U.S. DEPARTMENT OF DEFENSE

MISSILE DEFENSE AGENCY

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PUBLIC HEARING ON

DRAFT BALLISTIC MISSILE DEFENSE SYSTEM

PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

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Thursday, October 14, 2004

7:00 p.m.

Potomac Ballroom
Crystal City Marriott
1999 Jefferson Davis Highway
Arlington, Virginia

I N D E X

P R O C E E D I N G S

MR. DUKE: I'd like to go ahead and get started. I'd like to welcome you all to tonight's meeting. This public hearing is for the Missile Defense Agency's Ballistic Missile Defense System Draft Programmatic Environmental Impact Statement.

This public hearing is being held in accordance with the National Environmental Policy Act, or NEPA. My name is Marty Duke and I am the Missile Defense Agency's Program Manager for the development of the Programmatic Environmental Impact Statement.

I would like to introduce Colonel Mark Graham, who is from the Missile Defense Agency's Office of General Counsel. Colonel Graham will talk about the Programmatic Environmental Impact Statement, the NEPA process, and the BMDS capabilities and components. Also, I would like to introduce Peter Bonner and Deb Shaver, who are with ICF Consulting. Ms. Shaver is the ICF Consulting Program Manager and technical lead for the PEIS, and Mr. Bonner will facilitate tonight's meeting.

Again, I would like to thank you all for coming out tonight, and now, I'd like to turn the meeting over to Peter, who will go over tonight's meeting agenda and discuss some of the administrative points on how to provide public comments.

Thank you.

MR. BONNER: Good evening. I would also like to welcome you all to tonight's session. First, let's dispense with a few tongue twisters. We can't be in D.C. without some acronyms to start.

During this evening, as we move through the presentation, we will refer to the Missile Defense Agency as MDA. As we review it, we'll look at the Ballistic Missile Defense System--I've got to get it out myself here--which we'll refer to as BMDS, and the Programmatic Environmental Impact Statement as PEIS.

At this hearing we will discuss the development of MDA's Draft BMDS PEIS. After that, we will discuss the proposed action, which is the implementation of an integrated BMDS. The activities involved in implementing the BMDS have been analyzed for their potential environmental impact.

Finally, we will provide a forum to collect public comments on the Draft PEIS. It is our goal to have an open and informative public process.

Let's talk about the agenda for this evening. To ensure MDA has sufficient time to receive oral comments this evening, we will spend the next 30 to 40 minutes presenting information about the BMDS, the NEPA process and our analysis in producing the draft PEIS. The presentation will discuss the following: What is a programmatic EIS? What is the BMDS? How were potential impacts analyzed in the BMDS

PEIS? And how does one submit public comments for the draft PEIS? What are the results of the analysis?

After the presentation, we'll have a 15-minute break when any of you who want to make public comments will have an opportunity to go back and sign up for those. I see some of you have already done that at the registration table. After the break, each speaker will be called in the order they signed up to come up and make their statements. Following the public statements MDA representatives will be available in the poster area to answer questions and have discussions. Note that questions and discussions back in the poster area during that 15-minute break or after the session will not be recorded for public comment. All the questions can be formally submitted to MDA through one of the other available methods.

The most important aspect of tonight's meeting is your public comments, and we want to hear from you. All public statements provided tonight will be recorded for a transcript. Remember that the Programmatic EIS is just a draft document. This is your opportunity to provide comments on that document before it is finalized and before a final decision is made.

We are here to listen firsthand to your suggestions and concerns. Please limit your comments to five minutes to give everyone an opportunity to speak. I

don't think we're going to have a big problem with that this evening.

The purpose of this meeting is to gather your comments. We will attempt to answer your questions clarifying the points we make in the presentation tonight. Substantive questions recorded tonight will be carefully considered in the preparation of the Final PEIS.

If you wish to provide written comments, forms are available at the registration table. You may leave written comments with us at the registration table or you can mail them to us. You can email them. The email system is temporarily unavailable right now, or you can fax them to MDA using the information provided. To allow time to consider and respond to comments in the Final PEIS, all comments must be received no later than November 17.

Colonel Graham will now discuss the BMDS PEIS and the NEPA process. Colonel Graham?

COLONEL GRAHAM: Thank you, Peter.

Good evening. NEPA Analysis NEPA establishes our broad national framework for protecting the environment. NEPA requires Federal agencies to consider the environmental impacts of their proposed actions and reasonable alternatives to those actions early in the decision-making process. The NEPA process is intended to help public officials make decisions based on understanding

environmental consequences and take actions that protect, restore, and enhance the environment.

In the past, the national approach to missile defense focused on the development of individual missile defense elements or programs, such as Patriot, the Airborne Laser, and ground-based interceptors. These actions were appropriately addressed in separate NEPA analyses that MDA, its predecessor agencies, and executing agents prepared for these systems.

The aim of missile defense has been refocused by the Secretary of Defense to develop an integrated Ballistic Missile Defense System that would be a layered system of components working together capable of defending against all classes and ranges of threat ballistic missiles in all phases of flight.

Because the integrated Ballistic Missile Defense System is a large program made up of many projects implemented over time on a worldwide basis, MDA has determined that a programmatic NEPA analysis would be appropriate. Therefore, the MDA has prepared a Programmatic EIS to analyze the environmental impacts of implementing the proposed program.

A Programmatic EIS, or a PEIS, analyzes the broad envelope of environmental consequences in a wide-ranging Federal program like the Ballistic Missile Defense System. A PEIS looks at the overall issues in a proposed program and

considers related actions together to review the program comprehensively. A PEIS is appropriate for projects that are broad in scope, are implemented in phases, and are widely dispersed geographically.

