requests in your December 20, 2011 and January 23, 2012 letters, specifically as follows:

    a. Encana does not seek documents concerning its gas processing plant located to the east of the Pavillion Field area.

    b. Encana does not seek National Environmental Policy Act (NEPA) documents for other projects (other "federal actions") even if those records reference the Pavillion Field area.

    c. Encana agrees that it requests only a list of the documents that EPA determines are FOIA-exempt, but will not initially seek redacted copies of those documents listed.

[2] Please note, per your January 13, 2012 conversation with Ms. Marcu, she modified the formatting of the EXCEL spreadsheet to allow printing of the entire EXCEL document. We also included the consolidated FOIA Request Number throughout the document. These are the only modifications we made to your original document.

We will provide you with the list of withheld records, consistent with 40 C.F.R.§ 2.104(h), as soon as practicable after we provide you with all releasable, responsive documents.

d. The Consolidated FOIA Request excludes all responsive records posted on EPA's website before January 5, 2012 or previously provided by EPA to Encana.

You also requested that if EPA determines that a record Encana has requested does not exist, EPA inform Encana in writing as soon as practicable that the record does not exist. As Ms. Marcu and Michael Boydston, EPA attorney, have indicated in multiple conversations, EPA agrees and intends to so inform you as applicable.

2. A number of subsections of Encana's Consolidated FOIA Request dated January 13, 2012 use the language "all records." During your January 13 conversation with Ms. Marcu, you provided "clarifying" language for these subsections of the Consolidated FOIA Request. As you indicated, the following subsections of the Consolidated FOIA Request for "all records" means *everything*, including "Laboratory reports, sample custody, sample preservation, sample storage, sample and reference material (spiking solution and calibration standards) preparation, raw instrumental records (e.g. chromatograms, spectra, integration reports) for calibrations, samples and QC measures. Electronic data files (raw and processed) for GC, GC/MS and LC/MS. Includes the third party data quality assessments, including field audits, laboratory audits, and data validation efforts. Method detection limit studies, precision and accuracy studies." We understand that Encana provided this information by way of illustration and not to limit EPA's response to the questions.

   Please note that this clarifying language does not supersede the FOIA definition of records, which still applies.

   During your January 13 and 18 conversations with Ms. Marcu and in your January 23, 2012 letter, you indicated that the clarifying language should be applied to only the following subsections in the Consolidated FOIA Request: 1.8, 1.9, 1.10, 1.11, 1.12, 1.13, 1.14, 2.1 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 5.2, 5.3, 5.8, 5.9, 5.10., 5.11, 5.12, 5.13, 5.14.

In your January 23 letter, you agreed to the description of the consolidation in my January 18, 2012 letter with one exception: adding subsection 2.1 to the list of requests to which clarifying language should be applied. We have made that change.

**EPA's Estimated Time and Cost to Respond to the Consolidated FOIA Request**

In multiple written and oral communications (including your conversation with Ms. Marcu and Mr. Boydston today), EPA has informed you that Encana's FOIA requests seek voluminous records and that responding will involve search and review efforts in multiple EPA offices by many EPA personnel. Therefore, "unusual circumstances" exist so that that EPA's responses to the requests will require significantly more than twenty business days to complete. *See* 40 C.F.R. §§ 2.104(c) and (d). Additionally, EPA's costs of responding to the requests will substantially exceed $250.00, and prepayment of estimated costs will be required as provided at 40 C.F.R. § 2.107(j).

Taking into account the number of people with potentially responsive documents (estimated at more than 170 people with varying numbers of responsive documents each), their location in multiple EPA offices, the need to collect responsive documents, eliminate non-responsive documents, identify and eliminate duplicates, review documents for privilege determination, and complete other processing tasks, EPA estimates that it will be able to provide a complete response to Encana's Consolidated FOIA Request within six months from receipt of payment. We may be able to further refine this estimate as our search and review process proceeds, and if so will inform you accordingly. The estimated cost for EPA to respond is $114,360. As stated previously, EPA Region 8 requires prepayment to respond to FOIA requests above $250.00. 40 C.F.R. § 2.107(j). Please make the check for $114,360 payable to U.S. EPA (identify the FOIA Number 08-FOI-00114-12 on the check) and remit the payment to: EPA FOIA & Miscellaneous Payments, Cincinnati Finance Center, P.O. Box 979078, St. Louis, MO 63197-9000.

If the cost for EPA's response to the FOIA Request exceeds $114,360, EPA will send a bill for the remainder of the charges. If the cost is less than $114,360, EPA will refund the difference.

The cost and time estimates above are principally driven by the broad "all communications" and "all records" requests. If Encana elects to significantly narrow the scope of its request, it may decrease the length of time and the cost of response.

**EPA's Approach to Responding to the Consolidated FOIA Request**

Contrary to the accusations in your February 8 letter, EPA has been responsive to Encana's various requests for information to date and provided a significant amount of information even before Encana submitted its FOIA Requests:

1. On June 8, 2010, before the drilling of EPA's monitoring wells, EPA provided Encana the Quality Assurance Project Plan for the wells' construction.
2. On August 5, 2010, EPA representatives met with Encana to orally share the Phase 2 sampling results before the public meeting in which EPA released the data.
3. On June 17, 2011, EPA provided the Quality Assurance Project Plan for Sampling of the Monitoring Wells. (Nonetheless, you asked for this document in the Consolidated FOIA Request.)
4. On November 17, 2011, in response to a request from Encana, EPA provided, by email, a link to EPA's Pavillion website, where EPA posted gas chromatograms from the Region 8 Laboratory.
5. On November 29, 2011, in response to a request from Encana, EPA provided, by email, 42 files and extensive additional information regarding construction, completion and sampling of the monitoring wells, field logs for drilling and sampling, and analytical methods used by EPA's Robert S. Kerr Environmental Research Center.

Since receiving Encana's FOIA requests, we have provided many additional Pavillion documents to Encana and have posted a substantial amount of information online. We have already referred you to two relevant pages on EPA's Pavillion website: the home page (http://www.epa.gov/region8/superfund/wy/pavillion), and the Pavillion Site Documents page

(http://www.epa.gov/region8/superfund/wy/pavillion/docs.html). For several weeks the home page has contained the main documents and links such as the Draft Report, the Federal Register notices, ATSDR's Health Consultation Document, the January 2010 Sampling Results Fact Sheet, and the Final Analytical Report. The home page also contains links to 58 figures. Further, as Ms. Marcu informed you in emails on January 31 and February 2, 2012, EPA's Pavillion Site Documents page contains many additional documents. As of the date of this letter, EPA has posted over 700 documents on the Site Documents page. Together, these pages provide information that is encompassed within many of Encana's requests and provide the vast majority of technical information relevant to the review of EPA's draft report, "Investigation of Groundwater Contamination near Pavillion, Wyoming," dated December 8, 2011.

EPA intends to continue to provide to Encana, and to post on the website, releasable records as we are able to do so. In particular, we expect to be able to provide Encana with records (to the extent they exist, in addition to those already posted) that are responsive to Encana's more precise requests. As indicated above and detailed below, however, EPA has already posted publicly, and provided to Encana, documents that may be responsive to many of these more precise elements of Encana's Consolidated FOIA Requests:

1. Attachment 1 (the Monitoring Well Installation Work Plan Narrative) to the May 2010 Final Monitoring Well Installation Work Plan. [requests 1.1 and 5.1 of the Consolidated FOIA Request]

   *Already posted on the Pavillion website. In our February 8, 2012 conversation, you acknowledged that Encana has viewed this document on the website.*

2. Product specifications, including model names and numbers and equipment serial numbers where applicable, for all equipment installed or placed in either of the two EPA deep monitoring wells. [1.6, 5.6]

   *EPA provided the information in EPA's possession to Encana by email dated November 29, 2011, before EPA received Encana's FOIA requests.*

3. Records concerning the source and preparation of the standards used for adamantane, 1,3-dimethyldamantane, 2-butoxyethanol, tris(2-butoxyethyl) phosphate, squalene, and terpinol in water samples. [1.9, 2.2, 3.2, 5.9]

   *EPA has posted information for the EPA Region 3 Laboratory. In the near future, EPA expects to publicly post information for the Region 8 Laboratory.*

4. Records of the analytical method development done by the Robert S. Kerr Environmental Research Center or Shaw Environment and Infrastructure Inc. for all methods used in connection with water samples from the Pavillion Field area [1.10, 5.10]

   *EPA is reviewing its records to determine whether any additional documents related to the development of analytical methods used at Pavillion remain.*

5. MSDSs for all products and other chemicals used in connection with drilling, installation, cleaning and decontamination, and sampling of the two EPA deep groundwater wells,

including drilling chemicals, pipe dopes, solvents, cleaners, adhesives (including electrical or other tape), lubricants, and sealing agents. [1.5, 5.5]

*On November 29, 2011, EPA provided this information to Encana by email; the information is also posted on EPA's Pavillion website.*

Similarly, we expect to be able to provide Encana with various specific documents (again, to the extent we have not already done so) that are mentioned in otherwise broad requests:

1. Sampling and Analysis Plans, Quality Management Plans, and Quality Assurance Project Plans associated with the October 2010 Field Sampling Event. [1.7, 5.7]

   *As indicated above, in June 2010 EPA provided Encana with QAPPs for drilling and sampling.*

2. Documents concerning EPA's soil gas sampling efforts in the Pavillion Field area or any evaluation of the same [1.8, 5.8]

   *EPA has posted all soil gas sample results on EPA's Pavillion webpage. EPA is reviewing related documents and will post them where appropriate as our review is completed.*

3. Laboratory reports from Kerr, Shaw, and Region 3 for water samples from the Pavillion Field area. [1.12, 2.5, 5.12]

   *EPA has posted this information on EPA's Pavillion website.*

4. Chromatograms from Region 8 (including Region 8 Lab), Region 3 (including Region 3 Lab), Kerr, Shaw, or any other lab that EPA had analyze water samples from Pavillion. [1.13, 2.6, 3.6, 5.13]

   *In an email dated November 29, 2011, EPA provided to Encana Region 8 Lab chromatograms for Phase 3 and 4. In January 2012, EPA posted on EPA's Pavillion website most chromatograms for other EPA Laboratories. EPA has encountered file formatting issues, but we anticipate that we will post the remaining chromatograms in the near future.*

5. Mass spectra from Region 8 (including Region 8 Lab), Region 3 (including Region 3 Lab), Kerr, Shaw, or any other lab that EPA had analyze water samples from Pavillion using GC/MS, HPLC or equivalent methods [1.14, 2.7, 3.7, 5.14]

   *EPA expects in the near future to provide this information to Encana and publicly post it on EPA's Pavillion website.*

