MEETING SUMMARY
Community Environmental Working Group

"Striving for Continuous Environmental Improvements at Intel"

Date: December 16, 2015
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
Shannon Beaucaire, Facilitator In-Training
Pat Clauser, Corrales Village Councilor
Carolyn O'Mara, Visitor

Facilitator

Mark Bennett, Facilitator
CJ Ondek, Recorder

HANDOUTS

- CEWG Draft Agenda December 16, 2015
- Draft Meeting Summary, November 2015
- Action-Item Progress Report, December 2015
- EHS Activity Report December 2015

PROPOSED AGENDA

- Welcome, Introductions, Announcements and Brief Items
- EHS Report and EPA 114 Update
- Review Action Item Progress Report
- Next Steps for CEWG in 2016
- Discussion on Modeling Project
- Discussion of New Ad Design
- 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.

Agenda—Revisions and Approval
Mark Bennett asked, in the interest of respecting Carolyn O'Mara's time, to move discussion of the new ad design up to the 5:20 pm slot. All agreed.

Meeting Summaries—Revisions and Approval
No comments.

ATSDR Update
John Bartlit said he had not spoken with Peter Kowalski for a couple months. Dennis O'Mara said he had spoken with Mr. Kowalski recently about cyanobacteria, which was connected to the only ALS cluster ever confirmed in Guam. Before World War II, residents of Guam gathered a type of nut that contained the bacteria; ALS was quite prevalent in Guam in the 1930s, 1940s, and 1950s. After the war Guam's economy changed, nut gathering was reduced, and the prevalence of ALS declined.

Regulatory Engineering Update

- John Bartlit gave a brief update on his activities around Regulatory Engineering, and said he continued to exchange information and ideas with the California Lutheran University.

- Sarah Chavez said John Bartlit had been trying to talk to Tony Neal-Graves, VP Internet of Things, and Brian Rashap was helping to organize the connection. So far they had not been successful but would resume after the holidays. Ms. Chavez said that Mr. Bartlit had written a paragraph about Regulatory Engineering to send to Mr. Neal-Graves, and she would let Mr. Bartlit know if Intel needed anything else.

Brief Item: Communication to ODEQ

- Dennis O'Mara said that CRCAW had been communicating with a like-minded community group in Oregon that follows emissions activities at Intel's Oregon facility. It is headed by a man named Dale Feik, who had been keeping CRCAW up to date on Intel Oregon's new permit application process, which would substantially increase the amount of allowable emissions. Mr. O'Mara said he sent the Oregon Department of Environmental Quality (ODEQ) a commentary as part of the 45-day public comment period. Mr. O'Mara asked how the CEWG agenda committee acquired this commentary. Sarah Chavez said an environmental engineer at the Oregon facility sent it to her as part of the public comment process, and she passed it on to John Bartlit.

- Dennis O'Mara said he found it unnerving that Intel Oregon got this material and sent it to Intel NM, and that it eventually made its way to the CEWG. He said he felt he was being tracked by Intel, and if he had wanted Intel NM to know his comments he would communicate that to Intel NM as well as the CEWG. Also, he wondered if concerned citizens in Oregon had access to all the comments submitted to the state regulatory committee and he had asked Mr. Feik if he had access to the comments as well. So far, Mr. Feik had not replied.

- Dennis O'Mara said he was surprised and shocked that his comments got back to Intel NM—not that he was trying to hide anything—but it was not anyone's business in NM what he sent to the Oregon agency. Although there were not any serious outcomes from it, Mr. O'Mara said it was worrisome in a broader sense.

- Sarah Chavez said that Intel sites shared communication about events in their respective communities. She reminded that the comments were public information, and sharing information was a part of the normal process. Also, a lot of the work that happened in Oregon ultimately affected NM. She apologized to Mr. O'Mara for sharing information with the CEWG that he didn't want shared but reminded that it was public information.

- Dennis O'Mara said it didn't matter that the information was shared, but it appeared that it was only shared with Intel and not with people in the community. He said this was an example of how Intel had their hand in everything, and a lot of people in the community with concerns were left out of the loop. This was a pattern in both New Mexico and now Oregon, unless all the comments submitted to the Oregon regulatory agency were posted on a Web site for public viewing. If not, then something was wrong with the system, and Intel used it in ways that were advantageous to them and left out others in the community. Mr. O'Mara said he would share with the CEWG what he learns about public access to comments in Oregon, and if he were proven wrong he would back away from these assertions.

