Testimony of

Mr. Steve Harper

July 16, 2002

Thank you, Chairman Jeffords and Chairman Leahy, for the opportunity to address this joint hearing regarding New Source Review policy issues. My name is Stephen Harper. I serve as the Director of Environment, Health, Safety, and Energy Policy for the Intel Corporation. I am here to address the committees today about one specific aspect of New Source Review (NSR), namely Plantwide Applicability Limit (PAL) permitting approaches. Intel has been part of an informal coalition of companies from the pharmaceutical, chemical, automotive, and electronics industries that have been advocating promulgation of a PAL rule by the U.S. Environmental Protection Agency (EPA) for several years now. Many of our coalition members have experience with PAL-type permits at their facilities and believe strongly that EPA should promulgate a PAL rule as a logical next step in a long process of piloting, perfecting, and proliferating flexible permitting approaches that protect the environment and provide operational flexibility to facilities.

Much effort has been expended over the last ten years by industry, states, EPA, and the public ¡V under both Democrat and Republican administrations ¡V to ¡§reinvent¡¨ or innovate new approaches to environmental protection. Intel has participated in many of these efforts and is intimately familiar with the mixed result of successes and failures from these endeavors. We feel strongly that PAL-type permits are one of the most successful innovations to emerge from these many reinvention efforts. The time has come to build on this success and take PALs into the mainstream of NSR permitting.

Semiconductor Manufacturing Requires Flexible Permitting
Why does Intel care about PALs and other forms of flexible permitting under the Clean Air Act? In simplest terms because of the importance of operational flexibility in being able to innovate new products and processes and quickly respond to market conditions. As in many other industries, there are only two types of semiconductor companies ¡V ¡§the quick and the dead.¡¨ We feel strongly, therefore, about being quick.

Intel operates ten semiconductor ¡§fabs¡¨ or fabrication facilities in the US, producing Pentium?¥ processors and other semiconductor products. These facilities employ many thousands of highly-skilled US workers. The capital investment required to bring a new fab into full production is in the $2-3 billion range. The life-cycle of a semiconductor fab involves numerous upgrades and innovations in production technology, chemicals, and processes. A ¡§typical¡¨ Intel fab, for example, experiences two or more technology generations over a five-year period; as many as 75 upgrades and innovations each year in process steps, methods, and chemicals; and the installation of between 175 and 500 new process tools over a two-year technology transition.

Once a fab has commenced production, profitability depends upon reaching and maintaining high levels of production as quickly as possible. Traditional air quality permitting approaches, under NSR and other EPA and state programs, would require potentially hundreds of permit

revisions to implement the upgrades and innovations that are critical to successful start-up and ramp-up of a fab. The potential delays attendant to such revisions are ¡V simply put ¡V incompatible with the profitable operation of U.S.-based semiconductor fab that must compete in a global marketplace where success hinges upon being quick-to-market. Traditional permitting approaches would require numerous permit modifications and threaten significant delays for companies like Intel as we install new manufacturing tools, convert to new manufacturing processes, change chemicals, and expand production capacity to respond to market conditions.

Driven by the incompatibility of traditional permitting approaches with semiconductor manufacturing requirements, Intel has long pursued an objective of minimizing our permitting burden. We have done this in two ways. The first is to reduce our emissions of all pollutants as much as we can so as to achieve ¡§minor source¡¨ status under the Clean Air Act. The second priority has been to work with EPA and the states to pilot and prove new, innovative, and more flexible permitting approaches.

What is a PAL?
A PAL permit provides an emissions cap or caps for an industrial facility. The cap provides a clear method for determining whether changes at a PAL-covered facility trigger NSR permitting requirements. The need to obtain an NSR permit revision only applies when a facility¡¦s emissions increase beyond the PAL cap. In addition to the cap, a PAL or PAL-type permit typically specifies certain kinds of facility changes that are ¡§pre-approved.¡¨ A facility with a PAL can undertake a pre-approved change without becoming subject to NSR as long as the facility¡¦s emissions remain below the cap(s).

It is important to clarify the difference between a PAL permit under the NSR program and what I am terming a ¡§PAL-type¡¨ permit. PALs per se relate only to facilities that qualify as ¡§major¡¨ under the Clean Air Act by virtue of the magnitude of their emissions. I am using the term ¡§PAL-type¡¨ permits to refer to minor source permits involving both an emissions cap and pre-approval of certain operational changes. As I will make clear shortly, Intel has experience with both types of permit.

What are the Benefits of PAL-type Permits?
There are three categories of benefits provided by PAL and PAL-type permits. Most importantly, PALs provide significant environmental benefits. PAL emissions caps provide certainty regarding the emissions impact of a facility. Moreover, since these emissions caps are set at levels that reflect the air quality improvement needs of an airshed, PAL caps typically entail emission reductions compared to traditional permitting approaches. Emissions caps, moreover, provide a very powerful incentive for pollution prevention. The only way a facility can increase its production and still stay under its cap is to reduce its emissions per unit of production. PALs allow facility environmental engineers to spend less time dealing with the burdens of permitting paperwork and free them up to concentrate on reducing emissions through pollution prevention.

