MEETING SUMMARY
Community Environmental Working Group

"Striving for Continuous Environmental Improvements at Intel"

Date: March 20, 2013
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
Lane Kirkpatrick, Corrales Citizen
Sarah Chavez, Intel

Non-Members Attending

Lynne Kinis, Corrales resident
Roberta King, Corrales resident
Natasha Martell, Intel
Dennis O'Mara, Corrales resident
Robi Shields, Rio Rancho resident

Facilitator

Stephen Littlejohn, Facilitator
CJ Ondek, Recorder

HANDOUTS

- Draft Agenda
- Draft Meeting Summary March 20, 2013
- Action-Item Progress Report
- EHS Activity Reports
- Media reports and articles, as available
- Materials on Health Risk Assessments
- HF modeling progress report

PROPOSED AGENDA

- Welcome, Introductions, Announcements and Brief Items
- EHS Report, EPA 114 and Permit Updates
- Membership Discussion
- Code Red Report
- Weather Data Recommendations
- Additional Business
- Adjourn

WELCOME, INTRODUCTIONS, ANNUNCEMENTS, AND BRIEF ITEMS
John Bartlit opened the meeting by stating the CEWG mission, which was to work towards continuous environmental improvements at Intel and improved community dialogue. Introductions were made.

Agenda—Revisions and Approval
Stephen Littlejohn made the following corrections to the Meeting Agenda: 1. March 20 (not February 20); 2. Lane (not Land) Kirkpatrick.

February 20, 2013 Meeting Summary—Revisions and Approval
No comment.

Membership Updates
Stephen Littlejohn said he had contacted all potential CEWG member nominees. Robi Shields, who attended tonight's meeting as an observer, agreed to begin in April as a member. John Alsobrook said he was interested in talking with Mr. Littlejohn about it. Mr. Littlejohn said he had not heard back from Jim Tritten or Pat Clauser. Dennis O'Mara said he was busy right now but would reconsider in October. Also, Mr. O'Mara said he had a couple of other people with appropriate technical backgrounds that he would like to nominate. John Bartlit reminded that nominations were always welcome.

Public Comment
No public comment.

EHS REPORT, OTHER ANNOUNCEMENTS, EPA 114 UPDATE
Sarah Chavez said that included on this month's report was the NMED Hazardous Waste Bureau follow up inspection for the general exhaust duct collapse discussed at last month's meetings. She said there were no calls from the community. Also, she said there was still no word from EPA on the 114 Report. Stephen Littlejohn asked what the shorter EHS reports were attributed to. Ms. Chavez responded that part of it was that Intel had been receiving less calls. She added that Intel's VOC and HAP testing was due to begin on April 17, and anyone who wanted to observe could with prior notice to Intel. Usually testing continued over two months, and approximately 30 pieces of equipment were tested.

HF MODELING UPDATE
Mike Williams reported a HF Modeling technical meeting was held recently and attended by John Bartlit (by phone), Stephen Littlejohn, Sarah Chavez, Paul Wade, from Class One, and Kurt Parker (by phone), from ERM. Initially, the study was designed to have three phases, with Phase Three dealing with variable emissions. The data show that emissions for each stack vary less than 10% from the average, so Phase Three was no longer needed.

- Mr. Williams said he would directly use past emissions data from each unit, which simplified the task but made it less interesting and publishable, depending on the results. The group also addressed uncertainties like how to treat numbers below threshold, which they would treat as half the instrument threshold. In Phase Two, they discussed whether there was an adequate sampling network, and defined the term "significant", which was greater than 20%. Also, he would use current EPA recommendations. Sarah Chavez said that Paul Wade was working on getting the data within two to four weeks.

- Stephen Littlejohn pointed out that the meeting handout, "Notes on the HF Project, 3-12-2013", was still in draft form, and they still needed to tweak some of the language and clarify terminology to make it technically accurate. All comments on the project should be sent to Mike Williams.

