

## MEETING SUMMARY

### Community Environmental Working Group

#### *“Striving for Continuous Environmental Improvements at Intel”*

**Date:** January 20, 2016  
**Time:** 5:00–7:00 p.m.  
**Location:** Corrales Senior Center

#### **Members Attending**

John Bartlit, NM Citizens for Clean Air &  
Water  
Mike Williams, NM Citizens for Clean Air  
&  
Water

Hugh Church, American Lung Assc. in NM  
Sarah Chavez, Intel  
Dennis O’Mara, Corrales Resident

#### **Non-Members Attending**

Ron Eppes, Intel  
Lynne Kinis, Corrales Resident  
Carolyn O’Mara, Corrales Resident

#### **Facilitator**

Shannon Beaucaire, Facilitator

CJ Ondek, Recorder

#### **HANDOUTS**

- CEWG Draft Agenda, January 20, 2016
- Draft Meeting Summary, December 2015
- Action-Item Progress Report, January 2016
- EHS Activity Report, January 2016

#### **PROPOSED AGENDA**

Welcome, Introductions,  
Announcements and Brief Items  
Discussion of New Ad Design  
EHS Report and EPA 114 Update  
Review Action Item Progress Report  
Discussion of Draft Letter to Oregon

Further Options for Understanding  
Air Quality  
Discussion on Modeling Project  
New Business  
Adjourn

#### **WELCOME, INTRODUCTIONS, ANNOUNCEMENTS, AND BRIEF ITEMS**

John Bartlit opened the meeting by stating the CEWG mission, which is to work towards continuous environmental improvements at Intel and improved community dialogue. Introductions were made.

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Agenda—Revisions and Approval

No comment.

Meeting Summaries—Revisions and Approval

Lynne Kinis inquired about a comment on page 11 in the Meeting Summary that Sarah Chavez said: "...reminded that if a compound came in below the screening level, then they [the chemicals] no longer needed to be reported on..." to NMED. She asked if Intel continued to screen for a chemical if it tested lower than the screening level. Sarah Chavez replied yes, and that her comment was in reference to the Toxic Release Inventory report to the EPA, which reported thresholds not screening levels. The EPA had a list of chemicals that industries across the USA had to look at and report on at certain levels. Therefore, companies must always do annual assessments to see if a chemical had to be reported. Ms. Kinis asked what happened if a chemical went above the threshold after being below it for a while. Ms. Chavez said that then they would report it. It was an annual report that looked at several parameters, and it was separate and different from the reporting done for NMED.

Lynne Kinis set up the following scenario: if by chance chemical A was regularly below the threshold and didn't need to be reported, and then all of the sudden went above the threshold six months before the report was due and therefore not reported immediately, then the community would have been the recipients of the effects of that increase, and that concerned her. Sarah Chavez said that the thresholds were a federal release level, and not screening levels like those looked at by Mike Williams in his monitoring. They were two different things. Ms. Kinis pointed out that still this was where the community was concerned. Ms. Chavez responded that these EPA reporting thresholds were not connected to health effects. John Bartlit asked if Ms. Chavez could find and bring to the next CEWG meeting EPA rules on these thresholds. Ms Chavez agreed.

**ACTION ITEM:** Sarah Chavez will bring EPA rules around thresholds reported in the Toxic Release Inventory report to the next CEWG meeting.

ATSDR Update

None.

Regulatory Engineering Update

Sarah Chavez said that a new sustainability group was set up at Intel and there is an engineer in NM who was dedicated to the Internet of Things in that group. Ms. Chavez suggested setting up a meeting between Mr. Bartlit, this engineer, Frank Gallegos and herself to talk about regulatory engineering ideas. Mr. Bartlit said he would be happy to meet with him.

