April 28, 2014

Richard Bruckner, Director
Los Angeles County Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

RE: Baldwin Hills Community Standards District Periodic Review Draft Report

Dear Mr. Bruckner,

Community Health Councils, Natural Resources Defense Council, The City Project, and Mujeres de la Tierra write to comment on the Baldwin Hills Community Standards District (CSD) Periodic Review Draft Report. We appreciate the Department of Regional Planning's (DRP) strategy to maintain protections but believe important opportunities to reduce the field's impact on the surrounding community were missed. Furthermore, this Periodic Review is the public's first opportunity to comprehensively comment on agencies' interpretation and implementation of the CSD's provisions. In many instances, agencies have met the letter of the law yet could use stronger rules that more effectively achieve the CSD's objectives of ensuring operations are harmonious with adjacent land uses and ensuring potential adverse impacts are minimized. We urge adopting the listed recommendations which aim to improve studies' accuracy and value, enhance transparency, foster a more robust Community Advisory Panel, and reduce the field's footprint.

Enable and Require Accurate Studies

1. Prepare Accurate and Reliable Studies

Methodologically sound, fully-funded studies are necessary in order to detect harmful impacts, to discover changes in emissions, exposures, or cumulative health and environmental outcomes, and to establish a baseline against which future data can be analyzed. Studies deployed to date have been impeded by inadequate funds or flawed methodology. During the scoping process for the *Air Quality Study* for example, Sonoma Technology, Inc stated inadequate funds would preclude the agency from identifying where pollution detected originated from. The project's budget also prevented Sonoma Technology, Inc from measuring many important hazardous compounds and limited the monitoring

window to two weeks.[1] This means many hazardous emissions remain unmeasured and the public lacks an accurate picture of emissions over time.[2] Additionally, the *Inglewood Oil Field Communities Health Assessment* used flawed research methodology and an insufficient level of analysis that comprised the assessment's findings.[3] The *Ground Movement Study* has similar issues. The studies had reasonable, urgent research questions that remain unanswered due to avoidable missteps in design or project funding. Furthermore, this prevents the County and the public from establishing whether the CSD is achieving its goals.

Recommendations: The County should require the operator make available sufficient funds for agencies and subcontractors to conduct studies that could achieve outlined objectives if rigorous research methodology was applied. The County can use power granted in CSD Section G (1) to hold the operator responsible for all reasonable costs associated with monitoring and conducting studies. Future studies should also use research designs that could answer the study's questions, that account for key independent variables (such as socioeconomic status), measure cumulative exposure rates, impacts, and meaningfully involve the public and issue experts in the research design process as outlined in Appendix A, B, and C. Finally, we strongly urge supplemental assessments for any study that has not achieved primary research objectives. This includes immediate initiation of a supplemental air monitoring study and an *additional Health Assessment and Environmental Justice* study that clearly meets the settlement terms and uses revised assessment methodology.

Transparency & Communication

1. Justify Recommendations

Throughout the CSD Draft Recommendation Report and in many Community Advisory Panel (CAP) meetings, the DRP will defend the status quo by claiming that better alternatives are infeasible. Often, these statements are counter to recent events and trends. For example, DRP has stated the field cannot power an electric rig. In nearby Hermosa Beach, however, E&B Natural Resources Management Corporation plans to use an electric rig at new proposed operations.[4] The DRP has not explained why electric rigs are practical in Hermosa Beach, but not in Baldwin Hills. The DRP also vaguely states insurance requirements and performance security holdings are adequate without an analysis of what the holdings are or why that level of coverage is appropriate. Such explanations not only undermines public confidence but also falls short of determining whether additional provisions should be added as described in section G.7 – "Periodic Review".

Recommendation: All determinations should be justified with quantitative explanations where appropriate. The DRP and the Draft Report should:

- Revisit and justify recommendations for sections G.4 and G.5; and
- Reassess the feasibility of using an electric rig.

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[1] Sonoma Technology, Inc. (2012). *Baldwin Hills Air Quality Monitoring Study: Business Proposal in Response to the RFP Released January 17, 2012*. Retrieved from http://planning.lacounty.gov/assets/upl/project/bh_air-quality-sonoma.pdf. Page 2.

[2] Comment Letter on Air Study in Appendix A

[3] Comment Letter on Health Assessment in Appendix B. Independent assessment of the Health Assessment in Appendix C.

[4] Hermosa Beach Oil Development Proposal Environmental Impact Report. http://www.hermosabch.org/modules/showdocument.aspx?documentid=3750

2. Improve Data Access

As stated in Community Health Councils, Natural Resources Defense Council, Mujeres de la Tierra, and City Project's letter on the Periodic Review, dated September 25th, Freeport McMoRan (FCX) and the County should enhance data access. This includes making collected data and reports available to the public to support further research and analysis.[5] This also includes clarifying the connection between the County's CSD website and FCX's CSD website. The sites use different titles for the oil field[6] and users may land on one page without knowing important reports are on another page.

> **Recommendations:** We first recommend all oil field-related data and FCX reports transmitted to SCAQMD, the DRP, the fire chief, DOGGR, and other similar agencies be posted and made available online quickly and in a manner the public can readily understand. We secondly recommend FCX and the County improve information access by merging online resources and/or cross-linking their respective web sites. Each site should provide a section explaining the relationship between with the County's and FCX's sites. Although this is not required by the CSD, such a move enables users to better understand the relationship between the sites and utilize information.

3. Broaden Public Outreach

The County and FCX have an obligation to notify the public of important information such as field operations, the Periodic Review timeline, and events. Sharing such information is necessary to meaningfully involve the public in decisions regarding the field's operations. The DRP has demonstrated their willingness to meet public input needs by extending the public comment period to 60 days. This is commendable. Yet, the DRP has also stated their belief that the CAP should share the public notice responsibility. While CAP members are committed to providing input, they do not have the capacity nor is the CAP charged with the responsibility to do widespread information dissemination.

> **Recommendation:** The County and FCX should utilize their websites to develop an early notification system. In addition, the county and FCX should distribute notices to neighboring homeowner associations, neighborhoods councils, faith-based organizations, schools and post notices of important information at numerous public facilities (i.e. libraries, grocery stores, and schools). The County should also consider attending and presenting at community meetings.