- Sarah Chavez said that anything submitted as part of a permitting process was public information, and there were always processes that people could use to access that information. Dennis O'Mara said he would find out about that process in Oregon and report back at the next meeting.

Other Announcements
None.

Public Comment
None.

DISCUSSION OF NEW AD DESIGN

- Shannon Beaucaire presented information from the *Corrales Comment* Web site on their advertising costs and ad sizes for the group to consider.

- Carolyn O'Mara asked CEWG members about their mission and their purpose for their ad. Mark Bennett and John Bartlit said the purpose was to invite people to join in the dialogue. Ms. O'Mara offered suggestions on how to improve the current CEWG ad, which were to include a main heading and perhaps a subheading about what the group did. John Bartlit referred her to the CEWG Web site for detailed information on the CEWG, and the group agreed that it would be helpful to list the Web site in the ad. Mr. Bartlit also mentioned the Web site image of the Sandia Mountains and said that image could be changed, perhaps to a group of people in a discussion, and he was open to suggestions.

- Carolyn O'Mara asked what the CEWG wanted to focus on in the ad, and what would bring more people in to meetings. Was it more important to get the public to understand what the group was about or to have an image? She also asked about the ad size and costs. She suggested having an ad that was simple in content but that captured visual attention, either using contrast—black and white—or color. Color would be more expensive.

- Sarah Chavez said one way to capture attention was to change the ad's graphics rather than running the same ad all the time. She added that Intel already created the advertising budget for 2016, so they couldn't change the ads in other publications such as the *Rio Rancho Observer* or the *Alibi*, but they could consider changing those ads for 2017. However, they could start with the *Corrales Comment* in 2016, but they needed to stay within the budget. Carolyn O'Mara said she could work within the budget using contrast and adding new headings. CJ Ondek said it was important to include a hook to read the ad and then a "call to action" inviting the public to attend meetings. Also, there should always be a reference to more information, including a Web site or phone number for more information.

- Sarah Chavez reminded that previously the CEWG changed the ads every month, but the review and approval process was tedious, so they tried to keep the ad content the same to eliminate the time involved. Changing ad language required that the ad go through the CEWG approval process. Dennis O'Mara suggested starting with a generic ad for a couple months, and then looking ahead with changes, especially around special events. Sarah Chavez said they would have to keep their eye on the publication deadlines.

- Carolyn O'Mara said she would develop a first draft that included graphics and copy to give to the group for feedback. The group worked out scheduling. They agreed to aim to publish a new ad for the February meeting. Ms. O'Mara agreed to return on January 20 to discuss the new ad and prepare it for the February 1 publication deadline. The group achieved consensus on this course of action

  ACTION ITEM: Carolyn O'Mara will draft a CEWG ad in time for the group to discuss/approve at the January 20th CEWG meeting. She will also attend this meeting.

EHS REPORT AND EPA 114 UPDATE

- Sarah Chavez said there were no calls this month. John Bartlit asked if Intel had passed the OSHA certification audit in November. Ms. Chavez said they were told that they had but did not yet receive the official notice and certification

- Dennis O'Mara raised the issue in the October EHS report about the hydrochloric acid (HCl) leak. At that time he had asked if Intel had reported the incident to the Rio Rancho Fire Department, and Sarah Chavez had said no. Since then he called Teresa Greeno, the Emergency Program Coordinator in Rio Rancho, to see if they knew about it, and she said no. She also seemed unconcerned.

- Mr. O'Mara said he was surprised that the incident was never reported during or after the event, despite its close proximity to people's homes. Mr. O'Mara said local emergency management teams (EMT) should have been put on notice so they could be at the ready to inform the community on the code red system if the need arose. This never happened. In an email he asked Teresa Greeno if she and her colleagues were ok with this but she had yet to respond. Mr. O'Mara said he planned to push for a response. Also, this situation pointed out the serious disconnect between Intel emergency response and local responders to be aware of an event in preparation to notify the community if the need should arise rather than losing precious time to get the message out. This was one of the basic concerns expressed in Code Red Report written two years ago.

- Mark Bennett asked Dennis O'Mara if he saw this turning into a potential agenda item. Mr. O'Mara said they already had that discussion before with Bryan Burrows of Intel. What he wanted to know was what the people at Rio Rancho Emergency Services thought about it. If they were not concerned, they were "flying in the blind." He said he was concerned about what could happen in the community, and if they were not prepared to respond, then the community was not being well served. They needed to be prepared to inform the community on short notice.

