

## Project Summary

In response to community concerns in 1995, Intel commissioned an outside consultant to conduct a site risk assessment. The final report was published in June 1997. The purpose was to

- (1) tell the public how much of what chemicals are currently stored and used at Intel's facility,
- (2) assess the public risks from routine and accidental releases of these chemicals, and
- (3) identify opportunities to reduce risks to health and safety, and improve emergency response systems.

The study used the standard methods of risk assessment and risk guidelines provided by the U.S. Environmental Protection Agency. (The EPA guidance documents can be found on the web at [http://www.epa.gov/oar/oaqps/air\\_risc/3\\_90\\_024.html](http://www.epa.gov/oar/oaqps/air_risc/3_90_024.html).) The study showed that risks from Intel were within the bounds, including a margin of safety, which the EPA recommends to protect the public from effects of human activity. The study also found that chemical levels in the soil and air are as low near Intel as in other parts of the Rio Grande Valley. (The complete report can be found at the Corrales and Rio Rancho public libraries, and a summary report is available online at [http://www.intel.com/community/newmexico/NM\\_Assess.htm](http://www.intel.com/community/newmexico/NM_Assess.htm).)

In 2002, Intel commissioned a different firm--the 25-year-old international consulting firm of Environmental Resource Management (ERM)--to update the 1995 assessment. The latest study is to

- (1) review the previous study and address concerns that were raised from the previous study,
- (2) determine how much of what chemicals are currently stored, used and emitted from Intel's facility,
- (3) apply the improved methods of risk assessment and risk guidelines currently supplied by the EPA, and
- (4) determine if the risks associated with the Intel facility were within EPA guidelines and further identify opportunities to reduce risks to health and safety.

The broad conclusions in the 2005 report are consistent with those of the 1997 report, as described above. However, the 2005 report identified certain compounds that may pose a concern in the future based on Intel's projected usage amounts.

In another response to community concerns, New Mexico state agencies worked from 2002 to 2004 to learn more about air quality in Corrales. The study cost about \$230,000 and involved the New Mexico Environment Department, the New Mexico Health Department, and public task force members. (The final report is available online at <http://www.nmenv.state.nm.us/aqb/projects/corrales/>) The broad conclusions of the Corrales air study are again consistent with the conclusions of both the 1997 and the present risk assessment.

Even though assessment methods are continuously improved, no study can answer every useful question about risk. To respond to continuing community concerns, the Agency for Toxic Substance and Disease Registry (ATSDR) of the U.S. Department of Health and Human Services is currently re-assessing the effects of Intel's air emissions. More can be learned about the ATSDR on their web site at <http://www.atsdr.cdc.gov/>. At their study's end, those results will come from the ATSDR.

## List of public meetings that discussed the Risk Assessment

<i>Meeting Date</i>	<i>Meeting Location</i>	<i>Notification</i>
July 31, 2002	Intel (ERM attended)	Letter sent to selected community members – New Mexico Environment Department (NMED), elected officials, Local Emergency Planning Committee, representative community groups (21 invited)
Feb 13, 2003	NMED Public meeting	Email and regular mail
May 6, 2003	Hilton Garden Inn (ERM attended)	Newspaper and email
Oct 14, 2003	Hilton Garden Inn (ERM attended)	Newspaper and email
Nov 11, 2003	Hilton Garden Inn (ERM attended)	Newspaper and email
Dec 17, 2003	Hilton Garden Inn	Newspaper and email
Jan 22, 2004	Hilton Garden Inn	Newspaper and email
Feb 25, 2004	Hilton Garden Inn	Newspaper and email
Mar 31, 2004	Hilton Garden Inn (attempted to	Newspaper and email

	include ERM by phone)	
Feb 16, 2005	Your Place or Mine	Newspaper, email and web
Mar 16, 2005	Your Place or Mine	Newspaper, email and web
Apr 20, 2005	Your Place or Mine (ERM attended)	Newspaper, email and web
May 18, 2005	Your Place or Mine	Newspaper, email and web
<b><i>Other meetings</i></b>		
August 15, 2002	Update to Intel Community Advisory Panel (CAP) from Intel	Email
Nov 21, 2002	Update to Intel CAP from Intel	Email
Jan 14, 2003	Intel CAP subteam meeting	Email
Feb 19, 2003	Intel CAP subteam meeting	Email
Mar 20, 2003	Update to Intel CAP from subteam	Email
July 30, 2003	Update to Intel CAP from Intel	Email
Oct 19, 2004	New Mexico Environmental Health Conference	Website and regular mail
Nov 2, 2004	New Mexico Chapter of the Air and Waste Management Association	Email