A PEIS creates a comprehensive, global analytical framework that supports subsequent analysis of specific activities at specific locations, which could then be tiered from the PEIS. The Programmatic EIS is intended to serve as a tiering document for subsequent specific Ballistic Missile Defense System analyses and includes a road map for considering impacts and resources areas in developing future documents.

This road map identifies how a specific resource area can be analyzed and also includes thresholds for considering the significance of environmental impacts to specific resource areas. This means that ranges, installations, and facilities at which specific program activities may occur in the future could tier their documents from the PEIS and have some reference point from which to start their site-specific analysis.

The Ballistic Missile Defense System Programmatic EIS analyzes the potential environmental impacts of developing, testing, deploying, and planning for decommissioning for the proposed program. The Programmatic EIS evaluates proposed Ballistic Missile Defense System

technology, components, assets, and programs and considers future development and application of new technologies.

The proposed action considered in the BMDS Programmatic EIS is for the MDA to develop, test, deploy, and to plan for decommissioning activities for an integrated Ballistic Missile Defense System using existing infrastructure and capabilities, when feasible, as well as emerging and new technologies, to meet current and evolving threats.

When feasible, the MDA would use existing infrastructure to implement the BMDS and would incorporate new technologies and capabilities as they become available. This would ensure that the program could provide defense for both current and future ballistic missile threats.

The purpose of the proposed action is to incrementally develop and deploy a Ballistic Missile Defense System, the performance of which can be improved over time, and that layers defenses to intercept ballistic missiles of all ranges in all phases of flight. The proposed action is needed to protect the United States, its deployed forces, friends, and allies from threat ballistic missile [sic].

In this Programmatic EIS, the MDA considers two alternative approaches to implementing the BMDS system in addition to the No Action Alternative. The alternative approaches address the use of weapons components from land-, sea-, air-, and space-based platforms.

Alternative One is to develop, test, deploy, and plan to decommission an integrated Ballistic Missile Defense System that includes land-, sea-, and air-based weapons platforms. The BMDS envisioned in Alternative One would include space-based sensors, but would not include space-based defensive weapons.

Alternative Two is to develop, test, deploy, and plan to decommission an integrated Ballistic Missile Defense System that includes land-, air-, sea-, and space-based weapons platforms. Alternative Two would be identical to Alternative 1, with the addition of space-based defensive weapons.

The Council on Environmental Quality regulations implementing NEPA also require the consideration of the No Action Alternative. Under the No Action Alternative, the MDA would not develop, test, deploy or plan for decommissioning activities for an integrated Ballistic Missile Defense System. Please note that under the No Action Alternative, MDA would continue existing development and testing of individual elements as stand-alone defensive capabilities. Individual systems would continue to be tested but would not be subjected to system integration tests.

Alternatives One and Two provide different weapons platforms options for implementing an integrated Ballistic Missile Defense System, while the No Action Alternative

continues the traditional approach of developing individual missile defense elements, such as the Airborne Laser, Patriot, and ground-based interceptors.

I will now discuss how MDA categorized the Ballistic Missile Defense System into relevant components and life cycle activities that could be considered to provide the programmatic overview of the environmental impacts of implementing the proposed action.

MDA's goal in developing an integrated Ballistic Missile Defense System is to develop an integrated system that will provide a layered defense. The Ballistic Missile Defense System would be capable of destroying threat ballistic missiles in the boost, mid-course, and terminal phases of flight and would defend against short, medium, intermediate and long-range threat ballistic missiles.

Finally, the Ballistic Missile Defense System would integrate sensors and weapons through a command control, battle management, and communications network, which we call C2BMC. With this capability, the integrated Ballistic Missile Defense System would establish a defense against the threat of ballistic missiles.

The BMDS is a complex system of systems. To be able to perform a meaningful impact analysis, we considered the Ballistic Missile Defense System in terms of its components: weapons, sensors, C2BMC, and support assets. These components are the building blocks that can be

assembled with specific functional capabilities and can be operated together or independently to defeat threat ballistic missiles.

Testing was considered for each component; however, the integrated Ballistic Missile Defense System needs to be tested at the system level and was analyzed separately using realistic system integration flight test scenarios. Let's look at each of these components.

Weapons: the Ballistic Missile Defense System weapons would provide defense against threat ballistic missiles. They include interceptors and directed energy weapons in the form of high-energy lasers that would be used to negate threat missiles. Interceptors would use hit-to-kill technology, either through direct impact or directed fragmentation. The Ballistic Missile Defense System weapons are designed to intercept threat ballistic missiles in one or more phases of flight and could be activated from land, sea-, air-, or space-based platforms.

The Ballistic Missile Defense System sensors would provide the relevant tracking data for threat ballistic missiles. Sensors detect and track threat missiles; and assess whether a threat has been destroyed. Sensors provide the information needed to locate and track a threat missile to support coordinated and effective decision-making against the threat.

There are four basic categories of sensors considered for the Ballistic Missile Defense System: we have radars, infrared, optical, and laser sensors. Radars send a signal out and detect the same signal as it bounces off an object. Infrared sensors are passive sensors that detect and track heat or infrared radiation from an object. Optical sensors are passive sensors, too, that collect light energy or radiation emitted from an object, and laser sensors use laser energy to illuminate and detect the object's motion.

Radars and lasers emit radiation while infrared and optical sensors detect radiation that has been emitted. The Ballistic Missile Defense System sensors would operate from multiple platforms, such as land, sea, air, or space.