- John Bartlit asked if Mr. O'Mara was concerned about HCl fumes or the potential for it to rush down the hill towards houses. Mr. O'Mara said his primary concern was vapors, and also whether the area around tank could be breached or not. Sarah Chavez said the tank was in a concrete containment area that would hold the entire volume of the tank so it was unlikely to be breached.

- John Bartlit suggested setting some kind of guidelines or parameters around vapor pressure that would determine when you would call EMT, and that this task was more suited for EMT than Intel. Changing variables like chemicals or temperature would change the situation. This would be a good discussion to have with EMT.

- Sarah Chavez said she would talk to Bryan Burrows for more details but she assumed that they didn't call local EMT because Intel had the situation contained. She said they were able to monitor HCl in the air and area.

- Dennis O'Mara said he recalled that it took 5 hours to ameliorate the leak, and it was only after those 5 hours that the staff determined they could approach the area. Mr. O'Mara was uncomfortable with this time lapse, especially considering the proximity of homes. What about the people living in the vicinity?

- Pat Clauser said that Corrales officials would like to know about these kinds of events, especially if it rained and in light of Corrales's past drainage issues. There were several places where water flowed down the hill and eroded property.

- Sarah Chavez said there was no way that anything located in the industrial part of facility would go down the hill. Any water that would flow into Corrales would be from rain events. The industrial part of the facility drains to a storm water collection area that is in the southwestern part of the site. The water in this area was contained and tested before it was released. So, the way the system was set up, there was a slim likelihood of chemicals leaking on to East Slope. Pat Clauser said Intel never had a follow up discussion with the Village around rainwater drainage issues. She said it was reasonable to expect follow up. Ms. Chavez said she would work to get Ms. Clauser more information.

  ACTION ITEM: Sarah Chavez will provide Pat Clauser with more information around Intel and rain water drainage system.

- Sarah Chavez said Intel internal Emergency Response Teams (EMT) didn't have to evacuate any part of the facility for this HCl leak event, and they monitored to make sure that the established zone was contained and safe for employees, and if it was safe for employees, then it was safe for the community because employees were in closer

proximity to the leak. John Bartlit suggested checking for national guidelines around these kinds of EMT issues.

- Dennis O'Mara said, as a follow up, at the next meeting he would communicate under "announcements" if anything came of his concerns, and they could go from there on whether there was something to pursue and put on the agenda.

- Mike Williams said he wanted to know about Intel's strategy for monitoring these events and if they considered wind direction, etc. Sarah Chavez said Intel used their onsite weather station in their monitoring, and she would ask about monitoring plans.

  ACTION ITEM: Sarah Chavez will check on Intel's monitoring plan and report at the next meeting.

REVIEW ACTION ITEM PROGRESS REPORT

- Sarah Chavez said many of her items were not updated from the last meeting. For the record, Ms. Chavez had completed items 7, 8, 13, 14, and 15.

- Dennis O'Mara asked if items 16 and 20 were related. Mark Bennett said yes, and 20 should be deleted.

- John Bartlit said, for item 16, he had drafted language to send to Intel Oregon and sent it around to everyone for comments by email. Dennis O'Mara responded with comments. Mr. Bartlit revised into draft 2 and sent around a second time. Mr. O'Mara had additional comments, but Mr. Bartlit did not agree with all of them. Mr. Bartlit said his aim was to have the CEWG give Intel *additional* reasons why Intel should reduce emissions of VOCs, rather than duplicating the points raised in Dennis's message to Intel. Mr. Bartlit thought that added reasons, which were different, added more weight to the letter.

- Dennis O'Mara said that Intel needed to create and publish a plan that had short, mid, and long-term goals for reducing emissions. The community didn't need to sit around until 2020 and then be disappointed. He said he would like to think everyone around table would like to see Intel pursue everything they could to reduce emissions as soon as possible and not wait until 2020. He suggested inviting Mindy Koch back to the CEWG for further discussion. He added that Ms. Koch was interested in discussing Mr. O'Mara's letter to the editor. Mr. O'Mara said they could either send the draft as it was now or give it further thought after having a discussion with Ms. Koch on what was possible between now and 2020. From his perspective, the letter, as it was currently written, said that the CEWG liked the 2020 goals and asked to be kept informed of

progress. He said he was not satisfied with this wording and believed the CEWG should be injecting more urgency and pressure into the situation.

