



Theater Missile Defense Extended Test Range Supplemental Environmental Impact Statement - Eglin Gulf Test Range

Volume 2 of 2

Final

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COVER SHEET

THEATER MISSILE DEFENSE EXTENDED TEST RANGE EGLIN GULF TEST RANGE FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

- a. Proponent: Ballistic Missile Defense Organization
- b. Cooperating Agencies: U.S. Air Force, U.S. Army, U.S. Navy, Federal Aviation Administration, U.S. Coast Guard, and U.S. Fish and Wildlife Service.
- c. Proposed Action: The proposed action is to enhance the capability of the Eglin Gulf Test Range (EGTR) to conduct Theater Missile Defense (TMD) programs. This document supplements the *TMD Extended Test Range Final EIS* (U.S. Army Space and Missile Defense Command, 1994) by identifying new launch and support locations, sensor operations, launch preparation activities, and missile flight tests and intercepts in the EGTR, encompassing the counties of Monroe, Gulf, Escambia, Santa Rosa, Okaloosa, Walton, Bay, and Franklin in the State of Florida.
- d. Designation: Final Supplemental Environmental Impact Statement
- e. Public Review Process: The public review period for the Draft SEIS document was from February 6, 1998, through April 3, 1998, and responses to all comments received during this period were incorporated in the Final SEIS. Public hearings were held during the week of March 9, 1998.
- f. Abstract: The Ballistic Missile Defense Organization proposes to enhance the capability of the EGTR to conduct TMD programs. The Proposed Action would include the selection and construction of land-launch facilities; modification of land, sea-surface, and airspace safety zones; the amendment of range operation and support management procedures; and the subsequent conduct of TMD missile system test and training flights within the enhanced EGTR. The preferred alternative would involve target and interceptor launch and support activities at Eglin Air Force Base (AFB) sites including Santa Rosa Island and Cape San Blas; Air Drop or air-launch of target missiles; and possible Navy AEGIS ship-launch of interceptor missiles. Alternatives would include target launch and support activities at alternative locations in the Florida Keys (Cudjoe Key or Saddlebunch Keys), target missile launch from a sea-launch vessel, and interceptor launch from offshore platforms off the coast of Santa Rosa Island and Cape San Blas. The No-action Alternative that does not provide extended test capabilities for TMD testing and training in the EGTR is also considered.

Potential environmental impacts associated with these actions are considered in the Final SEIS for the following categories: air quality, airspace use, biological resources, cultural resources, geology and soils, hazardous materials and wastes, land and water use, noise, safety, socioeconomics, transportation, utilities, visual aesthetics, and water resources.

- g. Inquiries on this document should be directed to the Eglin Public Affairs Office:

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FOREWORD

This Supplemental Environmental Impact Statement (SEIS) analyzes the potential environmental consequences of a proposal to enhance the Eglin Gulf Test Range (EGTR) to enable extended range testing and training operations using Theater Missile Defense (TMD) missile systems. TMD is designated to provide regional defenses against present and future conventional, chemical, biological, or nuclear ballistic, cruise, or air-to-surface guided missiles that can endanger deployed U.S. forces as well as U.S. friends and allies throughout the world. The proposal calls for the launch of target missiles from aircraft or land sites. These target missiles would be intercepted by interceptor missiles launched from ships or land sites. The intercepts would occur in the airspace over the Gulf of Mexico.

The proposed action would involve target and interceptor launch and support activities at alternative locations at Eglin Air Force Base (AFB) including Santa Rosa Island and Cape San Blas; Air Drop or air-launch of target missiles; and possible Navy AEGIS ship-launch. All intercepts would occur in the airspace over the Gulf of Mexico, which would also be the location for air-launches of target missiles and ship-launches of interceptors. Alternatives include target launch and support activities at alternative locations in the Florida Keys (Cudjoe Key or Saddlebunch Keys); target missile launch from a sea-launch vessel in the Gulf of Mexico; and interceptor launch from offshore platforms in the Gulf of Mexico off the coast of Santa Rosa Island or Cape San Blas.

The Final TMD Extended Test Range SEIS-EGTR has two volumes. The first volume includes an Executive Summary, Acronyms and Abbreviations, a Glossary, section 1 (Program Overview), section 2 (Description of Alternatives Including the Proposed Action), and section 3-4, numbered as section 3 (Affected Environment and Environmental Consequences and Mitigations). The second volume includes section 5 (Public Review Comments and Responses), section 6 (References), section 7 (List of Preparers), technical appendices, the distribution list, and the index.

Section 1 of the SEIS, Program Overview, presents the background, purpose, and need for the TMD Extended Test Range EGTR program. Section 2, Description of Alternatives Including the Proposed Action, describes the proposed action and the current available alternatives that have been identified as fulfilling the purpose and need of the program. A no-action alternative that does not provide extended test capabilities for TMD in the EGTR is also described in this section.

In this SEIS, the presentation of the Affected Environment and Environmental Consequences has been combined into a single section identified as section 3-4. In this unified section, the presentation of existing and future environmental baseline conditions for each of the 14 environmental resource areas is directly followed by a discussion of the potential impacts of the proposed project and alternatives, including appropriate mitigations.

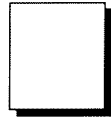
Section 5 of the SEIS (Public Review Comments and Responses) describes how responses were made to the comments received from agencies and the public. This section contains copies of every comment received and responses to each.

DOCUMENT ORGANIZATION

VOLUME 1



EXECUTIVE SUMMARY



SECTION 1.0 PROGRAM OVERVIEW

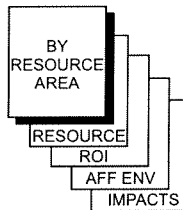


SECTION 2.0 DESCRIPTION OF ALTERNATIVES INCLUDING
THE PROPOSED ACTION

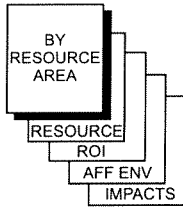


SECTION 3.0-4.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL
IMPACTS, AND MITIGATIONS

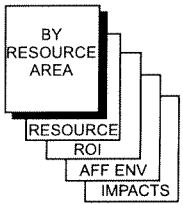
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- 3.X.2 AIRSPACE USE
- 3.X.3 BIOLOGICAL RESOURCES
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- 3.X.10 SOCIOECONOMICS
- 3.X.11 TRANSPORTATION
- 3.X.12 UTILITIES
- 3.X.13 VISUAL AESTHETICS
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SECTION 3.2 GULF OF MEXICO



SECTION 3.3 FLORIDA KEYS SITES

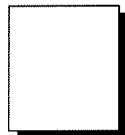
VOLUME 2



SECTION 5.0 PUBLIC REVIEW COMMENTS AND RESPONSES



SECTION 6.0 REFERENCES



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5.0 Public Review Comments and Responses

5.0 PUBLIC REVIEW COMMENTS AND RESPONSES

The *Theater Missile Defense (TMD) Extended Test Range (ETR) Supplemental Environmental Impact Statement (SEIS)—Eglin Gulf Test Range (EGTR)* public review and comment period began on 13 February 1998, 1 week following the publication of the Notice of Availability (NOA) in the *Federal Register*. The public comment period ended on 3 April 1998. Some government agency comments were received after the ending date but were included in the review comments.

Copies of the Draft SEIS were made available for public review at several locations within the region of influence of the proposed TMD program.

- Okaloosa-Walton Community College Library, Niceville
- Okaloosa-University of West Florida Library, Fort Walton Beach
- Gulf County Library, Port St. Joe
- Key Largo Public Library, Key Largo
- Monroe County Public Library, Marathon
- Monroe County Public Library, Key West
- Florida Keys Community College Library, Key West

The following methods were used to notify the public of upcoming public hearing meetings:

- NOA announcement in the *Federal Register*
- Paid advertisements placed in four local newspapers including the *Northwest Florida Daily News*, *Panama City Herald*, *The Key West Citizen*, and *The Keynoter*
- Media releases to newspapers, radio, and television

Four public hearing on the Draft SEIS were between the 9th and 13th of March 1998 in Fort Walton Beach, Port St. Joe, and the Florida Keys. Table 5.0-1 lists the locations and dates of these meetings.

Table 5.0-1: Public Hearing Locations, Dates, and Actual Times

Meeting Location	Date	Times
Fort Walton Beach, Radisson Beach Resort	9 March 1998	5:00 – 8:00 p.m.
Port St. Joe, Port St. Joe High School	10 March 1998	5:00 – 8:00 p.m.
Key West, Harvey Government Center	12 March 1998	5:00 – 10:00 p.m.
Marathon, Marathon Government Center	13 March 1998	5:00 – 9:00 p.m.