### Summary of changes made to Risk Assessment in response to community comments

#### Concern

- Repeat exposure to short-term elevated concentrations
- Thermal Oxidizer downtime
- Changes in production
- CUB Scrubber
- Cooling towers
- Particulate emissions
- Modeling local terrain
- Accuracy of air dispersion modeling
- Odors

#### Changes Made

- Added repeat exposure to 1 hr concentrations to risk characterization
- As part of emission scenario for short-term concentrations, assumed 2 thermal oxidizers were down
- Added an emissions scenario that included future production scenarios
- Added emission source to Risk Assessment
- Added emission source to Risk Assessment
- Added to Risk Assessment
- Switched to CALPUFF
- Compared model results to historical sampling data and tracer gas study
- Evaluated odor thresholds as part of the toxicity assessment

## Overview of Carbon Tetrachloride Emissions

Of Intel's routine chemical emissions, the Risk Assessment found the highest risk to the public is from carbon tetrachloride, a chemical used in Intel's chip-making operations. Intel's permit from the New Mexico Environment Department's Air Quality Bureau (AQB) requires annual monitoring of stack emissions of carbon tetrachloride and reporting every three months of carbon tetrachloride emissions, based on measurement of the Intel operations that emit the chemical. These operations go on at a steady pace throughout the week and year, as is required to maintain the steady production rate of computer chips.

In addition, the AQB and Intel separately have monitored for carbon tetrachloride in the community. The AQB collected 27 days of open path Fourier Transform infrared Spectroscopy (OP-FTIR) monitoring data from a residential neighborhood to the southeast of the Intel facility and 7 days of OP-FTIR data from the northwest corner of the Intel facility. The AQB also collected 22 canister samples from the OP-FTIR locations and from various other locations in the Corrales and Rio Rancho area. Intel conducted 19 days of OP-FTIR monitoring on the northwest corner of the Intel facility and 18 days at the southeast side of the Intel facility. The OP-FTIR and canister results were evaluated in the Corrales Air Quality Study, which followed the U.S. Environmental Protection Agency guidelines (The EPA guidance documents can be found on the web at [http://www.epa.gov/oar/oaqps/air\\_risc/3\\_90\\_024.html](http://www.epa.gov/oar/oaqps/air_risc/3_90_024.html).) The study showed that risks from carbon tetrachloride were within the bounds, including a margin of safety, which the EPA recommends to protect the public from effects of human activity. The AQB final report is available online at <http://www.nmenv.state.nm.us/aqb/projects/corrales/>. Information about safe levels of carbon tetrachloride can be found on the web at <http://www.atsdr.cdc.gov/tfacts30.html> or Appendix D of the Intel Risk Assessment (contains other websites as well).

To summarize: the measurements made on stack emissions, Intel plant operations, and state monitoring of air quality in the community all indicate the risk from carbon tetrachloride emissions is below the levels that the EPA considers safe for the public, with an adequate margin of safety. However, since the Risk Assessment identified future carbon tetrachloride emissions as the highest contributor to risk, Intel will continue to monitor the carbon tetrachloride emissions data collected during the annual stack testing and in the quarterly emissions report to ensure they remain below the levels that would pose as risk.

All the information from the state and the company was also provided to the U.S. Agency for Toxic Substances and Disease Registry (ATSDR), which is further assessing the risk from Intel's air emissions. More can be learned about the ATSDR on their web site at <http://www.atsdr.cdc.gov/>. At their study's end, those results will come from the ATSDR.

**Community Environmental Working Group  
Intel Risk Assessment Review  
Comment Summary  
Revised August 16, 2005**

No.	Comment	Status
<b>Readability and General Observations</b>		
1	This document makes a good transition from a complex scientific subject into a Public Information document by stating its purpose, process, steps and sequence, results and conclusions using plain language, clear narratives, understandable descriptions, detailed explanations and informative illustrations.	No follow-up needed
2	The content of the document is well organized with logical sequences from objectives and scientific rationale through descriptions of technical process with basis for its selection and description of various steps, statements about limitations and uncertainties, reporting and analysis of results, and ending with conclusions. Plenty of references are listed after main chapters.	No follow-up needed
3	In several sections emphasis and sufficient repetition are employed to assure easier comprehension.	No follow-up needed
4	It was my pleasure to review the subject report from cover to cover. I believe it was well done and documented.	No follow-up needed
5	I believe that the public, including members of the surrounding community, with reasonable concentration and dedication of suitable time will find this document readable and understandable.	No follow-up needed
6	The report is in three sections: I. Overview, II. Chronic Risk Assessment and III. One-Time Risk Event Risk Assessment. Since the Overview section discusses the other two in this order, I rearranged the material in the binder in that order, which was distributed with III before II.	No follow-up needed
7	The missing pages really helped, and I think the original reason for us examining the report (clarity for lay readers) has been admirably met. It is clear and very helpful.	No follow-up needed
8	I find the report a bit uneven; there are some good things, some bad things, and some areas that are unclear.	Reviewed
9	The section on comparison of measured and modeled tracer levels culminating in figure 4-12 is well done, and I appreciate the insights it provides into the two different downwash modules.	No follow-up needed
<b>Grammar/Spelling and Consistency Changes</b>		
10	Comments made about a couple page executive summary by Lane Kirkpatrick at the 3/16/05 CEWG meeting were appropriate, as this report is quite comprehensive in scope and perhaps daunting to an average public reader. Whether the Overview could be reworked into one, or an additional summary created is negotiable. Issues such as purpose/scope of document, methodology used, results, conclusions and recommendations should be included in as concise a manner as possible.	The overview document serves as the executive summary for both reports.

