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## MEETING SUMMARY

### Community Environmental Working Group

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

**Date:** May 15, 2013  
**Time:** 5:00–8:00 p.m.  
**Location:** Intel

#### **Members Attending**

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

Sarah Chavez, Intel  
Robi Shields, Rio Rancho resident

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

Dennis O’Mara, Corrales resident  
Kurt Parker, ERM  
Andrew Moen, Intel

Chris Sharman, Intel  
John Gabaldon, Intel  
Larry Alei, Intel  
Karen Foss, Albuquerque resident

#### **Facilitator**

Stephen Littlejohn, Facilitator

CJ Ondek, Recorder

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#### **PROPOSED AGENDA**

- Welcome, Introductions
- Intel Overview
- Facility tour
- Questions
- Adjourn

#### **HANDOUTS**

- Synergism Is Well Worth Understanding
- Emails regarding status of ATSDR reports

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## **WELCOME, INTRODUCTIONS**

Larry Alei welcomed everyone to the Intel Plant tour. Introductions were made.

## **INTEL OVERVIEW**

Larry Alei provided the group with an overview of Intel's work, including history, corporate mission and values, products, manufacturing processes, global offices, and the Rio Rancho site. He passed around product samples and explained the technology behind them as well as the end use and corporate manufacturing goals.

## **INTEL MONITORING SYSTEMS**

Sarah Chavez gave a brief overview on Intel's environmental monitoring systems. She said if anyone wanted to, they could discuss these systems in more depth at a CEWG meeting.

### Chemical Management

Sarah Chavez said Intel's chemical management was regulated by the Department of Transportation (DOT); Department of Homeland Security (DHS); Environmental Protection Agency (EPA); and Occupational Safety Health Administration (OSHA). She went through each of the items Intel managed onsite. These included:

- Just in time delivery: Intel did not store chemicals over the long term. Rather they received shipments on an as needed basis, which was usually twice a day.
- Scanning barcode system: As chemical systems arrived, the shipments were scanned using a barcode system for tracking purposes. The information was tied to a database that captured how much was purchased and brought onsite.
- Double containment system: Two lines—a line within a line—to capture and contain chemical leaks.
- Chemical resistant coating: This coating was put in waste areas over concrete so if any chemicals did leak they could not seep into the concrete floor.
- No underground storage: Intel did not have any chemicals stored underground.
- Monitoring: This system was precision-focused to detect any leaks.

### Storm water

Regulated by EPA. Ms. Chavez said construction activities and rainwater were managed, and special processes were in place to manage containment near chemical sites and protect storm water from being contaminated before it was released into the "flow." The storm drains were clearly labeled, and as there were requirements around what could be put down storm drains, Intel trained employees on this issue. Intel also completed monthly/annual inspections to clean the storm water system.

### Wastewater

Regulated by EPA, Clean Water Act (CWA), Albuquerque and Bernalillo County Water Authority (ABCWUA). Ms. Chavez said the City of Albuquerque had to have a permit from the

EPA to discharge the water to the Rio Grande. Intel had a permit with the City of Albuquerque, which allowed the City to ensure they met the requirements with the EPA. Intel had onsite treatment and pH adjustment to ensure they met requirements in their permit with the City. There was a single discharge point at the site, and most of the monitoring occurred here. There was no underground piping, and sampling on wastewater was done twice a year.

Stephen Littlejohn asked how much of the wastewater was returned to the Rio Grande River. Ms. Chavez said she did not know but she would ask. Larry Alei said he did some work on this issue a few years ago and said most of the water came from wells and about 80% was returned to the Rio Grande through the ABCWUA. Ms. Chavez said she would get an updated number.

#### Waste management

Regulated by the EPA RCRA, DOT, and NMED. Ms. Chavez said Intel was considered a “generator of waste”, so any time waste was produced they could not keep on site for more than 90 days. They used a third party vendor to transport waste offsite. RCRA required inspections daily to weekly to monthly depending on the system. Intel also used double containment for waste, so if there was a leak it would be contained, as well as chemical resistant coating. There was no underground storage or piping. Monitoring was automated for leak detection.

#### Air emissions

Regulated by EPA, Clean Air Act (CAA), NMED. Ms. Chavez said Intel was a voluntary minor source of pollutants like NO<sub>x</sub>, VOCs, CO, HAPS, etc, and a major source for greenhouse gases. They should be issued the major source permit by end of the year. Intel’s two key abatement systems are:

- Thermal oxidizers—Key parameter to monitor is temperature
- Scrubbers— Key parameter to monitor is monitor water flow—there needed to be a specific amount of water for the system to operate at full efficiency.
- Ms. Chavez said alarms went off in the event these parameters were breached to alert engineers to take action. Intel had been testing both abatement systems the last 12 years and had data to show that they have been able to meet the requirements.
- Ms. Chavez continued that new technology was developed and tested and parameters set in the Oregon facility. Then the new technology was sent to manufacturing sites, who were told to “copy exactly” to ensure the consistency necessary to develop precise products.
- John Bartlit asked about the relationship between the chemicals bought by Intel and tool testing. Ms. Chavez said the quantity purchased was tested at the tool to develop an emission factor based on the manufacturing process. It was calculated emissions based on

measured emissions. Because the manufacturing process was very precise, it would always go through the same steps. To validate that the calculation was accurate, Intel tested at a high volume manufacturing site and then corroborated that information with the stack testing data. Intel was required to test thermal oxidizers for two weeks every quarter, and this was done for over 12 years, and scrubbers received 8 hours of testing each year for over 12 years. The data show consistency over time.

- Stephen Littlejohn asked if the emission factors took into consideration abatement. Ms. Chavez said yes. She said the permit required that Intel document equipment uptime.
- Dennis O'Mara said some part of the stream of chemicals went through thermal oxidizers and others went through scrubbers. Ms. Chavez said this was correct, and it depended upon chemical compatibility with the abatement system. Criteria were established around which chemicals to send where. Dennis O'Mara asked what percentage of chemicals purchased actually went out the stacks, and if this could be calculated based on how much Intel hauled out. Ms. Chavez said it was not a matter of simple mass balance. Depending on the process, some of the chemicals were taken by wastewater stream, so it was not a very accurate method. Mr. O'Mara asked if she could give a ballpark amount that was released into the wastewater system. Ms. Chavez said sometimes chemicals changed in the process, so it was not a one to one balance. Thus, she could not legitimately site a percentage. Intel was regulated by how much was coming out of stacks. Thermal oxidizer removal efficiency was 97%, but scrubbers were less, about 70% for HF, and in the sixty percentile for other major chemicals.
- Mike Williams said that the chemicals used over the 12-year period varied, so how long have they been testing with the chemicals in use now. Ms. Chavez said there was a certain set of chemicals that have been used in the processor manufacturing process since the 1980s, so this provided some element of consistency. From a technology standpoint, they have used the same technology for the past 3 years.

#### Emergency Response Management

Regulated by the EPA, DHS, OSHA, NMED. Ms. Chavez said Intel had full time trained emergency responders on site and documented procedures as required by regulations. They also conduct routine drills between internal and external responders.

#### **FACILITY TOUR**

The group toured FAB 11 and FAB 11X and viewed fab bays, sub fab, air duct separation system, RTOs and stacks, scrubber stacks, CUB (Central Utilities Building), exterior chemical storage, and storm drains.

After the tour, John Gabaldon gave a brief overview on how they monitored the abatement systems

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for operating consistency.

**MEETING ADJOURNED**

**NEXT MEETING**

June 19, 2013, 5 to 7 p.m., Corrales Community Center

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