6. Documents related to the two deep monitoring wells, including:

   a. Records associated with the drilling, installation, or sampling of the monitoring wells. [2.1, 3.1, 5.2]

   b. Records of the methods and materials used in drilling the two EPA deep wells to join lengths of well casing together and the methods and chemicals used to clean

and decontaminate well casing and down hole drilling and monitoring equipment before its being placed down hole, including verification swab samples. [1.3, 5.3]

c. Records on disposal of cuttings, drilling fluids, muds and other materials, and any other products or chemicals used in drilling and installation of the two deep monitoring wells. [1.4, 5.4]

d. Records related to the discrepancies in reporting limits, detections, and analytical results between or among the analytical results from Region 3 (including Region 3 Lab), Region 8 (including Region 8 Lab), Kerr, Shaw, or any other laboratory that EPA had analyze water samples from the Pavillion Field area. [1.11, 2.4, 3.4, 5.11]

*As described above, beginning in June 2010 EPA provided to Encana technical information detailing the drilling, construction, completion and sampling of EPA's monitoring wells, as well as documents pertaining to sample analysis and results. Additionally, EPA publicly posted the information on our Pavillion website.*

You have also, in your February 8 letter, identified several types of records to which you request that EPA assign urgent priority. Several have already been addressed above; below we respond to the remainder using the numbers in your letter:

3. Documentation of the specific locations at which the July 7, 2011 PAV 01 and PAV 02 water samples were obtained.

   *Samples labeled Pav 01 and Pav 02 on the analytical report dated 7/22/2011 (Technical Directive 8OA778SF) were archived samples from the October 2010 (Phase III) sampling and were not collected during a separate sampling event. Monitoring wells MW01 and MW02 were only sampled in October 2010 and April 2011. These samples were obtained from MW01 (Pav 01) and MW02 (Pav 02, and were acidified at the time of collection with hydrochloric acid. The report's reference to a 7/7/2011 collection date refers to the date that the samples were taken from the archived sample and poured into sample containers that were then submitted to the lab for analysis. The purpose of this analysis was to evaluate effects of acidification on organic constituents remaining in the archived samples.*

6. Records of "citizens' complaints of taste and odor problems," and a "public petition" referenced by the Congressional Research Service.

   *EPA is reviewing related documents and will post them where appropriate when our review is completed.*

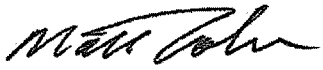
As to your remaining requests, it is unlikely that before the estimated date of completing our response EPA will be able to release records responsive to broad requests that will require cross-office search and substantial review, which includes Encana's various "all communications" and "all records" requests.

**Other Questions Encana Has Posed About the FOIA Process**

EPA responds to concurrent, similar, information requests from members of Congress on parallel paths as much as practicable. We have a large team of employees who will be searching for responsive documents and evaluating their respective releasability pursuant to FOIA. EPA's responses to the requests will be provided as soon as EPA completes each request.

As set forth in this letter, and as Ms. Marcu and Mr. Boydston reiterated during their conversation with you today, we will continue, as expeditiously as possible, to provide releasable documents to Encana and will post them on EPA's Pavillion website. If you have any questions, please contact Mr. Boydston at boydston.michael@epa.gov or (303) 312-7103, or Ms. Marcu at marcu.michelle@epa.gov or (303) 312-6921.

Sincerely,



Matthew Cohn
Director
Legal Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

Attachment 1 – Table of Consolidated FOIA Requests (provided by Encana on January 13, 2012)

cc: Elizabeth Temkin, Esq., Temkin Wielga & Hardt LLP (temkin@twhlaw.com)

# ATTACHMENT 8

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 8**
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8ENF-L

March 27, 2012

***By email***
Linnea Brown, Esq.
Temkin Wielga & Hardt LLP
1900 Wazee Street, Suite 303
Denver, Colorado 80202
Email: brown@twhlaw.com

Re: Encana's Consolidated Freedom of Information Act (FOIA) request regarding the Pavillion Field Area (FOIA Request Number 08-FOI-00114-12)

Dear Ms. Brown:

I am responding to your letter of March 15, 2012 to me on behalf of Encana Oil & Gas (USA) Inc. Consistent with the February 16, 2012 letter sent to you, EPA estimates a cost of $114,360 to process your request. Prepayment of these estimated costs is required for this matter, as provided at 40 C.F.R. § 2.107(j). Therefore, unless the requested payment is made by COB today (March 27, 2012), it will be assumed that you are no longer interested in pursuing your request and your request will be closed. Please note that after the file is closed, you are free to file a new request for records under FOIA.

Also, please note that our $114,360 cost estimate does not consider any costs associated with collecting, reviewing, and posting on the EPA website the technical and scientific documents (over 750 to date) that are of potential general public interest. Encana has had EPA's cost estimate of $114,360 for approximately 6 weeks (since my February 16, 2012 letter). The cost estimate reflects only the cost of the broad "all communications" and "all records" searches. The estimate was based on the following assumptions: 170 persons with responsive documents, 200 hours of total search time; 3 minutes total review time per document, after removal of duplicates; and an average billable cost of $30/hour for search and review work. There is a significant possibility that this estimate understates the cost of replying to Encana's massive FOIA request. We have since identified additional people who may have responsive documents, and as such, potential additional collection and review time. As previously indicated in my February 16 letter, EPA will keep Encana informed of any changes or adjustments to the fee estimate as the information is processed and will ensure that EPA's final bill reflects the correct costs. You will receive a refund or an additional charge as appropriate.

Again, our estimate considers only our projected costs associated with responding to your multiple overlapping requests for "all records related to" various topics, and for "all records reflecting communications... regarding the Pavillion field area." These internal communications are not matters of general public interest and we have made no previous commitment to publish them. Accordingly, EPA's commitment to post important technical and scientific documents does not extend to the internal communications sought by Encana.

**Particular documents and categories of documents**

Regardless of your decision as to whether to maintain your FOIA request, EPA will review your concerns and questions regarding specific categories of documents in light of the agency's goal of making relevant information available to the public. EPA's responses follow, using the same numbering employed in your letter:

**Item 1 (Attachment 1):** As acknowledged in your letter, EPA has already provided this document.

**Item 2 (Product Specifications):** On November 29, 2011, EPA provided to you by email the company and model number for the pump. To repeat that information: the pump used is the J-class Sandhandler Submersible Pump, model no. 7JS3S4-PE, manufactured by Franklin Electric. EPA has an owner's manual for this pump, which has been posted on the website as of March 26, 2012. You are correct that the company's documents do not refer to this pump as "explosion-proof," and EPA will remove this characterization from the final report. You can obtain the information about this pump from the manufacturer's website.

**Item 4 (Records of Analytic Method Development):** Encana incorrectly asserts that EPA used unapproved analytic methods. For all of the analytes in Phases 1-4, EPA either used standard EPA analytical methods, or followed standard EPA analytical methods for method development where needed to improve detection limits or address identified concerns with the methods. These modifications were made for semi-volatile organic compounds including glycols. Glycols analysis conducted by the Region 3 laboratory was performed using High Performance Liquid Chromatography with tandem Mass Spectroscopy (HPLC-MS-MS). An HPLC-MS-MS method does not currently exist for glycols analysis. EPA SW-846 Methods 8000c and 8321 were followed for method development and Quality Assurance/Quality Control procedures, in order to improve detection limits and eliminate false positives. Shaw, Inc. analyzed for glycols using Gas Chromatography with Flame Ionization Detection (GC-FID) following EPA standard method 8015. Remaining documents addressing glycols analysis will be posted by March 30, 2012

**Item 5 (MSDSs):** On March 22, 2012, EPA posted the MSDS for the Wellguard/Jetlube product at ftp://ftp.epa.gov/r8/pavilliondocs/WellDrillingInformation/DrillingAdditivesMSDS/.

**Item 1 (QAPP for Oct. 2010 Field Sampling):** On March 26, 2012, EPA posted QAPP versions 1-4 were at ftp://ftp.epa.gov/r8/pavilliondocs/QA_Documents/QAPPs/. EPA posted QAPP version 5 on or about January 30, 2012.

**Item 2 (Soil Gas Sample Results):** Eight dedicated vapor probes were installed on three properties. Analytical results (fixed gases and light hydrocarbons) for soil gas sampling and gas samples collected from well casing of deep monitoring wells have been posted under Site Documents, Raw Lab Data, Phase 3 and 4, since January 30, 2012.

**Item 5 (mass spectra records):** Mass spectra data originated by Shaw, Inc. and the Region 3 laboratory have been included as part of the raw lab data files found on the website in the Laboratory Data Report and the Sample Data Reports, respectively. As for the Region 8 laboratory, the mass spectra data have been included in the raw lab files in the Lab Data Packages. The Region 8 laboratory will return to their instrumentation to recover the individual

mass spectral images. Given the voluminous request, EPA estimates that it will be post the above-referenced information on or about April 16, 2012.

**Item 6.d.** EPA has posted documents related to chemical analysis in Phases 1 to 4 and associated quality assurance/quality control. EPA conducted Audits of Data Quality (ADQs) on analytical data generated by EPA Region 8, EPA-ORD, EPA-ORD's on-site contractor, and commercial laboratories to assess quality and usability of data. Specific terminology regarding data quality is utilized in the ADQs; however, "discrepancy" is not a term that is used in this process. Variability in sampling results is common when sampling environmental media, and would not typically be identified as a data quality issue in the ADQ process. We refer Encana again to the ADQs for Phases 1-4 posted on the Site Documents page.

**Palatability complaint records:** EPA posted records related to citizen concerns on March 26, 2012 at ftp://ftp.epa.gov/r8/pavilliondocs/OtherDocuments/DocumentsRelatedToCitizenConcerns/.

**Communications between EPA and Third Parties:** Contrary to the assertions in your letter, EPA initially refrained from publicizing the names of the three outside parties who reviewed the draft manuscript in the interest of ensuring an impartial review and in order to shield these volunteer reviewers from possible harassment by parties with vested interests in connection with the draft report. We have since provided their names to the House Science (Majority & Minority) staff on February 13, 2012; and to the House Energy & Commerce (Majority) staff on March 17, 2012. All three non-paid reviewers were required to sign a Conflict of Interest Statement to ensure impartiality during review. The reviewers were selected based on their publication record related to inorganic and organic geochemical processes associated with gas and solute migration

**Requests by elected officials and industry associations listed in your letter:** EPA has received numerous requests for technical documents and is committed to making these documents available to the public.

**Encana's request for clarification as to information sought by EPA**

Your letter also asks about information that EPA is requesting from Encana in a February 21, 2012 letter from Regional Administrator Jim Martin to John Schopp, Vice President, North Rockies Business Unit and New Ventures. EPA will address this concern and clarify our request in a separate letter shortly.

If you have questions, please contact Michelle Marcu at (303) 312-6921 or at marcu.michelle@epa.gov.

Sincerely,

Matthew Cohn
Director
Legal Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Elizabeth Temkin, Esq., Temkin Wielga & Hardt LLP (temkin@twhlaw.com)

# ATTACHMENT 9

**TEMKIN WIELGA & HARDT LLP**
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February 8, 2012

**VIA EMAIL AND REGULAR MAIL**

Michelle Marcu
Enforcement Attorney
US EPA Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

**Re: Freedom of Information Act Requests – Pavillion Field Area**

Dear Michelle:

As you and I have discussed repeatedly, we, as counsel for Encana Oil & Gas (USA) Inc. ("Encana"), are very concerned about the US Environmental Protection Agency's ("EPA's") continued failure to expeditiously and fully respond to our December 2011 Freedom of Information Act ("FOIA") request letters to the EPA regarding the EPA's draft report on groundwater quality in the Pavillion Field Area ("Draft Report").