No.	Comment	Status
11	The title in all Cover Pages includes the word "Evaluation", in accordance with many statements contained throughout the document it should say: RISK ASSESSMENT for...	Title changed
12	Table of Contents: Page 3, 2nd paragraph, 9th line: Instead of "piping" change to "vessels" ----- One-time event risk assessment: Top paragraph, 3rd line: Instead of "piping" change to "vessels"	ERM feels that "piping" is the appropriate word to describe how chemicals are brought in and out of the facility.
13	Table of Contents: On 3rd line before last, between system ^ prior: Insert " to comply with established limits" ----- One-time event risk assessment: On line before last, between system ^ prior: Insert "to comply with established limits"	Inserted text in Overview and One-Time Event.
14	One-time event risk assessment: Subsection 2.1.1. It includes Fab 7. Intel has told us that Fab 7 is decommissioned! ----- Chronic Risk Assessment: Section 2.1, 1st bullet. Fab 7, as per Intel information, is out of service. ----- Chronic Risk Assessment: Subsection 2.3.3, page 25, top paragraph change five to four TO (Fab 7's is decommissioned) ----- Chronic Risk Assessment: Table 3-1. Fab 7 (F7) should be deleted. ----- Chronic Risk Assessment: Table 3-2, Table 3-3 and Table 3-4, 4th column, Fab 7. Add a note that Fab 7 is decommissioned or delete column.	Clarified status of Fab 7 in all three reports.
15	One-time event risk assessment: Table 3-7. Make reference to definition of "D stability" in page 39 and add definition of feasibility.	Reference added to table.
16	One-time event risk assessment: Figures 3-2, 3-3 and 3-4. Correct spelling of "Bernalillo" ----- One-time event risk assessment: Figures 4-2 and 4-3. Correct spelling of "Bernalillo"	Corrected
17	One-time event risk assessment: Page 52, Bulk Liquids. Description relating to Lead is not clear and seems incomplete	Added clarification that a spill of a waste liquid containing lead is not likely to be a problem that would cause immediate problems and require evacuation of residents
18	One-time event risk assessment: Page 54 (also see Figure 4-3). It seems that a Section 4.3 is missing?	There is no section 4.3.
19	One-time event risk assessment: Figure 4-3. A legend to indicate the meaning of the 3 circles should be added.	Clarified
20	Chronic Risk Assessment: Table 2-2, page 19, 10th line. For Lead, insert between emitted ^ from insert: "to the ambient air" from the...	Added
21	Chronic Risk Assessment: Subsection 2.3.1, 1st bullet. Add brief reference to permit mentioning number of test required per year and also voluntary tests.	Added
22	Chronic Risk Assessment: Subsection 2.3.3, 2nd paragraph, 4th line. Clarify if EACH scrubber is tested annually?	Clarified
23	Chronic Risk Assessment: Table 2-4, Headings. Add Scenario's Numbers to Headings of 3rd column. Add footnote: Based on 2002.	Added
24	Chronic Risk Assessment: Table 2-4, pages 26 and 27. Add indication where "g" should be.	Note "g" is footnoted on ethyl alcohol in column 1.