During the initial hour of each public hearing, an informal information session was held to encourage the public to talk with project leaders. During this time, the public was encouraged to sign in at the registration desk, to complete a speaker's card if they wanted to make a statement at the public hearing, and to complete an address form if they wanted to receive a copy of the Final SEIS or its Executive Summary. A log of public and agency attendees was maintained for each hearing although registration was not required. A fact sheet summarizing the proposed action to enhance the Eglin Gulf Test Range to test Theater Missile Defense systems was provided to all attendees. This fact sheet provided an overview of the preferred action and alternatives and summarized the findings of the Draft SEIS including potential environmental impacts and mitigations. Copies of the Draft SEIS were also made available to the public at the registration table. Other handouts included a welcome/agenda for each public hearing meeting location, instructions on how to be heard and how to get more information, written comment forms, and cards for commentor registration and document mailing list.

Following the information hour, the public was invited to attend the Public Hearing. The moderator began the formal presentation by explaining the format of the meeting which included:

- Introduction, Mr. Lewis Michaelson
- Maj Tom Kennedy, AFDTC, Eglin AFB, described the proposed action and alternatives and presented the findings of the Draft SEIS
- Public Comment Session
- Closing Remarks, Mr. Michaelson

A transcript of the full text of each public hearing is included in section 5.3 of the Final SEIS.

Public comments on the Draft SEIS were received in several different ways. Public hearing attendees were invited to make formal statements, which were recorded by a court reporter at each meeting. A total of 51 individuals spoke at the public hearings and their comments were documented in four recorded transcripts. A list of the individuals who spoke at the public hearings, designated PT-0001 through PT-0051, and copies of the transcripts, are included in section 5.3.1.

Written comments on the Draft SEIS were received in various formats over the course of the public comment period. Initially, some prepared information was submitted to the moderator by speakers during each public hearing. In addition, written comment forms which were made available during registration were either returned at the conclusion of the public hearings or forwarded by mail. Finally, some individuals and several Federal, state, and local agencies submitted letters of comment. In these three forms, written comments were received from 69 individuals representing themselves or private and public organizations. A list of the individuals, including their organization or agency affiliation where applicable, and copies of their transmittals are included in section 5.1.1. Written comments are designated PW-0001 through PW-0069.

In addition to transcript and written comments, the public was encouraged to e-mail comments to a mailbox designated for receipt of public comments: tmd@eglin.af.mil. Twelve e-mails were received during the public comment. A list of the individuals who sent e-mails, and copies of the documents received are included in section 5.2.3. E-mail documents are designated PE-0001 through PE-0012.

Every transcript, written letter/comment, and e-mail was reviewed as it was received. Each document was assigned a unique number and then was carefully reviewed to identify the environmental resource area and specific topic of individual comments and issues that were presented. Each of these identified issues was highlighted and numbered sequentially. For example, if the tenth speaker presented in a transcript document (PT-0010) provided comments on 7 separate topics, those comments were numbered PT-0010.01 through PT-0010.07. A summary of each comment, its environmental resource area and topic was then entered into a database by the given identification number. This database was then used to sort and categorize all comments to the Draft SEIS so that appropriate and consistent responses could be provided.

The process of responding to comments required reaching a thorough understanding of the issues being presented and then determining the appropriate action to be taken. In some cases, the comment was a declarative statement not requiring a direct response, but one that did need to be noted in the context of overall public review. Other comments identified corrections or new information that was directly included in the text of the Final SEIS.

The largest number of comments received posed questions about the methodologies, analyses, and conclusions for various environmental resource impacts and mitigations presented in the Draft EIS. For each of these comments, a specific response was prepared—occasionally requiring the acquisition of new data and the preparation of additional analyses. New information and analysis supporting or changing the conclusions of the Draft SEIS was incorporated into the text of the Final SEIS as well as in the response to comments section.

Chapter 5 of the Final SEIS presents reproductions of all the original documents that were received during the public hearing comment period and provides direct responses to every issue included in those documents. The organization of chapter 5 provides a separate comment/response section for each of the three types of comment documents:

- 5.1 Written Comment Documents
 - 5.1.1 Written Comments
 - 5.1.2 Response to Written Comments
- 5.2 E-Mail Comment Documents
 - 5.2.1 E-Mail Comments
 - 5.2.2 Response to E-Mail Comments
- 5.3 Transcript Comment Documents
 - 5.3.1 Transcript Comments
 - 5.3.2 Response to Transcript Comments

The first table in each section provides a index of the names and assigned identification numbers of individuals that submitted comments on the Draft SEIS. To follow comments and responses for a specific individual, find their commentor number (e.g., PW-0042, PE-0003, PT-0021) in the appropriate document list; locate their document with sequentially numbered comments; and, use the comment numbers to identify corresponding responses in the response table.

All documents and comments that were received during the public review period for the Theater Missile Defense, Extended Test Range, Supplemental Environmental Impact Statement were treated equally regardless of the form or commentor. Each comment was carefully documented, thoroughly read and evaluated, and provided with a response. Volume 2 of the Final SEIS includes the public comments and prepared responses. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. In accordance with CEQ guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process.

5.1 WRITTEN COMMENT DOCUMENTS

Individuals who commented on the Draft SEIS in written form are listed in table 5.1-1 along with their respective commentor identification number. This number can be used to find the written document that was submitted and to locate the corresponding table on which responses to each comment is provided.

5.1.1 WRITTEN COMMENTS

Exhibit 5.1-1 presents reproductions of the written comment documents that were received in response to the Draft SEIS. Comment documents are identified by commentor ID number, and each statement or question that was categorized as addressing a separate environmental issue is designated with a sequential comment number.

5.1.2 RESPONSE TO WRITTEN COMMENTS

Table 5.1-2 presents the responses to comments to the Draft SEIS that were received in written form. Responses to specific comments can be found by locating the corresponding commentor ID number and sequential comment number identifiers.

Table 5.1–1: Public Comments on the Draft SEIS (Written Documents)

Commentor and Affiliation	ID Number
Apalachee Regional Planning Council	P-W-0055
Blazevic, R. L.	P-W-0031
Cairns, Duncan J., North West Florida Water Management District	P-W-0052
Canneto, Frank; ANR Pipeline Company	P-W-0036
Causey, Billy D.; Florida Keys National Marine Sanctuary Program	P-W-0043

Table 5.1-1: Public Comments on the Draft SEIS (Written Documents) (Continued)

Cofer, Elizabeth	P-W-0009
Cofer, Elizabeth	P-W-0020
Couvillion, Keith J.; Texaco Exploration and Production, Inc	P-W-0064
Cox, Cox	P-W-0023
Deut, Jane	P-W-0039
Drake, Susan	P-W-0027
FKNMS Advisory Council	P-W-0011
Freeman, Shirley; Commissioner, County of Monroe	P-W-0060
Freeman, Shirley; Monroe County Commissioner	P-W-0002
Gernnacht, Helen	P-W-0034
Germer, Suzanne	P-W-0019
Golden, Jim	P-W-0041
Griffin, Lynn; Office of Intergovernmental Programs, Florida Department of Environmental Protection	P-W-0049
Gulf County	P-W-0056
Hadden, Alexander	P-W-0001
Halloran, George	P-W-0046
Hanley, Mari	P-W-0063
Hare, James N.	P-W-0025
Hartman, Bradley; Director, Florida Game and Fresh Water Fish Commission	P-W-0068
Hendricks, M.E.	P-W-0033
Henize, Dennis	P-W-0004
Henize, Dennis	P-W-0015
Henize, Dennis	P-W-0016
Hind, Martin S	P-W-0024
Hoffman, Wayne; National Audubon Society	P-W-0008
Hulsey, John, South Florida Regional Planning Council	P-W-0053
Illegible	P-W-0035
Jones, Michael	P-W-0018
Lee, James H.; Office of Environmental Policy and Compliance, U.S. Dept. of the Interior	P-W-0066
Lowe, Donald S.	P-W-0003
Magill, Mary	P-W-0032
Marine Fisheries Commission	P-W-0051
Marple, Richie Anne	P-W-0045

Table 5.1-1: Public Comments on the Draft SEIS (Written Documents) (Continued)