On December 16, 2011, you requested and Betsy Temkin and I identified priority documents for EPA's response. The overriding priority was data first and communications second. More specifically, we agreed that the information requests 1.1 through 1.14 in the Region 8 FOIA letter were of higher priority than requests 1.15 through 1.20. After learning that Region 8 would manage responses by Region 3, Office of Research and Development, and Kerr Laboratories, we confirmed that EPA would apply a similar prioritization to the other three FOIA letters. Since then, we have had numerous conversations with EPA confirming those priorities, answered your questions, and prepared an Excel spreadsheet to help expedite EPA's response.

On January 31, 2012, EPA finally posted on its website certain responsive records. A few more records were posted on EPA's website later last week. However, those postings and records do not include many of the priority records. We have also not yet received EPA's required response, with a complete or partial schedule for responding to our requests and EPA's position on costs. Yesterday, you and Mike Boydston advised me that the letter is still under review internally.

The continuing delays are untenable under FOIA and preclude interested stakeholders from undertaking a fair and complete review of the Draft Report. We are eight weeks into this process and we are still without key data and related records. For example, as early as December 20, 2011 we advised EPA of the need to make available EPA's mass spectra data and that we would "appreciate Region 8's providing the mass spectra this week [December 20 – 24] or next week [December 27-30] if at all possible." EPA still has not provided any of its mass spectra data; two months after EPA issued the Draft Report. Another example is during our December 20, 2011 telephone conference, we requested the soil gas data as a priority. We still have not received any soil gas data from EPA, even though Objective 2 of Phase 3 specifically addressed soil gas data.

In a further effort to focus EPA's production of the requested documents, we request that EPA give top and urgent priority to the following specific records:[1]

1. ***Method validation work for all non-CLP analyses***, including di- through heptaetheylene glycol, adamantine and methyl-adamantane, tri(2-butoxyethyl) phosphate, squalene, caprolactam, and 2-butoxyelthanol phosphate. EPA's not having provided these documents is particularly troublesome given Regional Administrator Martin's testimony last week that EPA used its standard procedures, when these analytical methods are not EPA's standard methods.

2. ***For CLP analyses, Level 4 data packages and associated validation packages.*** These records are critical to the evaluation of the Draft Report and are an essential element of transparency.

3. Documentation (including field notes and chain of custody records) of ***the specific locations at which the July 7, 2011 PAV 01 and PAV 02 water samples were obtained.*** EPA's procedures require that the source of samples be identified and yet these samples do not have any such identification in any records that EPA has provided to date.

4. All ***soil gas data and analyses***, see above.

5. All ***mass spectra data***, see above.

6. Records of or related to all "***citizens' complaints of taste and odor problems***" referenced on page 39 of the Draft Report. Also, the Congressional Research Service's January 25, 2012 report on the Draft Report references at page 1 and elsewhere "a public petition." If such a record exists, that should be provided.

The Draft Report obviously has become a matter of substantial public interest. Encana has been requesting records relating to each phase of the investigation since the investigation

[1] In identifying these priorities (as well as those previously provided), we do not in any way waive responses to all of our December FOIA requests nor do we agree, EPA's protestations notwithstanding, that EPA has been responsive to our FOIA requests.

began several years ago. Those records should have been provided as Encana requested them. At the very least, EPA should have provided the public with the full documentation of the information on which EPA relied simultaneously with the release of the Draft Report. Unless the documentation is made available very soon, EPA will have to extend the public comment and suspend the peer review process to ensure both processes serve their intended purpose. To do otherwise is to politicize the scientific review process and bias it in EPA's favor.

EPA has warned repeatedly that the cost of responding to our FOIA requests will be substantial. Meanwhile, over the last two months, a number of public figures and organizations have requested that EPA make available the very same information this firm has requested in order to support the public comment and peer review process. At this point, the requested documentation should be made available, in the public interest, free of any charge, as provided for under 40 C.F.R. § 2.107(1), as the requested information is essential to meaningful public comment and a meaningful peer review and clearly satisfies the other criteria for a public interest fee waiver.

On the issue of costs, you have said that responding to the FOIA requests requires substantial commitments throughout the Agency for lawyer time to review records for "privilege' and other legal considerations before EPA provides them. However, most of the requested documents are highly technical scientific documentation of the investigation or communications among technical or scientific personnel. EPA's technical staff is fully capable of identifying and providing such documents, and very little attorney review of them should be necessary.

Given all the time that has passed since the FOIA requests were submitted and the numerous conversations, we anticipate at this point receiving the priority records, a schedule for the other requested records, and detailed cost estimates in the next couple of days. We also look forward to receiving all of the responsive documents in time for our client and others to review and evaluate them for both the public comment and peer review processes. If the requested documents are not made available very soon, we will request that EPA extend the public comment period on the draft report to accommodate the review and evaluation of the missing information.

Very truly yours,

Nea Brown

Linnea Brown

LNB:lf

# ATTACHMENT 10

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 8**
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8EPR-IO January 19, 2012

The Honorable James Inhofe
Ranking Member
Committee on Environment and Public Works
United States Senate
Washington, DC 20510-6175

Dear Senator Inhofe:

Thank you for your letter dated December 6, 2011, regarding EPA's ground-water investigation in Pavillion, Wyoming. Administrator Jackson has referred your letter to my office for response, given that Region 8 has the lead for this investigation.

I certainly agree that ground-water contamination in the Pavillion area is a serious issue for the residents of that area and for the region. Both EPA Region 8 and the Office of Research and Development believe that residents deserve answers to their concerns about the safety of the water from their domestic drinking water wells. We have devoted significant resources to obtaining these answers.

EPA's scientific investigation of ground water at Pavillion was initiated in late 2008 and encompassed four separate sampling events. We collected and analyzed thousands of pieces of data in order to provide the best possible scientific understanding regarding potential contamination of ground water in the area.

On December 8, 2011, EPA released a draft report on our Pavillion investigation entitled "Investigation of Ground Water Contamination near Pavillion, Wyoming." That report summarizes the data from all four phases of sampling and provides draft findings based on our careful analysis of the sampling data and other relevant information.

In Phases 1 and 2, we sampled private drinking water wells, stock watering wells, and two community wells. In August 2010, we released the data from those sampling events at a community meeting in Pavillion, and we shared those data with the local residents, Wyoming State agencies, the Tribes of the Wind River Reservation, and others. We also briefed members of your staff at that time on the results of our first two phases of sampling and on the report provided by the Agency for Toxic Substances and Disease Registry. You are correct that, at that time, we refrained from drawing any conclusions regarding the source or sources of constituents of concern identified in our Phase 1 and 2 sampling because the data we had in hand at that point did not support any such conclusion.

Subsequently, in 2010 and 2011, we conducted two rounds of sampling from deep monitoring wells we had constructed in proximity to both drinking water wells and production wells. After a rigorous analysis of those data by the research team and scientists within the Agency, as well as an initial peer

review by three independent scientists, we released those data to the Pavillion residents, the State and Tribes, other federal agencies, and the general public in October and November of 2011. This data release was not accompanied by our draft conclusions because we first wanted feedback on interpretation of the data and the techniques used to collect it. To that end, EPA staff engaged in extensive discussions with State and Tribal experts, experts from other federal agencies, and Encana. During this period, EPA staff also briefed members of your staff.

After carefully considering this feedback, we decided to release the draft report because we were confident in the data and conclusions it contained and believed the time had come to inform the public of the results of our investigation. The draft report presents the EPA's preliminary finding that "the explanation best fitting the data for the deep monitoring wells is that constituents associated with hydraulic fracturing have been released into the Wind River drinking water aquifer at depths above the current production zone" (page 33 of the draft report). This finding resulted from meticulous evaluation of the data by EPA scientists and is carefully and fully explained in the report, itself. I agree that hydraulic fracturing per se was not and is not a focus of our investigation. However, the source of contamination in the aquifer is a central issue; and the data pointed to hydraulic fracturing as a likely explanation for the contaminants we found in ground water. Our analysis of the data could not have responsibly omitted this conclusion. Our draft report goes to great lengths to avoid any over-generalization of the results by making clear that the conditions at the Wind River field may be, and likely are, different from geologic formations that are the target of natural gas development elsewhere.

At this point, EPA is commencing an intense and rigorous peer review of the draft report on ground water at the Pavillion site. EPA has already published in the Federal Register a request for public comment on the draft report. We will soon formally publish a solicitation for nominations for an independent peer review panel that will be charged with reviewing the draft report as well as the public comment that it generates. An EPA contractor will review the nominations, contact selected candidates for additional information, and make the final selections as soon as possible after the thirty-day nomination period closes. In addition, the Administrator has specifically encouraged the State of Wyoming to nominate qualified scientists and engineers from Wyoming, recognizing they may possess an important perspective that would aid in the peer review.

Finally, I understand that you have requested documentation of all correspondence between Region 8 and EPA headquarters, and between Region 8 and ORD regarding Pavillion and the hydraulic fracturing study. We are in the process of responding to that request.

I hope this fully answers the questions and concerns raised in your December 6 letter and appreciate your ongoing interest in the Agency's Pavillion investigation. Please feel free to contact Administrator Jackson or me with further questions regarding this matter, or your staff may contact Region 8's Congressional Liaison, Sandy Fells, at 303-312-6604.

Sincerely,

James B. Martin
Regional Administrator



EPAPAV0000808

# ATTACHMENT 11

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March 27, 2012

***Via Email***
*cohn.matthew@epa.gov*

Matthew Cohn
Director
Legal Enforcement Program
Office of Enforcement, Compliance and Environmental Justice
US EPA Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

Re: Freedom of Information Act ("FOIA") Request
Consolidated Number 08-FOI-00114-12

Dear Mr. Cohn:

This letter is written on behalf of Encana Oil & Gas (USA) Inc. ("Encana") in further response to letters, dated February 16 and March 12, 2012, from the U.S. Environmental Protection Agency ("EPA") regarding the EPA draft report titled "Investigation of Ground Water Contamination near Pavillion, Wyoming" (the "Draft Report"). It also responds to statements made by EPA in telephone conversations last week concerning these letters and TWH's March 15, 2012 letter to EPA.

EPA has declined to identify the scope or extent of the records that would be responsive to our December 2011 FOIA request and that are beyond the scope of the record requests made by others, including Members of Congress, Governor Mead, and others. However, EPA has provided repeated assurances that in response to these many requests it will publicly post all data that EPA had at the time it released the Draft Report, publicly post on its website answers to the four-pages of questions submitted by Wyoming, and provide all communications between Region 8 and ORD and between ORD and EPA Headquarters. EPA has confirmed that the costs of providing those records will not be charged to Encana because these costs are being incurred regardless of our FOIA request.