No.	Comment	Status
25	Chronic Risk Assessment: Figure 3-3. Make legends more readable.	Fixed
26	Chronic Risk Assessment: Figure 3-5. Show a legend for the Rio Grande	Fixed
27	Chronic Risk Assessment: Figure 3-8. Note in center of page has a misprint.	Fixed
28	Chronic Risk Assessment: Page 39, last paragraph, 3rd line. Explain why emissions are shown together.	Modified last paragraph to explain that the scrubber and TO emissions were modeled separately. Since the chemicals either go to the scrubber or TO, they are on the table together but were not combined.
29	Some specific comments in the Overview, page 1, line 4, I suggest changing "... that have developed near the ..." to "... that are developed neighborhoods near the ..." Much of the nearby development was there before the plant was.	Did not re-word.
30	Chronic Risk Assessment: Table 3-4, last column (Total). Quantities should be shown with only one decimal.	All tables were left as is for significant digits because it was realized that mathematically it was incorrect to change all to one decimal point.
31	Chronic Risk Assessment: Figure 3-12. Show a legend for the Rio Grande.	Fixed
32	Chronic Risk Assessment: Table 3-6, Title. Add units.	Fixed
33	Chronic Risk Assessment: Section 4.0, Figures 4-2 to Figure 4-11. Explain why plumes are cut without showing their ends.	Fixed
34	Chronic Risk Assessment: Section 5.0, Figure 5-1. Needs to be enlarged for reading.	Redid, but unsuccessful when sized to fit in page.
35	Chronic Risk Assessment: Subsection 5.3.1, 2nd paragraph, line 9. Explain where are the discharge made.	Edited
36	Chronic Risk Assessment: Subsection 5.4.1, Off-site resident. Add Corrales (after Rio Rancho). ----- Chronic Risk Assessment: Section 5.6, page 101, top line. Add Corrales (after Rio rancho).	Edited
37	Chronic Risk Assessment: Section 6.0, Table 6-1, Heading of 4th column. It says SFo I believe it should be CSFo.	Edited
38	Chronic Risk Assessment: Section 7.0, page 117. I believe there is an algebraic error in the last equation.	Calculations checked
39	Page 5, 1 <sup>st</sup> paragraph line; change "... facility is located a few miles north of the city of Albuquerque,..." to "... facility is located about 10 miles north of downtown Albuquerque,..."	Edited
40	Line 4; correct usage is Rio Grande, not Rio Grande River.	Fixed
41	Line 9; delete "rapid" before cooling.	Fixed

No.	Comment	Status
42	In addition, somewhere in this section 3, maybe 3.2.2, it would be helpful to have a description of the meteorological towers (ground elevation, instruments and their heights, etc.) and their location shown on the appropriate maps.	Fixed
43	Page 8; the reference: EPA, 1991, is not shown in the Overview section. It is shown in the Chronic section. I think the reference could be very useful to the public and should be listed.	Edited
44	In the Chronic section, page 28; the reference: Guideline on Air Quality Models, 40 CFR Part 51 Appendix W, should be listed in reference list at the section end, page 136.	Edited
45	In the One-Time Event section, I could not find where the isopleth's plots, Figs 3-2, 3-3 and 3-4 were called out in the text.	Edited
46	P. 6 of the chronic effects mentions data from the FTIR analyses. It may be appropriate to mention the presumed existence of FTIR data also from the citizens' instrument, which were not made available for this assessment.	Edited
47	Note: The word "protocol" is often used in the report. This term of art cannot have a clear meaning to people outside the field. My old Webster's Unabridged Dictionary lists five possible meanings. Two of these are: (A) "the records or minutes of a diplomatic conference ... that show officially the agreements arrived at by the negotiators" and (B) "a rigid long-established code prescribing ... (a) precisely correct procedure." When read in a public report describing how a risk assessment was done, definitions "A" and "B" imply virtually opposite stories.	Determined that it was not appropriate to globally change. We did not want to confuse using EPA guidance versus following EPA methods (such as sampling methods and procedures).
48	On page 40 table 3.2, there is a material name of Nitrous Oxide with a material name short of NO. NO is nitric oxide and is frequently emitted by combustion sources; Nitrous Oxide is N2O and is laughing gas used formerly by dentist. Which material are we talking about here?	The material evaluated was nitrous oxide and we changed the shorthand designation to N2O instead of NO.
49	On page 116, it is not clear what method was used to determine the "background" and the "Intel" contributions to the daily maximum concentrations.	Edited
50	<i>Locate weather tower(s) on map, describe its exposure re: adjacent obstructions</i>	Weather tower marked on maps
51	<i>Map complaint locations— add dots (to indicate locations from which complaints were received) possibly on the elevation contour map -- Include a plot of locations of complaints -- Plot areas of complaints from residents</i>	This information can be presented by Intel as a follow up from the RA.
52	<i>Significant Digits—in may instances one displayed digit is sufficient (rounded)</i>	All tables were left as is for significant digits because it was realized that mathematically it was incorrect to change all to one decimal point.
53	<i>Exposure contours instead of circles. Do ellipses using weather data stratified by time of day, season, etc.</i>	Directional modeling cannot be done using EPA's model. RMP*COMP only models radius of impact.
54	<i>Need map of elevation contours</i>	Edited
<b>Additional Information Needed</b>		