Martin, Terence N.; Office of Environmental Policy and Compliance, U.S. Dept. of the Interior	P-W-0038
Mc Arthur, Phil and Jane	P-W-0028
McGee, William; Cape San Blas Taxpayers Association	P-W-0059
Moody, Richard	P-W-0062
Morrison, Michael, et al; Last Stand -petition against missile testing in the Florida Keys	P-W-0069
Mueller, Heinz J.; Chief, Office of Environmental Assessment, U.S. Environmental Protection Agency, Region 4	P-W-0065
Musselman, David	P-W-0021
Orlandi, Robin; Board of Directors of Reef Relief	P-W-0014
Percy, George W.; Division of Historical Resources, Florida Department of State	P-W-0050
Pfeiffer, Steven G.; State of Florida, Dept. of Community Affairs	P-W-0067
Poole, Samuel E. III; South Florida Water Management District	P-W-0042
Probert P.E., Daniel	P-W-0061
Rebosio, Gianne T.	P-W-0017
Richardson, Drew; Professional Association of Diving Instructors	P-W-0037
Richardson, Drew, Professional Association of Diving Instructors	P-W-0013
Richardson, Drew, Professional Association of Diving Instructors	P-W-0012
Rosenblatt, Sol	P-W-0007
Simonds, Lois	P-W-0058
Slack, James J.; South Florida Field Office, Fish and Wildlife Service	P-W-0022
Thorpe, Paul; Northwest Florida Water Management District	P-W-0057
unsigned	P-W-0026
unsigned	P-W-0029
unsigned	P-W-0030
unsigned	P-W-0047
Weeks, Vicki	P-W-0010
West Florida Regional Planning Council	P-W-0054
Wheeler, Kathy	P-W-0044
Whitfield, Estus D.; Environmental Policy/Community and Economic Development Unit, Office of the Governor, State of Florida	P-W-0048
Wright, Bruce	P-W-0040
Wright, David C. Ph.D.	P-W-0006
Wright, David C. Ph.D.; Union of Concerned Scientists	P-W-0005

P-W-0001
COMMENT NUMBER

SUMMARY OF THE VIEWS OF
THE MISSILE TASK FORCE
PRESENTED BY SANDY HADDEN
MARCH 12 AND 13, 1998

My name is Alexander Hadden. I am a retired attorney. My comments this evening are intended as a summary of the views presented by this Task Force.

The focus of the Task Force has been to assess how well the draft SEIS portrays the impact on the Keys of launching target missiles here. We find the document as it stands to be incomplete, superficial and in some respects, distorted.

Our first concern is human health and safety. Nowhere in the SEIS is there any focus on the possibility of serious accident. It neither quantifies nor even mentions the possibility that human error, equipment or system failure, sudden wind or meteorological change, or a combination of such factors might result in a destructive distribution of debris or toxic emissions beyond the Launch Hazard Area. Of particular concern is the extremely short distance from the launch site to the edge of the LHA on its populated side. The fashion in which the LHA was magically shrunk when it was discovered that it included settled areas seems to us to highlight the document's lack of objectivity. Also, more detail is needed on the timing of the trigger mechanism in the event of an accidental firing in the direction of a populated area.

The SEIS likewise fails to explain why the launch site here should be so much closer to populated areas than it is at other sites. There is no other US missile test site that is nearly so close. The launch sites in northern Florida, for example, will be from platforms 5 to 13 miles offshore of Eglin Air Force Base. Are there special circumstances that might justify a departure in the Keys from the safety precautions proposed there? If so, the SEIS fails to mention them.

Our second concern is the environment. The analysis understates the potential impact of introducing large quantities of hydrochloric acid into a region of high humidity and shallow sea water, and it fails to focus at all on the consequences of such imposition on the fragile alkaline environment of the Keys.

We also concur with the concerns raised by the Marine Sanctuary and the Wildlife Service. We urge that these issues be addressed in the final SEIS.

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A third concern is transportation. The Overseas Highway is the sole conduit for automobile traffic, drinking water, electric power, hospital and medical services, food and every other vital service required by our entire population. The impact of the missile proposal on this lifeline corridor is not addressed at all in the draft SEIS. What would be the effect of this heavy new traffic burden on normal and essential traffic patterns? And God forbid that there should be an accident that takes out a bridge, for example, but should there not be some contingency planning that would take such possibilities into account?

In conclusion, there is a real possibility of the failure of a missile launch. We can conceive of no other rural location in the US where the consequences of such an accident would be more devastating. Such a failure could result in the dispersal of flammable and toxic materials and chunks of missile hardware into areas where people live, or involve the accidental explosion of a missile being transported on US 1. It is not enough to say that the chances of such events happening in the Keys are "minimal." Disasters of this sort have happened in the past and they could happen here.

We hope that the final SEIS will look much harder and deeper into these real risks and find ways to treat them that would be both more detailed and more convincing.

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P-W-0001
COMMENT NUMBER

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My name is Shirley Freeman and I am a Monroe County Commissioner.
Welcome to our beautiful new commission chambers here at the Harvey Government Center at Historic Truman School.

As a County Commissioner I wanted to fully analyze and respond to the Draft Supplemental Environmental Impact Statement. To assist me in analyzing this document, I have been fortunate enough to be able to call upon a team of scientists and others who have volunteered their time and expertise to examine the Draft SEIS with a fine tooth comb.

Their findings are this document has many fine attributes but is woefully lacking in evidence which leads to some of the conclusions concerning the ecological treasure we call the Florida Keys. It falls short in consideration of the possible toxic damage from chemical discharge and physical fallout that would affect the health and safety of our citizens, our sensitive environment which includes a national marine sanctuary, and our unique tropical atmosphere.

Now I will introduce the team. Each member has lived in the Florida Keys for six to 20 years. Each will speak to you in their area of expertise. It is my job to introduce them and give their credentials.

Gerry Girard

Mr. Girard is a retired airline captain of 37 years service, was a member of the board of a telecommunications company, and is an avid outdoorsman.

Topic: General Comments

Elizabeth Cofer

Mrs. Cofer is a Duke University graduate with a BA in zoology and a MA degree in education and enjoyed a 20 year career as chemistry teacher.

Cudjoe, FL

Topic: Traffic and Transportation

Donald Lowe

Mr. Lowe has a MA degree in Physics. As a research manager for Bendix Aerospace Systems Division, he directed programs related to ballistic missile launch and re-entry measurements. He served as US Naval Ordnance Representative to the United Kingdom.

Cudjoe, FL

Topic: Noise and Visual Aesthetics

P-W-0003
COMMENT
NUMBER

Comments on Draft SEIS
12 March, 1998
Donald S. Lowe

Honorable Commissioners, DoD Representatives, and Interested and Concerned Citizens. Thank you for the opportunity to express my views on the Draft SEIS. I will speak only on two issues, aesthetics and noise. For sake of brevity, I will discuss the Cudjoe site, but the comments apply to the Saddlebunch Keys as well.

Most of the views around the proposed launch sites are judged in the study to have minimal scenic attractiveness. What can I say except that beauty is in the eyes of the beholder. I for one love these low lying mangrove islands set in sparkling water. That is why most of us live down here at the end of the earth. The report further concludes that the 40' tall, 90' long assembly building will only slightly alter the scenic integrity of the area. Such a building will be very dominant here in the Keys where buildings are restricted by code to a height of less than 35'.

As for human reaction to noise, the study averages the day night background noise level over a year. The color figure on the left shows the noise level for Cudjoe. This is derived from land use classification and noise statistics. Yellow represents a 55 dB noise level, about that used in conversation. From this modeling, it is estimated that 4% of Cudjoe residents are unhappy with their noise environment. When the noise from 12 Hera launches is added (the figure on the right) the noise in most of the populated area (yellow) remains the same, and the percent of people unhappy with their noise environment remains at 4%. How can this be? It is because the short impulse of noise is time averaged over an entire year thereby reducing its level a factor of about 500,000 (60 minutes/hour, 24hours/day, and 365days/year). This methodology is clearly

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wrong for analyzing the effects of a short burst of noise. A dynamite blast could rupture one's eardrums without measurably affecting the yearly averaged noise level. Actual noise measurements of a Hera launch are more helpful toward understanding launch noise. The next figure, taken from the study, plots rookeries and sound levels with respect to the Cudjoe launch pad. The noise level at 5 miles is 93 dB. This is equivalent to the sound of a full speed freight train at 30 feet. Who could sleep through that and once wakened would not listen intensely to determine whether or not one should dive for cover? No studies were cited as to the possible psychological scarring of the residents by this type of disturbance. Regarding wildlife, however, it is noted that at least one rookery will experience 121 dB of noise which is the threshold of pain in humans. The study reports that birds will leave their nests but will return. The study concludes that there will be no long term effects. Where is the scientific evidence?

I beg you to take the necessary steps to correct what I perceive to be misleading conclusions in the Draft SEIS. The launch noise will disturb both humans and wildlife, and the exact degree will not be known without an extensive scientific investigation. The scenic quality and character of the site will dramatically change with the launch operations. The impacting costs on residents, tourism, and overall quality of life have not been quantitatively analyzed to determine the true cost of launching missiles from the Keys. The decision to launch ballistic missiles near populated areas in a sanctuary is far too important to be based on "trust me" judgements. It should be based on hard, quantitative, scientific evidence which this study sadly lacks. Thank you.