We are writing to confirm that Encana has made the payment of $114,360 which is EPA's estimate of the cost for responding to our FOIA request. Given EPA's assurances that it

will not charge Encana for any of the costs for posting or providing the documents that others have requested, Encana has made the required payment, under protest. Further, Encana will seek to recover all or part of its payment after EPA completes its response to Encana's FOIA and provides documentation of the actual costs and the detail from which Encana can determine whether in fact those costs are solely related to Encana's FOIA request. Encana continues to believe that all of the requested records fall within the public interest provisions and should be made available to the public without charge.

Encana believes that EPA's unwillingness to meet in person to discuss all three connected document issues discussed our March 15, 2012 letter to EPA is unfortunate. TWH is pursuing and is not withdrawing its FOIA request. Encana issued a check for $114,360, which I just gave to Michelle Marcu with the original of this letter.

Very truly yours,

Nea Brown

Linnea Brown

LNB:lf

cc: Michelle Marcu, Enforcement Attorney, US EPA Region 8

# ATTACHMENT 12

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 8**
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8ENF-L

March 12, 2012

***By email and Certified Mail/Return Receipt Requested***
***7009 3410 0000 2592 4910***
Linnea Brown, Esq.
Temkin Wielga & Hardt LLP
1900 Wazee Street, Suite 303
Denver, Colorado 80202
Email: brown@twhlaw.com

Re: Encana's Consolidated Freedom of Information Act Request regarding the Pavillion Field Area FOIA Request Number 08-FOI-00114-12

Dear Ms. Brown:

In December 2011, on behalf of Encana you sent separate Freedom of Information Act (FOIA) requests regarding the "Pavillion Field Area" to each of several United States Environmental Protection Agency (EPA) offices: Region 8, Region 3, the Robert S. Kerr Environmental Research Center, and the Office of Research and Development (ORD).[1] To ensure consistency and efficiency and reduce duplication of effort, and as indicated in my February 16, 2012 letter (Attachment 1), we have administratively consolidated the four original requests under a new tracking number: 08-FOI-00114-12.

As explained in my February 16 letter to you, in light of the number of people with potentially responsive documents and their location in multiple EPA offices; and the need to collect responsive documents, eliminate non-responsive documents, identify and eliminate duplicates, review documents for privilege determination, and complete other processing tasks, EPA estimates that it will be able to provide a complete response to Encana's Consolidated FOIA Request within six months from receipt of payment. We may be able to further refine this estimate as our search and review process proceeds, and if so will inform you accordingly. As stated in the February 16 letter, the estimated cost for EPA to respond is $114,360, for which prepayment is required in accordance with 40 C.F.R. § 2.107(j). This is a preliminary estimate.

[1] These four requests were assigned tracking numbers 08-FOI-00076-12, 03-FOI-00216-12, HF-FOI-00469-12/08-FOI-00090-12, and 08-FOI-000089-12, respectively.

If the cost for EPA's response to the FOIA Request exceeds $114,360, EPA will request an assurance of payment for the new estimate and may seek prepayment. If the cost is less than $114,360, EPA will refund the difference.

To date, we have not received the prepayment necessary for EPA to process the FOIA Request. If we do not receive the prepayment in the amount of $114,360 within two weeks from receipt of this letter, we will assume that you are no longer interested in pursuing this request, and your file will be closed. If you are still interested, please send a check for $114,360 payable to U.S. EPA (identify the FOIA Number 08-FOI-00114-12 on the check) to: EPA FOIA & Miscellaneous Payments, Cincinnati Finance Center, P.O. Box 979078, St. Louis, MO 63197-9000.

Regardless of whether you are still interested in pursuing your FOIA Request, we intend to continue to post releasable documents of general public interest on EPA's Pavillion website. If you have any questions, please contact Michael Boydston at boydston.michael@epa.gov or (303) 312-7103, or Michelle Marcu at marcu.michelle@epa.gov or (303) 312-6921.

Sincerely,

Matt Cohn

Matthew Cohn
Director
Legal Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

Attachment 1 – Letter dated February 16, 2012 from Matt Cohn, EPA, to Linnea Brown, Temkin Wielga & Hardt LLP, regarding Encana's Consolidated Freedom of Information Request regarding the Pavillion Field Area FOIA Request Number 08-FOI-00114-12

cc: Elizabeth Temkin, Esq., Temkin Wielga & Hardt LLP (temkin@twhlaw.com)

# ATTACHMENT 13

**TEMKIN WIELGA & HARDT LLP**
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April 30, 2012

***Via Email***
*cohn.matthew@epa.gov*

Matthew Cohn, Director
Legal Enforcement Program
Office of Enforcement, Compliance and Environmental Justice
US EPA Region 8
1595 Wynkoop Street
Denver, CO 80202-1129

Re: Request for Fee Waiver for Consolidated Freedom of Information ("FOIA") Act Request Number 08-FOIA-00114-12, related to Draft Report, "Investigation of Ground Water Contamination near Pavillion, Wyoming ("Draft Report"), on behalf of Encana Oil & Gas (USA) Inc. ("Encana")

Dear Mr. Cohn:

This letter is written in response to EPA's March 29, 2012 letter with regard to Encana's request for a fee waiver. This letter also addresses other FOIA cost issues and the schedule for EPA's responses to the above referenced FOIA requests.

The fee waiver regulation, 40 C.F.R. § 2.107(l)(l), provides for fee waivers when:

> Disclosure of the requested information is in the public interest because it is likely to contribute significantly to public understanding of the operations or activities of the government, and is not primarily in the commercial interest of the requester.

All of the records requested on behalf of Encana are Draft Report-related and the Draft Report is a high-profile, controversial matter of intense public interest. The public interest in the requested records is demonstrated by the following Pavillion-related events and activities:

--February 1, 2012 Congressional Hearing held by the Science Subcommittee of the House Energy Committee at which Regional Administrator Jim Martin testified.

--February 29, 2012 Congressional Hearing before the House Appropriations Committee's Interior and Environmental Panel, at which EPA Administrator Lisa Jackson testified about the Draft Report. In her testimony, Administrator Jackson committed to treat the Draft Report as a "Highly Influential Scientific Assessment" under the OMB Peer Review Bulletin.

--EPA's March 12, 2012 commitment to "continue to post releasable documents of general interest on EPA's Pavillion website."

--The seven letters sent to date between Administrator Lisa Jackson and Senators Inhofe, Senator Murkowski and/or Governor Mead.

--EPA's March 27, 2012 statement that EPA has received numerous requests for technical documents from elected officials and industry associations, and EPA "is committed to making these documents available to the public."

--EPA's soliciting public comment on the draft "charge" to be submitted to the peer review panel.

--EPA's original and two extensions of its public comment period – the first deadline being January 27, 2012, the next March 12, 2012, and the current deadline being October 16, 2012.

--Over 200 public comments from all across the country – including from New York, Pennsylvania, Tennessee, Pennsylvania, Arizona, and California (as well as Wyoming and Colorado) – have already been submitted to EPA.

All of these facts demonstrate the extensive public interest in the requested materials and how those requested materials will without doubt "contribute to public understanding of the operations or activities of the government."

In considering this fee waiver, it should be noted that Encana has not used hydraulic fracturing applications in the Pavillion Field since 2007. Therefore, the requested records will not support the commercial interests of Encana. Encana is, however, concerned about damage to its reputation as a result of the release of the Draft Report as an EPA "approved" document, contrary to clear policy directives. As you know, the Draft Report was released by EPA in early December 2011 with the following statement in it:

> This report has been reviewed and approved by the U.S. Environmental Protection Agency's Office of Research and Development.

This statement is inconsistent with the Disclaimer which is required by the OMB Bulletin for materials released but not "disseminated."

> THIS INFORMATION IS DISTRIBUTED SOLELY FOR THE PURPOSE OF PRE-DISSEMINATION PEER REVIEW UNDER APPLICABLE INFORMATION QUALITY GUIDELINES. IT HAS NOT BEEN FORMALLY DISSEMINATED [BY EPA]. IT DOES NOT REPRESENT AND SHOULD NOT BE CONSTRUED TO REPRESENT ANY AGENCY DETERMINATION OR POLICY.

Further, contrary to the OMB Bulletin's direction, EPA has not taken any steps to "*discourage* state, local, international and private organizations from using information" in the Draft Report that is targeted for peer review, all to the detriment of Encana and its reputation.

In sum, Encana's FOIA request qualifies for a fee waiver. The requested documentation should be made available, in the public interest, free of any charge, as provided by 40 C.F.R. § 2.107(l).

EPA has stated that its $114,360 cost estimate, which Encana paid under protest, is based on 3 minutes of review per record at $30 per hour, and about 200 hours of search work at the same hourly rate. This results in a calculation of approximately 71,000 potentially responsive records requiring review. In order to provide all releasable, responsive documents in time for their consideration by the public before the October 16, 2012 public comment deadline, EPA will need to review more than 15,000 records per month. In contrast, thus far, since the December 12, 2011 FOIA request, EPA has provided fewer than 1,000 records.

Also, EPA demanded payment from Encana before it would start processing and reviewing documents requested by Encana that had not otherwise been requested and were not otherwise being provided or posted. The key categories in this regard of which we are aware are intra-agency communications and EPA communications with third parties. Having made the payment, Encana expects EPA to be processing and providing communications records in a timely manner. These communications are most certainly likely to contribute to a better understanding of the government's activities in Pavillion Field.

Finally, we are concerned about the sufficiency of the records being kept by EPA to segregate the costs of review for records that should not, under any scenario, be charged to Encana from those that may possibly be chargeable. We would appreciate a better understanding of how EPA plans to segregate these costs.

Sincerely,

Nea Brown

Linnea ("Nea") Brown

LNB/gob

# ATTACHMENT 14

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
WASHINGTON, D.C. 20460

May 2, 2012

OFFICE OF
ENVIRONMENTAL INFORMATION

Ms. Linnea Brown
Temkin Wielga & Hardt LLP
1900 Wazee Street, Suite 303
Denver, CO 80202

RE: Request Number 08-FOI-00114-12

Dear Ms. Brown:

This is in response to your request for a fee waiver in connection with your Freedom of Information Act (FOIA) request to the U.S. Environmental Protection Agency (EPA) Region 8 seeking a copy of records regarding the Draft Report, "Investigation of Ground Water Contamination near Pavillion, Wyoming, on behalf of Encana Oil & Gas (USA) Inc.

According to EPA's FOIA Regulations, located at 40 C.F.R. § 2.107, a request for a fee waiver must be submitted with the FOIA request. Since you have failed to comply with this regulatory requirement, your request is denied.

Under the FOIA, you have the right to appeal this determination to the National Freedom of Information Office, U.S. EPA, FOIA and Privacy Branch, 1200 Pennsylvania Avenue, N.W. (2822T), Washington, DC 20460 (U.S. Postal Service Only), FAX: (202) 566-1684, E-mail: hq.foia@epa.gov. Only items mailed through the United States Postal Service may be delivered to 1200 Pennsylvania Avenue, NW. If you are submitting your appeal via hand delivery, courier service or overnight delivery, you must address your correspondence to 1301 Constitution Avenue, N.W., Room 6416J, Washington, DC 20004. Your appeal must be made in writing, and it must be submitted no later than 30 calendar days from the date of this letter. The Agency will not consider appeals received after the 30 calendar day limit. The appeal letter should include the FOI number listed above. For quickest possible handling, the appeal letter and its envelope should be marked "Freedom of Information Act Appeal."