No.	Comment	Status
55	To facilitate faster/correct understanding a section listing key DEFINITIONS should be added.	Added Appendix F with definitions
56	To improve understanding and receptivity of this message by the community, I suggest the addition of a contrast explanation of what a Risk Assessment IS and IS NOT.	Edited
57	Table of Contents: Page 15, Table 3-1, Left column: "For public explain difference between "mean" and "median"	Added footnotes to tables
58	One-time event risk assessment: Subsection 3.1.1 and Table 3-6. Considering sad experience of 9/11 and resulting public awareness, some brief consideration of TERRORISM should be included.	Added brief explanation
59	One-time event risk assessment: End of section, after Table 3-9. Add a short subsection on Pipeline Natural Gas because pipe that supplies natural gas to plant for boilers could be broken accidentally and intentionally.	Due to lack of probability data, this is difficult to address. In Section 3.1.1, we discuss sabotage and the magnitude of an intentional event would not be greater than the ultimate worst-case scenario. Added a sentence in Section 6.2 to re-iterate this point.
60	One-time event risk assessment: Subsection 5.2.1, last 2 lines. The vulnerability distances shown may be short to moderate, but here it is more important to indicate how many residents could be affected. Additional Prevention Measures should be provided, these would alleviate controversies.	Population surveys would be required to address this concern. Also these surveys would need to incorporate information such as travel patterns, schedules, etc, because the number of people affected would be different for day versus evening. This may be appropriate as part of Intel's follow up (ie., managing risk) based on results of risk assessment.  It will take additional effort to research the prevention measures. Existing measures that are not accounted for by RMP*COMP are Section 3.1.3.
61	Chronic Risk Assessment: Subsection 2.3.1, 2nd bullet. Add brief description of process to establish Emission Factors	Added more information on emission factors but did not add description of process to establish emission factors.
62	The second paragraph discusses terrain influences, but fails to emphasize the ~200 ft rapid surface drop off from the east plant boundary into a residential area. The Corrales study showed that most of the public complaints stem from that local region. Figures 3-4 and 3-5 of the Chronic section should be enhanced to emphasize this small-scale terrain feature.	Edited
63	It may be helpful to include some information on ERM's corporate background. How long has it been in existence? Is all their work with industry, or have they worked also for others, such as a government agency, a tribe, a foreign government, or an environmental group?	Did not include statement of qualifications.
64	In the discussion of uncertainties in toxicity (p. 110), it may be appropriate to provide more discussion of chemical	Edited



No.	Comment	Status
	sensitivities of individuals, as they relate to the toxicity values shown in the conventional reference tables recommended by the EPA and used for the assessment. Differences in individual sensitivities could merit additional consideration.	
65	<p>One aspect I especially like is the report mentions in various places that the assessment is done according to methodology from the EPA. The work methods are partly developed by the EPA, and are approved and recommended by the EPA and described in detailed documents published by the EPA. The documents amount to standard "prescriptions" or "work procedures" for doing the assessment. At the same time, the prescriptions also note and allow flexibility for including, in specified ways, factors that are specific to the local situation. (The last statement is my impression and should be verified with the experts.)</p> <p>Thus, through the federal EPA's participation and actions, the assessment methods are effectively "standardized." The use of standardized assessment methods has a value that I believe deserves substantially more discussion in the report. For example, I can imagine several paragraphs near the front of the executive summary, under a section title such as, "<b>The Value of Using EPA Standardized Assessment Methods.</b>"</p> <p><u>The Value of Using EPA Standardized Assessment Methods:</u></p> <p>Using standardized methodology has two important benefits to the public. The report should present these more prominently and more clearly than they are in the draft. From a public perspective, the major benefits are:</p> <p>Federally standardized methods guard against having any special interest design an assessment to favor its own interests or own point of view.</p> <p>Federally standardized methods put all analyses on a common basis. Having a common basis increases the accuracy and the value of comparing risks in one industry with risks in another. Looking at these "comparative" risks provides a more understandable and meaningful picture than does simply looking at risk numbers for one plant.</p> <p>Furthermore, the same section of the report could include a useful discussion of the <u>history</u> of EPA's involvement in risk assessment methods. The EPA became involved years ago in standardizing the methods, because many, inconsistent methods previously were used by differing interests – industry and environmental, who sometimes designed methods to favor their own interests. Over the years, standardization by the EPA has reduced this possibility immensely, and continues to do so.</p> <p>To my mind, the single most important and most powerful feature of the assessment is the use of standardized methodology. This point cannot be overemphasized in the assessment report. This area of the report needs "continuous improvement," in the interests of clearer exchange of information with the public. More emphasis also should be given to the two main public benefits (stated above) of using standardized methodology, including the history.</p> <p>I recommend these actions as ways to improve communication with the public regarding the Risk Assessment.</p>	Agree. Added language in appropriate areas, such as modeling.
66	<p><b>ODOR</b> - When I toured the site recently, on several occasions I noticed odors at a level that most probably noticeable offsite. Just an educated guess, but probably these odors are mostly associated with the cooling towers, on the other hand I believe I was upwind of the cooling towers and also occasionally noticed odors. Page 12 of the report refers to hydrofluoric acid and CL2 are the only possible occasional odor culprits. My concerns are as follows:</p> <ul style="list-style-type: none"> <li>This report tends to minimize odor as a problem and I'm not so sure it's as minimal as inferred (it's hypothetical and</li> </ul>	Point out strongly in text there are not odor thresholds for all chemicals.