P-W-0003
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P-W-0004
COMMENT
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Comments by Dennis Henize, on SAFETY - LAUNCH HAZARD AREA
(TMD EIS Public Hearings, Florida Keys, March 12/13, 1998)

For neighbors within a few miles of the proposed launch sites, safety is the most crucial issue. The original Theater Missile Defense EIS cites a *nominal* Launch Hazard Area of 4.5 miles for the Hera missile. When the Keys were first looked at as a launch site, the Hera LHA shrunk to 9,000 feet, about the distance to US1. That was when BMDO thought that nobody lived north of US1 on Cudjoe Key. When that error was pointed out, the LHA further shrunk to 6,500 feet, less than 1.25 mile.

The red shaded area at the bottom of the LHA is the area carved out of the LHA because my wife and I and 22 other families were found to be living there.

Shrinking the LHA is rationalized by promising to blow up an errant missile sooner if it heads toward us than if it goes off-course in some other direction. There are many problems with that, and it is no comfort. For one thing, it only means a higher probability of a missile having to be destroyed after launch, and for every such failed launch, there'd have to be another one. Building a higher probability of failure into an inherently dangerous activity, *simply because the site is too close to human population*, shows astoundingly poor planning!

The 6,500 foot Launch Hazard Area is far from being prudent and conservative, and does not consider any of several worst-case mishaps. It takes into account the debris dispersal for an exploding Hera on or directly above the launch pad, but not any of several plausible failure modes in which the missile moves some distance in the wrong direction and *then* explodes.

A type of mishap representing just *one* such failure is presented in a report published last week by David Wright, a physicist with MIT and the Union of Concerned Scientists. Dr. Wright's report analyzes the 6,500 foot Launch Hazard Area proposed for Cudjoe Key. The same study would apply to the Saddlebunch site. It describes a failure mode in which debris from a flight terminated due to a particular directional control failure a few seconds after launch could cause debris to land outside the LHA, more than 2 miles from the launch site.

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The report concludes:

"This analysis concludes that an LHA of 1.5 miles is not justified on technical grounds. There appear to be possible malfunctions of the Hera missile that could result in debris outside the 1.5 mile LHA even if the flight is terminated very early. While the probability of such a malfunction is not known, similar events have occurred in the recent past. These results therefore mean that the official launch hazard area determined by BMDO for the proposed Cudjoe Key site is too small."

The Launch Hazard Area is inadequate in other respects as well. Patterns of falling debris from an accident should *not* be the *only* criteria for determining the LHA. Noise and shock waves from potential explosions, and chemical clouds from potential accidents must be considered.

Your EIS acknowledges that explosions could result in compression waves of 2.0 psf overpressure, strong enough to cause minor structure damage, as far away as 1.9 miles. There are at least 23 homes that close. The Launch Hazard Area is not big enough.

With respect to the chemical cloud from a combustion accident, both of the dispersion models used in the EIS' Air Quality sections show that the highest concentrations of hydrogen chloride are *outside* the Launch Hazard Area. The Launch Hazard Area is not big enough.

There simply is not enough wide-open space anywhere in the Keys for a Launch Hazard Area that takes into account the very launch hazards that are acknowledged in the EIS.

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	P-W-0005 COMMENT NUMBER	A Technical Assessment of the Launch Hazard Area in Cudjoe Key, Florida David C. Wright* Union of Concerned Scientists & Security Studies Program, MIT March 6, 1998 Summary The US Ballistic Missile Defense Organization (BMDO) has been considering using a site in Cudjoe Key, Florida to launch Hera test missiles as part of the program to develop theater missile defenses. A standard safety precaution is to define a launch hazard area (LHA) around a missile launch site that represents an area that might be showered with debris in the event of a malfunction during the launch of the missile. If the LHA of a proposed launch site would include areas containing schools, housing, etc., the location cannot be used as a launch site. The Army has stated that the nominal LHA for Hera missile launches is 4.5 miles (7.2 kilometers) in all directions around the launch site.¹ The LHA determined by BMDO for the Cudjoe Keys launch site, however, extends only about 1.5 miles (2.4 km) in the direction opposite to the planned flight path of the missile.² If the LHA were larger in that direction, it would include homes and the launch site would not be allowed. The purpose of this assessment is to understand if a reduction in the LHA by a factor of three—from a nominal 4.5 miles to 1.5 miles—can be justified on technical grounds. It describes a technical analysis of where debris could land as a result of malfunction and termination of a launch of a Hera missile early in flight. This analysis concludes that an LHA of 1.5 miles is not justified on technical grounds. There appear to be possible malfunctions of the Hera missile that could result in debris outside the 1.5 mile LHA even if the flight is terminated very early. While the probability of such a malfunction is not known, similar events have occurred in the recent past. These results therefore mean that the official launch hazard area determined by BMDO for the proposed Cudjoe Key site is too small. * David Wright is a Senior Staff Scientist at the Union of Concerned Scientists in Cambridge, MA and a Research Fellow in the Security Studies Program at MIT. He received his Ph.D. in physics from Cornell University in 1983. One of his main areas of expertise is the technical analysis of missile systems.	
01	Determining the Launch Hazard Area The military's description of how a launch hazard area (LHA) is determined can be found on the Eglin Air Force Base web site at tw1.eglin.af.mil/46mtd/lha.htm. The first step is to determine the LHA in the absence of wind, which could shift the debris pattern. The description states: "Certain areas cannot be located within an LHA. Examples include housing, schools, and office buildings. If a protected area lies within the calculated <i>Debris Hazard Area—No Wind</i> for a proposed site, then that site cannot be used for missile launches." (emphasis original) While wind may shift the pattern of debris and increase the size of the LHA for a particular launch depending on weather conditions, it cannot decrease the size of the LHA from the "LHA-No Wind" (called the "Debris Hazard Area—No Wind" above). Thus if a calculation of the debris pattern from an aborted launch in the absence of wind shows that debris could fall on the protected areas listed above (housing, schools, and office buildings), the launch site cannot be used. As a result, the calculations in this paper are done assuming there is no wind.	04	
02	Calculating the LHA-No Wind The Eglin web page states that the LHA-No Wind is determined by a computer model that calculates where debris would land if the missile had to be destroyed after launch. The computer model attempts to take into account malfunctions of the missile that send the missile off its intended course. The LHA description states: "Every five seconds of flight, the model forces the missile off its flight path for five seconds." The computer then calculates where debris from a missile destroyed at that time would land, and that information is used to calculate the LHA-No Wind. In response to questions on this point, the BMDO has said that early in flight it might not wait for five seconds after a malfunction to terminate the flight but could do so a couple of seconds earlier.	05	
03	Checking the BMDO's Calculation of the LHA-No Wind at Cudjoe Key The details behind the BMDO's calculation of the LHA-No Wind at the Cudjoe Key site are not publicly available. However, considerable information is known about the Hera test missile, allowing the trajectory of the missile to be calculated under normal operating conditions and under various types of malfunctions. Assuming a missile launch is aborted at some point on the trajectory, the pattern of debris can be calculated using standard assumptions about atmospheric drag on the debris.	06	

In my calculations I have assumed reasonable "worst-case" malfunctions of the Hera missile that should be taken into account in determining the LHA-No Wind. These calculations are described in detail in the Appendix.

Results of the Calculations

The calculations described in the Appendix show that reasonable assumptions about possible malfunctions of the Hera missile would result in debris falling 1.6-2.1 miles or farther behind the launch site. Thus, this debris would land outside of the official LHA-No Wind that has been presented by BMDO for the Cudjoe Key site.

These results therefore mean that the official LHA-No Wind determined by BMDO for the proposed Cudjoe Key site is too small.

What is the probability of malfunction of the missile?

The probability of a malfunction that would cause a Hera missile to veer out of control is not publicly known. However, there are numerous examples of such a malfunction. The news report of a malfunction of an Aries rocket in 1991 that is attached at the end of this report gives an example of such a malfunction, in that case caused by a software rather than hardware problem.

It is, however, possible to say something about the overall reliability of Minuteman missiles. Since the Hera missile consists of the upper two stages of a Minuteman II missile, these reliability figures may give some indication of the reliability that can be expected of Hera. It is important to keep in mind, however, that there are many failure modes that do not involve the guidance and control system of the missile, which is the failure mode considered here. In most cases discussed below, the failure mode is not publicly known.