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Other Announcements

Dennis O'Mara said the Local Emergency Planning Committee met on January 8, 2016. There were only a couple agenda items. One had to do with the Community and Family Emergency Preparedness guide, which wasn't quite ready for the meeting. However, Mr. O'Mara said he noticed that it looked like the final was sent out today, and so it would be posted on the Sandoval County Web site soon, and he would be working with others to craft a message to send out to the community about it and the Code Red system. Mr. O'Mara said he would share his copy with the CEWG. Mr. O'Mara said the second item on the meeting agenda was to participate in a public health survey administered by the New Mexico Department of Health. The committee wouldn't meet again until July.

**ACTION ITEM:** Sarah Chavez sent a copy of the Preparedness Guide to CJ Ondek, who forwarded to Shannon Beaucaire to share with CEWG members.

Dennis O'Mara followed up on last month's issue around how his comments sent to Intel Oregon made their way back to Intel NM. He said he called the permit writer in Oregon, who said the regulations were written such that the comments were given directly to the applicant, and if the citizens would like to see the comments they could just ask. However, Mr. O'Mara said that most citizens didn't know about this process. Mr. O'Mara asked for the comments, received them, and sent them to his counterpart in Oregon. He said he asked the permit writer about his suggestion to eliminate bromines from the proposed permit and replace it with salt, like they do in Intel New Mexico. The permit writer said Intel Oregon was "looking into it," which Mr. O'Mara interpreted as code to mean Intel Oregon was looking for a way to say no. Mr. O'Mara wrote a note to the permit writer suggesting as such, and that Intel Oregon should not be allowed to say no because the environmental benefits were so great.

Dennis O'Mara followed up on his actions around Intel's hydrochloric acid spill not being reported to the Rio Rancho Fire Department. About a week ago he said he had finally heard from Paul Bearce, a deputy chief with the Rio Rancho Fire Department, who apologized for not responding sooner. Mr. O'Mara pressed his point in a letter to Paul Bearce that Intel should inform the Rio Rancho Fire Department immediately when there's an accident so the fire department could decide whether, and if so, when to activate the Code Red System to notify community members.. By not informing the Fire Department, Intel was taking responsibility for deciding whether to notify the community out of the hands of the municipal first responders and that wasn't right. He said he was waiting for Paul Bearce's reply. Mr. O'Mara said he also spoke with Sandoval County Deputy Chief Dave Bervin, and he agreed with Mr. O'Mara that this was a concern and there were too many grey areas. He said he needed to meet with Intel and the Rio Rancho Fire Department to discuss and establish parameters and guidelines. John Bartlit asked if there were any national guidelines. Sarah Chavez said there were national guidelines

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available. Mr. O'Mara said he invited Chief Bervin to a CEWG meeting to report progress.

Lynne Kinis said as a person living downhill from Intel, she believed Corrales should be informed also, because it was likely the first community to be affected. Code Red was set up so people in harm's way could get a notification of the danger. It "boggled" her mind that intelligent people didn't even think to call Corrales. She said as a citizen put in harm's way without any knowledge, she was "pissed off." Dennis O'Mara said he was disappointed that Intel did not respond to the report that the CEWG Code Red Committee wrote a couple years ago and implement recommendations. Ms. Kinis said that a major tragedy had to occur before any change happened, and that was sad.

#### Public Comment

None.

#### **DISCUSSION OF NEW AD DESIGN**

Carolyn O'Mara shared her newly designed CEWG ad for members to comment on. John Bartlit said her work was so much better than anything the CEWG had ever done before, and that any changes discussed were miniscule.

The group agreed that Shannon Beaucaire's phone number should be in the ad rather than the Intel Command Center, as well as a minimal copy edits. Everyone agreed the newly designed ad was "superb." The ad was designed to note a featured speaker, when necessary.

Consensus was reached on the new ad design and placing it in the February *Corrales Comment*.

**ACTION ITEM:** 1. Sarah Chavez and Ron Eppes will inquire about placing the ad in other papers—*Rio Rancho Observer* and *Albuquerque Journal*.  
2. Carolyn O'Mara will make the suggested revisions and send to Shannon Beaucaire.