No.	Comment	Status
	<p>perhaps not actual)</p> <ul style="list-style-type: none"> <li>• When the public smells anything near Intel they probable assume the worst and many feel they are being subjected to some health risk</li> <li>• I don't believe this matter is understand to the depth it should be, and if it is, it is not being articulated and explained in a manner in which to alleviate offsite concern . This should be a topic for our working group's agenda and the report should be more considerate of possible odor problems.</li> </ul>	
67	<p>I believe there should be an <b>Executive Summary</b> right after the table of contents. At a minimum this should include the 2 conclusion pages which are now <u>buried</u> in the report as pages 72 and 132. By putting these upfront in the report, then the rest of the report should document and justify the upfront Executive Summary. Also refer to page 18 which poses key questions in each of the 4 areas around which this study was scoped. I suggest that the Executive Summary follow this sequence and format for explaining in layman terms the <u>answers derived from this study that answers those questions on page 18</u> - again put this up front and let the rest of the report document and justify those answers.</p>	<p>The overview document serves as the executive summary for both reports.</p>
68	<p><i>Water Process Waste— (what about the) lead and other waste chemicals</i></p>	<p>As discussed in Section 5.3.1, wastewater was determined to be an incomplete exposure pathway.</p>
69	<p><i>Intel should look at ways to reduce odors from chlorine and hf acids.</i></p>	<p>This comment is ultimately a risk management decision, not part of the risk assessment. Intel may want to evaluate this comment as follow-up to the Risk Assessment.</p>
70	<p><i>Break-up scenarios based on meteorology</i></p>	<p>ERM does not understand the comment.</p>
71	<p><i>Selected references to permit; limits scenario 2</i></p>	<p>As described in Section 2.3.2, Scenario 2 is only limited by permit limits for hydrofluoric acid. All other scenario 2 estimates are under permit limits.</p>
72	<p><i>Indicate that soil samples were not taken</i></p>	<p>Clarified in Section 1.2.</p>
73	<p><i>“Insignificant” is with reference to legal limits. What is the “legal limit” for some specific HAP?</i></p>	<p>Section 2.2.2 details which legal limits were used to determine “insignificant.”</p>
74	<p><i>Where do toxicity data come from? EPA documents, ERM documents, or something else?</i></p>	<p>Toxicity Profiles in Appendix D describe the basis for the data.</p>
75	<p><i>I know the story of the CRCWA’s FTIR and data from it. What can be done to integrate more of these data in the future?</i></p>	<p>Data that is collected in accordance with EPA standards can be used.</p>
76	<p><i>Slide 8-- 2 minute values, are those the same as “spikes”?</i></p>	<p>2-minute values were used to simulate spikes.</p>

