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Memorandum

To: Working Group Participants: Nikia Greene, Daryl Reed, Karen Sullivan, Eric Hassler, Laura Williamson, Charles Partridge, Rosalind Schoof, Julia Crain, Christina Perkins, Josh Bryson, Matthew Ferguson, Cynthia Van Landingham, Arthur Wendel, Dave Hutchins, Joe Griffin, John Ray, Chris Wardell, Seth Cornell, Heather Zimmerman, Bill Macgregor

From: Steve Ackerlund

Copy:

Date: April 3, 2019

Subject: Minutes of the March 26, 2019 Biomonitoring-Health Study Working Group Meeting

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Attendees

Nikia Greene (EPA), Matthew Ferguson (DPHHS), Charles Partridge (EPA), Chris Wardell (EPAP, Rosalind Schoof (Ramboll), Cynthia Van Landingham (Ramboll), Bill Macgregor (CTEC), John Ray (CTEC) Joe Griffin (CTEC), David Hutchins (CTEC), Karen Sullivan (BSB), Eric Hassler and Brandon Warden (BSB), Steve Ackerlund (Ackerlund, Inc.), Luke Pokorny (AR).

Meeting Summary

The meeting was held from 12:30 to 5:00 PM at the AR office and by conference phone. The long meeting covered many topics. Much of the outcome of the meeting is reflectinged in presentations captured in the March 26 Public Meeting Summary. Accordingly, only key topics are briefly captured below:

1. Nikia announced he had met with Katie Hailer about participating in the Work Group, and she had expressed interest. Charlie had discussed collaborating on ongoing research, lab support, and so on.
2. Karen and Nikia discussed upcoming BSB commissioners meeting and the likely need for Greeley Neighborhood data.
3. Charlie reiterated how the results of the ongoing Anaconda arsenic risk assessment can help inform decisions about utility of urinary arsenic data collection in Butte. Since concentrations are higher in Anaconda, findings should be conservative for Butte.
4. The agenda for the public meeting was discussed.
5. Roz presented an outline for Health Study, which was discussed in detail. There was general agreement with the approach. The health study will include a public health statement, RMAP related biomonitoring and epidemiology requirements, but also

much more on Superfund related community health concerns. A summary of the outline emerging from the meeting is attached. [I added yellow highlight to identify expansion that has occurred from the public participation process.]

6. Dave asked Charlie about new, lower CDC blood-lead goals and their impact on Butte's soil lead cleanup levels. Charlie stated CDC is moving from 5 to 3 ug/dL; however, EPA's policy is still at 10 ug/dL despite years of review. However, individual Superfund sites do have latitude to develop alternative remedial action objectives and cleanup levels consistent with the nine decision criteria used in the feasibility study process. Charlie said blood levels continue to drop in Butte.
7. Roz suggested the Health Study review the basis for cleanup levels.
8. Roz suggested the Health Study review past independent studies. Steve carried the discussion at some length on his perspective of keeping this Health Study text brief, and considering more robust ways of constructive engaging the public on 3rd party health studies in order to gain more common understanding.
    a. Steve: Concerned about reviewing all the studies in one combined review, and don't want be critical of all the studies because it will appear that sides are being taking or are shutting down arguments that work group doesn't agree with.
    b. Roz: Important we do the review because it's required of the study for RMAP.
    c. Not intended to be critical, there may be good studies and data that just aren't applicable to the Butte study and therefore the data has limitations as it applies to this report.
    d. If we don't know what the limitations are, we won't know how to move forward and collect the "right" data in future.
    e. Steve: In the future, we may need to do smaller focus groups to present data to the community.
9. Health Department studies were added to the list of studies to be acknowledged and synopsized.
10. Regarding the letter to the editor:
    a. Steve: Suggests that we recognize these studies but has concern about the unpublished letter to the editor drafted by the group
    b. Roz: If we don't challenge the article then we are endorsing the results
    c. Bill: Need to be talking to the community
    d. Nikia: We are trying not to be biased, but it is our job to review these studies - national/local etc.
    e. Let's get the community input on whether we should write the letter to the editor
    f. Dave: Dissents with CTEC on this issue, but can write some critiques he has on the article.

Commented [RAS1]: Who said this? I disagree with this suggestion, so please don't make it appear to be a consensus. I think the consensus was that this letter may go forward with EPA and Atlantic Richfield signers and CTEC members signing independently of the organization.

11. Possible biomonitoring study revisions discussion:
    a. Make sure it is clear that the study area is identified as "RMAP Study Area and Population" and not "BPSOU Study Area..."