#### **EHS REPORT AND EPA 114 UPDATE**

Sarah Chavez said the EHS report was short this month. Dennis O'Mara asked why Intel had to have a "Radiation Safety Officer." Ms. Chavez said Intel had lasers on site in the tools. Mr. O'Mara asked what the current Intel staff numbers were. Ron Eppes said there were about 2300 in 2015, and the 2016 numbers would be released in early spring.

#### **REVIEW ACTION ITEM PROGRESS REPORT**

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Shannon Beaucaire asked when the “completed items” should be taken off the list. Sarah Chavez said they never had a discussion around when to remove the completed items, and it would be a good topic for an agenda item. Sarah Chavez said #22 was postponed until February. John Bartlit said they would discuss #20 tonight Lynne Kinis said #16 was related to #20. She said she did not see a list of Intel’s environmental goals. Sarah Chavez said these goals were addressed in October.

**ACTION ITEM:** Shannon Beaucaire will discuss with the agenda committee adding an agenda item around when to remove completed items from the Action Item Progress Report.

## **DISCUSSION OF DRAFT LETTER TO OREGON**

John Bartlit introduced the agenda item discussion saying that the letter to Intel Oregon had been revised to reflect multiple comments. Dennis O’Mara said the model of goal setting he subscribed to was that goals were “pie-in-the-sky” idealisms that were difficult to accomplish, and specific stepwise objectives with specific dates and time frames for completion helped contribute to achieving a goal. His concern was that there should be some focus on immediate, short-term efforts to reduce emissions, and he would like to see this suggestion included in the letter. He said he noticed that, with each iteration of the letter, his suggestions were watered down. Mr. Bartlit said that the letter was stronger because of Mr. O’Mara’s comments. Mr. O’Mara replied that the letter didn’t zero in on what could be done in the short term. There was nothing in the letter that asked for interim steps to be taken, as he had suggested. The letter only addressed 2020 goals, and to him that was a recipe for failure. He said the letter should advocate for Intel to create annual objectives linked to the 2020 goals that measured progress.

John Bartlit said there were many strategies for pursuing or pushing the goal of reducing emissions. Some ways were to challenge, petition, picket, etc. He said his general view was that all of those methods added to the pressure, and the more ways to add pressure the better. The CEWG had always pursued the strongest technical case, which was one way of applying pressure that resulted in reductions over the years. In his view a multi-pronged approach was stronger than a single approach. What CEWG did was different from issuing a direct challenge, but the two complemented each other. If Mike Williams found in his modeling a technical issue that needed attention that potentially was more powerful than issuing a direct challenge. He said Intel did not raise the stacks because of a challenge, but because the CEWG made a strong technical case.

Lynne Kinis said she disagreed, and that Mr. Bartlit had the facts wrong. Intel approached the CEWG to study stack heights using good engineering. At the time the stacks were at 23 meters, and after studying the issue, the CEWG suggested Intel raise the stacks either 38 or 40 meters. Frank Gallegos had presented images of what higher stacks would look like at a CEWG meeting and said Intel would not raise the stacks

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because of aesthetics. Ms. Kinis said she became quite upset and irritated by Intel's decision, and Intel eventually raised the stack heights only "when they were good and ready to do it." Two years later, Intel higher ups came to a CEWG meeting and announced that they would raise the stacks, perhaps because they had a new person on board, and it had nothing to do with the CEWG's "pressure," she said. She also reminded that the stacks were installed initially only because the community pressured for stacks. John Bartlit reiterated that it proved that multiple prongs were needed to get anywhere. After Intel did not raise the stacks, the CEWG had a crisis meeting with Intel, where they continued to present their case. He said he and Ms. Kinis really were saying the same things but in different ways. Ms. Kinis said she disagreed with Mr. Bartlit's comment. The CEWG didn't get the stacks raised, but that Intel made the decision when they wanted to.