No.	Comment	Status
77	<i>Slide 46—Risk similar to background—clarify</i>	Clarified
78	<i>Slide 50—Add “more safe” and “less safe” to the table</i>	No changes made.
79	<i>Consider plotting dispersion model over the one time release scenario maps</i>	See Comment 53
80	<i>Define—EPA “alternative release” scenarios</i>	Edited.
81	<i>Number of people (population) within .5 (1/2 mile) maximum endpoint</i>	See comment 60.
<b>Technical Clarification Needed</b>		
82	Table of Contents: Page 10, 2nd bullet refers to annual emissions for the 2002 calendar year. Two items should be clarified: These are PRIOR TO FAB11X? Any significant CHANGES in 2003 and 2004?	The intent of scenario 2 was to account for future changes that would occur at the site and account for the addition of Fab 11X. As discussed in 2.3.2, additional chemicals were added and scenario 1 emissions were doubled.
83	Table of Contents: Page 10, 3rd bullet: Is this scenario intended to represent "spikes"?	Yes, third scenario simulates spikes.
84	Table of Contents: Page 12, 2nd paragraph (before last): What about other odors smelled by nearby residents which were reported to Intel and NMED?	Odor thresholds are not available for all the chemicals evaluated in the RA.
85	One-time event risk assessment: Page 3, states that no waste streams were evaluated. What about LEAD in wastewater from production process?	Add a sentence explaining that there's no credible scenario in which lead from a wastewater release would cause an immediate risk.
86	One-time event risk assessment: Page 7, Section 1.4, last paragraph, 1st line. Addresses only accidental release of chemicals. What about INTENTIONAL (terrorism)?	See comment 58
87	One-time event risk assessment: Table 2-1, footnote 2 is based on 2002 Inventory. Any significant changes in 2003 and 2004?	See comment 82.
88	One-time event risk assessment: Figure 3-3, largest circle. A portion of 0.5 circle reach Corrales residents. Are additional mitigation measures needed? ----- One-time event risk assessment: Figure 3-4, both circles. Portions of both circles reach Corrales residents. Are additional mitigation measures needed?	See comment 60
89	One-time event risk assessment: Section 4.0, page 51, 1st and 2nd paragraphs. Is the concrete fire barrier between hydrogen and oxygen tanks enough protection considering that a mixture of these gases is explosive? What additional prevention and mitigation measures should be considered?	Added a few sentences regarding compliance with NFPA in first paragraph on Bulk Hydrogen gas in Section 4.1.3 .
90	One-time event risk assessment: Section 6.0, Table 6-1, footnote 4. Is based on 2002 Inventory. Any significant changes in 2003 and 2004?	See comment 87

No.	Comment	Status
91	Chronic Risk Assessment: Subsection 2.3.2, last 4 lines. Any emission changes since 2002?	See comment 82.
92	Chronic Risk Assessment: Line 11. Explain what are the discharge requirements including Lead content.	Not evaluated because wastewater was determined to be an incomplete exposure pathway.
93	Chronic Risk Assessment: Subsection 5.5.1, Ambient Air, page 78. Explain why no Combustion Sources are mentioned.	As discussed in Section 2.1, boilers were included.
94	Chronic Risk Assessment: Section 8.0, page 133, 2nd paragraph. It says...cannot be distinguished from background risks. But unfortunately people are exposed to BOTH. Are there additional prevention and mitigation measures to improve this situation?	ERM recommends in section 8.0 of Chronic to evaluate future use of carbon tetrachloride.
95	In several places, a statement similar to the following is made: "All areas using chemicals have exhaust ventilation systems that are then routed to the appropriate air abatement equipment." If I understand correctly from meetings of the Working Group, isopropyl alcohol is vented directly to the atmosphere with no abatement. These points should be clarified or reconciled, as appropriate.	Clarified
96	The discussion of odor identifies HF and Cl2 as the chemicals most likely to cause noticeable odors. Are these smells consistent with the descriptions of odor supplied by the public or determined by Intel?	No. But as per above comment stressed not all chemicals have OTs.
97	Has an assessment been made of the effect of a credible fire on chemical releases? I refer to the effects of fire (heat) in volatilizing materials that normally are not volatile, or in combining or decomposing chemicals that do not react at normal temperatures.	This has not been evaluated.
98	<p>I still have some questions regarding the treatment and disposal of waste water.</p> <ul style="list-style-type: none"> <li>▪ Do all the solvents get removed before final discharge of effluent?</li> <li>▪ And I know that it is not Intel's responsibility, but how is the "proper disposal" of waste hauled away by contractors monitored?</li> </ul> <p>What I have seen of other such situations has been pretty hit or miss.</p>	Not evaluated because wastewater was determined to be an incomplete exposure pathway (section 5.3.1).
99	One of the more striking problems occurs in the section on the "One time event report," on page 19 the Compressed Hazardous Gas Screening Index is reported and far and away the biggest threat is Octafluorocyclopentene with an index of 620100, but gas was not chosen for an offsite risk analysis. The first gas chosen for an offsite risk analysis was Chlorine with an index about 1 fifteenth of C5F8. I realize that it was easier to do the analysis for CL2 than C5F8, but it seems that the hazard index disparity would suggest that extra efforts be made to address the material with the highest hazardous potential.	ERM will provided clarification of the RMP*COMP process and reviewed and updated the physical properties of C5F8 that resulted in the high hazard index.
100	On page 25 there is an equation for the total probability as the product of the individual probabilities, this only true if the individual probabilities are independent. For example the probability of a cylinder failure is probably greater when the cylinder is being moved; I would guess that movement of cylinders happens a greater percentage of the time when the cylinders are outdoors, so the aforementioned equation would estimate the probability that a failure occurred outdoors.	No change. The equation already includes a factor addressing the probability that the cylinder is indoors or outdoors