Should you choose to appeal this determination, please be sure to fully address all factors required by EPA's FOIA Regulations, located at 40 C.F.R. § 2.107(l) in your appeal. If you have any questions concerning this determination please contact me at (202) 566-1667.

Sincerely,

Larry F. Gottesman
National FOIA Officer

# ATTACHMENT 15

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 8**
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8ENF-L

March 29, 2012

***By email***
Linnea Brown, Esq.
Temkin Wielga & Hardt LLP
1900 Wazee Street, Suite 303
Denver, Colorado 80202
Email: brown@twhlaw.com

Re: Encana's Consolidated Freedom of Information Act (FOIA) request regarding the Pavillion Field Area (FOIA Request Number 08-FOI-00114-12)

Dear Ms. Brown:

I am responding to your letter of March 27, 2012 to me on behalf of Encana Oil & Gas (USA) Inc. Unfortunately, it appears that you may have misunderstood some of the communications with EPA and statutory and regulatory requirements of the Freedom of Information Act (FOIA). I address these misconceptions in the order presented in your letter.

You assert in your March 27 letter that "EPA has declined to identify the scope or extent of the records that would be responsive to our December 2011 FOIA request and that are beyond the scope of the record requests made by others, including Members of Congress, Governor Mead, and others." During your various conversations with Michelle Marcu, EPA Attorney, on March 21, 22, and 23, 2012, she explained that it is impossible to determine the subset of records sought by other entities compared to the extremely broad set of records requested by Encana until EPA actually collects, processes, de-duplicates and reviews the records.

You state that "EPA has provided repeated assurances that in response to these many requests it will publicly post all data that EPA had at the time it released the Draft Report, publicly post on its website answers to the four-pages of questions submitted by Wyoming, and provide all communications between Region 8 and ORD [Office of Research and Development] and between ORD and EPA Headquarters." EPA has made no such commitment with respect to communications between Region 8, Headquarters and ORD. As has been stated to you before, EPA will not provide records protected from disclosure by exemptions set forth in FOIA and the Executive Branch's FOIA policy.

Your letter indicates that you believe that the information covered by your request should be provided free of charge. While EPA is making information freely available for public review that is critical to ORD's Pavillion study, it is required by law to seek payment for other information where no fee waiver is applicable. Your requests for "all communications" and "all records" goes far beyond the information necessary or appropriate for a public review of the ORD study. EPA's regulations require that commercial requesters, such as Encana, be charged the estimated costs related to searching, reviewing, and de-duplicating responsive records. 40 C.F.R. § 2.107(c)(1). Your letter indicates your dismay that EPA has

been unwilling to meet with Encana on these issues. However, EPA has "met" with Encana. On March 23, 2012, Jim Martin, the Regional Administrator of Region 8, had a conversation on these issues with David Stewart, the Group Lead for Encana's Environment, Health & Safety Lead for the North Rockies business unit. As my office has repeatedly stated, a conversation about narrowing the scope of the request would be welcome. Your silence on the topic has been acknowledged

Thank you for providing the $114,360 prepayment. EPA will provide a response to Encana's FOIA request on or before September 27, 2012, within six months of the date of prepayment (March 27, 2012). Please let us know if you would like to narrow the scope of your request so that it may be completed sooner and at less cost. We hope to have a collaborative working relationship with Encana as we process the FOIA request. If you have any questions, please feel free to contact Ms. Marcu at (303) 312-6921 or at marcu.michelle@epa.gov.

Sincerely,

Matthew Cohn
Director
Legal Enforcement Program
Office of Enforcement, Compliance
and Environmental Justice

cc: Elizabeth Temkin, Esq., Temkin Wielga & Hardt LLP (temkin@twhlaw.com)

# ATTACHMENT 16

Wyoming is your impression that maybe the governor should've thought a little longer about that? Or, maybe looked into it a little different, or actually taken into account the geology of the Delaware River Basin before coming to that conclusion? Because it sounds like that's what the EPA suggests that you have to take local geology into account.

Mr. Martin: I'm not in a position, Mr. Chairman, to criticize any governor.

Chairman Harris: Well, your former colleagues at the Environmental Defense Fund called the Draft Pavilion Report a "Wake-up call" on the need for "Stronger regulation nationally on hydraulic fracturing." Now, are your former associates wrong to interpret the results in this way, broadly extrapolated to hydraulic fracturing anywhere in any geologic formation?

Mr. Martin: Haven't talked with the Mr. Chairman. I haven't seen their comments in context. I'm not in a position to criticize anyone here other than to give you a better understanding of what we did at the Pavilion site.

Chairman Harris: Has your office had any communication with them at all?

Mr. Martin: Sir, there are 800 people in my office. I can't speak to whether anyone has had any contact [**crosstalk**]

Chairman Harris: Would the **FOIA** request that's been made regarding this information, would that be part of that foyer request if we because the FOIA request solicited email responses? Would we find that information out there, if you're unable to say whether you have had any communication with them?

Mr. Martin: I can tell you definitively, I have not.

Chairman Harris: By any means?

Mr. Martin: Not about this particular [**crosstalk**]

Chairman Harris: Thank you very much, Mr. Miller.

Mr. Miller: Thank you Mr. Chairman. Mr. Martin, you said, or Dr. Harris asked if it was true that benzene was the only chemical that was

And, you also went on to say in testimony, that these wells had, "Production conditions different from those in many other parts of the country." And, having read the report, and having the testimony of the geologist, someone with the expert in the local geology, I can understand that. But, I wanna be clear, regardless of what the peer review process determines about this report's findings, and validities, and all the rest does the EPA think that the results of this investigation can be reasonably extrapolated to modern hydraulic fracturing being used for example, in the Marcellus Shale, which of course, runs through my state?

Mr. Martin: Mr. Chairman, this circumstances, the conditions, the geologic conditions that exist within the Marcellus Shale are significantly different. In the Pavilion case, we were looking at production that occurred in an underground source of drinking water, an aquifer at depths as shallow as 1,200 feet, where the most, the deepest domestic drinking water well was 800 feet. I believe in the Marcellus Shale you're looking at production occurring from 5,000 feet or deeper below ground surface.

Chairman Harris: Yeah, right.

Mr. Martin: So, they're very different.

Chairman Harris: So, you believe that these results really can't be reasonably extrapolated to the Marcellus Shale?

Mr. Martin: We have not proposed to do anything of that sort Mr. Chairman.

Chairman Harris: Good, I'm glad to – in light of that clarification, I want to give you an opportunity to comment on recent statements regarding the conclusions of EPA's Draft Report. After the issuance of the EPA's Pavilion Draft Report, the governor of Delaware said that this report validates his plans to veto gas drilling in the four state Delaware Basis. Was the governor wrong to extrapolate your results to the Delaware River Basin?

Mr. Martin: I've never met the governor. I don't know him and I don't know the circumstances of the context. And, I'm not about to tell him he was right or wrong, Mr. Chairman.

Chairman Harris: Well, I'm just gonna ask you based on your knowledge of what is in, of the potential uniqueness of the geology in Pavilion,

# ATTACHMENT 17

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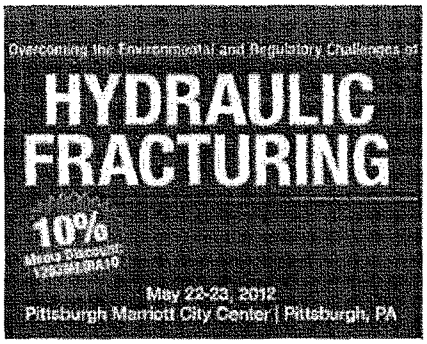


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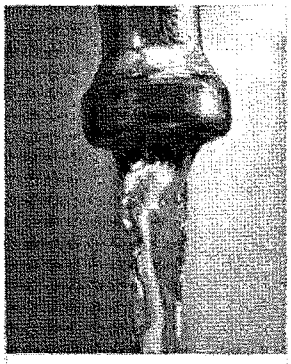

'Would you drink the water?" Somebody asked us that question after hearing about our team's study showing high levels of methane in well water near natural-gas drilling sites.

Released on Monday, our analysis will surely fuel the debate over whether the United States should pursue natural gas more vigorously as an alternative to oil and coal, whose unfortunate side effects range from Middle Eastern instability to global warming. Proponents of natural gas highlight its domestic abundance and other advantages. Critics cite potential harm to people and the environment.

Our team examined 68 private groundwater wells in Pennsylvania and New York. We found the average methane concentration to be 17 times higher in water wells located within a kilometer of active drilling sites. Some concentrations were dangerously high.

Story continues below.

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The companies drilling at these sites employ a process called hydraulic fracturing, or "fracking," pumping water, sand, and chemicals deep underground at high pressure. This opens cracks that allow natural gas to flow into the wells. The process now accounts for about 15 percent of natural-gas production, and some estimates see it rising to nearly half of production by 2035.

Some homeowners in drilling areas believe fracking has polluted their drinking water. Our study suggests that some of them may be right, at least in terms of methane contamination. Our results are also relevant to the bigger question of what role shale gas and hydraulic fracturing should play in solving the nation's energy problems.

Natural gas, or methane, is not benign. It's flammable and potentially explosive. In very high concentrations, it can cause asphyxiation. However, there has been little research on its health effects in drinking water, and the federal government doesn't regulate it as a contaminant in public water systems.

So when someone asked us whether we'd drink water from the wells we studied, we thought for a moment and then answered that we would drink it once or twice, and maybe even occasionally. However, we wouldn't feel safe drinking it regularly, and we don't think the region's homeowners should have to.

Environmental scientists often have the unpleasant task of exposing the drawbacks of different technologies, and this study shows one downside of fracking. But other energy resources have drawbacks, too, and in some cases they're big ones.

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# ATTACHMENT 18

# Methane contamination of drinking water caused by hydraulic fracturing remains unproven

Shale gas extraction involves the drilling of organic-rich, low-permeability shale and then stimulation of hydraulic fractures that allows gas to be produced. Methane in aquifers located above the shale strata, for instance, in Pennsylvania, United States, has been attributed by some to be the result of contamination caused by the hydraulic fracturing process. The work by Osborn et al. (1) described geochemical data from 68 drinking water wells in northeastern Pennsylvania and upstate New York and evaluated whether the aquifers that the water wells penetrated were contaminated with thermogenic methane sourced from the underlying Marcellus and Utica shale formations. The work by Osborn et al. (1) concluded that contamination had occurred and that the contamination accompanied gas well drilling and hydraulic fracturing. The inference from the text and title of the paper is clear—hydraulic fracturing had a role. However, the evidential basis for implicating this specific process is not sound and needs to be closely scrutinized.