John Bartlit asked what they should do about the letter. Lynne Kinis said she agreed with Mr. O'Mara and that the letter needed to have more specific information and not general information. Action got lost when requested in a general way, she said. Not being specific left the ball game up to the other person or corporation. Mr. Bartlit suggested that they forget about the letter. If it didn't help or was harmful, then it was not worth the time. Dennis O'Mara said he didn't think the letter was necessarily harmful, but that Intel's goals were "up there floating in the sky." The way to build a foundation for them was to have series of plans and short-term objectives that led toward achieving 2020 goals. He said he did not see a problem with the CEWG's suggesting that Intel develop and publish a short- and mid-term range plan with quantifiable achievable objectives.

Sarah Chavez said Intel had been publishing a corporate environmental sustainability report since 1994 and had a long history of pursuing and meeting goals. Whether specific details were published or not, Intel was committed to goals for over 20 years, and they published progress every year. Dennis O'Mara said he did not see evidence that Intel had a stepwise plan to achieve goals. At end of 2016, maybe Intel would look at what was or was not accomplished and write it into the annual report, but he did not see commitment up front from Intel to make progress. Ms. Chavez said all the information was internal, and various groups in different locations worked on various parts of the goals, and that was Intel's process. She said she didn't know if they could even publish the details, and she was not saying that they did not exist. She could ask a question around if more detailed plans could be shared publically, but it may not be public information. Because the semiconductor industry was extremely competitive, some information might be confidential or considered "intellectual property" due to its affects on technology, she added.

**ACTION ITEM:** Sarah Chavez will inquire if Intel's process to achieve their 2020 goals can be shared publically.

Dennis O'Mara said the way the letter was written it endorsed the idea of “pie in the sky” 2020 goals, and he did not think it was appropriate for the CEWG to endorse that approach. He thinks the CEWG should endorse an approach that contained specific, achievable short- and mid-term objectives.

Shannon Beaucaire asked the group how they would like to proceed on the letter.

Sarah Chavez commented that specific terms used in the letter needed to be defined clearly. For example, the term “toxic emissions” could mean different things to different people, and it was used to describe different kinds of emissions in the letter. Were they referring to emissions from thermal oxidizers, scrubbers, or boilers? Also, the concern that the CEWG was trying to convey to Intel Oregon was not clear. The letter should be consistent in its use of language and its intention.

John Bartlit proposed that the CEWG talk about “language” at a future meeting. For example, what did toxic emissions mean? A gas on EPA’s toxic emission list? Or a “dose” that affected people negatively? He had written a pamphlet about language in the past that he would like to distribute to members.

**ACTION ITEM:** John Bartlit will distribute his pamphlet on language to the group.

Lynne Kinis suggested waiting to see what Sarah Chavez learned about the process Intel used to achieve their goals, and then discuss the letter. Why waste time on things we didn’t know, she said.

The group agreed with Ms. Kinis’s proposal.

## **FURTHER OPTIONS FOR UNDERSTANDING AIR QUALITY**

Mike Williams gave a slide presentation called “Revised Interesting Questions & Details” to further help understand air quality. He went through each slide and discussed bullet points.

### ***Slide: Are the nitric acid emissions from the scrubbers significant?***

- *We possess measured nitric acid levels above screening levels and we would like to know if the scrubber emissions contribute significantly. We can pick a significant level, say 5 or 10% and use the Toxic Release Inventory numbers to estimate an emission rate. We can scale the modeled HF concentrations by the ratio of the estimated nitric acid emissions to the measured HF stack emissions to get estimated nitric acid levels.*
- *Key uncertainties are the appropriate HF concentrations for the circumstances of the measured nitric acid concentrations and the appropriate significance level.*

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Mr. Williams commented that they would have to do a lot of thinking and discussion about exactly how to proceed on the above suggestion. John Bartlit suggested that Mike Williams have a discussion with the new ATSDR air dispersion modeler.