Enhanced Support for the CAP

1. Adequate Notification

The CAP is the primary conduit for the public to voice their concerns and to learn about oil field developments. Previously, the CAP was not provided sufficient notice or time to review and comment on key reports and plans. While the CAP may not have final decision making authority, it should serve a strong advisory role to the Director. We appreciate the DRP's effort to provide adequate public comment period with the Draft CSD Periodic Review report and want assurances this practice will continue.

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[5] For example, FCX currently collects hydrogen sulfide and total hydrocarbon vapor data and issues reports every quarter to the fire chief. This information could also be listed on either the County or Freeport's website.

[6] County: Baldwin Hills Community Standards District versus Freeport: Inglewood Oil Field

Recommendation: We urge the DRP to revise the agency's report and plan sharing policy to provide the following:

- At least 10 business days to review information-only plans and reports (i.e. quarterly complaint logs) to allow adequate time for documents to be presented at a CAP meeting and reviewed by the public;
- At least 60 days to comment on key plans and reports requiring CAP and public input (i.e. Periodic Review Documents);
- Inclusion of all CAP's findings and written explanation from the Director explaining why recommendations were or were not incorporated in the Director's final decision.

2. **Foster an Engaged and Informed CAP**

The CAP was designed to enable communication between stakeholders and the field operator so the parties could better understand one another. This requires expedient information sharing and a robust CAP with active, informed members. Currently, the CAP meetings typically fail to provide important information. Residents and CAP members raise questions but the operator ombudsperson largely fails to answer during the meeting citing the need to ask other staff. While the ombudsperson often addresses unanswered questions in subsequent meetings, the conversation flow is lost or the inquirer is absent from the meeting. Additionally, the CAP's attendance and communication with the Multiple Agency Coordination Committee (MACC) could be bolstered. Some organizations and stakeholders representatives have consistently missed meetings and the MACC and CAP have little communication with one another. The DRP made a positive first step by committing to reviewing CAP membership in the Draft Periodic Review Report, yet further action by DRP is needed to revamp the CAP membership's engagement.

Recommendation: We recommend measures to improve meeting attendance and member knowledge. Suggested measures include:

a. *Require Operator Send Additional Knowledgeable Employees:* To allow more real-time conversation about attendees' questions and concerns, the operator should send additional knowledgeable staff who can answer many of the questions posed at CAP meetings.
b. *Meeting Attendance:* The DRP could increase meeting attendance by contacting groups missing numerous meetings (i.e. more than five consecutive meetings) and requesting the group designate another person to attend the CAP meetings.
c. *Enhanced Inter-Committee Communication:* We finally recommend improving collaboration and communication between the CAP and MACC. CAP and MACC are largely uninformed of each other's interests, concerns, and activities and this impedes informed decision-making. We recommend MACC submit reports to the CAP and send a representative to regularly attend CAP meeting.

Minimize Oil Field's Impacts

1. Evaluate Fire Safety Precautions

As discussed in numerous CAP meetings, the Baldwin Hills Oil Field has experienced a spike in fires in the last year. Southern California Edison (Edison) and FCX have not always been able to identify the impetus

for the fires or state whether all necessary precautions have been taken to prevent future fires.[7] Edison has only stated the infrastructure is up to code. The uptick in fires suggests current electrical infrastructure fire prevention measures are insufficient. The historic drought conditions means FCX and other relevant bodies should take necessary measures to ward off future fires. It also means unannounced fire drills are crucial to identify issues in fire response procedures.

> **Recommendation:** DRP, Southern California Edison, the Culver City Fire Department, and Los Angeles County Fire Department should conduct an independent study that determines what additional measures could be taken to prevent ignition of future fires. We support DRP's plan to coordinate execution of unannounced drills with the Fire Department and urge conducting these drills as soon as is practicable.

2. Update Air Monitoring Rules

The Air Monitoring Plan should include methane monitoring and review the appropriateness of the air monitoring equipment. Since the CSD's passage, Colorado updated petroleum production regulations to require companies to monitor and control methane and volatile organic compound emissions.[8] As is well documented, methane is a powerful greenhouse gas and the operator should take reasonable measures to prevent unnecessary releases. We secondly request a determination of whether air monitoring equipment is able to accurately capture spikes in emissions. A study recently published in Reviews on Environmental Health determined the air quality average typically used by equipment can severely underestimate the public's actual exposure.[9] These are just two tools that may reduce the field's impact on the surrounding communities.

> **Recommendation:** The Air Quality Management District and DRP should evaluate the appropriateness of requiring methane and volatile organic compound monitoring equipment as done in Colorado. Any determination should quantify the benefits of using the new technology and should require adoption if the monitoring could reduce the field's impact on the surrounding area. In light of emerging research published in the *Reviews on Environmental Health* journal, we request the Air Quality Management District and DRP review whether current equipment and measurement methods are appropriate.[10]

3. Measuring and Limiting Noise Spikes

As the Draft Periodic Review Report states, the public has filed 47 complaints on noise over the last few years. The primary sources identified by the DRP were from maintenance and work-over rigs as well as the banging of pipes. Yet, any incidents where the noise monitoring equipment recorded sound above the permissible decibel level came from activity outside of the oil field's operations. This suggests the current noise requirements are insufficient. The public is bothered by noise from the oil field's operations, yet that activity does not register as above the permissible level.

> **Recommendation:** The DRP and the Department of Public Health should reevaluate the noise monitoring plan and rules. The issue may lie in the location of monitoring equipment, in the reliance

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[7] January 23rd CAP Meeting.

[8] Regulations are available at http://www.colorado.gov/cs/Satellite/CDPHE-AQCC/CBON/1251647985820

[9] Brown, D., Weinberger, B., Lewis, C., & Bonaparte, H. (2014). Understanding exposure from natural gas drilling puts current air standards to the test. *Reviews on Environmental Health*, *0*(0). doi:10.1515/reveh-2014-0002

[10] Brown, D., Weinberger, B., Lewis, C., & Bonaparte, H. (2014). Understanding exposure from natural gas drilling puts current air standards to the test. *Reviews on Environmental Health*, *0*(0). doi:10.1515/reveh-2014-0002

on an hourly, A-weighted measurement, or other factors. Detection and a remedy to the underlying issue(s) are needed to prevent operations from continuing to disrupt the surrounding area.