- Between 1969 and 1989, the Minuteman II missile underwent 101 operational test and evaluation (OT&E) flight tests.³ Of these, 15 were failures, giving a reliability of 85%.
- Between 1971 and 1989, the Minuteman III missile, which is an upgrade to the Minuteman II, underwent 136 OT&E flight tests.⁴ Of these, 17 were failures, giving a reliability of 87.5%.
- Between 1985 and 1992, there were 12 launch attempts for Minuteman I missiles⁵ that had been refurbished for use as space launch vehicles in much the same way that Minuteman II components have been refurbished for use in Hera. On two of these flights (20 January 1987 and 24 October 1992) the missile malfunctioned and was destroyed during flight by a range safety officer. A third launch attempt (20 January

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1992) failed when the first stage motor failed to ignite. Thus for this eight-year period, the reliability was 9 of 12, or 75%. Even ignoring the launch that never got off the ground gives a reliability of 9 of 11, or 82%.

References

- ¹ US Army Space and Strategic Defense Command, *Theater Missile Defense Hera Target Systems: Environmental Assessment*, January 1994, p. 1-30; US Army Space and Strategic Defense Command, *Wake Island: Environmental Assessment*, January 1994, p. 1-21; US Army Space and Strategic Defense Command, *Theater Missile Defense Extended Test Range: Draft Environmental Impact Statement*, January 1994, p. 2-16.
- ² *Theater Missile Defense Extended Test Range Supplemental Environmental Impact Statement - Eglin Gulf Test Range (draft)*, prepared for Major Thomas J. Kennedy, Director of Test, Theater Missile Defense, Eglin AFB, FL, 6 February 1998, 3-428.
- ³ Steven Flank, "Flight Test Restrictions and Reliability Analysis for Ballistic Missiles: An Analytic Framework," May 1991, unpublished.
- ⁴ *Ibid.*
- ⁵ The launch dates were obtained from Jeffrey Geiger in the Base Historian's Office at Vandenberg Air Force Base (personal communication, 14 December 1992).

Appendix: Description of Calculation Of Debris Dispersion

Calculation of the Nominal Hera Trajectory

The technical parameters for the Hera missile are well known from several sources.¹ The Hera is built from surplus Minuteman missile components. For the two-stage version of the Hera, the first stage is an SR19 booster, which is the Minuteman II second stage. This stage has a total mass of 16,000 pounds (lb) (7.270 metric tonnes (te)), contains 13,725 lb (6.236 te) of propellant, and has a nominal burn time of 64 seconds. The motor generates approximately 56,100 lb (250,000 newtons) of thrust. This stage is roughly 11 feet (3.4 meters) long and has a diameter of 4.3 feet (1.3 meters).

The second stage is an M57A1 booster, which is the Minuteman II third stage. This stage has a total mass of 4,422 lb (2.010 te), contains 3,650 lb (1.659 te) of propellant, and can burn for up to 60 seconds. This motor generates a thrust of roughly 16,900 lb (75,000 newtons). This stage is roughly 7 feet (2.1 meters) long and has a diameter of 3.3 feet (1 meter).

The Hera payload section has a mass of roughly 3400 lb (1.55 te), and is roughly 10 feet (3 meters) long.

Given these technical parameters, one can integrate the equations of motion on a computer to calculate the trajectory of the missile. The program used for these calculations includes an atmosphere and calculates the effects of atmospheric drag on the missile trajectory using standard methods.²

Using the parameter values given above, these calculations give a trajectory essentially identical to that provided by the Air Force for the nominal Hera trajectory.³ In these calculations, I have assumed the Hera travels vertically for a short time (5 seconds) before lateral thrust is applied to begin turning the missile. (I also considered a case in which the missile flies vertically for only 3 seconds and found that the results are insensitive to this number.)

Estimation of Debris Pattern After a Missile Malfunction

This section describes how I calculated the debris pattern from an aborted launch. Some relevant details of the missile, such as the maximum turn it can undergo, are not publicly

¹ "The Hera Target Missile," Ballistic Missile Defense Organization (BMDO) Fact Sheet 96-018, April 1996; David Hughes, "Hera to Challenge THAAD this Month," *Aviation Week and Space Technology*, 11 March 1996, 39; Thomas Cochran et al., *Nuclear Weapons Databook, Volume 1: US Nuclear Weapons* (Cambridge, MA: Ballinger, 1983), p. 113.

² For a description of the program, see L. Gronlund and D. Wright, "Depressed Trajectory SLBMs," *Science and Global Security* 3, 1992, 101-160.

³ This data was provided to Mr. Dennis Henize by Maj. Thomas Kennedy, Theater Missile Defense Test Manager, Eglin Air Force Base.

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available. However, it is possible to estimate these parameters to give highly plausible predictions of the debris pattern.

The LHA is calculated by assuming the missile undergoes what the military calls a "worst turn" at various points along the missile trajectory. A "worst turn" is a turn that the missile is physically capable of achieving and that is the most problematic in terms of dispersing debris. The missile is then allowed to travel in that direction for five seconds before the flight is aborted.

When the flight is aborted, pieces of the missile will follow ballistic paths to the ground, with the path of each piece determined by its ballistic coefficient⁴ (weight-to-drag ratio) and its speed and direction at the time of thrust termination of the missile. The LHA-No Wind is then determined by considering such "worst turns" in all directions away from the intended path and finding an envelope outside of which none of the debris falls.

BMDO officials have stated that, early in flight, the flight might be terminated before the missile is allowed to travel for five seconds after a "worst turn." In the calculations in this paper, we assume the flight is aborted only three seconds after a "worst turn."

I consider a particular case in which the missile flies on the nominal Hera trajectory for nine seconds. At that point the missile is travelling at about 417 ft/s (127 m/s) and is at an altitude of about 1970 ft (600 meters). The velocity vector is about 84.5 degrees with respect to the horizontal. A malfunction is assumed to occur at that point in the missile's guidance and control system that causes the missile to begin to turn in the opposite direction (still in the plane of the trajectory) for three seconds. The turning is caused by aerodynamic lift forces on the missile body that result when lateral thrust of the rocket motor generates a non-zero angle of attack. Since this is occurring at low altitudes where the atmospheric density is large, the lift forces are strong and can cause the missile to turn rapidly. The majority of the missile's thrust, however, is still accelerating the missile. After three seconds, the missile's speed has increased to 558 ft/s (170 m/s) and it has climbed to about 3280 ft (1 km) in altitude, and is approximately above the launch point. We assume that the "worst turn" results in the missile velocity being at an angle of 40-45 degrees with respect to the horizontal, which would maximize the dispersal of debris.

There is good evidence that the missile could withstand such a turn, based on the behavior of the Trident II missile on 21 March 1989, when it failed its first launch attempt at sea. (See figure 1.) A malfunction of the guidance and control system caused the missile to fly in a circle of roughly 300 foot (90 meter) diameter, and it did so for a short time without breaking up. Eventually, as the missile began to spiral inward, the turning rate and resulting atmospheric forces became high enough that the missile broke apart. However, an analysis of the Trident trajectory shows that the middle part of its flight occurred at atmospheric densities and at speeds comparable to those in the Hera case described above. This strongly suggests that the Hera could undergo a turn of the type assumed above without breaking up before the flight is aborted.

⁴ The ballistic coefficient β is defined as $\beta = W/C_D A$, where W is the weight of the object, C_D the drag coefficient, and A is the projected area perpendicular to the motion of the object.