The data collected by the Ballistic Missile Defense System sensors would travel through the communication system to command and control where a battle management decision on whether to use a defensive weapon would be made. The C2BMC would integrate and coordinate equipment and operators through command and control and integrated fire control centers. C2BMC would enable military commanders to receive and process information, make decisions, and communicate those decisions regarding the engagement of threat missiles.

The C2BMC would include fiber optic cable, computer terminals, and antennas and would operate from land-, sea-, air-, and space-based platforms.

Our last category of components is support assets. Support assets would be used to facilitate development, testing, and deployment of Ballistic Missile Defense System components. Support assets are one of three types: support equipment, infrastructure, or test assets. Support equipment includes general transportation and portable equipment such as automobiles, ships, aircraft, rail, and generators. Infrastructure includes docks, shipyards, launch facilities, airports and air stations. Test assets include test range facilities, targets, countermeasure devices, simulants, and observation vehicles.

Now that we've discussed the components, Mr. Marty Duke will describe how they can be integrated into the Ballistic Missile Defense System.

MR. DUKE: This slide depicts the integration of the various components of the proposed BMDS we have just discussed. The use of multiple defensive weapons and sensors operating from a variety of platforms integrated through a single C2BMC system would create a layered defense allowing several opportunities to intercept and destroy threat missiles.

For example, one weapon could engage a threat missile in its boost phase, and another could be used to

intercept the threat missile in later phases if initial intercept attempts were unsuccessful.

Components are incorporated into the BMDS through the life cycle phases of the system acquisition process. These life cycle phases are development, testing, deployment, and decommissioning. New components would undergo initial development testing, while existing components would be tested to determine their readiness for use. Work on a given technology would stop if testing failed to demonstrate effectiveness or if functional capability needs changed.

Components and elements would be deployed as testing demonstrates that they are sufficiently capable of defending against threat ballistic missiles. In most cases, a component would be deployed when testing demonstrates that it is capable of operating within the integrated BMDS and the associated safety and health procedures are developed and adequate. This process concludes with decommissioning, which would occur when and where appropriate.

To determine the environmental impacts, this PEIS analyzes the proposed BMDS components by considering the various life cycle phase activities of each component as well as the operating environments in which the activities are taking place. This slide tries to depict the multi-dimensional complexities involved in considering the impacts of implementing an integrated BMDS in terms of its

components, acquisition life cycle phases, and operating environments.

Because of the complex nature of the project, an analysis strategy was developed to effectively yet efficiently consider the broad range of environmental impacts from the proposed BMDS. First, the existing condition of the affected environment was characterized for the locations where various BMDS activities are proposed to occur. Next, MDA determined the resource areas that could potentially be affected by implementing the proposed BMDS. Finally, impacts of the BMDS were analyzed in four steps.

In step 1, we identified and characterized life cycle phase activities. In step 2, we identified activities with no potential for impact and dismissed them from further analysis. In Step 3, we identified similar activities across life cycle phases and combined them for analysis. And in Step 4, we conducted the impacts analysis for all remaining activities. The first three steps were used to categorize and reduce the number of unique life cycle activities thereby reducing the redundancy in preparing the impacts analysis.

The affected environment includes all land, air, water, and space environments where proposed BMDS activities are reasonably foreseeable. The affected environments have been considered in terms of the broad ocean area, the atmosphere, and nine terrestrial biomes. A biome is a

geographic area with similar environments or ecologies. Climate, geography, geology, and distribution of vegetation and wildlife determine the distribution of the biomes. These biomes encompass both U.S. and non-U.S. locations where the BMDS could be located or operated.

The resource areas considered in this analysis are those resources that can potentially be affected by implementing the proposed BMDS. NEPA analyses generally consider the resource areas listed on the screen, except for orbital debris. Because missile defense development and test activities include the launch and intercept of missiles, space-based communications and other satellites, and potential for space-based interceptors, MDA considered orbital debris and its impacts on the Earth.

The PEIS discusses all resource areas, provides a methodology for analysis, and suggests thresholds of significance to provide the reader with a roadmap for performing future site-specific analyses tiering from this PEIS. These discussions outline the type of information that would be needed to conduct site-specific analyses and identify the steps necessary to ensure that potential impacts are appropriately considered.

The resource areas, highlighted on the slide with a red star, require site-specific information for analysis and are those more effectively addressed in subsequent tiered analyses for specific activities.

Once we decided to consider the affected environment and the resource areas of concern, we used the four-step process I mentioned earlier. I will discuss each step in more detail. In step 1 of the impacts analysis, MDA identified and characterized the activities associated with each BMDS component. Each life cycle phase has activities applied to each component. For example, development can include planning, research, systems engineering, and site preparation and construction. Testing can include manufacturing, site preparation and construction, transportation, activation, and launch activities. Deployment can include manufacturing, site preparation and construction, transportation, activation, launch, operation and maintenance, upgrades, and training. And finally, decommissioning includes demilitarization and disposal.

Once life cycle activities were identified, it was determined that some of those activities had no potential for impact. Activities such as planning and budgeting, systems engineering, and tabletop exercises are generally categorically excluded in various Department of Defense NEPA regulations and therefore were not further analyzed in this PEIS.

Other activities for specific components, such as transportation, maintenance and sustainment, and manufacturing, were not analyzed in this PEIS, because they

have been evaluated in previous NEPA analyses and were found to have no significant environmental impacts.