4. Enhance Landscaping

Landscaping is "to beautify and screen the operations from adjoining residential, recreational, institutional areas or adjacent public streets or highways"[11] yet the visual blight related to the oil field continues to be a concern for area residents. The view shed from surrounding homes has seen little if any improvement. The City of Culver City and the public have raised concerns over the field's aesthetics and screening during CAP meetings and in the DRP's electronic survey on the CSD Periodic review. Additionally, vegetation along the perimeter does not appear to be maintained or irrigated causing potential fire hazards as well as further blight. Planting additional trees, ground plants, and shrubs are a relatively low-cost investment that may have the added benefit of filtering emissions.

Recommendation: DRP and the CAP should jointly review the effectiveness of previous landscaping plantings and enhance screening where needed. Future landscaping plans should be revamped to provide greater screening of the field both along the perimeter and interior where feasible.

5. Address Unconventional Oil Production

The CSD and CSD Periodic Review fail to directly address risks presented by unconventional oil extraction, stimulation, and production activities. When the CSD was created, hydraulic fracturing and acidizing technologies were largely unknown to the public. As a result, the CSD was not structured to protect against the unique harms unconventional oil extraction activities can bring. Acidizing requires operators transport, store, and use harmful substances and can result in the creation of secondary pollutants with health implications like silica sand and chlorinated solvents.[12] Acidizing can also result in further contamination by corroding casing.[13] Hydraulic fracturing has been identified as the likely source of earthquakes in Ohio[14] and has been linked to water contamination.[15] This omission is disconcerting because now DOGGR describes fracturing as a regular practice and at least 40 wells in the Baldwin Hills Oil Field underwent an unconventional oil production treatment like acidizing over the last year. [16] Although Senate Bill 4, passed in 2013, aims to regulate this activity statewide, the legislation's regulations will likely exempt some acidizing activities from the proposed requirements. With some acid

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[11] Los Angeles County Department of Regional Planning. *Final Environmental Impact Report: Baldwin Hills Community Standards District*. Marine Research Specialists. 2008. Print.

[12] Florida American Industrial Hygiene Association 2012 Conference: http://flaiha.wildapricot.org/Resources/Documents/Conferences/2012%20Spring%20Conference/Presentations/Risk%20Assesment.pdf.

[13] Rajeev, P., Surendranathan, A. O., & Murthy, C. S. N. (2012). Corrosion Mitigation of the Oil Well Steels Using Organic Inhibitors – A review. *Journal of Materials and Environmental Science*, *3*(5), 856–869.

[14] L.A. Times Editorial Board. (2014, April 20). Does fracking cause quakes? California needs to know. *Los Angeles Times*. Retrieved from http://www.latimes.com/opinion/editorials/la-ed-fracking-20140420,0,4013877.story

[15] Jackson, R. B., Vengosh, A., Darrah, T. H., Warner, N. R., Down, A., Poreda, R. J., … Karr, J. D. (2013). Increased stray gas abundance in a subset of drinking water wells near Marcellus shale gas extraction. *Proceedings of the National Academy of Sciences*. doi:10.1073/pnas.1221635110

[16] The South Coast Air Quality Management District's "Oil and Gas Activity Notification" site (at http://xappprod.aqmd.gov/r1148pubaccessportal/) reported at least 40 acidizing treatments in the last 10 months.

treatments unaddressed in SB 4 and ignored in the CSD and CSD Periodic Review, this leaves the activity's unique hazards overlooked and unaddressed.

Recommendation: The County should review what risks unconventional oil production activities, like acidization, can present and determine what additional protections the CSD needs to protect against those hazards in consultation with the AQMD, Regional Water Quality Board, EPA, and Community Advisory Panel. The DRP response to this comment in the Draft Periodic Review Report was that this is unnecessary since hydraulic fracturing is not occurring in the field. Although FCX is not currently fracturing, the company is using acidizing. Furthermore, no fracturing-specific protections are in place should FCX initiate the practice in the future. Only by thoroughly reviewing and outlining the risks the activities present can the DRP guarantee it is adequately protecting the public's health, safety, and welfare. We additionally recommend the County prohibit well stimulation treatments until completion of the Senate Bill 4 mandated study of well stimulation risks, and it is proven the activity can occur without endangering the public's health and safety.

6. Expanding Baldwin Hills State Park

Neighboring communities have limited access to parks with only one regional park in South Los Angeles.[17] Through strategic land management, the Operator and the County could expand acreage and access to the Kenneth Hahn State Park and expand park space in other neighboring places. To demonstrate the operator's commitment to improving the community, FCX could grant Los Angeles County Department of Parks and Recreation access to underutilized field sections.

Recommendation: We urge the DRP request FCX grant access to unused portions of the field on the perimeter to the Parks system. One example of interest to the undersigned stakeholders is mapped below. FCX could provide an easement adjacent to the north-western section of La Cienega Boulevard for a trail that would allow surrounding neighborhoods to more easily access park spaces.

7. Shrinking the Field

[17] Parkland Summary Sheet by Community Plan Area. (2012) City of Los Angeles Department of Recreation and Parks.

While we appreciate protections and aesthetic improvements the CSD has ushered in, this site remains an undesirable neighbor. The mere presence of the field causes stress to many residents and oil production prevents more harmonious uses, such as open space, from locating in the area. The closer wells are to homes and schools, the greater the risk is to public.

> **Recommendation:** We recommend the DRP create a timeline and plan for shrinking the field's physical size. This could include using the bonus well program to encourage the operator to centralize well location. We encourage the DRP to lower the basic annual cap (i.e. reduce the guaranteed 35 wells) and allow the operator to maintain production levels only by earning bonus wells with a reduction in the field's physical size.

Thank you for your consideration of our concerns and recommendations. Should you have any questions or need further clarification – please feel free to contact us directly.