***Slide: Are the screening levels appropriate for HF?***

- *The screening levels for HF are drawn from controlled exposures in a room for healthy adults. Because of the small number of subjects the number is divided first by ten and then by three (it would be 10 if observed effect was considered to be permanent health impairment). These two factors are to account for the differences in individual susceptibility and initial health. My concern is with the mode of exposure. HF reacts very quickly with water to form droplets. HF gas may be partially removed by the upper respiratory tract. If the HF is in the form of fine droplets more of the material will reach the deepest recesses of the lungs. We need to know whether the HF is in the form of fine droplets or not and we need to know whether the form matters. We would need special stack measurements and the expertise of a toxicologist to address the significance of the differences between the basis for the screening levels and the kind of exposures expected from the fluorides escaping the scrubbers(see [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/290737/scho0105bimy-e-e.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/290737/scho0105bimy-e-e.pdf))*

- Mr. Williams said he was concerned with the studies from which the screening levels were derived, and suggested coming up with questions for Peter Kowalski and team at the ATSDR. From what he has seen about getting material into the deepest parts of the lung, it was important to know what form HF was in. For example, if it was in gas form, it would be removed by nasal passages. Fine particle would be inhaled deep into the lungs. Also, HF was reactive with water. In what form was it coming out of the scrubber? If it came out as small particles, then maybe the screening levels were not that relevant. There were people out there who could look at this issue. Asking Kowalski about this issue might be a good place to start.
- Dennis O'Mara asked about the term "healthy adults." Mike Williams said it was handled by looking at the amount of people exposed and applying certain factors. In a small sample size, they'd divide by a factor of 10 to represent the small sample. If it was a clearly damaging health affect, they'd use another factor of 10 to represent different people. In this particular case, they used a factor of three because it wasn't clear if it was damaging health.
- Sarah Chavez asked about the methodology for developing screening levels. Was there documentation or guidance on how or when to use particular screening levels in industry? Mike Williams said that Peter Kowalski suggested they used Texas screening levels. He also had a recollection that in the 2009 ATSDR draft statement, there were levels that were higher but weren't mentioned in the final report, and he was curious about that.

Also, he said he had a reference with a statement that it didn't matter whether fluoride was in gas or in some other compound. He didn't know if it addressed health affects in lungs. Mr. Williams said it was clear that the issue of screening levels was poorly defined at this point, and it was good to get others' ideas.

***Slide: What would it cost to use a larger wetted surface to reduce scrubber emissions?***

- *Scrubbers work by passing contaminated gases over liquids; the more wetted surface the more contaminants can be captured*
- *HF is extremely reactive with water so that it is more easily captured than less reactive gases like sulfur dioxide for example*
- *Current control levels of about 70% are not high*
- *Manufacturers of scrubbers could assess the costs and effectiveness of larger or better designed scrubbers*

***Slide: Do other semiconductor manufacturing facilities have community complaints?***

- *The experience of other semiconductor manufacturing facilities could be examined for neighborhood complaints*
- *If other facilities produced similar community concerns it would suggest that there is a problem with emissions*

Mike Williams said this question was to see if there was a pattern around other semiconductor facilities and community complaints. They would need someone diligent like Dennis O'Mara to research this question. Dennis O'Mara said it would be interesting to know if there were semiconductor facilities out there currently using the SCORR process, and to compare those to other facilities using "wet" chemistry. He said he had just finished reading *Boiling Frogs*, and it just occurred to him that had Intel elected to adopt SCORR, the CEWG might not even be having these conversations. John Bartlit reminded that the CEWG looked at SCORR a few times, and the man who invented it made a presentation to the group.