The remaining activities were then examined to determine which activities had similar environmental impacts. For example, impacts associated with site preparation and construction in the development phase would be similar to or the same as impacts from site preparation and construction activities in the deployment phase. Under step 3, similar activities occurring in different life cycle phases were identified and considered together to reduce redundancy.

The final step was to determine the impact associated with each remaining activity under the proposed action. The significance of an impact is a function of the nature of the receiving environment and the receptors in that environment. For example, an interceptor launch creates the same emissions no matter where it is launched. Whether those emissions cause impacts and the significance of those impacts depend upon the environment into which they are released.

The PEIS analyzes these emissions by component for each resource area and life cycle activity where a potential for impact was identified. Impacts were distinguished based on the different operating environments, land, sea, air, and space. The analysis also considered specific impacts for individual biomes where activities could occur. The impacts

of system integration testing were considered separately from the impacts of individual BMDS component testing because integration testing would involve using multiple components in the same test.

To deal effectively with integration testing, MDA looked at two generic system integration flight test scenarios which involved different numbers of launches and intercepts.

The impacts analysis for Alternative One considers the use of land-, sea-, and air-based platforms for BMDS weapons. The analysis includes the use of space-based sensors but not space-based weapons. The analysis is specific for each resource area based on the impacts from the activities associated with the BMDS component.

The impacts analysis for Alternative Two includes the use of interceptors from land-, sea-, air-, and space-based platforms for the BMDS weapons. The impacts associated with the use of interceptors from land, sea, and air platforms would be the same as those discussed for Alternative One; therefore, the analysis in Alternative Two focuses on the impacts of using interceptors from space-based platforms.

The fundamental difference between Alternative One and Two is that Alternative Two includes the analysis of space-based platforms for interceptors.

The cumulative impacts of implementing the BMDS were also considered. Cumulative impacts are defined as impacts that result from the incremental impacts of the proposed action when added to other past, present, and reasonably foreseeable future actions. Because this proposed action is worldwide in scope and potential application, only activities similar in scope have been considered for cumulative impacts.

Under Alterative One, worldwide launch programs for commercial and government programs were determined to be activities of similar scope. Therefore, the impacts of the BMDS launches were considered cumulatively with the impacts from other worldwide government and commercial launches.

Alternative Two includes placing defensive interceptors in space, which involves adding additional structures to space for extended periods of time.

The International Space Station was determined to be an action that is international in scope and has a purpose of placing structures in space for extended periods of time. Therefore, the impacts of the use of space-based weapons platforms were considered cumulatively with the impacts of the International Space Station.

The next few slides provide broad summaries of the impacts analysis by BMDS component and Test Integration for Alternatives One and Two, the No Action Alternative, and the cumulative impacts for Alternatives One and Two. Please

note that the results are extremely high level suitable for a brief presentation. Additional details have been provided in some of the posters that you see behind us. The impacts analysis may also be found in the Executive Summary impact tables and in Section 4 of the Draft PEIS.

It is important to note that no environmental showstoppers were found in this programmatic impact analysis. As the next few slides show, there are potential impacts associated with the various activities needed to implement the BMDS; however, they would be appropriately addressed in subsequent tiered NEPA analyses with mitigation actions as required to ensure less than significant impacts.

This slide shows a summary of the broad potential for environmental impacts associated with BMDS weapons activities as examined for each resource area for Alternatives One and Two. Again, please note that this is a very high-level depiction of the results of the analysis, and additional details of the weapons analysis may be found in the tables in the Executive Summary of the Draft PEIS. However, one can see from these slides general activities and resource areas that should be considered in subsequent tiered NEPA analyses.

This slide shows the impacts summary for the BMDS sensors. Note that the impacts are the same for Alternatives One and Two and include space-based sensor

platforms. This summary also shows how MDA categorization of activities helped to simplify the analysis.

For example, the activation of radars would not impact air quality because the only emissions resulting from radars would be from supporting diesel generators, which are addressed under support assets. However, radars generate electromagnetic radiation; which could potentially impact biological resources.

Although C2BMC is the glue that enables the integrated BMDS to function effectively as a system, this component creates little potential for environmental impacts.

Impacts associated with Support Assets are mainly those that would be caused by site preparation and construction of infrastructure and by using test assets such as countermeasures and simulants during testing.

Test integration overall has the most potential for impacts, because it includes the use of several components during increasingly realistic test scenarios. Although this programmatic analysis showed the potential for impacts, the existing environment at the proposed test location and the specific test activities planned will determine the nature and extent of the impacts.

The No Action Alternative would continue the development and testing of individual weapons, sensors, C2BMC, and support assets and would not include integration

testing of these components. The environmental impacts of the No Action Alternative would be the same as the impacts resulting from continued development and testing of individual missile defense elements.

The decision not to deploy a fully integrated BMDS could result in the inability to respond to a ballistic missile attack on the U.S. or its deployed forces, allies, or friends in a timely and successful manner. Further, this alternative would not meet the purpose or need of the proposed action or the specified direction of the President and the U.S. Congress.

We examined the impact of worldwide launches for cumulative impacts. Launches can create cumulative impacts by contributing to global warming and ozone depletion. Potential launch emissions that could affect global warming include carbon monoxide and carbon dioxide, or CO2. Unlike CO2, carbon monoxide is not a greenhouse gas; but, it can contribute indirectly to greenhouse gas effects.

The cumulative impacts on global warming of emissions from BMDS launches would be insignificant compared to emissions from other industrial sources, such as energy generation. The BMDS launch emissions load of CO2 and carbon monoxide would only be five percent of the emissions load from worldwide launches. In addition, CO2 and carbon monoxide from 10 years of BMDS and worldwide launches combined would account for much less than one percent of CO2

and carbon monoxide emissions from U.S. industrial sources in a single year.