- Mr. Bartlit said if it was a problem then to not send it. Mr. O'Mara said he thought the idea of the communication was good but a matter of content.

- Mike Williams said that the letter was written in the context of Intel's plan, and to let Intel know that while part of their plan was useful the CEWG had additional concerns. John Bartlit asked Mr. Williams to draft a sentence to add to the letter based on his comment

  ACTION ITEM: Mike Williams will draft a new sentence to add to the letter to Intel.

DISCUSSION OF MODELING PROJECT

Mike Williams compiled information to provide CEWG members with a review of past actions and current conditions connected with modeling. He presented his findings in a slide show.

Slide 1 provided a background of where things stood.

- People have reported perceived health effects associated with emissions
- Measurements have reported levels above screening levels for some contaminants. These measurements came from the CRCAW and Steve Martinez's work.
- Existing air quality regulations are unlikely to address these concerns, since they didn't talk about acceptable levels specifically.
- Modeling has yet to identify potential problem areas.

Slide 2 showed a path to resolution/way forward:

- Mine the existing information and/or develop new information.
- Information and understanding can inspire action not required by law
- Disparate information sources can be linked to clarify the strengths or weaknesses of various types of information

Slide 3 discussed relevant information or ways to mine information:

- Complaints by neighbors
- FTIR measurements
- Risk Assessments
- ATSDR report
- Modeling
- Emission measurements and estimation

Mr. Williams went on to look closer at each of the above ways to mine information.

In Slide 3, Mr. Williams discussed complaints by neighbors.

- Human brain has extraordinary pattern recognition skills.
- There are many people in different locations who could be affected by contaminants. This was a theoretical assertion.
- The health of people is our primary concern.
- Complaints have helped inspire solutions at sites in the past.

Slide 4 looked at difficulties associated with understanding complaints.

- Human can find patterns were none exist.
- People can give up on the value of reporting complaints (especially if they don't see anything coming out of it).
- Local factors such as indoor versus outdoor and seasonal conditions can affect the detection of contaminants.
- Human sensitivity to contaminants varies dramatically from person to person.

Slide 5 examined FTIR measurements, which used the spectrum of light and vibration as influenced by contaminants. This slide referred to open path FTIR testing.

- Two months of data.
- Path averaged concentrations.
- Several contaminants well above screening levels (various Aldehydes, Nitric Acid (HNO3), Cresol, and Hexane).
- Sensitivity varied. This sensitivity referred to detection limit. The levels could change from one event to another.

Mr. Williams said the ATSDR was looking at FTIR measurements and found it difficult to work with, because some of the contaminants did not show up consistently so they couldn't do statistical relationships, and there were cases where the threshold was occasionally higher but the FTIR gave no details about that.

Slide 6 addressed the difficulties with interpreting FTIR measurements:

- All contaminants above screening levels have other potential sources.
- Sensitivity varied.
- Limited time frame.

Slide 7 looked at information from the Risk Assessment conducted around 2005.

- Assessed a large number of contaminants.
- Dated information on screening levels.
- Emissions less well-known and out of date.

Sarah Chavez said Intel had done enormous amounts of testing (from 1995 at the tool level) and disagreed with the above statement. The emissions testing was based on tool testing with an applied scrubber removal efficiency, which caused concern. Intel then changed to stack testing data in 2012 to address this concern. Ms. Chavez argued that Intel's testing data done all along were still valid.

Slide 8 addressed the ATSDR Report.

- Reported insufficient information to address the fundamental problem.
- Relied upon FTIR data.
- Observed that FTIR had variable threshold making conclusions difficult.

Dennis O'Mara commented that it bothered him that the ATSDR discounted virtually all the FTIR data taken at the time of the recent monitoring, and yet the FTIR was constantly used to test at the stacks. He didn't quite understand how that was taken at face value while other data were struck. Sarah Chavez said they couldn't use the FTIR data because too much was non-detect. It showed nothing. Mike Williams said there was a concern about interpreting data differently. Also, stack testing had more controlled conditions than open path FTIR.

Hugh Church raised the issue of inadequate meteorological data and questions around complex terrain issues and scale of measurements. Mike Williams said the highest concentration was always going to be at the source. Sarah Chavez said emissions were not going to be more concentrated at the bottom of the hill or in a valley. Dennis O'Mara said that however the emissions were going to be more concentrated than they otherwise would have been.
Hugh Church said fugitive emission also needed to be addressed.