***Slide: Does the pattern of HNO<sub>3</sub> and/or aldehyde production in urban areas produce patterns consistent with the conditions of the complaints?***

- *A possible explanation for high HNO<sub>3</sub> and aldehyde concentrations could be from the photochemical reactions in the urban atmosphere with urban emissions*
- *Normally ozone produced photochemically is highest during summer afternoons, but HNO<sub>3</sub> and aldehydes might have a different time behavior (I think HNO<sub>3</sub> peaks during the night for example)*
- *The behavior can be estimated with models used to address ozone*
- *Have Albuquerque air quality folks done such modeling that they could share with us?*

- Mike Williams said that this slide did not relate too much to Intel. He asked if high levels could be explained by a normal urban environment. Finding air quality people running

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photochemical modeling for ozone in the Albuquerque area and reviewing their data might be helpful. Hugh Church said the Albuquerque air quality people were quite aware of that modeling.

- Hugh Church said Intel NM was the only Intel facility that had neighbors that complained. Dennis O'Mara said he would share comments from the Oregon community. Sarah Chavez said the Oregon comments were more concerned about future health rather than odor complaints in the present. It was important to define what they were looking for. Mr. Williams said he was asking about the past. Lynne Kinis asked if the other Intel facilities were located in neighborhoods or in isolated areas. Ms. Chavez said the facilities were located within neighborhoods.

***Slide: How close is the apparent agreement between conditions associated with high modeled concentrations and community complaints?***

- *I have examined only the general conditions that generally produce complaints – eastside vs westside & nighttime vs daytime can we be more precise?*
- *What about the distances - do complaints tend to be closer to the plant?*
- *Are the complaints more in the directions the model suggests?*

***Slide: Are there ambient monitoring techniques we could use to shed further light on the problem?***

- *We could monitor just inside the fence line and take advantage of the security and power availability without losing significant information*
- *We could look at lidar techniques that describe the geometry of the plume as well as the concentrations*
- *We could invite measurement experts to make suggestions*

Mr. Williams suggested getting a better handle on measurements, because right now they were limited. They needed to get better data to address these questions. The ATSDR report said that with the measurements available to them, they couldn't draw conclusions on the toxic material coming from Intel.

***Slide: Does modeling support the implied significance of wastewater plants or crematoriums as explanations for community complaints?***

- *We could model wastewater plants and the crematorium emissions to see if there is any likelihood that they could explain the measurements (FTIR) or complaints*
- *It might be hard to get the appropriate emissions estimates for these sources*
- *ATSDR report can be used to suggest what the appropriate substances to examine might be*

Mr. Williams said he would like to see what the emissions were from crematoriums and wastewater plants and get an idea of how they were dispersed. Dennis O'Mara said the qualitative evidence about the crematorium was that it only operated during the daylight

hours, between 8:30 am and 4:00 pm, which was not when complaints occurred in the community. As for the wastewater treatment plant, Mr. O'Mara said everyone knew what that smelled like. Thus, these points were not relevant but smokescreens. John Bartlit said the point was to prove it from modeling.

***Slide: Conclusions:***

- *Eight areas of investigation have been suggested*
- *Some require outside expertise and potentially time-consuming endeavors*
- *Some require only legwork (or maybe typing & internet skills)*

Mr. Williams said they could start looking at some of these questions. For example, they could communicate with the local air quality folks to learn about their ozone data as well as their data on other pollutants.

Dennis O'Mara suggested that Mr. Williams list the 8 areas of investigation on one slide so they could talk about the highest priorities.

Sarah Chavez suggested thinking about planning as they moved forward, for example, standardizing questions to get consistent information, or, if they decided to look at data, go through the protocol process.

John Bartlit asked if the group was fine with Mike Williams talking to Peter Kowalski or the new air dispersion modeler to bounce around ideas. Mr. Williams said he would try to put together questions for the ATSDR and then circulate these questions among the group.

**ACTION ITEM:** Mike Williams will draft questions to the ATSDR and share with the group first.

Shannon Beaucaire said she was always open to feedback, and anyone can contact her personally with her feedback.

**MEETING ADJOURNED**

**NEXT MEETING:** February 17, 2016, 5 to 7 pm, Corrales Senior Center.