Chlorine is of primary concern with respect to ozone depletion. Launches are one of the man-made sources of chlorine in the stratosphere. The cumulative impacts on stratospheric ozone depletion from launches would be far below the effect caused by other natural and man-made sources. The emission load of chlorine from both BMDS and other launches worldwide occurring between 2004 and 2014 would account for about half of one percent of the industrial chlorine load just from the U.S. in a single year.

The orbital debris produced by BMDS activities would generally be small and would consist primarily of launch vehicle hardware, old satellites, bolts, and paint chips. It may also be possible for debris from an intercept to become orbital debris. However, orbital debris produced by BMDS activities would occur in low-earth orbit, where debris would gradually drop into successively lower orbits and eventually reenter the atmosphere.

Therefore, orbital debris from BMDS activities would not pose a long-term hazard to the International Space Station or other orbiting structures. In addition, collision avoidance measures would further reduce the potential for orbiting debris to damage orbiting structures such as the International Space Station.

I would like to reiterate that our impact analysis indicated no showstoppers or expected areas of significant impact. However, many resource areas showed potential for impacts, indicating that these areas need to be considered in subsequent analysis tiered from this PEIS.

Now, I would like to turn the meeting over to Peter Bonner.

MR. BONNER: Okay; now that we've looked at the proposed BMDS and the potential impacts from its implementation, let's talk about the PEIS schedule. The Notice of Intent was released in April of 2003 in the Federal Register and published in the Federal Register on April 11. The MDA released the Draft PEIS just this past September. The public comment period on the draft, which is currently underway, will continue through November 17. After that, the MDA will consider all comments received and incorporate the appropriate changes in the PEIS.

The release of the Final PEIS to the public will be in December 2004 or January 2005. After that, there will be a 30-day waiting period before the MDA can issue its final Record of Decision, or ROD.

Let me turn to submitting comments on the draft PEIS, including your comments tonight. You can provide your comments either orally or in writing. The oral or written comments will be given equal consideration in preparing the Final PEIS. If you would like to make a public statement at

tonight's meeting, please sign up at the registration table. Each speaker will be given five minutes, as I said before.

The public statements by tonight's speakers will be recorded by the court reporter to ensure that we accurately get all of your comments for the Draft PEIS. There is also a toll-free telephone number for you to submit comments, and please refer to your handouts for that toll-free telephone number.

You can also submit your comments in writing to us. There are four ways to do that. One is if you have your comments tonight, give them to us, and we'll record them in the Draft PEIS for consideration. Use the comment forms provided and submit them tonight; fax or email your comments. The email system, as I said before, is temporarily unavailable right now but will be back up; or use the electronic comment form provided on the MDA BMDS PEIS Website.

The information on the screen lists the various ways you can do this. The information is also listed on the comment forms at the registration table. For additional information, please visit the Website. There's lots of information on there. It provides descriptions of the topic areas talked about this evening as well as links for obtaining some additional information.

We encourage you to sign up to receive a hard copy of the Executive Summary of the final PEIS and a CD-ROM

containing the entire document of the PEIS when it becomes available. Signing up for that is also available at the registration table.

The Final PEIS will also be available in PDF format to be downloaded from the BMDS PEIS web site, and hard copies will be in local libraries. A list of these libraries is also available on the BMDS PEIS web site, and we've got the URL for the Website right there.

Marty?

MR. DUKE: Yes, I just want to remind everyone that no decision on this project is going to be made tonight. We are here to listen to your concerns both oral and written, so as we finalize the draft, that we know what your concerns are and can address those in the final PEIS.

Again, the final comments, please, we need to have them submitted by November 17, 2004, and at this point, I'd like to take a 15-minute break to set up for the public statements. Again, please take this time, if you haven't had the opportunity, to sign up at the table. Thank you, and we look forward to your comments.

MR. BONNER: Okay; please take your seats. Let's get started. I have the list of registered speakers. I will call each person to the front of the room to speak. Please limit your comments to five minutes. At four minutes, I will hold up my expertly made sign.

[Laughter.]

MR. BONNER: That you've got one minute left.

If you have a written version of your oral comments, we ask that you provide it so that we can keep a record of that statement. When providing your public statements, please remember to state your name and your affiliation and speak clearly and distinctly for the meeting recorder.

If you do not wish to give an oral or public statement here tonight, please consider providing your comments through one of the other available methods that we talked about earlier. We're seeking an open process and have tried to develop many avenues for you to provide input to that process.

Is Victoria Samson here? Victoria, if you'd come up to the microphone.

MS. SAMSON: Hi. Thank you. My name is Victoria Samson. I'm with the Center for Defense Information

The draft Ballistic Missile Defense Programmatic Environmental Impact Statement, dated September 1, 2004, is supposed to give an objective and thorough assessment of the effects various missile defense architectures would have on the environment. However, it has obviously been shaped to give credibility to the Bush administration's continued assertions that the only way the United States can be protected from an ICBM attack is with a heavily tiered system.

The draft PEIS dismisses any real concerns about harmful negative consequences from developing such a system and, in doing so, invalidates itself and its conclusions. To begin with, the so-called No-Action Alternative examined in this document is misleadingly named. It does not detail a scenario where no action is taken. Rather, it describes a system where the MDA would continue existing development and testing of discrete systems as stand-alone missile defense capabilities. Individual systems would continue to be tested but would not be subjected to system integration tests.