Sincerely,

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CC: Supervisor Mark Ridley-Thomas
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APPENDIX A

August 31, 2012

Richard Bruckner, Director
Los Angeles County Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

Attention: Rena Kambara via rkambara@planning.lacounty.gov

Subject: Baldwin Hills Air Quality Monitoring Study Comments

Dear Mr. Bruckner;

We take this opportunity to comment on the draft Baldwin Hills Air Quality Monitoring Study commissioned by the department pursuant to the terms of the July 2011 settlement agreement. We have reviewed the draft with the assistance of a qualified consultant who has prepared and conducted numerous air quality assessments. We question (1) the reliance upon the emission data presented in the 2008 Environmental Impact Review, (2) compromises made on the scope of the study as a result insufficient funding for the project, (3) the absence of a toxicological examination of the cumulative effects of the individually identified toxins and (4) the lack of a written agreement with PXP to assure that they will provide their operations data to (and share their annual workplan scheduling cooperatively with) the consultant. We strongly urge the County to re-visit the workplan based on the following comments and recommendations:

Lack of Independent Verification of Emission Data: STI indicates it "used the reported emissions from 2005 and 2006 used in the Baldwin Hills Community Standards District EIR". The EIR air quality data relied on the AQMD's West LA monitoring station located at least 2.54 miles north and the Lennox Station located about 4.2 miles south of the oil field. (FEIR at p. 4.2-3.) In addition to its reliance on those non-adjacent stations, the EIR air quality analysis also relied on PXP's annual emissions reports for fiscal years July 2005 and June 2006 (FEIR at p. 4.2-9), which are already more than five years old and are not independently verifiable.

This data used in the EIR has now informed the fundamental design and scope of the proposed study. The sampling and reliance on secondary data sources was questioned during the CEQA public review process and again in the August 15, 2012 letter from the South Coast Air Quality Management District (AQMD) in its comments on the study design. For example, AQMD notes that "ultrafine particles (UFPs) emissions were not accounted for in the Baldwin hills Community Standards District EIR…but are likely to be elevated within and around the study area." This is of particular concern given the assertion that exposure to UFPs has been linked to respiratory and cardiovascular diseases as indicated by Dr. Cyrus Rangan author of the County Health Assessment in a July 2012 CAP meeting. The February 2011, LA County Department of Public Health Inglewood Oil Field Communities Health Assessment found, higher age-adjusted mortality rates in the Inglewood Oil Field communities compared to Los Angeles County for asthma(2.5 in Inglewood Oil Field Communities vs 1.4 LA County) and coronary heart disease (196.2 vs 187.6 in LA County).

Furthermore, operations since the release of EIR have significantly been changed due to increased oil field activity and presence of new technologies, including hydraulic fracturing, that are now known to be taking place throughout the field. STI nonetheless relies upon this data to rank and prioritize the pollutants to be studied and therefore the methodology. The reliance on this data undermines the fundamental credibility and integrity of the study.

Compromises Made in Scope of Study: As noted in the draft, "Due to budgetary constraints, STI was forced to prioritize the pollutants for which monitoring could take place at high temporal resolution and to propose less than a full year of monitoring for some toxics." This approach does not provide the public with the assurance or scientific certainty of the pollutants and toxins in the field. The lack of funding compromises the integrity of the study by forcing constraints on:

a. Capacity and pollutants to be captured and measured
b. Length of time and seasonal variations for which critical toxins are captured and studied as noted in the AQMD comment letter
c. Identification and measurement of fugitive gases and soil vapors independent of current drilling operation resulting from spillage and leaks in abandoned wells

We question if the proposed two week period for monitoring VOCs will provide sufficient data on what is occurring in the field over time. The study does not demonstrate the time period proposed is based on any particular conditions. Furthermore -while the scientific evidence regarding the health impact of various toxins may be inconclusive at this time – gathering this data at this point can be beneficial as the science catches up with the new technology used for drilling and oil extraction. It seems short-sighted to simply omit these compounds from the study.

Lack of Toxicological Examination: The study examines the presence of the individual pollutants but fails to examine the potential chemical reaction and health risk when two or more of the pollutants are combined. The presence of any of the individual compounds in the quantities identified in the EIR may or may not present a health risk. However, the EIR failed to and now the proposed study does not appear to examine the cumulative effects of how a combination of chemicals at various concentration levels may attach to particulates and pose a health risk. It is not clear if any member of the study's team is qualified to conduct this aspect of the study and address this unanswered question.

No Written Agreement to Give Air Quality Consultant Access to PXP Operation's Data: According to STI, "Of critical importance to fully addressing the study objectives is the documentation of time/location activity information for major Oil Field operations. Topping this list of activities are well drilling and well work-overs." Yet, to date STI has received only inadequate verbal commitments from PXP to set up a mechanism for sharing operation schedules and data. Without this information, STI will be unable to meet the primary and secondary objectives of the study.

Recommendations - we offer the following recommendations to strengthen the utility of the study:

1. Divide the study into two phases and **revise the current workplan to establish an independent, comprehensive and scientifically based baseline**. The baseline study should not assume the absence of any toxins or levels of concentration, but rather be designed to identify as many of the pollutants and toxins present in the field as scientifically feasible.
2. The **study should also include a toxicological analysis** of the data.
3. Design the second phase of the study to **examine the correlation between emissions and the various activities in the field**. Require PXP to agree to provide data on their schedule of activities in

the oil field in writing and design the collection of data to correspond with the various aspects and levels of each operation. The information-sharing from PXP should include but not be limited to the nature of the operation, duration, output, quantity of material injected into the well, readings from the monitoring devices at the well head, etc.

4. **Perform the supplemental recommendations outlined in the AQMD comment letter**.
5. **Seek funding from PXP to complete the second phase** of the study as described above, including monitoring for PM .1. PXP has continued to assert their activities and the oil drilling operation are safe. Underwriting an independent empirical study would assess the accuracy of that assertion and they should therefore be asked to provide the needed additional funding.
6. **Black Carbon monitoring should specify monitoring for both PM 1.0 and PM 2.5** using the same methods used to measure the background levels for BC.
7. **Make public all written comments submitted** to the County, and include CAP in all consolidation and prioritization of public comments.
8. **Make public all data collected** to support additional research and analysis.

Thank you in advance for your response to the questions raised and your consideration of these recommendations. The goal is to provide the public with the highest level of confidence that the County is effectively monitoring and protecting the public's health and safety. We believe these recommendations for revising the workplan are a step in that direction.

Sincerely,

Lark Galloway-Gilliam, MPA
Executive Director
Community Health Councils

Damon K. Nagami
Staff Attorney
Natural Resources Defense Council

CC: Supervisor Mark Ridley-Thomas
Senator Curren Price
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APPENDIX B

September 26, 2013

Jonathan E. Fielding, M.D., M.P.H.
Director of Public Health and Health Officer
313 North Figueroa Street Rm. 806
Los Angeles, CA 90012

RE: Inglewood Oil Field Communities Health Assessment and Inglewood Oil Field Communities' Survey

Dear Dr. Fielding,

Community Health Councils (CHC) has reviewed the February 2011 Inglewood Oil Field Communities Health Assessment as conducted by the Los Angeles Department of Public Health (DPH) and the subsequent Baldwin Hills Community Standards District Periodic Review letter dated May 29, 2013 recommending no further study for the periodic review. We are deeply concerned with the quality of the initial study and conclusion on the part of the department as to the utility of future surveys. We therefore call upon the LADPH to complete a supplemental community health assessment that clearly meets the Settlement Agreement and uses better methodology.