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ENVIRONMENTAL IMPACT STATEMENT RESPONSE 3/12/98 SOL ROSENBLATT THANKS FOR GIVING ME THE OPPORTUNITY TO PRESENT SOME SOLID ROCKET EMISSION OBSERVATIONS MADE DURING MY 3 1/2 YEARS AS A SOLID ROCKET DEVELOPMENT CHEMIST FOR THE POLARIS MISSILE PROGRAM. 1. FOR HERA, 1.5 TONS OF HCl GAS EMITTED PER LAUNCH. THIS GAS COMBINES IN A HUMID OR EXCESS WATER ENVIRONMENT WITH 3 TONS OF WATER, WHICH BRINGS DOWN THE HCl IN THE FORM OF 4 1/2 TONS OF HCl ACID RAIN. A FEW DROPS OF THIS ACID WILL REDUCE THE PH OF A GALLON OF WATER TO BELOW 7 INSTANTANEOUSLY. WHICH AUTHOR OF THIS ENVIRONMENTAL IMPACT STATEMENT CONSIDERS HIMSELF OR HERSELF VERSED WELL ENOUGH IN THE CHEMICAL BALANCE OF OUR BACKWATERS, THAT HE OR SHE IS WILLING TO GAMBLE THAT INTRODUCING 4 1/2 TONS OF HCl ACID INTO THIS SHALLOW ENVIRONMENT, FOR EACH LAUNCH, WILL NOT CAUSE A DELETERIOUS CHAIN REACTION ? - THIS FRAGILE ENVIRONMENT WHERE WE STILL ARE TRYING TO LEARN THE REASON FOR OUR REEFS MYSTERIOUS DYING OFF AT THE RATE OF BETWEEN 4-10% PER YEAR. THE CLAIM IS MADE THAT ONLY 20% OF THE HCl IN THE PRESENCE OF WATER COMBINES TO FORM HYDROCHLORIC ACID. WHAT HAPPENS TO THE 80% BALANCE? COULD IT BE THAT ONLY 20% WAS DETECTED BECAUSE: 1. THERE WAS AN ASSUMPTION THAT THE WATER PRODUCED BY THE COMBUSTION WAS THE LIMITING WATER AVAILABLE FOR COMBINING WITH THE HCl. 2. THAT AT THE TEMPERATURE OF THE EXHAUST, ONLY A CERTAIN AMOUNT OF WATER WAS AVAILABLE. 3. THAT THE LOW DESERT HUMIDITY AT FORT WINGATE, NEW MEXICO LIMITED THE WATER AVAILABLE, AND ALTERED READINGS. THE FACT IS THAT IN THE PRESENCE OF EXCESS WATER OR HIGH HUMIDITY AT STANDARD TEMPERATURES AND PRESSURES, ALL THE HCl GAS COMBINES WITH WATER.	01 02 03 04 05 06	CLAIM THAT HCl AND/OR HYDROCHLORIC ACID CLOUDS EASILY MIX WITH THE AIR AND DISPERSE: 1. WARM UPDRAFTS ARE PRODUCED BY THE EXOTHERMIC REACTION OF GASEOUS HCl AND MOIST AIR, PLUS THE UPDRAFT CAUSED BY THE COMBUSTION OF THE PROPELLANT - BOTH WILL CAUSE THE EXHAUST TRAIL TO RISE AND FORM AN HCl CONTAINING CLOUD IN A HUMID ENVIRONMENT OF SLOW MOVING AIR. IN ADDITION, THERE WILL BE AN UPDRAFT DUE TO THE HEAT OF CONDENSATION, AS HCl ACID VAPOR CONDENSES INTO LARGER DROPLETS GIVING UP ITS HEAT OF VAPORIZATION, ADDING TO THE UPDRAFT, UNTIL THE HYDROCHLORIC ACID DROPLETS SUFFICIENTLY COOL TO COALESCE TO A WEIGHT WHERE THEY FALL AS HYDROCHLORIC ACID RAIN. THIS CLOUD, ALSO CONTAINING VERY FINE ALUMINUM OXIDE PARTICLES STICKS AROUND, LIKE A SMOKE CLOUD DOES AFTER A FIREWORKS DISPLAY, AND MOVES AS A UNIT, WITHOUT EASILY DISPERSING. 2. ASSUMING THE NORMAL CASE SCENARIO, WHERE LAUNCH WEATHER CONDITIONS ARE CHOSEN TO BE CALM, THEREFORE WITH MINIMUM AIR TURBULENCE, WE CAN EXPECT THE HCl EXHAUST TRAILS ACID CONTENT FORMED AS ABOVE TO RAIN ESSENTIALLY STRAIGHT DOWN FROM THE EXHAUST TRAIL SURROUNDING THE LAUNCH HAZARD AREA. ALSO, ESSENTIALLY ALL THE GASEOUS HCl CONTENT OF THE EXHAUST WILL REACT AS SOON AS IT IS GENERATED WITH THE HIGH WATER CONTENT OF OUR HUMID ENVIRONMENT, FORMING A HEAVIER HYDROCHLORIC ACID CLOUD, THAN ITS SURROUNDING AIR, AND WHEN EVEN SLIGHTLY COOLED, WILL RAIN DOWN ON OUR SHALLOW WATERS AND CORAL HEADS. THIS ACID CLOUD, BEING HEAVIER THAN A NORMAL CLOUD, WILL THEREFORE TEND TO BE LESS PRONE TO DISSIPATION BY AIR TURBULENCE, AND FALL MORE RAPIDLY. 3. SINCE MOST OF THE ROCKET FUEL IS BURNED AT THE BEGINNING OF A LAUNCH, AND THE ROCKET'S ACCELERATION IS SLOWEST AT THE BEGINNING, WE CAN EXPECT MOST OF THE HCl CONTENT OF THE PROPELLANT'S	07 08 09