This is hardly no action, and it allows for an indeterminate amount of missile defense development, since there are currently no final or fixed architectures and no set operational requirements for the proposed BMDS. The way this draft PEIS is structured, even if MDA was limited to the No-Action Alternative, it would not find its actions very much constrained.

Alternative Two, which includes the usage of space-based interceptors or SBIs, is questionable for many reasons. It looks at the effect of using SBIs in lieu of terrestrial-based ones; however, the BMDS that is repeatedly envisioned by MDA and Pentagon officials is one where targets would be engaged at all stages in their flight, from all types of launch platforms.

To look only at the usage of a single SBI is to willfully ignore the concept of operations that has been used to justify this massive defense system. The American Physical Society, in its boost-phase intercept study released in July 2003, estimated that a constellation of at least 1,000 SBIs would be required to provide a minimal defense against liquid-fueled ICBMs.

Granted, testing would be of a much lesser nature than a complete constellation, but at some point presumably the system would be tested at some fraction of its full strength. This draft PEIS does not take into consideration that possibility.

This draft PEIS also does not look at what would be required to develop a space-based test bed, dismissing the concept as being too speculative to be analyzed in this PEIS. It does not say when such a concept would be analyzed. Finally, this document admits if Alternative Two were selected, additional environmental analysis could be needed as the technologies intended to be used became more defined and robust.

But again, that is what this document is supposed to do: examine the environmental effects of the proposed action. By sweeping it under the nebulous responsibility of future studies, it relieves the MDA of liability of negative consequences stemming from SBIs.

The draft PEIS fails to fully address the effects of debris, not just orbital but rocket fragments, fuel and so forth. It scratches the surface barely of potential harmful consequences that could plausibly result from the alternatives listed, and it immediately dismisses the few consequences that are divulged. Debris that could fall into the ocean would become diluted and would cease to be of concern. Debris that survived reentry is not to be worried about, as it would fall into a preestablished footprint.

Even if it didn't, debris is more likely to terminate in water than on land, because water covers 75 percent of the Earth's surface. Debris from spills or intercepts in the air is assumed to dissipate before it hits the ground.

Yet this is making a real leap of faith in how these actions would affect the environment, and doing so in a manner that precludes any real assessment of what sort of consequences could occur. The treatment of the Airborne Laser, or ABL, is indicative of this attitude. The draft PEIS says that should the ABL not be able to land at an appropriate location, its fuel and laser chemicals may have to be jettisoned, but this would be at a minimum altitude of 15,000 feet and thus would be diluted in the atmosphere.

And if there was an accidental fire on the ABL, the liquid and solid laser chemicals would be consumed or contained. These laser chemicals include hydrogen peroxide,

ammonia, chlorine, helium, and iodine, according to the document. No explanation is given as to what would happen should the ABL jettison its chemicals at a lower altitude than 15,000 feet, nor how exactly the fire would contain all chemicals. The draft PEIS makes these reassuring statements with no solid evidence to back them up.

Finally, the alternatives considered but not carried forward are deliberately chosen to showcase the BMDS system that the Bush administration has been pushing for in the best light possible. The first one is to cancel development of BMDS capabilities, which is explained as being an alternative that would rely upon diplomatic and military measures to deter missile threats against the U.S. This is exactly what has kept the United States safe from attack to date, and yet it is summarily dismissed out of hand.

The other alternative is to focus on a single- or two-platform BMDS. But, per MDA threat assessments that are not given but merely referred to, it has decided that an effective missile defense should include components based on at least the land, sea, and air, so a more limited missile defense system simply would not do.

This draft PEIS does not fully examine the actual consequences that could very well result from developing and testing a tiered missile defense system. By deliberately

rejecting any and all negative effects, it goes against what is legally required of the NEPA process.

Thank you.

MR. BONNER: Thank you.

Theresa Hitchens?

MS. HITCHENS: I'm a lot shorter than her. I'm Theresa Hitchens. I'm also from the Center for Defense Information, and my comments are related to the treatment by the BMDS PEIS of the potential threats of space debris to objects and people in space, in the air and on the ground presented by the testing of ground-based and especially space-based interceptors.

The overall assumption of the PEIS is that there is a low-level risk from either orbital debris or debris reentering the Earth's atmosphere, and that is not supportable, due in large part to the failure of the MDA to undertake and provide adequate scientific review of the physics involved in debris creation and reentry from the multiple possible scenarios for missile defense intercepts.

Space debris is a major hazard to spacecraft and satellites because of the high impact velocities generated in orbit, meaning that even tiny pieces of debris, which you mention, such as bolts can damage or destroy an on-orbit asset. Reentry of space-based objects, such as the SBIs, can also threaten people or objects on the ground, as not all debris is burned up on its way through the atmosphere.

Major inadequacies in the PEIS treatment of issues related to debris include: Number one: the PEIS severely understates the potential threats to satellites and spacecraft, as well as to people and objects on the ground, from orbital debris caused by ground-based midcourse interceptor tests. The PEIS fails to support its claim that little debris would be created because of lack of adequate modeling of likely debris creation from realistic testing of the ground-based interceptor, which would involve higher speed impacts at higher altitudes than testing so far.

Under realistic testing of GBIs, ground-based interceptors, there is a significant chance that debris could be created that would last for years, not simply the months as asserted by the PEIS.

Further, even short-term debris could be a danger to space objects such as the International Space Station, as the PEIS admits. And while the PEIS states that the ISS could be moved to avoid a collision with any large debris, it fails to recognize that other objects in low Earth orbit that might be threatened are not maneuverable.