The water well dataset is small, nonrandom, and covers a geologically diverse area that is up to ~200 km wide. Several of the contaminated water wells come from around Dimock in Pennsylvania. At Dimock in 2009 and 2010, it was reported that aquifer contamination was caused by recent casing leaks in at least three wells rather than hydraulic fracturing (2). It is also important to note that ~184,000 wells were drilled in Pennsylvania before records were kept (3), and there are ~8,000 orphaned wells that have been located but still need to be properly plugged (3). Methane leakage as a result of inadequate cementing of gas wells has been extensively reported elsewhere (4) as well as in their study area and therefore, could account for the contamination that they reported (1). Furthermore, natural seepage of methane in Pennsylvania is common and led to the locating of the first oil and gas wells. Unfortunately, the analysis by Osborn et al. (1) did not include critical measurements of $CH_4$ levels in the aquifers before hydraulic fracturing; therefore, some of the contamination could be historical, predating hydraulic fracturing operations.

By their own admission, "there are at least three possible mechanisms" (1) for the contamination. Of these mechanisms, natural methane migration and casing leaks are relatively well-understood (4). Any new process of methane leak as a result of the hydraulic fracturing should incorporate the findings of other studies. For instance, the strong evidence from microseismic and tiltmeter data (5) that shows that the hydraulic fractures generated in the Marcellus formation are located >1 km below the aquifers (and not connected) is not described or cited. There are no new data reported by the work of Osborn et al. (1) that specifically point to hydraulic fracturing as a mechanism that should be implicated; instead, ref. 5 shows that it is highly unlikely.

Their data showed that contamination may have occurred (1), but the association with hydraulic fractures remains unproven. To test whether hydraulic fracturing could cause aquifer contamination requires baseline measurements of levels of $CH_4$ in aquifers before and after hydraulic fracturing, preferably elsewhere in the world where there has been less historical drilling and natural seepage.

***Richard J. Davies***[1]
*Durham Energy Institute, Department of Earth Sciences, Durham University, Durham DH1 3LE, United Kingdom*

1. Osborn SG, Vengosh A, Warner NR, Jackson RB (2011) Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing. *Proc Natl Acad Sci USA* 108:8172–8176.
2. Pennsylvania Department of Environmental Protection *Pennsylvania's Plan for Addressing Problem Abandoned Wells and Orphaned Wells.* Available at http://www.portal.state.pa.us/portal/server.pt Accessed August, 2011.
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5. Fisher K (2010) *The American Oil and Gas Reporter* 53:30–33.

Author contributions: R.J.D. wrote the paper.

The author declares no conflict of interest.

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EPAPAV0000831

# Lack of data to support a relationship between methane contamination of drinking water wells and hydraulic fracturing

Osborn et al. (1) sampled 68 water wells located in upstate New York (Genesee formation) and northeast Pennsylvania (Catskill and Lockhaven formations). The study opined that there is systematic evidence of increased concentrations of thermogenic methane in water wells near active gas extraction areas compared with water wells outside active gas extraction areas. Average methane concentrations were 19.2 and 1.1 mg $L^{-1}$ for active and nonactive areas, respectively. By using isotope analysis, the study concluded that the thermogenic methane in the water wells is consistent with Marcellus shale gases.

However, the Genesee data show that average methane concentrations in nonactive area water wells was 1.5 mg $L^{-1}$ and the only sampled active area water well was 0.3 mg $L^{-1}$ (table 1 in ref. 1). This correlation is opposite of what Osborn et al. (1) concluded.

For Lockhaven, seven active area water wells were sampled. Therefore, a comparison of methane concentration between active and nonactive area wells cannot be established. A review of the methane carbon isotopes in the Lockhaven water wells shows large variability [~20‰ variation; figure 4b (1)]. If the Lockhaven water wells contain methane from gas extraction operations, one would expect the methane isotopes in the water wells to be similar to the gas extracted from the same county, and not have a wide variation. This wide isotopic variation indicates that the Lockhaven water wells are likely impacted by a mix of Lockhaven natural gases. [Figure 4b (1) presents "published gas data" from the Pennsylvanian, upper and middle Devonian, Silurian, and Ordovician formations. Those data are collected from southwest and central Pennsylvania and are not representative of the study area.] Note that the highest methane concentration reported by Osborn et al. (1) (64 mg $L^{-1}$) has a carbon isotope different from the extraction operations gas. In 2005, the Pennsylvania Department of Environmental Protection collected Lockhaven water well samples from Mainesburg, Tioga County, PA, and found those wells to contain thermogenic methane with no relation to gas extraction operations (Pennsylvania Department of Environmental Protection file review conducted in 2008). This confirms that thermogenic methane unrelated to current gas extraction operations is most likely present in the Lockhaven wells and must be considered before concluding a source.

For Catskill, nonactive area water wells contained methane levels as high as 18 mg $L^{-1}$ [figure 4a (1)]. Eight of the 13 Catskill water wells in active areas contain concentrations lower than 18 mg $L^{-1}$ or have a methane isotope different from Susquehanna gas wells [figures 4 a and b (1)]. Thus, only five active area water wells have elevated thermogenic methane with isotopes similar to Susquehanna gas wells. To be able to conclusively determine if methane in those five active area water wells are related to the gas from the extraction operations, one has to analyze for carbon and hydrogen isotopes in methane and ethane. However, Osborn et al. (1) did not analyze their samples for ethane isotopes.

In conclusion, the limited data presented in Osborn et al. (1) do not support a systematic presence of thermogenic methane in private wells in the vicinity of gas extraction operations.

***Tarek Saba*[a,1] *and Mark Orzechowski*[b]**
[a]*Exponent, Inc., Maynard, MA 01754; and* [b]*Civil and Environmental Consultants, Pittsburgh, PA 15205*

1. Osborn SG, Vengosh A, Warner NR, Jackson RB (2011) Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing. *Proc Natl Acad Sci USA* 108:8172–8176.

Author contributions: T.S. and M.O. analyzed data and wrote the paper.

The authors declare no conflict of interest.

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EPAPAV0000832

# Hydraulic fracturing not responsible for methane migration

Although Osborn et al. (1) provided important geochemical measurements of dissolved methane in a portion of the Appalachian basin, their report does not fully appreciate the geologic history of this region and misrepresents potential risks of modern drilling and completion techniques used to develop shale-gas resources. The fear that hydraulic fracturing is responsible for methane migration from the Marcellus shale into shallow groundwater is contrasted by direct observations in microseismic studies that even the longest fractures induced by the hydraulic fracturing process remain thousands of feet below groundwater resources (2).

The Marcellus is a Devonian-age (~390 Ma) black shale and the source rock for many previously developed natural gas fields in the basin. This means that natural migration of thermogenic gas from the Marcellus to shallower horizons has been occurring over geologic time. Knowledge of significant methane as a natural constituent of groundwater in this region long predates the recent development of shale-gas resources (3), which is consistent with the observation by Osborn et al. (1) of thermogenic methane in all but one of the methane-containing groundwater samples (regardless of the presence or absence of nearby gas wells).

Osborn et al. (1) presented their interpretations without baseline (predrill) data for comparison and without explaining any selection criteria for the small nonrandom sample ($n = 68$) used in the study. In close proximity to natural gas wells, many water samples showed low concentrations of methane [figure 3 of Osborn et al. (1)]. This shows that elevated methane concentrations are not an inevitable effect of drilling. Finally, Osborn et al. (1) found no evidence of hydraulic fracturing fluids in any of their samples, which would have been expected if hydraulic fracturing initiated communication between the deep shale and shallow groundwater. The data presented simply do not support the interpretation put forth that shale-gas development is leading to methane migration from the Marcellus into shallow groundwater. These data especially do not justify coauthors' reports in the popular press ["Strong Evidence that Shale Drilling is Risky," *Philadelphia Inquirer*, May 10, 2011 (4)] about the process of hydraulic fracturing. Although instances of inadequate well construction [as suggested by Osborn et al. (1)] could conceivably enable methane migration from shallower horizons, industry best practices recently codified in Pennsylvania drilling regulations (5) ensure that the region's substantial shale gas resources can be developed safely and environmentally responsibly.

*Samuel C. Schon*[1]
*Department of Geological Sciences, Brown University, Providence, RI 02912*

1. Osborn SG, Vengosh A, Warner NR, Jackson RB (2011) Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing. *Proc Natl Acad Sci USA* 108:8172–8176.
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Author contributions: S.C.S. wrote the paper.

The author declares no conflict of interest.

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EPAPAV0000833

# ATTACHMENT 19

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# United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

December 6, 2011

The Honorable Lisa Jackson
Administrator
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator Jackson:

As you know, I have been closely following EPA Region 8's activities in Pavillion, Wyoming for the past several years. This is a serious issue for local residents and the region and I have expressed my concerns about the open-ended nature of this investigation with you before. I remain concerned that what started out as an investigation of residential water wells has turned into a quest to tie hydraulic fracturing to the water quality issues in Pavillion.

In August 2010, following nearly 18 months of investigation in Pavillion, EPA Region 8 staff provided only vague characterizations of the contaminants they found to my staff, leaving EPA's interpretation of the data it collected open. However, Region 8 staff indicated that hydraulic fracturing was *not* a focus of investigations into the source of the contamination. Staff also had no definitive basis, or refused to reveal evidence supporting a basis they may have had as to the source or sources of contamination. Yet at that same time, Nathan Wiser, an EPA scientist, publicly stated that, "It starts to finger-point stronger and stronger to the source being somehow related to the gas development, including, but not necessarily conclusively, hydraulic fracturing itself." He said further that EPA's efforts "could certainly have a focusing effect on a lot of folks in the Pavillion area as a nexus between hydraulic fracturing and water contamination."

When my staff was briefed on EPA's latest round of testing, released publically on November 9, 2011, Regional Administrator James Martin said that the results did not reveal any data that was significantly different from the first two rounds of testing, and that EPA was not making any conclusions or findings from this data.

Unfortunately, recent statements made by you in the press lead me to believe that conclusions have already been made. On November 20, 2011 on Bloomberg's EnergyNOW! program you said, "It is possible that fracking in one bearing zone may have impacted nearby

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areas that may contain some groundwater."[1] As the *Casper Star-Tribune* reported, your statement marked the first time the EPA Administrator has raised a possible link between hydraulic fracturing and with drinking-water pollution.[2] Your statement is a clear departure from the statements made by the Region 8 at the public meeting in Pavillion and to Congressional staff regarding the cause of groundwater contamination in the area. Additionally this statement appears to contradict statements by you and other members of the Federal Government about hydraulic fracturing and drinking water contamination. We expect that any change in your articulated position would be well backed-up by the highest quality, peer reviewed science.

Because of these contradictory statements, I am concerned that EPA has pre-determined that hydraulic fracturing is the cause of contamination in their Pavillion investigation and the Agency is trying to make the data conform to that conclusion, instead of engaging in an open scientific inquiry. If so, this is a serious problem, especially since your Regional Administrator said that the results of the most recent round of testing were not significantly different from the first rounds of testing, which showed no link between hydraulic fracturing and contamination. In order to clarify these concerns, I am requesting that you answer the following questions:

1. Has EPA made any determinations about the cause of water contamination in Pavillion Wyoming? If not, when will a final determination be made?
2. What is your basis for the comment you made to Bloomberg mentioned above? Do you think it is possible to determine the cause of groundwater contamination without completion of the investigation?