CODE RED UPDATE

- Dennis O'Mara reported that Code Red was an emergency notification system that let community members know if they needed to take quick action, including evacuation. The committee was tasked to look into how Code Red worked and coordinated with various emergency management systems in the area. The committee, who also include Lynne Kinis and Lane Kirkpatrick, met, mapped out a plan, developed questionnaires to collect information, and planned to meet with Chief Burvin, who was the emergency services coordinator of Sandoval County, on April 4. Chief Burvin had his finger on the Code Red button, so interviewing him was a good place to start, Mr. O'Mara said. Afterwards, they would meet with the Fire Chief and firefighters in Corrales and Rio Ranch and possibly Albuquerque. He said this work would most likely take a couple of months, as getting the schedules to mesh had been challenging.

- Mr. O'Mara said the specific focus was to look at issues related to Intel that might lead to emergency situations and the need for an area wide evacuation. There was also a broader issue of evacuations in general. The committee was aware that Corrales had no emergency evacuation plan. Mr. O'Mara said he had discussed this issue with his Village councilor, who was willing to help them get access to local Fire Chief and to sit in on the discussion as well. This council member had a particular interest in and was concerned about the lack of emergency plans for Corrales. He was willing to come to a CEWG meeting when the committee gave their final report, and he may take the findings before Village council.

- Lane Kirkpatrick said they had learned that Albuquerque was overdue for an earthquake. He added that they did not know how big of an earthquake, but the question was how might that affect Intel and Corrales. Dennis O'Mara said that Lane Kirkpatrick's wife recently attended a regional training course for emergency response, and shared some contacts and references.

- Sarah Chavez asked if the committee could share their questionnaire with the CEWG, since that was how the CEWG always worked in the past. Dennis O'Mara said that they had no intention of sharing the questionnaire with anyone as a way to assess the level of coordination among different groups. How they answered the questions independently of each other was one way to gauge that coordination. If one department thought a response was set up and coordinated but another department thought differently, then that was an issue. Mr. O'Mara said the committee wanted to see if these issues existed, and then bring the entities together to get the story straight.

- Lynne Kinis recalled a meeting from four or five years ago about an area evacuation plan, and if Intel could provide a signal in the event an evacuation was necessary. An attendee said, "If there was a problem, just stay inside." Ms. Kinis responded, "How do we know to stay inside?" Also, at that time, the Corrales police chief said Corrales was almost impossible to evacuate, so why bother. Lane Kirkpatrick asked if they could resurrect this information from the meeting summary minutes for historical purposes.

  ACTION ITEM: Stephen Littlejohn will search for this information in past meeting summaries and share with the group.

- Sarah Chavez said she understood the reason why they did not want to share the questions with the CEWG, but that was not how things were usually done in the CEWG. She asked how they would address confidentiality among interviewees. Lynne Kinis said the Sandoval County chief knew they were going speak to the other communities, but no one knew the questions. Dennis O'Mara said they did not plan on leaving a questionnaire with interviewees. He added that the questionnaire was a tool to take notes and not skip over topics. He expected the questions to lead down paths not considered.

- Lane Kirkpatrick said the questions were general and more of a topic guide to start a dialogue. After they conducted the interviews, they would then interview Intel afterwards to see if the responses were aligned. He liked that they did not share the questions with Intel beforehand because 1. He wanted to learn what was in place to handle emergencies; and 2. Intel would not tell the CEWG about possible emergency scenarios at their plant because of Homeland Security regulations. He said he had no idea what Intel believed to be the major issues or associated potential risks. Why should they share with Intel if Intel would not share with them? He said he was being a little facetious, but he was disappointed and irked about the secrecy. Sarah Chavez stressed Intel had to comply with Homeland Security regulations, which censored corporations from talking about security issues.

- Lynne Kinis gave an example of Intel's saying there was no problem when there was one.

She said she posed a question to Brian Rashap, privately, about the route chemical-carrying and toxic waste-carrying trucks take to travel in and out of Intel. Mr. Rashap said Route 528. Ms. Kinis said she had the experience of following a chemical truck going through the residential community, down Sara Road, Meadowlark and then onto Loma Larga. She said she urged Mr. Rashap to check out this issue, and asked why Intel allowed this to happen in the first place.

- Roberta King said American Legislative Exchange Council (ALEC) was in control of what corporations were doing. Member legislators voted favorably to support corporations that supported them. They even changed the name of National Defense to Homeland Security to make it sound more acceptable. And that's what this issue was about.