b. Dave Hutchins: Concerned that there has been good community outreach on arsenic and metals other than lead
c. Eric: Of all the RMAP properties that have been visited - Only 58 houses found with arsenic above 250 mg/kg in yard soil - nearly all located near railroad corridor.
d. Dave: Why not looking in attic dust?
e. Charlie: Incomplete exposure pathway from arsenic in attic to living space
f. Joe: Arsenic seems to be the perennial question.
    i. Are there guidelines for urinary arsenic?
    ii. Bob A: RMAP plan says to do urinary arsenic based on environmental conditions
        1. Eric: Have not ever done any urinary arsenic
    iii. Roz: Blood lead is a powerful tool - can measure children's blood and then go look for sources. But arsenic in urine has huge variability - and biggest exposures due to food
        1. Unless you have really high levels, urinary arsenic is not a good risk test for individuals
        2. Can be used on a wide scale basis to look at populations
g. Steve: Most people live their lives experientially and so it is difficult to describe to them that metals in their yard that are above background but below action levels is not a health risk - will take significant communication effort.
h. Nikia: RMAP program looks at lead, arsenic, and mercury - we need to make the point up front that the arsenic and mercury are not big issues compared to the lead.
i. Charlie: Theoretically, if children's exposure to lead from yard soils is decreasing and their blood lead is decreasing, their exposure to arsenic is decreasing too because lead and arsenic are generally co-mingled in soils.
    i. Roz: This applies to all metals in mine waste exposure in soils - lead is a proxy
j. Dave: Understand the limitations and costs of urinary arsenic studies, but as a community member who wasn't able to get a urinary arsenic test it made him mad
    i. Charlie: Perhaps an outcome of all of this is urinary arsenic testing on demand if people are concerned they have been exposed - Bill: per the RMAP is it required (Chapin note: Only if environmental conditions show high level arsenic)
    ii. Steve: Sees the next 3 months as teeing up things such as this for further review and information within the community
k. Nikia: Agree we need to have this long term commitment to communicating with community
    i. Report is due in July, so we need to get Roz and Charlie's description of urinary arsenic in the report - we need the basic science in the report.
    ii. Maybe we also have the questions that come up regularly addressed with a link to a fact sheet
l. Joe: Want to see some definitive recommendations so it doesn't look like we are kicking the can down the road
m. Luke: Arsenic is a nebulous subject within the community - people understand lead better from everyday life, but not arsenic
    i. Should try to avoid the community feeling like they can't get tested if they want to

ii. But need to be very careful with how the analysis is done and analyzed

12. Cynthia presented on plans for an updated statistical evaluation of blood-lead biomonitoring data. It will include summary statistics and trends, neighborhood comparisons, and refinements to the database. The available data was reviewed. Eric suggested some data was missing and would look into it. 76% of the data is below detection, which is good news for the community, but limits statistical assessment methods. The statistics will therefore need to be more oriented toward understanding changes in time for higher observed levels because blood-lead levels are dropping while detection limits from use of the more convenient skin prick versus venous draw method are rising. Other details included:
    a. Presentation by Cynthia (Ramboll) - see slides
    b. Average of about 200 samples per year from 2002 to 2012 for 12-60 month age range
    c. Average 350-375 samples per year from 2012-2017 in 12-60 mo. Age range
    d. Interestingly, adult participation dropped from 135 in 2012 to 2 in 2017 - unsure of the reason
    e. 2019 report - 76% of data is below the limit of detection (3.33 ug/dL)
    f. Blood lead results above 5 ug/dL have fallen from about 50% of samples in 2002 to 5-10% in 2017
    g. Will add the total count of samples above 5 ug/dL to the chart and may revise to numbers above 3.33 ug/dL
13. Charlie mentioned there is a research platform for LeadCare that reduces detection limits from 3.3 to 2.2 ug/dL.
14. Karen described the need to redo the county health needs assessment by 2020 and encourage participation by Superfund health experts and citizens.

Next Working Group Meeting: Not discussed.

Second Butte RMAP Health Study Report

[Additions in response to public input.]

Public Health Statement

Public translation of technical findings. Precedes TOC.

Executive Summary

1 Introduction

1.1 Scope of Study: RMAP Requirements and Limitations

1.2 Study Planning and Public Engagement

1.3 Report Organization

2 Review of Basis for Cleanup Levels

2.1 Review of Health Risk Assessments

2.1.1 Exposure Pathways

2.1.2 Identification of Metals of Concern

2.1.3 Consideration of Mixtures

2.2 Derivation of Soil Cleanup Levels

2.3 Five Year Reviews of Cleanup Levels

3 Review of Past Exposure/Biomonitoring Studies

3.1 Lead and Arsenic Biomonitoring Methods and Update

3.2 Butte Studies

3.2.1 1990 Blood Lead Study (Univ. of Cincinnati 1992)

3.2.2 2000 Blood Lead and Urine Arsenic Study (ATSDR 2001)

3.2.3 2002-2012 Blood Lead Data, First RMAP Study (Ramboll 2014)

3.2.4 2015 Blood and Hair Data, Multiple Metals (Hailer et al. 2017)

4 Review of Disease Prevalence and Rate Studies

4.1 Epidemiology Study Methods and Update

4.2 Butte Disease Studies

4.2.1 Butte Community Health Needs Assessments (2014 and 2017)

4.2.2 Cancer incidence Butte 1989-1998 (ATSDR report 2002)

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4.2.3 Cancer incidence & mortality BSB 1981-2010 (DPHHS 2012)

4.2.4 Disease mortality BSB & Deer Lodge (Davis et al. 2018)

4.2.5 Cancer incidence BSB & Deer Lodge (McDermott presented October 2018)

4.2.6 Cancer incidence & mortality BSB 2002-2016 (DPHHS 2018)

5 Second RMAP Biomonitoring Study

5.1 BPSOU Study Area and Population

5.2 Description of RMAP Environmental Database

5.3 Description of the RMAP Biomonitoring Database

5.4 Overview of Analyses

6 Butte Blood Lead Study

6.1 Refinement of the Blood Lead Database

6.2 Butte Blood Lead Summary Statistics

6.3 Trends in Blood Lead Data

6.4 Butte Neighborhood Comparison

7 Conclusions and Recommendations

8 **References**