A second benefit PALs provide is enhanced public participation. Under traditional approaches, air quality permitting authorities notify the public of numerous changes, big or small, at facilities, providing opportunities for public input into whether or not permit modifications should be granted. At best, what the public sees in the traditional case is a series of incremental changes and piecemeal information about facility operations that provide little understanding

regarding the overall impact of a facility on local air quality. Under a PAL, however, the public has the opportunity to be involved in the initial process of establishing the PAL permit and emissions caps. In this setting the public can gain a much better sense of the overall operations of a facility, the kinds of operational changes that are contemplated, and the likely air quality impacts of the facility over the term of the permit. The public has a much enhanced opportunity to view the facility holistically, rather than in a fragmented way.

A third type of PAL benefit accrues to the permitted facility in the form of operational flexibility. For major sources concerned about NSR applicability, PALs provide a ¡§bright line¡¨ that eliminates ambiguity about whether or not operational changes trigger NSR requirements. PAL-type permits provide minor sources the same type of flexibility regarding state minor source NSR requirements.

Intel¡¦s Experience with PAL-Type Permits
A major part of our corporate commitment to innovating new permitting approaches has involved partnership with EPA, the states, and members of the public to pilot the basic concepts underlying the PAL rule that EPA currently is finalizing. The first of these partnership commitments came in the 1992-1995 timeframe where Intel, EPA, and Oregon developed a PAL permit for Intel¡¦s Aloha, Oregon fab as part of EPA¡¦s ¡§Pollution Prevention in Permitting Program¡¨ (P4). The second major partnership involved Intel, EPA, and Maricopa County, Arizona jointly undertaking one of the first pilot projects under EPA¡¦s ¡§Project XL¡¨ program at its Ocotillo campus in Chandler, Arizona.

Intel¡¦s P4 permit was a PAL permit under the Federal NSR program because our Aloha fab was a major source at the time the permit was issued. Our XL permit for the Ocotillo fab is not, strictly speaking, a PAL, because that facility is a minor source under the Clean Air Act and, thus, no NSR ¡§applicability¡¨ issues arose. Nonetheless, our Ocotillo permit functionally is the same as the Aloha permit and has provided another valid test of the emissions cap and pre-approved changes features of a PAL.

I previously described the environmental benefits of PAL permits. Let me now show how those benefits were realized in practice in our Oregon and Arizona pilot projects. The environmental benefits at our Aloha, Oregon fab are very dramatic. The attached exhibit provides a graphic demonstration of the powerful incentive PALs provide for aggressive pollution prevention programs. This chart shows facility VOC emissions per production unit and total production units. Motivated by the need to find room for growth under our PAL cap, our Aloha fab reduced emissions of VOCs by over 90 percent per unit of production since 1990. Some of this reduction occurred prior to 1995 under an Oregon PAL-like permitting program. Even more dramatic reductions occurred after our NSR PAL came into effect in 1995.

The combination of the pressure of an emissions cap and the operational flexibility under our Aloha PAL fueled an aggressive pollution prevention program. The success of that program allowed Intel to add an additional fab at our Aloha campus without the need to increase our cap. Indeed, we reduced overall VOC emissions and voluntarily lowered our VOC cap from 160 tons per year to 130 tons per year. This was done to support the successful efforts of Oregon and the Portland region to reduce overall regional emissions and qualify Portland for re-designation as an Ozone Attainment area in 1997. Intel¡¦s consistent reductions over time, combined with this area

redesignation, allowed our Aloha fab to itself achieve minor source status under the Clean Air Act in 1999.

The environmental results under our PAL-type permit at our Ocotillo campus have been equally dramatic. Through our aggressive pollution prevention program, the Ocotillo facility ¡V which sits on 720 acres, employs approximately 5,000 people, and produces a high volume of semiconductor devices ¡V emits approximately 25 tons of VOCs annually. This emissions level is in the neighborhood of what several large gas stations would produce. Our emissions reductions at Ocotillo have been so dramatic that we have constructed and are now operating a second fab on this campus ¡V all under the XL cap.

PALs Are Proven and Ready for Prime Time
As I have shown, Intel¡¦s experience piloting PALs and PAL-type permits with EPA and state and local permitting authorities has been dramatically successful. Other companies that have worked with EPA and the states to test the PAL approach also can tell similar success stories. Several of the other companies in our informal ¡§PAL coalition¡¨ -- including DaimlerChrysler, DuPont, and Merck ¡V have successfully piloted the PAL approach at one or more of their facilities. Other companies in other industries are applying the PAL approach as we meet today, including BMW, GM/Saturn, and several oil refineries. At this point, PALs have been demonstrated successfully in a number of very different industrial sectors.

Intel believes, as I mentioned at the outset of my testimony, that PALs are one of the most significant regulatory innovations to emerge from the last ten years of regulatory reinvention activities at the Federal and state level. Indeed, PALs are an example of the right way for a regulatory agency like EPA to innovate. First you try some pilot projects. You evaluate your experience and, where success has been demonstrated, you build on that success by mainstreaming the innovation in your regulatory program.

¡§Mainstreaming¡¨ the PAL success story will be aided greatly by EPA promulgation of practical PAL provisions either discretely or as part of a larger NSR rule. Regulatory action is not necessary as a legal matter. The successful PAL pilot projects at Intel and other companies have utilized existing legal authority. On the other hand, regulatory action by EPA will promote the PAL concept by providing greater guidance to permitting authorities and sources regarding the benefits of PALs and PAL-type approaches. With the promulgation of clear ¡§rules of the road,¡¨ sources and states will be better able to craft PAL permits that realize the environmental, public participation, and operational flexibility benefits I have cited.

In sum, Congress should be encouraging flexible permitting approaches like PALs. I will be glad to answer any questions the committee members might have.