Finally, the PEIS asserts that most of the debris created in low Earth orbit would be small and thus not a major hazard to the ISS. Unfortunately, as I said, even tiny pieces of debris could destroy the ISS or other space assets. In actuality, small debris is considered by space operators as a bigger hazard to space objects because it

cannot be detected and tracked adequately enough to allow planning for evasive maneuvers by those space objects that can do so. In other words, smaller debris could be a bigger threat to the ISS and other craft than larger pieces on orbit, and the PEIS undertakes no review of this fact of physics.

That said, the PEIS does not provide adequate scientific review to support the assertion that most debris would be small, a term that is undefined in the PEIS, raising the question of the risks from reentry into the atmosphere of both the interceptor and its target after an impact. Not all debris reentering the atmosphere burns up, as the PEIS suggests.

In January 1997, a Delta Two rocket second stage came down over Georgetown, Texas, with large pieces making landfall including a 580-pound stainless-steel fuel tank that landed 50 yards from a house. Another Delta Two second stage reentered the atmosphere over Cape Town, South Africa in April 2000, similarly raining large pieces of debris to the ground. It is important to note that a Delta Two second stage is considerably smaller than the either a ground-based midcourse interceptor or a target ICBM. It also is highly difficult to predict reentry trajectories even from scripted test events because debris can, as the PEIS admits, skip off the atmosphere and land miles away from its original reentry point, and the PEIS provides no evidence that MDA made any

significant effort to undertake the complex computer modeling required to predict such possible reentry scenarios.

Number Two: The PEIS fails to support its claim that there would be no significant impact to spacecraft and satellites, and objects and people on the ground, from the testing and deployment of Space-Based Interceptors. Given the inadequate articulation by MDA of the SBI concept itself, it is impossible for the MDA to make any claims about the risks to space objects from SBIs. Debris creation depends on a number of specific factors about individual impacts, such as the mass of the two objects impacting, their relative velocities at impact, the angle of impact, and altitude.

Since the MDA has yet to determine nor to provide in this PEIS critical design parameters of the SBIs themselves--their size, mass, and their speed--and the architecture of an SBI network, how many interceptors on orbit at what altitude--it is simply impossible for the MDA to support the PEIS claim that there is little debris risk, much less to support the PEIS suggestion that a space-based architecture would present less risk to the environment than a solely ground-based one.

Without any specific parameters for an SBI network available, the MDA has no data for undertaking the necessary calculations to support its claims.

Last of all, the PEIS also neglects a critical factor regarding the potential for debris creation from SBIs: that is, the fact that any architecture means large numbers of missiles filled with highly volatile rocket fuel would be orbiting in LEO at altitudes where they themselves will be constantly bombarded by space debris, with an attendant risk of explosion caused by debris impact. The PEIS ignores this risk altogether.

In sum, the PEIS fails to support its conclusions about the risk from the creation of orbital debris and its possible reentry into the atmosphere due to a lack of adequate and complete scientific review. Thus, the PEIS itself is fatally flawed and not legally acceptable.

Thank you.

MR. BONNER: Thank you for your input and comments.

Stephan Young?

MR. YOUNG: My name is Stephan Young. I'm a senior analyst at the Union of Concerned Scientists. I have a number of concerns about this PEIS and the proposed deployment of a missile defense system.

First, it seems clear to me that the NEPA laws are not being fulfilled as required by law.

This study is being done, for large parts of the program, after the fact. As the PEIS says, it, quote, evaluates the potential environmental impacts of activities

associated with the development, testing, deployment and planning for decommissioning of the BMDS.

For example, for the ground-based missile defense system, many of those stages are already complete. The silos have been built, the interceptors have been built, many of the tests have been conducted, and the radars have been upgraded. This is also true of the facilities in Colorado Springs, for cable-laying, and so on.

Clearly, the intent of the National Environmental Policy Act is to assess the impact of these actions before they take place. In this case, it's being done after the fact.

Furthermore, the No-Action Alternative described in the PEIS is clearly not a No-Action Alternative. It would merely halt the system-wide integration of the proposed BMDS. All of the components would continue, even to the point of deployment, apparently without the required completion of the appropriate EIS study.

As such, I would support a true No-Action Alternative that would allow testing and development to continue but prohibit deployment of this system or its component parts until such an alternative is considered.

To comply with the law, all current activity should cease until this PEIS process is completed. The current path clearly undermines the intent of the law, and that path should be changed.

Second, the PEIS does not consider the broader environmental impact of the systems deployment. Specifically, the PEIS does not consider how deploying the missile defense system will affect the political and security environment.

It is quite possible, if not likely, that deploying this missile defense system will increase the likelihood of a nuclear weapon being detonated. Obviously, such a detonation would cause an enormous negative environmental impact.

The reason the BMDS makes detonation more likely is quite simple. Both Russia and China will seek to maintain the capability to defeat or overwhelm this missile defense system. In Russia's case, if expansion of the U.S. system proceeds, they could be compelled to maintain a larger arsenal on higher alert, than they otherwise would. Russian President Vladimir Putin has already announced that Russia is developing new missile technologies intended to counter U.S. defenses.

Specifically, Russia is looking at equipping its new Topol missile with multiple warheads and has tested a maneuverable warhead designed to defeat U.S missile defenses and also is planning to maintain its 10-warhead SS-18 ICBM otherwise scheduled for decommissioning.

It is much worse in China's case. With currently a relatively limited arsenal of 20 long-range missiles

capable of striking the United States, even the extremely modest system being deployed by the United States will quickly become at least a theoretical threat to the survival of China's nuclear deterrent.