Upon review of the initial study, it is clear that the County has not adhered to Health Assessment obligations, such as the Environmental Justice Study provision, outlined in the Inglewood Oil Field Settlement Agreement. We also have strong reservations that the study's methodology compromises its validity. Although the study cannot determine causal relationships between the Inglewood Oil Field and reported illness, rigorous methodology could identify unusual patterns of disease. The Community Health Assessment's inappropriate research methodology, insufficient level of analysis, and exclusion of the Health Working Group may have resulted in DPH missing noteworthy patterns of disease or environmental injustices in the oil field communities. Furthermore, this initial study was expected to provide a baseline against which future data would be analyzed, and not a final report on the health impacts of the oil field on the health of the surrounding population. In order for the Baldwin Hills Community Standards District (CSD) to achieve its goal of protecting the public's health and welfare, the County must understand the health risk associated with the oil fields and examine any potential patterns of illness and disease by addressing the following:

Failure to Satisfy Settlement Terms

The Study Does Not Adhere to Section Five of the Baldwin Hills Community Standards District Settlement Agreement.

One of the stated goals of the Baldwin Hills CSD is "protecting the comfort, health, safety, and general welfare of the people living, working, and recreating in the surrounding areas".[18] CSD and CSD settlement-related provisions *can* help achieve this aim but only with proper implementation. One such tool, the Community Health Assessment, is described in Section 5 of the settlement:

> *Health Assessment and Environmental Justice Study.* The County shall complete a Community Health Assessment of the communities surrounding the Oil Field which shall include an Environmental Justice component by June 2012… Public Health will analyze the information by socio-economic and demographic data to accommodate and reflect an Environmental Justice component.[19]

The Community Health Assessment does not include an environmental justice component as the settlement requires. Additionally, the study considered socio-economic data on a very limited basis and in a manner that inhibits detection of environmental injustices. This methodology not only disregards the settlement terms but also likely biases the results and may mean problematic health patterns were missed.

1. The Study Does Not Satisfy the Socio-Economic Status Analysis Requirement

Organizations like the American Psychological Association define socio-economic status "as the social standing or class of an individual or group. It is often measured as a combination of education, income and occupation."[20] A socio-economic analysis should include adjustments for demographics like race, income, *and* education because a combined measure of such dimensions better predict individual's social standing than a one-dimensional predictor. Consideration of socio-economic data was not only required by the Settlement, but is also sound methodology because socio-economic status, representative of social standing, is predictive of general population's pollution exposure and health outcomes.[21]

The survey did not adjust for race, income, and education on most data points. On key health outcome variables, including mortality, low-birth weight births, birth defects, cancer rates, perception of health status, and average number of poor physical health days, the study only adjusted for race and ethnicity. As more thoroughly discussed in the "Inappropriate Methodology Section", race is an inaccurate proxy for socio-economic status for Baldwin Hills Oil Fields neighborhoods because those communities' median income is higher than Los Angeles County levels.

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[18] Baldwin Hills Community Standards District Code: 22.44.142(A).

[19] Baldwin Hills Community Standards District Settlement Agreement: Community Health Councils, Inc, Et Al. v. County of Los Angeles. Superior Court of the State of California. 15 July 2011.

[20] "Socioeconomic Status." *Socioeconomic Status*. American Psychological Association, n.d. Web. 21 Aug. 2013. <http://www.apa.org/topics/socioeconomic-status/>.

[21] Pastor, Manuel. "Racial/Ethnic Inequality in Environmental-Hazard Exposure in Metropolitan Los Angeles." Center for Justice, Equality, & Tolerance, 2001. Web. <http://cjtc.ucsc.edu/docs/r_racialhazardexp.pdf>.

2. The Study Does Not Satisfy the Environmental Justice Requirement

The Community Health Assessment also neglected discussing environmental justice. The U.S. Environmental Protection Agency defines environmental justice as:

> The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies.[22]

A discussion of environmental justice could inform decision-making and CSD policy development by identifying whether residents were included in the policy-making process or whether particular groups disproportionately experience harms from the oil fields.[23] The environmental justice discussion was not only required, but is also necessary to uphold the CSD's goal of protecting the general welfare of the people in the surrounding areas.

Recommendation: Conduct a supplemental Community Health Assessment which adjusts for socio-economic status and discusses environmental justice with an analysis of community engagement, considerations made during the oil field policy decision-making process, and whether some groups are disproportionately impacted by oil field operations.

Methodology Shortfalls

1. Failure to Adjust for Health Outcomes by Socio-Economic Status

An interconnected issue is that the Community Health Assessment's adjustment for race rather than socio-economic status may mean DPH missed important health outcome patterns. Race alone is an inappropriate measure of social standing for a community, especially for the Baldwin Hills Oil Field Communities who are uniquely wealthier than most Los Angeles County minority communities. Adjusting for race is appropriate if there is a genetic link between race and disparity of health outcomes, yet public health literature suggests otherwise. According to the American Journal of Epidemiology, "Race is a social construct and not a biologic reality…" and "The variable race is generally thought to measure some combination of social class, culture, and genes. Yet race is only a rough proxy for each of these."[24] As shown in the table below, the median household income of the "Inglewood Oil Field Communities"[25]of color is up to $14,500 more than their Los Angeles County counterparts.

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[22] "Environmental Justice: Basic Information." *EPA*. Environmental Protection Agency, n.d. Web. 29 July 2013. <http://www.epa.gov/environmentaljustice/basics/index.html>.

[23] Environmental Justice. California Energy Commission, n.d. Web. 21 Aug. 2013. <http://www.energy.ca.gov/public_adviser/environmental_justice_faq.html>.

[24] Jones, CP. Invited Commentary: "Race," Racism, and the Practice of Epidemiology. American Journal of Epidemiology. (2001) 154 (4): 299-304.

[25] As defined by the Community Health Assessment cancer estimations.