Additionally I am requesting documentation of all correspondence between EPA Region 8 and EPA headquarters regarding Pavillion, WY and between Region 8 and ORD regarding the Hydraulic Fracturing study.

Thank you for your prompt attention to my concerns. Should you have any questions about this matter, please feel free to contact Elizabeth Fox on my staff at (202) 224-6176.

Sincerely,

James M. Inhofe
Ranking Member
Committee on Environment and Public Works

[1] http://billingsgazette.com/news/state-and-regional/wyoming/epa-chief-wyoming-water-well-results-of-concern/article_1e2ea350-80d6-5274-8a91-5360ce691ddb.html
[2] http://trib.com/news/state-and-regional/epa-chief-wyoming-water-well-results-of-concern/article_0aacd635-c62a-5eae-9f79-e6ae14eb1906.html

# ATTACHMENT 20

MATTHEW H. MEAD
GOVERNOR

THE STATE OF WYOMING

STATE CAPITOL
CHEYENNE, WY 82002

# Office of the Governor

December 20, 2011

Administrator Lisa Jackson
Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator Jackson,

I hope we can work together to move the work surrounding Pavillion water to a more cooperative, logical and scientific approach. The status, safety and the source of any contaminants to the water supply are issues I take seriously and I know you do too. The current direction is a dramatic change from the Environmental Protection Agency's (EPA) original suggestion that the available data supported additional research, testing and clarification. Now we are at a point where many, including some at EPA, have rushed to conclusions that raise specters of cracked earth and these conclusions are not supported by available evidence.

I would like to see efforts based on a cooperative, fully science-based analysis that truly serves the interests of Wyoming's people, particularly citizens in the Pavillion area, Wyoming's resources and industries, and the public at large. My specific requests are outlined below. At the request of the EPA, the State of Wyoming formed a working group to continue the Pavillion investigation. Initially, all broadly agreed that the information and data points were probably insufficient to support a broad critique of fracking and that additional samples should be taken and analysis performed before final conclusions were reached. Somewhere along the line, EPA seems to have abandoned a reasonable approach in favor of an effort resulting in a delay of further sampling and information development until the completion of the peer review process. This seems entirely backward.

More data, more sampling and additional analysis would buttress our efforts to reach a fair conclusion in this controversial area. It would also move us more rapidly towards a solution for the residents of Pavillion. I have budgeted additional monies for additional investigative efforts and the Wyoming Water Development Commission has already expended considerable resources in this area.

I am troubled by the EPA's dismissal of the practical concerns raised by the Wyoming Oil and Gas Conservation Commission (WOGCC), Wyoming Department of Environmental Quality (DEQ) and Encana related to the nature and the protocols employed in conducting the sampling procedures. Ignoring these concerns while delaying further sampling simply adds to the cloud of controversy surrounding the underlying work as well as the ultimate report.

The personnel at WOGCC and DEQ have demonstrated a willingness to cooperate with the EPA to look for a scientifically based set of answers. These folks are experts in their fields for the State and should be accorded credibility in a partnering relationship.

I ask your cooperation in conducting additional testing now. Any recommendations or conclusions can only be drawn after a thorough process. This requires methodical testing, neutral samples, critical

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analysis and thoughtful conclusions. I would like to achieve this in partnership with the EPA and prior to the peer review.

I also ask for a full and candid exchange of information. Any joint undertaking must be based upon a full disclosure of information by all parties. I appreciate the information you have shared to date, but I believe it falls short of full disclosure. I hope this circumstance can be rectified.

Finally, I would like to revisit the peer review process. Wyoming State agencies and the USGS have been working to formalize a thorough and rapid study of the facts on the ground and a strategy to move forward. Again, these efforts would be significantly strengthened by a cooperative State and federal effort and will be most effective if EPA is willing to revisit this part of the process before the peer review. With that in mind, I note the peer review is critical and I have both questions and concerns.

The EPA's approach to the peer review process seems destined to create further tension between the State of Wyoming, EPA, industry and the people of Pavillion. While you have committed to allow Wyoming to participate in the peer review process, which is welcome news, I have received conflicting information about the peer review process and request that you provide me with a more definitive outline of the process. First I ask that you consider Wyoming's expertise in forming the review panel. Wyoming's geography, hydrology and geography draw the best in the field and these individuals would be an asset. I have a few questions of specific interest:

- What is the specific charge to be given to the peer review panel?
- Will peer review panel member selection give deference to the unique geology and hydrology of the Wind River and Fort Union formations?
- Is it your expectation that peer review panel members develop one final consensus report; or rather do you anticipate five independent reports?

Additionally, I would request that any peer review panel public hearings be held in Wyoming.

I look forward to hearing from you. I believe there is still opportunity for a collaborative effort designed to serve all citizens in an unbiased approach.

Sincerely,

Matthew H. Mead
Governor

cc: Senator Mike Enzi
Senator John Barrasso
Representative Cynthia Lummis
John Corra, Director, Department of Environmental Quality
Tom Doll, Director, Oil and Gas Conservation Commission

# ATTACHMENT 21

MATTHEW H. MEAD
GOVERNOR

THE STATE OF WYOMING

STATE CAPITOL
CHEYENNE, WY 82002

# Office of the Governor

January 16, 2012

Lisa Jackson, Administrator
Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue
Washington, D.C. 20460

Dear Administrator Jackson,

After reviewing the EPA's *Draft Investigation of Ground Water Contamination Near Pavillion, Wyoming (Dec. 2011)* report ("report"), the Wyoming Department of Environmental Quality (DEQ) sent questions and requests for additional information to EPA Region 8. These questions and requests were developed by scientists and engineers from the DEQ and Wyoming's Oil and Gas Conservation Commission. An EPA response to the questions would provide clarification of the findings in the report.

I understood the EPA would timely respond to these questions and requests. However, the majority of those questions remain outstanding. The public comment period closes January 27, 2012.

I ask you to work with me to ensure that the EPA responds to the remaining questions and requests for information as quickly as possible. The response is necessary to conduct a complete analysis and interpretation of the data and findings contained in the report. Those responses will clarify information for both the public and the peer panel as they review and comment on the report. Any EPA response between now and the end of the comment period, which is less than two weeks away, will make it difficult for those commenting to assimilate in the short time remaining. Therefore, I request that EPA, in addition to posting its responses to the questions on its Pavillion webpage now, also extend the public comment period for an additional 30 days from the date requested information is publicly provided. This extension will provide the public and the peer panel opportunity to review additional information provided by EPA's response and to consider it in their comments.

Both Wyoming and the EPA should have a common goal of an unbiased, scientifically supportable finding open to the public. I believe providing answers and information, making

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these available to the public and the peer review panel, and extending the comment period accordingly are the best ways to accomplish this.

I look forward to your timely reply.

Sincerely,

Matthew H. Mead
Governor

cc: Senator Michael B. Enzi
Senator John Barrasso
Representative Cynthia Lummis
John Corra, Director, Department of Environmental Quality
Tom Doll, Director, Oil and Gas Conservation Commission

# ATTACHMENT 22

encana
natural gas

February 17, 2011

**(VIA EMAIL)**

Rebecca Foster
U.S. Environmental Protection Agency
P.O. Box 1198
Ada, Oklahoma 74821

**RE: Additional Peer Review Process Comments**

Dear Ms. Foster:

Encana Oil & Gas (USA) Inc. (Encana) is pleased that the United States Environmental Protection Agency (EPA) has determined to conduct a formal peer review process on the draft report entitled "Investigation of Ground Water Contamination near Pavillion, Wyoming." We believe that the peer review process, if properly conducted, should ensure independent, scientific evaluation and careful scrutiny of the preliminary conclusions reached in the draft report. This report, albeit submitted as preliminary and in draft form, makes serious allegations and conclusions that impact not only Encana, but the entire domestic energy industry.[1] Although we sincerely appreciate the opportunity to provide comments—and we acknowledge efforts on behalf of EPA to provide a more transparent process related to this critical issue—we remain concerned that the current parameters of the peer review process do not adequately ensure a sufficiently unbiased, thorough and critical review of the scientific underpinnings and conclusions of the draft report.

First, the EPA has categorized the draft report as "Influential Scientific Information." For the reasons set forth in Encana's letter to Administrator Jackson dated January 10, 2012, which letter is attached to this email and incorporated into these comments, the draft report should be categorized as a "Highly Influential Scientific Assessment" (HISA) under criteria established by the Office of Management and Budget (OMB) Bulletin and EPA Peer Review Handbook. Our January 10, 2012 letter addresses

[1] Among other matters, we are concerned that EPA has advised, in a letter dated February 16, 2012, that it could take up to 6 months to make public the key information relating to its draft report.

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several aspects of the HISA categorization (and why it is appropriate in this case), including the uncontroverted fact that the draft report is "novel, controversial, or precedent-setting or has significant interagency interest." Significant interagency interest exists in Wyoming, and the EPA released the draft report at a time when multiple efforts are underway by various state, local and federal agencies (including the United States Department of the Interior, Bureau of Land Management) to regulate hydraulic fracturing. The level of public attention focused on the draft report has already illustrated the significance of the draft report to the energy industry, state and local governments, the Northern Arapaho Tribe and the Eastern Shoshone Tribe, and the public discourse relating to hydraulic fracturing. Further, we believe that the preliminary conclusions reached in the draft report will result in an economic impact of more than $500,000,000 per year to the energy industry and the American economy. Next, we understand that EPA has asserted that the draft report cannot be categorized as a HISA because it does not directly relate to the establishment of regulation. This assertion, in our view, is incorrect. According to the EPA Peer Review Handbook, examples of assessments that could be considered to be highly influential assessments include "weight of evidence analyses" (section 2.2.4 of EPA Peer Review Handbook). The most important conclusions reached in the draft report rely on "lines of evidence"; these conclusions are far-reaching and are already having an impact on local, state and federal regulations and policy. In summary, the draft report contains the requisite elements to be considered a "Highly Influential Scientific Assessment."

Second, because of the importance of this study, EPA should adhere to all applicable HISA-level peer review requirements, including the following: (i) require compliance with stringent conflict of interest requirements that would preclude any EPA employee from participating as a peer reviewer; (ii) provide the peer review panel with sufficient information to conduct a thorough and scientific peer review, including background information relating to key studies or models, to enable the panel to understand the data, analytic procedures, and assumptions used to support the key findings or conclusions in the draft report; and (iii) prepare a written response to the peer review report explaining EPA's agreement or disagreement with the views expressed in the report, the actions EPA has undertaken or will undertake in response to the report, and the reasons EPA believes those actions satisfy the key concerns stated in the report (if applicable). Without these additional three components and the formal recognition that the draft report is a HISA, the peer review process will not follow EPA's own Peer Review Handbook.