The goal, of course, of U.S. policy, must be to eliminate or at a minimum limit the nuclear threat to the United States. We absolutely do not want China to maintain it's nuclear deterrent, but deploying missile defenses while maintaining our own extremely robust nuclear arsenal ensures that China will hold onto its arsenal and, in all probability, increase it.

In fact, a 2000 National Intelligence Estimate specifically found that China was likely to increase the size of its nuclear arsenal in response to the deployment of U.S. missile defenses. China is already pursuing a vastly upgraded missile arsenal of longer-range, multiple-warhead mobile land- and sea-based missiles with increased accuracy. The key variable is how quickly and how robustly they will pursue these upgrades.

In short, the missile defense system will push China to develop and deploy a larger and more capable nuclear arsenal. Russia will maintain and perhaps upgrade its nuclear arsenal, much of it on high alert. Both those factors contribute to an increase in the likelihood of a nuclear attack, either intentional or accidental, on the

United States. There could be no worse outcome for the environment.

The PEIS also considers a space-based weapons alternative. Such an alternative could also have severe negative implications for the overall security environment. Placing weapons in space would provoke a number of other countries to develop responses that would decrease overall US security. These impacts should be considered in the PEIS.

Thank you.

MR. BONNER: Thank you.

Lenny Siegel.

MR. SIEGEL: Good evening. My name is Lenny Siegel with the Center for Public Environmental Oversight. I've reviewed the draft Programmatic Environmental Impact Statement with a focus on the use of solid rocket propellant, and I've found that the document is woefully inadequate and doesn't meet the purposes of NEPA, and I'll explain why.

NEPA is a law, which is designed to evaluate environmental alternatives so you can see what you can do better. You're supposed to do a cradle to grave analysis, someone mentioned this, not just to justify decisions that have already been made but to figure out ways to mitigate the problems, to do things differently to solve the problems.

I don't see that in this document. There's no genuine No-Action Alternative. Now, it may be that once you do your study, you would conclude that the No-Action Alternative doesn't meet the purposes of the program, but it's supposed to be there as a baseline against which to measure the environmental impacts. If there's no solid rocket propellant being used, then, you aren't going to deplete the ozone layer; you aren't going to cause water pollution. That alternative should be there for the study to follow NEPA.

Solid rocket propellant, for those who don't know, just about all of it these days contains aluminum and ammonium perchlorate. When it burns as designed, it generates hydrogen chloride, as the document says. When that's released in the lower atmosphere, it combines with moisture to form acid precipitation. That's something that needs to be mitigated. It causes environmental impacts.

It's important to look at alternative launching technologies to avoid those impacts. I see nothing in the document looking at alternative launching technologies.

If the rocket makes it up to the upper atmosphere, the hydrogen chloride breaks down and depletes the ozone layer, exposing us creatures all around the world to ultraviolet B radiation, which causes cancers and numerous other environmental consequences. At the very least, this document should look at ways that alternative technologies,

other launching technologies could eliminate or reduce that impact.

It does not do it. Instead, it compares, and I come up with a higher number, compares the launch-caused ozone depletion to industrial emissions. Those industrial emissions that EPA is calculating every year are actually the emissions caused by the residual release of chemicals that are banned now and are not being produced anymore. And gradually, those are going to be going down because we don't use CFCs anymore around the world. But it looks like the ozone depletion from hydrogen chloride from launching is going to go up unless we look for other ways of launching rockets and missiles.

And finally, I'm from California. We've got a big problem in California and Nevada, Arizona. Twenty million people are drinking water that is contaminated with rocket fuel, perchlorate. It's a growing problem around the country. Perchlorate causes developmental disorders in children. There's no calculation in this document about how much perchlorate needs to be produced to make this system happen, not just for the testing but for the deployed missiles. Presumably--there's no count of how many missiles might be deployed in the system, yet we're going to be manufacturing, disposing of either during manufacturing, during testing or even decommissioning this contaminant.

It is not there. You are not analyzing it. In order to follow NEPA, you have to analyze how much perchlorate might be released into the environment and how you might come up with ways of mitigating that problem or coming up with alternative launch strategies or not doing it at all.

So in order for this document to meet the obligations under the law, there's a need to, one, provide more detailed estimates of perchlorate waste likely to be generated by the system's development, testing and deployment, maintenance and decommissioning and acknowledge emerging regulatory standards for perchlorate exposure; two, consider in detail the management practices, launch protocols, treatment technologies, et cetera, necessary to mitigate the significant environmental impacts, including ozone depletion and the likely release of perchlorate into ground water, surface water and soil; and three, evaluate launch technologies not based upon ammonium perchlorate.

Subsequent studies, site-specific studies, tiered studies doesn't do the job, because there's no way you can do that and look at an alternative to the way it's being done now. You can't substitute for perchlorate five years down the road. It has to be done while the system is testing, or the system that you're testing won't be the system you deploy.

Thank you.

MR. BONNER: Thank you for your comments and input.

At this point, we invite everyone to stay, come back to the poster area, where you can ask clarifying questions of the MDA folks who will be around for the next hour to answer your questions or comments.

Marty?

MR. DUKE: Again, I would just like to thank you for coming and providing your comments. We'll look at those comments and consider those in the draft PEIS. Just one point: the programmatic--you made some very good points, and, you know, we understand there's a lot of issues out there, and a lot of additional tiering environmental analysis will have to be done before any decisions are made in the future. So we're providing a baseline identifying the areas that need further analysis.

Again, thank you very much.

[Whereupon, at 8:22 p.m., the meeting was concluded.]