	Per Household Median Income[26]		
	"Inglewood Oil Fields Communities"	L.A. County	Difference
White Alone	$66,156	$61,249	$4,907
African-American	$55,095	$40,581	$14,514
Asian	$75,324	$63,801	$11,523
Other	$42,955	$42,816	$139
Hispanic	$45,731	$44,076	$1,655

If one examines only the census tracts adjacent to oil field, the income disparities are even greater ($23,000 to $33,800).

	Per Household Median Income[27]		
	Census Tracts "Adjacent to the Inglewood Oil Fields Communities"[28]	L.A. County	Difference
White Alone	$84,135	$61,249	$22,886
African-American	$74,382	$40,581	$33,801
Asian	$86,852	$63,801	$23,051
Other	$66,572	$42,816	$23,756
Hispanic	$71,151	$44,076	$27,075

With higher income, we should expect better health outcomes for Inglewood Oil Field Communities relative to other Los Angeles County African Americans, Latinos, and Asians. DPH should have controlled for income in order to compare health patterns in communities of similar socio-economic status, which is a more accurate and direct predictor of communities' health.[29]

Recommendation: With minority communities disproportionately living in more toxic and polluted neighborhoods than the general public,[30] we strongly urge completion of a supplemental Community Health Assessment that minimally adjusts for race *and* income on all key health outcome measures.

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[26] U.S. Census Bureau; American Community Survey, 2009 American Community Survey 5-Year Estimates, Variable S1903; generated using American FactFinder; <http://factfinder2.census.gov>; (10 August 2013).
[27] U.S. Census Bureau; American Community Survey, 2009 American Community Survey 5-Year Estimates, Variable S1903; generated using American FactFinder; <http://factfinder2.census.gov>; (10 August 2013).
[28] Used DPH's Health Assessment Survey definition of "adjacent" or the census tracts: 2364.00, 2360.00, 7025.02, 7026.00, 7030.01, 7030.02, and 7031.00.
[29] National Research Council (US) Panel on Race, Ethnicity, and Health in Later Life; Anderson NB, Bulatao RA, Cohen B, editors. Critical Perspectives on Racial and Ethnic Differences in Health in Late Life. Washington (DC): National Academies Press (US); 2004. 9, Race/Ethnicity, Socioeconomic Status, and Health. Available from: http://www.ncbi.nlm.nih.gov/books/NBK25526/
[30] Health Equity Scorecard. Community Health Councils. 2008.

2. **Failure to Report and Adjust for Length of Residency in Area**

   The study fails to provide data on the length of residency of the survey respondents. Understanding long-time residents' patterns of illness and disease is more useful than cross-section reporting of people who currently reside in the area. For example, the study sample may consist primarily of residents who have lived in the area for three years or less and have a low chance of exhibiting oil field-related unusual patterns of disease. In the absence of adjusting for this data, it is hard to determine the validity of the study sample. Further, longtime residents could have been exposed earlier in life but have since moved. Therefore their rates of morbidity and mortality would be accounted for in the LA County rates rather than the "Oil Field Community."

Recommendation: Stratify results by length of residency and create a sample mostly comprised of long-term residents (10 years or more) in order to account for exposure time.

3. **Failure to Address Study Limitations and Explain the Study's Research Design**

   While the authors outline the study's limitations, they do not provide justifications for how limitations were either accounted for or addressed by the study's design and analysis. The study should articulate foreseen limitations and the study's design or analysis strategy for overcoming likely limitations. Some noteworthy limitations the study could have addressed include the following:

   - The study's small sample limits its ability to detect statistically significant differences between the LA County and the Oil Field Communities. For this reason, the vague description of the analysis plan is concerning. It's unclear whether the study accounted for multiple testing issues and small cell sizes.
   - Phone interviews likely contributed to the study's low response rate. The researchers could have over-sample or used alternative data collection methods to compensate for a low phone response rate.
   - The study does not comment on the hypotheses tested or why questions were chosen-beyond comparability to the earlier survey. As requested by the community advisory group, questions about self-reported symptoms (like coughing, runny noses and others) related to pulmonary infections should have also been included rather than focusing on health behaviors that are unrelated to oil field toxic exposures.

Recommendation: All future studies should include a section that articulates the way the study limitations were addressed either by study design or analysis strategies.

4. **The 1.5 Mile Sample Buffer Was Not Connected to the Likely Travel and Contamination Patterns of Oil Extraction Pollution.**

   The Community Health Assessment will better detect unusual disease patterns if the assessment only surveys residents with the potential to be exposed to oil field pollutants. The survey simultaneously should avoid oversampling unexposed people based on where oil field contaminants could, with reasonable certainty, migrate to. The danger each pollutant poses varies based on

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Pastor, Manuel, Jr. *California Policy Research Center: University of California*. Rep. Center for Justice, Equality, & Tolerance, 2001. Web. 18 Aug. 2013. <http://cjtc.ucsc.edu/docs/r_racialhazardexp.pdf>.

expected spatial travel patterns. For example, diesel exhaust from drill rigs, work-overs, and oil field vehicles may acutely endanger persons within a half-kilometer of the field while more centralized operations would follow Gaussian shapes that impact persons at greater distances. Furthermore, exposure to water contamination is shaped by drainage patterns, rock morphology, and groundwater flow. Without an evidence-based explanation of the communities assessed, we are concerned the assessment under-sampled neighborhoods most likely to face pollution exposure. This would limit DPH's ability to detect disease patterns occurring in communities hypothetically impacted by the oil fields' activities.

Recommendation: Through a literature review, identify which neighborhoods are reasonably likely to face oil field air, soil, and water runoff pollution exposure. Furthermore, stratify the sample and analyze results in quarter-mile increments. We recognize there is inconclusive data on oil field emissions travel patterns,[31] yet evidence and logic indicates that exposure decreases as distance from pollution sources increases.[32] Since disparate pollutants will have varying health impacts at different distances, only by stratifying the sample, for example into quarter-mile increments, can researchers have a chance at detecting disease patterns. Furthermore, a more fine-tuned examination allows detection of more acute issues like odor, noise, and vibration problems.

5. **Census Tract too Imprecise.**

   Oil field-adjacent Census tracts are an insufficient measure of an individual's potential oil field pollution exposure as census tracts' distance from the field is highly variable. Only 5 of the 29 "Inglewood Oil Field Communities" census tracts actually border the oil field. The remaining 24 oil field adjacent tracts fall varying distances from the field. Furthermore, some census tracts extend from the field to the 1.5 mile buffer zone (i.e. census tracts 7030.01, 2360.00, 7030.02, and 7026.00). Potential exposure levels within a tract will vary considerably based on a respondents distance from the Inglewood Oil Fields and aggregating information from all oil field adjacent tracts may obscure location-based health trends.

