

-----Original Message-----

From: Withers, Elizabeth [mailto:ewithers@doeal.gov]
Sent: Wednesday, June 01, 2005 12:44 PM
To: 'John Isaacson'; Kirk Owens - SAIC (E-mail)
Subject: RE: Re: increased operations at Metropolis Cntr

-----Original Message-----

From: John Isaacson [mailto:isaacson@lanl.gov]
Sent: Thursday, May 19, 2005 8:53 AM
To: Withers, Elizabeth
Subject: Fwd: Re: increased operations at Metropolis Cntr

Here is the answer to your questions regarding tera-ops at metropolis ctr.

X-Sieve: CMU Sieve 2.2
To: John Isaacson <isaacson@lanl.gov>
Cc: phil_s@lanl.gov, hefele@lanl.gov
Subject: Re: increased operations at Metropolis Cntr
Sensitivity:
From: nagy@lanl.gov
Date: Thu, 19 May 2005 08:23:07 -0600
X-PMX-Version: 4.7.1.128075

John,

It is difficult to predict computer capability during the next five years. While it is possible that some machines could reach speeds of 100 tera-ops during this period, I am skeptical that we will have one here at Los Alamos. As an example, we have a new computer due to arrive in August or September. It will be installed in the SCC, and it will have a capability of 14 tera-ops. We have a long way to go to reach 100!

In aggregate, it is possible that we will have a total capacity nearing 100 tera-ops during the next five years. Today, we have the "Q" machine (20 tera-ops) and Lightning (10 tera-ops). In September, we add the previously mentioned 14 tera-op machine for a total of 44 tera-ops. At this pace, we could reach the 100 tera-op threshold in five years (although by that time, "Q" will be an old machine and will have probably been retired!).

The important thing to remember from a SWEIS perspective is not the tera-op rating of a computer; rather, we should be concerned with the overall power and water consumption. As computer manufacturers continue to develop their product, they are building faster and faster computers that use less and less electricity. Recall that the first "ASCI-class" computer at Los Alamos (Blue Mountain) had a peak capacity of 3 tera-ops and it required approximately 1 mega-watt of power. Compare that to the Lightning machine: ten tera-ops using .65 MW of power.

This summer, we will have a total of 7.2 MW of power in the SCC available for supercomputer usage (our original EIS stated that 30 MW would be our upper bound). I do not anticipate our total capacity to exceed 12 MW in the next five years. Furthermore, our water usage is headed toward zero (the new water treatment facility is sending grey water to our cooling towers). The new

treatment plant isn't working perfectly yet, but we anticipate that all of the bugs will be worked out during the course of this fiscal year. In the original EIS, we stated that our water usage would not exceed 172,800 gallons/day (about 63-million gallons per year). Prior to the water treatment plant, our usage was about 19-million gallons per year. Next year, we anticipate our fresh-water usage to be near zero.

In summary, I don't see that we will have much of an environmental impact with the increased computer speeds in the five-year horizon. We will stay significantly under the limits set in the original EIS. From an environmental perspective, this is certainly a "good news" story.

Please let me know if you need any further information.

Nick

John Isaacson <isaacson@lanl.gov>

05/17/2005 11:47 AM

To

nagy@lanl.gov

cc

Subject

increased operations at Metropolis Cntr

Nick, I have a question from Elizabeth regarding the Site Wide EIS. Are there any plans to increase the tera-ops levels past 100 over the next 5 years (2007-2011). Could you let me know when you have a moment. Thanks, JI

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