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EXHAUST GASES TO FALL CLOSER TO THE LAUNCH SITE, RATHER THAN AVERAGE ALONG ITS PATH OF TRAJECTORY.			
UNBURNED PROPELLANT			
1. THE TOXICOLOGICAL EFFECT OF UNBURNED SOLID ROCKET PROPELLANT MUST BE ADDRESSED, IF THE ROCKET CHAMBER ACCIDENTALLY OR IS PURPOSEFULLY DESTROYED, ALLOWING UNBURNED PROPELLANT AND ENGINE FRAGMENTS TO ENTER INTO OUR SURROUNDING SHALLOW WATERS. A DOCUMENTED EVENT DESCRIBING SUCH AN OCCURRENCE WAS THE FAILURE OF ORIANA 5 LAUNCHED BY THE EUROPEAN SATELLITE CONSORTIUM IN FRENCH GUYANA. THE SLOW MOVING SALT WATER LAGOON SURROUNDING THE ARCHIPELAGO IS NOT TOO UNLIKE OUR SHALLOW SALT WATER SURROUNDING ISLANDS. IT WAS REPORTED, BY OBSERVERS IN THE LAUNCH AREA, THAT THE LAUNCH HAZARD AREA WAS TOXICOLOGICALLY DAMAGED, AS INDICATED BY A CHANGE IN THE WATER COLOR, ABSENCE OF FISH, AND LOSS OF PLANT LIFE.	10	WHICH MADE STUDIES, AND CONCLUDED THAT AMMONIUM PERCHLORATE IS NOT A PROBLEM IN A MARINE ENVIRONMENT. THE RUSSIANS DID NOT INDICATE WHAT KIND OF MARINE ENVIRONMENT THAT THE TESTS WERE CARRIED OUT IN. THEY MAY HAVE TESTED IN LARGE, COLD, DEEP SEA ENVIRONMENTS, NOT IN SLOW MOVING, WARM SHALLOW LAGOONS, WHERE CONCENTRATION EFFECTS ARE OF A DIFFERENT ORDER. THERE ARE NO SUBTROPICAL AREAS IN RUSSIA, AND THEREFORE THESE TESTS MAY HAVE NO VALIDITY IN OUR WATERS. ALSO, THE RUSSIANS MAINTAIN AND TOLERATE THE MOST TOXIC CHEMICAL AND NUCLEAR DUMPS IN THE WORLD, AND THEIR LOW STANDARDS FOR SAFETY CAUSE LIFE EXPECTANCIES, IN THESE AREAS, TO BE 30% LESS THAN IN OTHER PARTS OF RUSSIA. I DON'T THINK, THEREFORE, THAT WE CAN TRUST THE CRITERIA BY WHICH THEY SET THEIR STANDARDS OF SAFETY.	13(cont)
SOLID ROCKET PROPELLANT IS MORE THAN 80% AMMONIUM PERCHLORATE, A VERY POWERFUL OXIDIZER, BOUND IN A CONTIGUOUS COATING OF A POLYMERIC BINDER. THIS IS NOT A CONTINUOUS ENCAPSULATING COATING BUT A CONTIGUOUS COATING, WHICH MEANS LOTS OF GAPS SURROUNDING THE OXIDIZER. THE BINDER, IN THE CASE OF HERA, IS A POLYBUTADIENE RUBBER, AND IS VERY PRONE TO ULTRAVIOLET LIGHT AIDED OXIDATION WHERE THE COATING BREAKS DOWN, BECOMING BRITTLE. WHEN CAST INTO A ROCKET CHAMBER, WHERE UV LIGHT CANNOT REACH THE BINDER, THIS PROPELLANT HAS A PRACTICAL AGING CYCLE. HOWEVER, IF THIS PROPELLANT SHOULD BE LYING IN OUR WARM OXYGEN RICH, SUN DRENCHED SHALLOW WATERS, THE BINDER WOULD SOON BE DEGRADED, ALLOWING THE CONSTANT RELEASE OF TOXIC AMMONIUM PERCHLORATE INTO THE WATERS, LIKE A TIME RELEASE POISON PILL, FOR MANY YEARS.	11	2. THE AIR FORCE ONLY CONSIDERED THE MECHANICAL ENERGY OF IMPACT OF FRAGMENTS AND ACCOMPANYING SHOCK WAVES OF A DESTROYED ROCKET ON THE FISH OR MAMMALS IN THE VICINITY, AND NOT THE TOXIC IMPACT OF THE CHEMICALS. FURTHERMORE, GATHERING THESE CHUNKS OF MISSILE FRAGMENTS CAN BE DIFFICULT, AS THE CHAMBERS WHICH CONTAIN THE PROPELLANT ARE OFTEN MADE OF FIBERGLASS OR OTHER NON METALLICS, WHICH ARE NOT EASILY FOUND BY METAL DETECTORS.	14
STUDIES PREPARED ON BEHALF OF THE AIR FORCE HAVE CORROBORATED THAT A SLOW DISSOLUTION (LEACHING) OF AMMONIUM PERCHLORATE DOES OCCUR FROM THE HERA BINDING. HOWEVER, TO COUNTER THE DANGER OF ITS EFFECT, THEY QUOTE THE DEPARTMENT OF SANITATION OF RUSSIA,	12	OTHER ISSUES: 1.HCl ACID. AS A PARTICULATE? HCl IS A GAS IN EQUILIBRIUM WITH WATER, NOT A PARTICLE. 2.DIFFERENT GEOGRAPHY IN THE KEYS, VERSUS THE PANHANDLE.	15
	13	BOTH OUR CLIMATE AND WATERS ARE DIFFERENT, AS THE PANHANDLE OFFSHORE WATERS GENERALLY ARE DEEPER AND FASTER, AND THEY HAVE SOIL AND NO CORAL HEADS. 3. THE AIR FORCE DE -EMPHASIZES THE CORROSIVE EFFECT OF HYDROCHLORIC ACID, BY INDICATING THAT IT IS PRESENT IN ALL OUR	16
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STOMACHS. THE STOMACH HAS EVOLVED, OVER THE MILLENIUMS, TO BE RESISTANT TO ACID HYDROLYSIS, OR SELF DIGESTION, MOST OF THE TIME. NATURE HAS CAREFULLY CHOSEN HCI TO BE A COMPONENT OF THE DIGESTIVE PROCESS, BECAUSE AT A PH OF 2, IT IS ALMOST A UNIVERSAL AND POWERFUL SOLVENT, AS IT CAN HELP IN BREAKING DOWN VIRTUALLY EVERYTHING WE EAT. TO GIVE YOU A PERSPECTIVE, A PH OF 2, CORRESPONDING TO THE ACIDITY OF OUR STOMACHS, IS PRODUCED WHEN 19 DROPS OF 37% HYDROCHLORIC ACID IS ADDED TO 1 QUART OF WATER.	18(cont)	Thank You. I am Wayne Hoffman, Research Scientist with the National Audubon Society, based in Tavernier.	
HOWEVER, OUR FRAGILE ENVIRONMENT HAS GONE TOTALLY IN THE OPPOSITE DIRECTION, E.G. ESTABLISHED FOR ITSELF A BASIC OR ALKALINE ENVIRONMENT OF ABOUT PH 8, GOVERNED BY OUR CORAL BEDS, WHICH ARE COMPOSED PRINCIPALLY OF BASIC CALCIUM CARBONATE. ALL THE SURROUNDING WILDLIFE HAS FLOURISHED IN THIS ALKALINE ENVIRONMENT, AND <u>DEPENDS</u> ON IT. LOWER THE PH, AND EVERYTHING CAN CHANGE.	19	I have been a resident of the Florida keys for over 11 years, and have undertaken a variety of studies of Keys animals and plants.	01
4. HAS THE AIR FORCE EVER MEASURED THE FLOW IN OUR BACKWATER LAGOONS, CUL DE SACS, AND SHALLOW SEA GRASS BANKS, TO DETERMINE THE TRUE CONCENTRATION EFFECTS OF A DROP IN PH IN THESE AREAS? THE AIR FORCE DATA DEPENDS ON TYPICAL GULF WATER FLUSHING, SEA WATER BUFFERING, AND LARGER MIXING VOLUMES, TO NEUTRALIZE THE HYDROCHLORIC ACID. THESE LARGE WATER MIXING VOLUMES AND CURRENT EFFECTS DO NOT EXIST IN OUR BACKWATERS.	20	I understand that launches from the Keys are not currently the preferred alternative. I am happy about this, but still, I find the documentation of the risk of this alternative to our environment to be woefully inadequate. I believe it is important that the final EIS either rule out this alternative completely, or else provide accurate and comprehensive information on its effects on our environment.	02
ANY HCI ACID FORMATION CONCLUSIONS, BASED ON NEW MEXICO DATA (5% HUMIDITY), IS MEANINGLESS IN THE KEYS.	21	I will confine my remarks today to the potential effects of proposed missile launches on the natural biota of the Keys. My general message is "The Draft EIS consistently underestimates the damage to the wildlife and plants of the Keys likely to result from this proposed project."	03
THERE ARE UNCONTROLLABLE FACTORS, WHICH ARE AFFECTING OUR SURROUNDING WATERS, SUCH AS PESTICIDES, WHICH OUR GOVERNMENT OUTLAWED YEARS AGO, AND WHICH ARE STILL CARRIED BY THE CURRENTS UP FROM SOUTH AMERICA, AND KILLING OUR FISH. CORAL DAMAGING HURRICANES AND WARMING OF OUR WATERS ARE A CONSTANT THREAT. WHERE WE <u>CAN</u> PRESERVE, WE MUST DO ALL WE CAN TO SAVE OUR ENVIRONMENT, AND NOT CONTRIBUTE TO ITS DEMISE.	22	Some specifics: 1. Tables 3.2.3-1 and 3.2.3-2, on Page 3-260, are so inadequate their inclusion is puzzling. In the text they are referred to, and I quote "Other fish present in the Gulf of Mexico are listed in tables 3.2.3-1 and 3.2.3-2." These tables list 10 and 9 fish species, respectively. In fact, the northern Gulf of Mexico has over 400 resident fish species, and we have numerous additional ones here in the Keys. 2. On Page 3-372-373: The description of the vegetation of the Cudjoe ROI is inadequate. In particular the statements about the pinelands fail to recognize that these tropical pinelands are significant threatened habitats, very different from the pinelands that dominate much of the temperate southeast. About the only thing these pinelands have in common with the pinelands on Eglin Air Force Base is the presence of a pine-dominated canopy. I find it puzzling that palms are not mentioned as understory components, and the nature of the herbaceous understory is not even hinted at.	04

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The Draft of the Secondary Environmental Impact Statement is a misleading study of a unique environment. It is not applicable to the Florida Keys.		Recognizing this unique environment, the federal government, as far back as 1908, began designating refuges in Monroe County. Today, the Great White Heron National Wildlife Refuge, the Key West National Wildlife Refuge, the Crocodile Lake National Wildlife Refuge, and the National Key Deer Refuge exist here. The Key Deer and the American crocodile exist only in the keys.	02
Monroe County is a chain of nearly nine hundred islands below the Florida mainland. South of the Overseas Highway chain is the only easily accessible, shallow water, living Coral Reef in the United States.		Superimposed over all of this is the federally mandated Florida Keys National Marine Sanctuary. Established in 1990, it covers two thousand eight hundred square miles from Biscayne National Park to the Dry Tortugas and expressly forbids the type of activity contemplated in this draft.	03
Wrapped around these islands lie 250 square miles of low water and wild mangrove islands providing a life-sustaining nursery for marine and bird life.		This is the only county in the continental United States in a subtropical zone with consistent high humidity. The keys lie in the northern trades and enjoy the highest, daily averaged, sustained winds in the continental United States.	04
North is Florida Bay, already under intense scrutiny by state and federal pollution control experts for over a decade.		Hosts of endangered marine life, attempting to make a comeback, exist in our near shore waters and around the coral reef. On land surrounding the proposed site, the endangered Silver Rice Rats habitat extends from Cudjoe to the Saddle bunch keys and no where else. The endangered Florida Marsh Bunnies habitat extends from Big Torch to the Saddlebunch and is the rarest mammal in the keys.	06
The ecological environment here is so fragile, that the state of Florida has declared Monroe County an Area of Critical State Concern. Our water quality, population density, traffic density, land use, marine resources, and EVEN our rate of growth is severely regulated.	01		
This is the only county in America primarily made up of islands, strung together by 41 bridges, for 120 miles, with ONE road. Imagine where you live with all of the vehicular traffic necessary for your daily existence confined to ONE road. Now add all your water supply and electrical power to that same, mostly two lane road and you have the reality of our daily lives.			