Recommendation: In line with the prior recommendation regarding buffers, stratify data results into distinct buffers in quarter to half-mile increments.

6. **Inconsistent definition of "Inglewood Oil Field Communities" between the Inglewood Oil Field Communities Health Assessment (2/2011) and Results of the 2011 Inglewood Oil Field Communities' Survey (4/2012).**

   In DPH's study, "Inglewood Oil Field Communities" are first identified as 29 Census tracts in the mortality assessment, while 19 Census tracts are used for the cancer assessment. Furthermore, birth defect data draws on ZIP Code Data which is composed of incompatible census tracts. The unstandardized definition of "Inglewood Oil Field Communities" across studies creates additional concern about the study's ability to spot disease patterns.

Recommendation: Standardize the definition of "Inglewood Oil Field Communities" alongside the recommendations of stratifying sample reporting in future health assessments.

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[31] Witter, et al. "Potential Exposure-Related Human Health Effects of Oil and Gas Development: A White Paper. Colorado School of Public Health, University of Colorado Denver. 2008. Accessible via: http://docs.nrdc.org/health/files/hea_08091702a.pdf

[32] Saadat, et al. "Hematological changes due to chronic exposure to natural gas leakage in polluted areas of Masjid-i-Sulaiman (Khozestan Province, Iran). Ecotoxicology & Environmental Safety 58(2): 273-6. 2004.

Insufficient Level of Reporting

1. **Insufficient Information to Determine if the Sample Size Allows Detection of Statistically Significant Results**
   The report failed to provide information on how DPH and Field Research Corporation arrived at a sample size of 1,020 people and whether or not this sample size was enough power to detect significant differences in patterns of disease. If the study's sample size is too small, even large health outcome differences between the "Inglewood Oil Field Communities" sample and larger LA County sample will likely remain unobservable.[33]

Recommendation: Cleary articulate how the sample size of 1,020 was identified and indicate the techniques used to detect statistically significant differences in morbidity and mortality.

2. **Inadequate Timeframe for Trend Data**
   One of the health assessment's strengths is the use of trend data; however, it is unclear why the seven-year period was chosen beyond it being the most recent data. The analysis should have included trends that correspond to the before, during and after periods of the oil field production. The examination of mortality is a long range outcome and reporting morbidity (rather than mortality) trends may reveal more telling information. For example emergency care and/or hospital admissions related to symptoms might tell a different story about disease incidence.

Recommendation: Triangulate data sources to facilitate an understanding of morbidity trends. We recommend using secondary data sources supplement the survey.

3. **Data on Acute Myelogenous Leukemia is Not Reported by Age and Spans an Irregular Time Interval with Varying Levels of Oil Field Activity.**
   As stated in DPH's assessment, research has clearly connected acute myelogenous leukemia (AML) to benzene exposure. Benzene exposure, benzene vulnerability, and gender are some risk factors that increase your likelihood of facing AML. Yet, the assessment fails to report results along demographic information outside of race and ethnicity.

   Furthermore, drilling activity has varied significantly throughout the history of the oil field (see graph below).[34] Based on oil field activity, AML rates would likely vary as drilling-related benzene exposure fluctuates. Reporting results over large time intervals limits researchers' ability to spot AML vacillations we would expect to change in response to oil field activity changes.

[33] "GraphPad Statistics Guide." Web. 21 Aug. 2013. <http://www.graphpad.com/guides/prism/6/statistics/index.htm?stat_key_concepts_statistical_power.htm>.
[34] Department of Conservation. Division of Oil, Gas, and Geothermal Resources. Online Production and Injection data. Accessible via: http://opi.consrv.ca.gov/opi/opi.dll

Recommendation: Enable greater detection of benzene-related AML by reporting AML rates over smaller time increments and comparing those rates to oil field activity levels.

Exclusion of Health Working Group Comments and Recommendations

1. **Unsatisfactory Utilization of the Health Working Group**
   The Health Working Group meetings were abruptly cancelled after two meetings without a clear explanation of the cancellation decision. Secondly, the Health Working Group was not notified of how comments were considered in decision-making or integrated in the study's design. While the assessment includes many of the Health Working Group comments, it does not have many substantive recommendations the DPH had committed to responding to, including a DPH commitment to discuss access to health care and insurance.

Recommendation: To allay community concerns and engage community members in constructive dialog with researchers, recommendations from community groups must be encouraged and included.

Conclusion

There is clear evidence locally, nationally, and globally, that industrial sources of exposure to a variety of pollutants similar to those found in the oil field can and do have significant health impacts. The health and safety of areas surrounding the oil field—communities with schools, day cares, nursing homes, and hundreds of thousands of residents—continues to remain an area of significant concern for our organization, partners, and stakeholders. In fact, the mere perception of an elevated risk has caused increased stress in the community – a significant public health impact. Furthermore, the conditions of the July 2011 Settlement Agreement requires DPH to conduct an Environmental Justice Study with an analysis of socio-economic and demographic data. However, most results are not adjusted by socio-economic status and the report does not contain a discussion or analysis of environmental justice anywhere in the Inglewood Oil Field Communities Health Assessment or Inglewood Oil Field Communities' Survey. A good-faith effort to address and study environmental justice concerns must be made in DPH's study to comply with the terms of the Settlement Agreement. We urge immediate

initiation of a supplemental assessment to replace the 2012 Community Health Assessment since the original assessment does not appear to meet the settlement terms.

Community Health Councils calls on the County and the Department of Public Health to prioritize work and allocate funding for a supplemental assessment to address the specifications in the CSD, correct the short falls in the methodology as well as continued monitoring and evaluation of potential health impacts arising from exposure to oil field activities. We view the supplemental assessment as a requirement of the Settlement Agreement and the ongoing monitoring and evaluation as a matter of duty to protect the health and welfare of Los Angeles County.

If you have any questions, please do not hesitate to contact me by email at Lark@chc-inc.org or by telephone at (323)295-9372. Thank you again for the opportunity to comment on this time sensitive issue.