- Dennis O'Mara said he was having a hard time understanding how every possible emergency at Intel fell under the purview of Homeland Security. For example, why would Homeland Security be involved in responding to plans in the event of an earthquake? Mike Williams said Homeland Security was concerned with anything that affected infrastructure. John Bartlit suggested they ask emergency responder interviewees about Homeland Security and earthquake preparation.

- Hugh Church said Code Red was a copyrighted program out of Florida. Did they charge a fee to community members for signing up, he asked? Dennis O'Mara said they charged a fee to the political entity that purchased the system.

- Stephen Littlejohn asked Mr. O'Mara if they wanted a slot on the agenda for the April meeting. Mr. O'Mara said to give them a place to provide an update on the committee's work.

WEATHER DATA UPDATE

Air Dispersion Primer

Mike Williams gave an "Air Dispersion Primer" presentation on emissions. His PowerPoint presentation contained diagrams that showed air dispersion flow. The first slide showed how material from a shorter stack reached the ground before that of a taller stack, and the material from the taller stack was more dilute when it first reached the ground since it was mixed with a larger volume of air. Emissions such as hydrogen fluoride had fine particles and settled slowly.

- The second slide addressed inversion. Temperature inversion above the ground acts like a lid trapping materials between the lid and the ground. Both short and tall stacks tend to have similar concentrations as their plumes expand enough to reach the lid. Initially, the short stack will have a more concentrated plume because it is mixed over a smaller depth. When an inversion occurs, it is hard for the air to move up and down, so it gets trapped.

- Sarah Chavez commented that the highest concentration was always at stack, but the further the emissions moved from the stack, the more diluted they became, whether or not there was inversion or eddies.

- Mike Williams discussed slide 3, which showed stable and unstable conditions. In a stable atmosphere, the plume spreads very little in the vertical direction; concentrations aloft at the same distance downwind are higher, but they may not occur at ground level. These conditions usually occur at night with clear skies and low winds.

- With unstable conditions, which happens on warm days when the sun heats up the ground, the plume spreads rapidly vertically rather than horizontally, and concentrations aloft are lower for the same distance downwind. The highest ground-level concentrations occur closer to the stack, because the plumes reach the ground more quickly. Mr. Williams said the diagram gave a bird's eye view of the plumes

- Mike Williams discussed terrain effects in slide 4. Contaminants move with cold airflow along the slope until the cold air reaches a point where colder air has pooled in the valley bottom. When there is colder air below the contaminants, they tend to be isolated from the ground. Mr. Williams said cold air was denser and would fall to the bottom.

- Slide 5 looked at buildings and dispersion. Mr. Williams said eddies form behind buildings and mix contaminants in the wake of the buildings. Material emitted from stacks can be brought to the ground if the stacks are not significantly higher than the buildings. Material can be dispersed in much different directions than expected. In slide 6, Mr. Williams discussed model fidelity and application. The Gaussian model was the most used model. It was quick but its accuracy was poor. The Diagnostic Empirical model was used most around buildings. Its speed was medium and accuracy fair. Computation Fluid Dynamics model was not routinely used. It was slow but had good accuracy. In some cases, quick turnaround, not accuracy, was more important, while in other cases more time was available and accurate answers were required. "Universality" referred to the model's applicability.

- Slide 7 showed the High-Rise Experiment, which compared measured concentrations with those estimated by QUIC-Plume, and local mixing estimations with non-local estimations and measurements. The slide showed a picture of a high-rise building and how wind and plumes moved around the building. Slide 8 and 9, the non-local mixing dispersion, showed how the plume mixes up and spreads, and how various eddies affect wind measurement in a way that results in different measurements.

- In slide 10, Effects of Buildings, Mr. Williams explained that eddies mix the pollutants behind the buildings in very complex and fluctuating flows. Slide 11 showed what happened when there was one building with multiple stacks. Plumes from multiple sources overlap making the concentration less sensitive to the wind direction and slowed the dispersion. There were about 23 to 25 scrubber stacks at Intel. Mr. Williams said that the fence line had the highest concentration, and the concentration dropped off the further away from the fence line. Thus, wind measurements would not change conclusions very much.

- Dennis O'Mara asked how far inversions tended to extend. Mike Williams replied that they could extend pretty far, for example, all the way to the Sandias. Lane Kirkpatrick explained an inversion, which was when temperature increased with height; usually, temperature decreased with height. But with an inversion, from the ground up the temperature got warmer to a point before it became colder. Since cold air was heavier than warm air, it acted like a cap and held pollution closer to the surface. Cold clear nights tended to give rise to inversions; thus, inversions were more prevalent in winter, since the ground was not as warm.