Slide 9 examined modeling.

- Most of the modeling dealt with air quality standards
- Koracin and Watson studies
- Stack height sensitivity modeling
- HF modeling (Mr. Williams modeling)

Mr. Williams said to understand the whole picture, measurements, modeling and emissions must all be looked at, and the ATSDR did not include modeling. John Bartlit added that ATSDR just hired a new modeling expert (who was not there during the ATSDR report writing), and Peter Kowalski said the CEWG could speak with him.

Slide 10 looked at modeling results.

- No ambient standard violations were modeled, but the standards don't cover the most important contaminants (materials like HF and other hazardous materials coming out of the oxidizers and scrubbers) except for fine particles.

- The Koracin and Watson work did not identify specific pollutants that might be harmful, but it did show some concentrations were higher and when and where complaints were recorded.
- The stack height modeling showed that concentrations could be significantly reduced by taller stacks and also formed the foundations for the crystalline silica study, which showed insignificant crystalline silica exposures
- The HF modeling gave HF concentrations about half the screening level, but it also gave the highest concentrations under circumstances associated with the locations (East side of the site and during night time—low dispersion times) meteorology that occurred during complaints. CL2 and HCL were significantly less important than HF.

The next slides examined emissions H2SO4.

- Risk assessment dated 2002 & 2003 but voluminous description examples HF-12,600 lbs/yr, HCL-1,323, H2So4-1,555, CL2-5,071, HCHO-64, Hexane-1,541, and Cresol-27 (exceeded screening level according to the FTIR). Hexane and HCHO are listed as boiler emissions and Cresol is listed as a RTO emission. HN03 was eliminated from further review because it was below the task screening level.
- HF study used 5,287 lbs/year, based on recent measurements.
- ATSDR reports Toxic Release Inventory for the years 1987 – 2013 and gives HF ~5,000 lbs, HCL ~500 lbs/yr, and HNO3 ~600 lbs/yr. CL2 has levels of about 2, 500 lb/yr in 2005, but nothing since although CL2 does show up occasionally during scrubber testing. Mr. Williams said these numbers looked odd to him and asked where ATSDR got the data. Sarah Chavez said the Toxic Release Inventory was a regulatory report submitted and retrieved from the public database. She also reminded that if a compound came in below the screening level, then they no longer needed to be reported on, which accounted for gaps in information. There were categories of reporting thresholds as well.
- Koracin and Watson used HF-2700 lbs/hr, HCL – 610, CL2-4800, HCHO-0, H2SO4-1750, HNO3-2630…

Mike Williams asked why Nitric acid was dropped. Sarah Chavez said it was below screening levels. Mr. Williams said one reason that might be potentially important was because it showed up above screen levels in the FTIR. Sarah Chavez reminded that Intel was not the only source of Nitric acid emissions.

The last two slides looked at interesting questions.

- Is nitric acid released from the scrubbers? (yes but in small quantities)
- Are the screening levels appropriate for HF? Mr. Williams said he remained concerned about HF screening levels and HF droplets. This was a complicated question that he could not address.

- What would it cost to use a larger wetted surface to reduce scrubber emissions? Mr. Williams suggested increasing scrubber size.
- Are there aldehydes released from the RTOs? Mr. Williams said there were other possible sources such as cars. Sarah Chavez said that Intel was burning a small amount of gas, and that no aldehydes were detected by the FTIR.
- Do other semiconductor manufacturing facilities have community complaints? Sarah Chavez said that New Mexico seemed to have the largest number of community complaints.
- Does the pattern of HNO3 and/or aldehyde production in urban areas produce patterns consistent with the conditions of the complaints?
- Significance of wastewater control plant emissions.

Mike Williams said for next steps, the CEWG should discuss where they want to go next and if they wanted to look deeper at any of the "interesting questions."

ACTION ITEMS: Setting CEWG priorities has been considered a CEWG process. As such, members' comments on priorities have previously been collected and analyzed by the facilitator (Stephen Littllejohn at the time). Ranking of priorities has not been done for several years. The process and the ranking method used could be discussed further at this time. All CEWG group members should look at the CEWG priority list to see where they wanted to go next and to send comments to Shannon Beaucaire

MEETING ADJOURNED

NEXT MEETING: January 20, 2016, 5 to 7 pm, Corrales Senior Center.