Third, the Peer Review Plan should be revised to include, as critical, three additional specialized areas of expertise:

- microbiology – critical to evaluation of residents' palatability complaints;
- analytical chemistry – critical to evaluation of the reliability of EPA's data to support the conclusions reached; and
- monitoring well engineering – critical to evaluation of questions regarding the construction and development of EPA's deep wells.

Given the nature of the draft report, these areas of expertise are essential to an effective and quality peer review.

Fourth, the Federal Register notice states that the selected peer reviewers will participate in a "one- to two- day peer review meeting". We wish to confirm and emphasize that the peer reviewers need and must have sufficient time to prepare for the panel meeting(s) and to complete their work carefully and thoughtfully before any deadline for the panel report. We also wish to confirm our understanding that the peer review meeting will provide the public with the opportunity to present technical/scientific comments directly to the panel, in addition to the reviewers' receiving copies of technical/scientific comments submitted in writing by the public comment deadline (presently March 12, 2012).

Fifth, it has been noted through meetings between Encana and Region 8 and apparently also in conversations with the State of Wyoming that EPA is concerned about the application of the Federal Advisory Committee Act (FACA). Specifically, we have been told that EPA considers FACA a barrier to designating the draft report HISA. However, neither the OMB Bulletin nor the EPA Peer Review Handbook identify FACA as an obstacle or even a consideration in making an HISA determination. Additionally, EPA stated that creation of a single report from the peer review panel will trigger FACA. This statement is not correct. According to the Federal Register and the Peer Review Plan for the draft report, EPA has hired ERG to organize and conduct the external peer review. FACA does not apply to peer reviews that EPA does not run, establish, control, or manage. As long as EPA refrains from such conduct and ensures that it does not interfere with ERG's establishing, controlling, and managing the peer review, FACA is not triggered and FACA does not and will not apply to this peer review. As a result, there is no FACA obstacle to a panel report and such a report must, of course, be produced by the panel, including both comments on which the panel reaches agreement and those comments that individual reviewers may have. Because of the importance of this issue, Encana must state for the record that any interference or control by EPA of ERG's peer review process would violate the spirit and intent of the peer review process.

As a final matter, according to the "Acknowledgements" in the draft report, EPA had three individuals external to EPA review the draft report before its release and EPA found their comments "valuable" in "improving" the draft report. Because of these three individuals' work in the development of the draft report, none of them may be appointed to the peer review panel. The EPA Peer Review Handbook prohibits appointing individuals who were involved in producing the draft report from serving as panel members.

We appreciate the opportunity to make these comments.

Sincerely,

David Stewart
Team Lead EHS, North Rockies

Attachment

cc: James Martin – EPA Region 8 Administrator

cc: peerreview@erg.com

# ATTACHMENT 23

encana
natural gas

March 1, 2012

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RE: Public Comments on the U.S. Environmental Protection Agency's Draft Charge for Peer Review of its Draft Report "Investigation of Ground Water Contamination near Pavillion, Wyoming"

Dear Ms. Foster:

On February 7, 2012, the U.S. Environmental Protection Agency (EPA) posted a "Draft Peer Review Charge" on the Region 8 Pavillion, Wyoming web page and requested public comment. This letter responds to the request and provides comments by Encana Oil & Gas (USA) Inc. (Encana) on the EPA's draft charge for EPA's draft "Investigation of Ground Water Contamination near Pavillion, Wyoming" the (Draft Report).

Attached to this letter is an alternative, proposed charge. This alternative proposal accommodates the balance between specificity and generality posted for a peer review charge in Section 3.2.1 of the EPA Peer Review Handbook. We ask that the alternative charge be provided to the Pavillion Field Draft Report peer review panel for the following reasons.

Proposed Question 1: The alternative charge focuses the peer review panel on the original impetus for EPA's investigations in Pavillion Field. It asks the peer review panel whether EPA's activities were planned and executed appropriately to obtain sufficient information to evaluate the cause(s) of the palatability issues raised by area residents. The EPA's draft charge does not mention palatability or whether the necessary information was gathered to evaluate the taste and odor concerns that initiated the investigation.

Proposed Question 2: The alternative charge asks whether the Draft Report accurately presents and considers all relevant data, provides reasons for excluding certain data, and appropriately considers overall data integrity. The EPA's proposed charge does not address these very important matters. We

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believe an independent and thorough review is necessary due to the (i) unexplained omission of soil gas data in the Draft Report; (ii) unexplained omission of critical data with regard to VOC and SVOC analysis and interpretation; (iii) interpretations of the EPA relating to chromatogram results and the significance of numerous trip, laboratory and method blanks; and, (iv) use of methodologies not approved by the EPA for use by other entities.

Proposed Question 3: The alternative charge addresses the conclusions reached by the EPA and sufficiency of the information and evaluation. It does not assume, as does the EPA question 3, that the "lines of evidence" approach is scientifically appropriate or valid for the investigation or the conclusions in the Draft Report. It also does not assume that methane migration has been enhanced in Pavillion field or the deeper unit of the Wind River Formation is contaminated.

Proposed Question 4: Asks the panel to explicitly consider whether the Draft Report transparently, objectively, and accurately presents and evaluates whether other sources (i.e., septic systems, agricultural and domestic practices, and surface runoff) are causes of the residents' taste and odor concerns. The EPA's proposed charge does not address this issue which, given site specific circumstances in Pavillion Field, are particularly relevant and need to be considered by the panel.

Proposed Question 5: Asks the panel to specifically identify critical data gaps in the Draft Report, such as (i) omission of an analysis of analytical data that could explain issues relating to palatability, such as bacteria, TDS, chlorides, and sulfides; (ii) an accurate spatial and temporal analysis of domestic water wells to historic pits and natural gas well bores; and, (iii) a comparison of analytical results from all four phases to those compounds indicative of septic system, agricultural or domestic practices contamination. EPA's proposal fails to ask the panel to identify any data gaps.

Proposed Question 6: According to the Office of Management and Budget's (OMB's) Peer Review Bulletin (OMB Bulletin), "the charge should ask that peer reviewers ensure that scientific uncertainties are clearly identified and characterized" and "reviewers should be asked to ensure that the potential implications of the uncertainties for the technical conclusions drawn." The EPA's draft charge does not cover all of these points. Encana's proposed Question 6 includes all aspects of the OMB Bulletin on these crucial issues. In addition, this question incorporates EPA's language recognizing the scientific importance of confounding factors and their implications for the Draft Report and its conclusions.

We appreciate the opportunity to provide the above comments on the EPA's draft charge for the Draft Report peer review panel.

Sincerely,
Encana Oil & Gas (USA) Inc.

John Schopp
Vice President, North Rockies Business Unit

cc: David Stewart, Encana
Betsy Temkin, Temkin Wielga & Hardt LLP

**Encana Proposed Charge**

The U.S. Environmental Protection Agency has conducted an investigation into potential groundwater contamination near Pavillion, Wyoming, in response to concerns expressed by domestic well owners about the odor and taste of the water in their wells. The area of investigation is located above the Pavillion Gas Field in the Wind River Basin, which contains 169 vertical production wells. Many of these production wells have undergone hydraulic fracturing in gas production zones within the Wind River Formation.

The draft report, entitled "Investigation of Ground Water Contamination near Pavillion, Wyoming" (Draft Report), describes the methods, findings, and conclusions of this investigation. EPA is requesting a thorough, critical and unbiased scientific peer review of the Draft Report answering the following questions.

1. Was the investigation appropriately planned and executed to provide sufficient geological, hydrogeological, geophysical, chemical, geochemical, microbiological, petrophysical, and other data to properly evaluate the cause(s) or source(s) of any groundwater contamination?

2. Does the Draft Report accurately present and consider all relevant data and, if not, does it present objective and accurate reasons for excluding data? Does the Draft Report objectively and accurately address the integrity, reliability, reproducibility, and robustness of each data set?

3. Does the Draft Report transparently, objectively, and accurately present sufficient site-specific information (including temporal and spatial), analytic data, and evaluation for its draft conclusions:

   (a) that enhanced migration of gas is occurring, and that natural gas production activities are likely responsible for any such migration; and

   (b) that compounds used for hydraulic fracturing of gas wells in this area have been released into groundwater at depths "above the gas production zone," and that the source and cause of groundwater contamination is likely from hydraulic fracturing?

4. EPA detected pharmaceuticals, vitamin agents, fragrance-related compounds, paint products, disinfectants, a variety of fatty acids, and pesticides in groundwater. Does the Draft Report transparently, objectively and accurately present and evaluate sufficient information to support its conclusion that septic systems, agricultural and domestic practices, and surface runoff are not causes or sources of any groundwater contamination?

5. What are critical data gaps in the investigation or Draft Report?

6. Does the Draft Report clearly identify and characterize confounding factors and uncertainties and are the potential implications of uncertainties for the evaluation and conclusions clearly drawn?

# ATTACHMENT 24

with gas production and hydraulic fracturing fluids.

EPA has worked diligently and methodically in pursuing our stated research objectives from start to finish. We have made every effort to work cooperatively and openly with the State of Wyoming, Tribes, and other parties. A rigorous, transparent and objective approach to our involvement at Pavillion has been employed from the outset. We have gone to great lengths to consult and share information with the State of Wyoming, the Tribes, Encana, and the public. To ensure a transparent and rigorous analysis, EPA released these findings for public comment and will submit them to an independent scientific review panel. We have extended the public comment period for an additional 45 days to allow the public and other interested parties sufficient time to review the extensive amount of study information being added to the public record.

We have employed rigorous scientific methods. Upon the completion of sampling from the deep monitoring wells, EPA career scientists engaged in a careful evaluation of the data to both assure their quality and determine what conclusions could be drawn. These experts determined that the contaminants found in the deep monitoring wells were most likely the result of hydraulic fracturing in the Pavillion gas field and are not related to agriculture, septic systems or the installation of the monitoring wells themselves. Their findings were subjected to intensive review by career management and staff of our research organization. In addition, a technical review of the results was conducted by independent experts before the full draft report was made available to the public.

Representatives from the State of Wyoming and Encana have criticized EPA's draft report, stating, for example, that we did not follow standard Agency sampling and analysis protocols, and that the quality of our data was compromised due to extended sample holding times. EPA did, in fact, follow accepted protocols. The investigation was subjected to the Agency's highest level QA procedures. Audits of data quality and technical systems in the laboratory and field were conducted by an independent contractor and EPA QA manager. Where sample holding times were exceeded, EPA protocols were followed and professional judgment was used to determine the appropriate use of the data.

The evidence supporting the likely role of hydraulic fracturing activities in the observed contamination is presented in detail in the draft report, as is the reasoning process by which our experts evaluated that evidence. I draw your attention to the careful language with which our conclusions are couched. We make clear that the causal link to hydraulic fracturing has not been demonstrated conclusively, and that our analysis is limited to the particular geologic conditions in the Pavillion gas field and should not be assumed to apply to fracturing in other geologic settings. It should be noted that fracturing in Pavillion is taking place in and below the drinking water aquifer and in close proximity to drinking water