- Sarah Chavez asked how Mr. Williams would take into account three years of weather data in his HF modeling. Mr. Williams replied he would take an hour average for every day for three years.

- Lane Kirkpatrick asked about Intel's higher stacks. Mr. Williams said that the height didn't make a difference in modeling because they always used a lower concentration from higher stacks. Sarah Chavez said that the scrubber stacks were shorter stacks, about 23 meters and were on the Fab11 X; on the Fab 11 side, they were about 30 meters. The modeling would take into account both heights.

<u>Implications for Weather</u>

- Hugh Church discussed available weather data and what weather data could be put into modeling. They had data from the airport, Intel's weather tower, and the Air Quality Bureau trailer. For the latter, they had to look at how high off the ground the anemometer or wind sensor was situated. The closer to ground the less representative the area was going to be. Mr. Church said it should be easy to get the data files from the Air Quality Bureau trailer and compare to Intel's 10-meter tower located at the plant's south end. He said he knew the data would be different, but the question was how different.

- Mike Williams said for the model, there needed to be a wind speed and wind direction at every point. The question was, how different was the wind data at the trailer versus the modeled wind. Sarah Chavez clarified that if he modeled for a specific date and time, he would compare that to the trailer data and receptor also at the same date and time.

- Hugh Church explained that Sandia National Labs conducted smoke release experiments that showed how the smoke/emissions could hug the ground and flow downwards. Meanwhile, the smoke/emissions were still getting dispersed. The same kind of action could happen with Intel and Corrales, he said. The emissions could become part of a downwash and flow downwards to effect people where they were living.

- Hugh Church said he volunteered to get information about the trailer weather data from NMED. He wanted to learn how the data was processed and in what time frame. Sarah Chavez reminded that the model could not work with any time frame less than one hour, if trying to do correlation. Mr. Church said he would like to see what weather data the Koracin Report used, which correlated wind direction and people experiencing some kind of effect at a certain point in time. Sarah Chavez assumed the study used '93-'94 weather data, because that was the only data that existed at the time. Another possibility was for them to get weather data from Intel's tower at the time of the study. Also, she said there was a time when NMED would get calls from the community, and then NMED would ask Intel for equipment status and weather data from the 10-meter tower. This could also have been a source of data for the report, Ms. Chavez said.

- Sarah Chavez said that the 10-meter weather tower was originally in a different location. As the Intel site expanded, it had to meet EPA criteria, which helped designate the new location. The '93-'94 data was from the original location, which was closer to Corrales. Ms. Chavez said the NMED trailer most likely did not meet EPA criteria for a meteorological station. Ms. Chavez said the '93-'94 data was used in Intel permit modeling. For Mr. Williams study, Class One would prepare 2010, 2011, and 2012 weather data for modeling.

- Stephen Littlejohn summarized as follows. Hugh Church acquired a public information form to pursue getting information about the NMED trailer data from NMED. Once they got this information, they could learn the parameters under which it was collected, and then what the data meant. Since the trailer data most likely did not meet EPA standards, this data would be very difficult to compare to data from Intel's weather tower, which did meet EPA standards. Also, the group did not see any advantage to moving Intel's weather tower to a different location.

- John Bartlit asked if Darko Koracin might be available to review the modeling study plans. Several people asked where they could access the Koracin report. Roberta King said she got it from the Corrales Air Quality Task Force. Sarah Chavez said she got it off NMED Web site. The Koracin report could be found through the following link: http://www.nmenv.state.nm.us/aqb/projects/Corrales/index.html. All the report details were on two zip files, which could be downloaded from the Web site. The files were very large and could not be distributed by email. Stephen Littlejohn said he thought he might have placed these files on the CEWG Web site.

ACTION ITEM: Stephen Littlejohn will distribute information on how to access the Koracin report to the group.

ACTION ITEM: Hugh Church will inform Stephen Littlejohn on his progress made in accessing the NMED trailer weather data.

HEALTH RISK ASSESSMENT

Stephen Littlejohn said "Health Risk Assessment" was in the CEWG's highest priority group of topics. A health risk assessment was first completed in 2004, and the question now was: should the CEWG request that it be redone. If they requested another assessment, what would be new and different about it this time around?