Respectfully submitted,

Lark Galloway-Gilliam, MPA
Executive Director
Community Health Councils

CC:

Honorable Supervisor Mark Ridley-Thomas
Richard Bruckner, Director of Los Angeles County Department of Regional Planning
Elaine M. Lemke, Los Angeles County Counsel

APPENDIX C

SWPA-EHP

SOUTHWEST PENNSYLVANIA ENVIRONMENTAL HEALTH PROJECT

www.environmentalhealthproject.org

EHP's Perspective on the Inglewood Oil Field Communities

The Southwest Pennsylvania Environmental Health Project applies a public health sensibility and methodology to the health risks associated with unconventional natural gas development activities (UNGD).[1] While our organization was designed specifically for this environmental health threat, our conceptual framework and strategy can be applied to other circumstances and other settings, including that of the Inglewood oil fields.

EHP's work combines medical expertise, careful attention to scientific evidence, and personal in-depth interviews with residents who believe their health has or could be compromised by exposures generated by the natural gas industry. Aspects of our work are similar to work being done by the Los Angeles Collaborative for Environmental Health and Justice. A distinguishing feature of the Southwest Pennsylvania Environmental Health Project (EHP), however, is the medical foundation brought by our team physician and nurse practitioner.

Lengthy interviews are conducted by EHP's nurse practitioner who often meets people in their homes, allowing her (and our team) to understand the whole health experience of the residents. These home visits give us a window into an individual's surroundings, families and even pets or farm animals. The interviews are structured and are one component of our overarching environmental health strategy. The nurse practitioner begins each visit by listening to the residents' perceptions of their environmental risks and their health concerns. After that critical interaction, a comprehensive intake interview is conducted.

In tandem with our health assessment, we investigate environmental exposures at the individual level. We have access to monitoring devices for air and water and put these tools in the hands of local residents when possible. Individual information shared with our nurse practitioner, coupled with air and/or water contaminant analyses and a continual review of the scientific literature, provide us with the ability to give practical, actionable guidance and recommendations to individuals and families in the region and beyond.

We read with great interest the Community Health Councils' response to the February 2011 *Inglewood Oil Field Communities Health Assessment*. The circumstances that these communities find themselves in, their stated concerns, and unanswered questions are quite familiar to us. The LADPH study clearly fell short of the communities' expectations and their needs and the CHC appropriately identified the Assessment's limitations. While there are SES and geographical differences between the populations

at risk in Inglewood – Baldwin Hills and in Southwest Pennsylvania, our experience leads us to the same concerns raised by CHC. The small (and perhaps diluted) sample, lack of attention to length of residency, and use of race as a proxy for SES call into question the LADPH's findings. To these and others that have been raised by CHC, we would like to add a few concerns of our own.

Potential for harm

Like many public agencies, the Los Angeles Department of Public Health based its Assessment on the data that was readily available to it. While some of these datasets – including low birth weight, birth defects and asthma mortality – are highly relevant to the contaminants individuals may be exposed to, the overall array of mortality and cancer data does not reflect an appreciation for what these communities' widespread risks might be. One of our greatest concerns is that the actual risks are inadequately represented in the datasets employed in the Assessment. Across the country, in communities with shale gas drilling and other related activities we see many of the same (neurological, gastrointestinal, dermatological, respiratory) health effects. Because we know some of the industry's emissions and the plausible routes of exposure, we feel confident in linking exposures and poor health in those living close to UNGD activity. We began our work by talking to people one-on-one in their own settings. Their self-reports and the known emissions from facilities around them informed our thinking on potential health risks. Respiratory illness not resulting in death; increases in asthma incidence; upper respiratory infections; nose bleeds; and skin rashes are frequently reported in UNGD areas and the literature. They might be among the likely health impacts of the nearby emissions from the Inglewood oil fields as well.

CHC rightly pointed out that the LADPH report adjusted for race, but not always for income and education, which then influences the conclusions drawn from the data. As a result, the environmental effects on the health of African American residents of Baldwin Hills may be underestimated. It is interesting to see (and we have not looked into this) that on several measures Caucasians in the Inglewood – Baldwin Hills communities fare worse than their counterparts county-wide. This is the case for breast cancer, colorectal cancer, diabetes, lung cancer, pneumonia/influenza, and stroke. While no causal claims can be made at this point, the disparities are worth keeping an eye on.

Variability in exposures

CHC's point about the sample buffer not being part of the likely travel and contamination patterns of pollution is a very important one. Even if a residence or neighborhood is directly downwind from a source, there is reason to be cautious about reports of no or little exposure. Over the last couple of years we have devoted a good deal of time and energy to understanding the industry's emissions and nearby residents' exposures. Experience has shown us that the most critical aspect of understanding exposures in settings like Washington County, PA and the Inglewood – Baldwin Hills communities is *variability*. We base our own exposure assessments on the following claims:

- Human exposures to air contaminants are primarily affected by six things: the emissions levels and content; weather patterns which affect air mixing and the disposition of pollution; and the intensity, duration, and frequency of *peak* exposures.
- Therefore, in most circumstances, individuals experience variable exposures over time.
- Physiologically, high levels of exposure (even if short-term) are generally more damaging than low exposures.

These fundamentals put many environmental health questions into perspective. In terms of measuring exposures, it is vitally important to capture and recognize the exposure peaks. That requires strategically measuring at times when emissions are reaching the monitoring site. Exposures are most consistent within a few hundred yards of the source, thus can be more reliably measured. Further than a few hundred yards from a source, one would want to make sure the monitoring site is downwind from the source and that weather conditions hold the emissions nearby and close to the ground. Otherwise the exposures might be missed. This strategy might mistakenly be considered "cherry picking" by some researchers. But if the goal is to understand risk to human health – and much of that risk is generated by peaks not averages over time – capturing high exposures is essential to understanding risk. EHP believes that careful, vigilant monitoring by community members in their own homes is a critical asset. It provides residents with important information (sometimes real-time) that they can use to protect their own health and it provides community groups and public health professionals with data that can be used to protect at risk neighborhoods.

Case-based approach

Our case based approach incorporates, but is not limited to, traditional epidemiology and risk assessment findings. It provides a basis for the design of more meaningful public health studies and interventions. It also generates an ongoing assessment and response process, grounded in the documentation of health conditions by either our nurse practitioner or physician. While being developed in southwest Pennsylvania, it is our belief that this model can and should be incorporated widely as an integral part of community based public health practice.