No.	Comment	Status
101	On page 39, there is discussion of the alternative case release scenario and its selection of class "D" stability. The statement is made that "class D is a relatively stable atmospheric class and results in relatively high predicted impacts for a given release." Class D is in fact neutral stability. Conditions appropriate for Class D or more stable conditions include all nighttime hours, most windy hours, cloudy conditions and low sun angle conditions; in other words more than half of the hours of the year.	See also comment 15.
102	In the Chronic risk assessment page 31, it describes winds at 200 meter levels. This is a crude representation of the atmospheric; there is a lot structure near the surface that would be poorly represented with this level of detail.	Clarified reasons for using 200m scale
103	Unfortunately, the section culminating on pages 66 and 67 doesn't deserve similar accolades. First, there is too much weight put upon the measured wind directions. Unfortunately in areas with buildings, such wind directions are very misleading. We have done simulations and we have seen tracer data showing that buildings can produce local winds that are opposite to the larger scale winds, so that the material appears to be moving in an upward direction relative to wind sensors that are not where material is released. Also, many of these materials are heavier than air and tend to creep along the surface under the influence of their own self induced winds or drain downhill. Furthermore, the maximum modeled concentrations frequently to much different locations than two sites at which the measurements were made. We note that the tracer concentrations SF6 are quite close to modeled values. Is there an argument being made that the other materials disperse in a much different way or is the argument being made that the emissions used in the models are vast overestimates?	Clarification to section 4.0.
104	On Page 91, Table 5-2 has some very strange entries; it shows that the annual averaged concentrations are higher than the UCL95 hourly which is described on page 77 as a value that is above the true mean 95% of the time. Clearly there is a serious problem with table 5.2.	There is no problem with Table 5.2. The annual average is actually the annual average concentration at the worst case receptor. The UCL95 instead is averaged spatially . This was clarified in the text.
105	On the top of Page 103, there is the comment "assuming that standard temperature and pressure apply." Clearly the outdoor atmosphere at approximately 5000 feet elevation was not at standard pressure; does the writer mean than the measurements were referenced to standard conditions before being reported? What does the writer mean?	Clarified.
106	On page 119, and 11 of the overview, the fact that the cancer risk associated with only one component, carbon tetrachloride, exceeds the one in a million cancer risk level seems to be glossed over. While it is true that the background comprises a significant portion of the threat, that is all the more argument for doing a better job on controlling the emissions. I would think that it should be a priority to further reduce both carbon tetrachloride and the formaldehyde emissions since these two together seem to pose a significant cancer risk.	Edited to further explain increased risk and included recommendation for further review.
107	I would also think that it would be appropriate to try and further limit the emissions of hydrofluoric acid and chlorine.	Risk management decision; not a component of the risk assessment.
108	Finally the description of the emissions modeled gives us no information as to the stack conditions modeled when the thermal oxidizers are down. Consequently we can not tell whether the modeling was conservative at all. If the plume rise is reduced we would expect higher concentrations near the source and we would expect that higher concentrations would occur with lower wind speeds.	Addressed
109	<i>Comments about over prediction of fluorides cannot be accepted without plausible explanation</i>	ERM does not understand comment.

No.	Comment	Status
110	<i>C5F8's screening value is &gt; 10x that of any compound analyzed</i>	See Comment 99
111	<i>(What is the) potential area encompassed by event with off-site impacts</i>	Figures in One-Time Event Report depict the areas.
112	<i>(Concern about not being able to) distinguish Intel (emissions) from background</i>	Added more explanation in Section 4.3. for background vs Intel impacts.
113	<i>The "what if" probabilities would have a larger effect (more than 1)</i>	ERM does not understand comment.
114	<i>One time event —(should include) intentional events (such as terrorism)</i>	Section 3.1.1 explains that due to lack of data, this cannot be evaluated; however, impacts from ultimate one-time event would be comparable.
115	<i>All gases release at same time—may have additive effect to extend distance</i>	Added sentence to first paragraph in Section 6.1 of One-Time Event.
116	<i>Some probabilities may be under estimated</i>	ERM does not understand comment.
<b>Potentially Controversial Statements</b>		
117	Table of Contents: Page 19, last paragraph, last 2 sentences: If risks for...living..., one-half mile...were found to be elevated, the last sentence could lead to controversial criticisms because those residents DID NOT ELECT to be exposed.	Did not change.
118	One-time event risk assessment: Section 8.0, 1st paragraph, last statement. The number of those residing within this area may be small (not mentioned), however the comparison to "many common societal and industrial risks is a poor consolation for those affected and will lead to controversies.	Did not change in Section 8.0. Added sentence in 5.2.1 to explain how this information can be used.
119	<i>Odors are warnings!</i>	Chemicals that had odor threshold data were evaluated.