- Mr. Littlejohn brought the group's attention to the 2004 Gradient Health Risk Assessment (HRA), which concluded that there was no evidence that any measured or modeled chemicals were associated with increased acute or chronic health risks in the area. However, the report pointed out that there were uncertainties with the available monitoring and modeling data.

- Roberta King asked if this handout was presented to the Corrales Air Quality Task Force. Mr. Littlejohn said it was part of a larger report, and he had extracted the summary. Ms. King said the community had problems with the Gradient report, and that there were many contradictions in it. John Bartlit said Gradient was hired by NMED. Ms. King said Gradient was an Intel contractor. Ms. Chavez responded that Intel did not hire anyone for the Corrales Air Quality Task Force, nor was Gradient ever connected to Intel. ERM was the company Intel hired to do a risk assessment at the same time as the Corrales risk assessment. She said she was not aware that Gradient was ever connected to Intel. The Darko Koracin study and the Gradient study were all parts of the NMED risk assessment study.

- John Bartlit put the study in a financial context. "The study began in 2002, and a total of approximately $230, 000 was expended, including $145, 000 in EPA grants, and $89, 000 in NMED funds." He said NMED used these funds to hire Darko Koracin and Gradient. Since the study was over 10 years ago, most likely the costs were higher today, and grants were scarce now. Also, the ATSDR study happened only a few years ago and was expensive. For the CEWG to convince people to do something on a similar scale, they must have a very good case.

- Dennis O'Mara suggested to first determining the criteria to judge how health risks have changed. Science evolved, criteria changed. As an example, x-rays were overused in the 20th century and the radiation caused cancer. If he had doubts or reservations, it was that

science had not evolved far enough to give a clear understanding about exposure to chemicals. If you looked at history, science was wrong about a lot of things. John Bartlit said he agreed with Mr. O'Mara that science evolves and risk criteria can change, so this is a good place to start.

- Lane Kirkpatrick said that an overriding question about what had changed was how had emissions changed. What were the concerns now versus back then. What was known about meteorological data and the assumptions behind the data versus today. A starting point would be to ask how valid the study was compared to now, and what had changed.

- Stephen Littlejohn brought up a past presentation to the CEWG by a panel of epidemiologists, who said it was extremely expensive and problematic to connect emissions with health effects.

- Lynne Kinis said that the panel had said the government did not have the money to test many of the chemicals. She stressed that people read the last paragraph of the Gradient summary, which qualified their results. John Bartlit said that the CEWG had dealt with some of the uncertainties including the crystalline silica and HF. He said the key was what had changed. Sarah Chavez said other parts of the report summary showed that they used conservative assumptions to overcompensate for some of the uncertainties.

- Lynne Kinis read, "A summed hazard index of 1.7 was obtained for the acute risk scenario using maximum 1-hour average concentrations obtained from the TRC OP-FTIR monitoring event where the monitor was located in the NW corner of the Intel campus with a southerly sample path." She asked how often did the wind come from the south so that it would pick up the emissions to hit people in the east? Lane Kirkpatrick said not that often.

- Sarah Chavez read: "This is a health-protective approach, where the summed hazard index likely overestimates potential health impacts since it sums hazard quotients for different chemicals that are based on maximum concentrations that occurred at different times and different places." She said this was an example of a conservative approach to overestimate what the path might be. Risk assessments were designed to work in this way.

- Mike Williams said EPA used ambient standards based on 24 hours. Occupational health standards were based on 8-hour workdays.

- Stephen Littlejohn summarized that there was some interest in room to further discuss the possibility of learning about changes that occurred over last decade in epidemiological understanding, levels of emission, meteorological conditions, etc. He would put something to this effect on the meeting agenda. The question to address was what they

wanted to know and how they wanted to get it. Sarah Chavez added that there were multiple places to look for data. Lynne Kinis suggested dedicating a block of time to brainstorm questions about what had changed for the next meeting.

- Lane Kirkpatrick commented that it would sure be nice to get that ATSDR report.

ADDITIONAL BUSINESS

MEETING ADJOURNED

NEXT MEETING
April 17, 2013, 5 to 7 p.m.
Corrales Senior Center in Corrales