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The last remaining stands of tropical hardwood hammocks are on Cudjoe Key and Sugarloaf Key. Pine rockland is unique in the world, a globally endangered ecosystem lying alongside the launch hazard area boundary on Sugarloaf Key.

Wetlands surround both proposed sites so that any mishap will spill directly into the marine environment affecting fish, invertebrates, and defoliating the native flora.

In recent letters to Congressman Deutsch, General Lyles, director of BMDO, stated that the land launch alternative, from the Florida Keys, is "unlikely to be approved" in his final decision. Admiral West, deputy director of BMDO, listed launches from this area as "other alternatives being analyzed."

We believe that the launching of missiles from the Florida Keys should not be an alternative and suggest you amend the draft to state exactly that.

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Good Evening Ladies and Gentlemen,

Thank you for taking the time to listen to our input on this important issue. I have come here tonight wearing a variety of hats, and I would like to begin by reading into the record, a resolution passed by the Florida Keys National Marine Sanctuary Advisory Council on which I sit as the Florida Keys dive industry representative. (read resolution)

The second item I would like to read for the record is a letter from the Professional Association of Dive Instructors, the largest certifying agency in the world. (read letter)

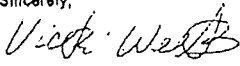
Finally, I would like to speak as a resident of the Florida Keys and a citizen of this great country. In a letter to Rep. Peter Deutsch, dated November 24, 1998, Lieutenant General Lester Lyles wrote "The Keys target launch sites are a technically viable alternative and will still be under consideration in the Supplemental EIS. However, Keys target launch sites are no longer part of the Proposed Action. The Keys (and the sea launch) target launch alternatives are unlikely to be approved in my final decision, unless operational and testing requirements change. He also wrote "only in an emergency threatening our national security would I consider changing the Proposed Action", referencing his decision to establish a new Proposed Action stating that launching targets from the southern Gulf would be from aircraft.

It is not that I doubt Lieut. Gen. Lyles sincerity, but it is precisely this type of statement, which I have heard expressed in a number of forums, from a number of personnel involved in this process, that I find unsettling. Perhaps we can call it the Watergate syndrome, or maybe the Ollie North - Iran/Contra syndrome, or maybe just a healthy scepticism that has derived from any one of a number of other ^{questionable} government actions that occurred under the aegis of national security concerns.

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	P-W-0010 COMMENT NUMBER		P-W-0011 COMMENT NUMBER
As we evolve away from a cold war mentality and economy, perhaps it is time we began working on a definition of national security that lends more weight to the stability and economic impact generated by long term sustainable resource utilization than to the theatrics of the latest, formerly in favor, currently out of favor, arms industry customer. According to data compiled by the Natural Heritage Data Base for the Nature Conservancy, there are 13 animals listed as of state special concern, 11 animals and one plant on the state threatened species list, 7 animals and 27 plants on the state endangered species list, as well as 11 animals and one plant on the federal threatened or endangered lists, all within a five mile radius of the proposed missile site. In an area whose economy is directly based on natural resource based tourism, the loss of even one of these species would be unfortunate indeed. Even if there is never an accident or misfiring, the toxic by-products released into the air and waters surrounding the proposed sites, have absolutely no potential upside with regard to the health of our fragile environment. They may cumulatively act to push one or more species over the brink of extinction. Neither our environment nor our economy can afford a further loss of diversity and the resulting ecological imbalance. I would ask that you move to permanently remove the Florida Keys from any future Proposed Action regarding the establishment of missile test sites. Thank you for your time. Sincerely,  Vicki Weeks	04 05 06 07	RESOLUTION by the Florida Keys National Marine Sanctuary Advisory Council Now be it resolved on this twelfth day of March, 1998, by the Sanctuary Advisory Council to the Florida Keys National Marine Sanctuary, that... Whereas the proposed or contemplated launching of target missiles from land sites in the Florida Keys or waters within the boundaries of the Florida Keys National Marine Sanctuary is incompatible with Public Law 101-605 (H.R. 5909), SEC. 3.(a) which states it is the policy of the United States to protect and preserve living and other resources of the Florida Keys marine environment, and Whereas the United States Department of Defense has issued a draft supplemental impact statement contemplating the Florida Keys as a site for launching target missiles, and Therefore, the members of the Sanctuary Advisory Council oppose said missile launching, and Further, the members of the Sanctuary Advisory Council do hereby make the following recommendation to Sanctuary Managers: Send a formal request to the United States Department of Defense to abandon all proposed or contemplated plans for future launching of target missiles from land sites in the Florida Keys or waters within the boundaries of the Florida Keys National Marine Sanctuary. This action must take place prior to April 3, 1998, when the comment period for the impact statement closes.	01 02

P-W-0012
COMMENT
NUMBER

Drew Richardson
Senior Vice President,
Training, Education and Memberships



11 March 1998

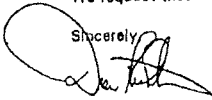
Thomas J. Kennedy, Major
USAF
Director of Test, Theater Missile Defense
48 OG/OGM
205 West Avenue, Suite 241
Eglin, AFB FL 32542-6868

Dear Major Kennedy:

On behalf of the Florida based recreational diving community of dive centers and instructor members of the Professional Association of Diving Instructors, I wish to express our official opposition to the proposed Hera Class ballistic missile launch sites on Saddlebunch and Cudjoe Keys, which are on the edge of the Great White Heron National Wildlife Refuge and pose a negative environmental impact to the area.

We request that the project be re-examined in this context for an alternate solution.

Sincerely,


Drew Richardson
Sr. Vice President
PADI Worldwide Corporation

DR:pt

cc: The Honorable Lawton Chiles, Governor, State of Florida
Representative Peter Deutsch
Representative Debbie Horan
Senator Daryl Jones
Senator Connie Mack
Senator Bob Graham
Lt. General Lester Lyles
Ms. Janet Tucker, Eglin Air Force Base, Office of Public Affairs
Bob Harris, Esq.
Vickie Weeks

PADI WORLDWIDE CORP. 1251 East Dyer Road #100 • Santa Ana, CA 92705-5605 U.S.A. • 800.729.7234 • 714.540.7234 • Fax 714.540.2608
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P-W-0013
COMMENT
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Drew Richardson
Senior Vice President,
Training, Education and Memberships



11 March 1998

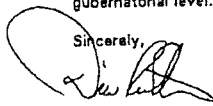
FAX: 305-292-5019 17

Ms. Vickie Weeks
Ms. Sheri Appelis
Mr. Howard Singer, President
Key West Association of Dive Operators
Environmental Committee
c/o Captain's Corner Dive Center
511 Greene St.
Key West, FL 33040

Dear Vickie:

Enclosed please find a copy of a letter sent by PADI expressing official opposition to the missile launch test site plan. We are in close communication with our lobbyist Bob Harris, who is responding on behalf of PADI and our members at the Congressional and gubernatorial level.

Sincerely,


Drew Richardson
Sr. Vice President
PADI Worldwide Corporation

DR:pt

cc: Mike Kurczewski

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P-W-0014
COMMENT
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March 12, 1998

Comments on the Draft TMD Extended Test Range SEIS-Eglin Gulf Test Range
from Robin Orland, member Board of Directors of Reef Relief
(Comments to be put into the public record)

The SEIS is entirely inadequate to address the specialized environmental concerns of the Florida Keys. It fails to establish background ecological parameters based on local studies or to realistically represent the overall impacts of TMD testing in the Keys. For example:

~ The SEIS concludes that missile launches will be isolated events with temporary impacts, at the same time stating that each launch requires a thirty day preparation period followed by a two to five day cleanup. With as many as 24 annual launches proposed, it doesn't take a rocket scientist to figure out that this amounts to a continuous occupation and disturbance of launch support sites. These are not temporary impacts.

~The majority the SEIS's conclusions are based on data from previous studies done far outside of the Florida Keys. Air Quality findings derive from Open Burn Open Detonation Modeling conducted in the Utah desert. This methodology has no EPA approval in the first place and it is difficult to think of an environment more unlike the Keys in terms of moisture, which is the determining factor in calculating how much hydrochloric acid will "rain out" from launch exhaust emissions. (To quote, "because missile systems associated with the proposed action do not use excess water, it is assumed that no more than 20% of the total hydrogen chloride would be converted into acid".) How accurately this scenario models launches that will be 100% surrounded by seawater and conducted in a humid environment isn't examined.

~The SEIS describes the launches as "discrete air emissions events" yet each launch generates 13,800 lbs of total exhaust, including 221 lbs of hydrochloric acid. Multiplied by 12 monthly launches, at least 2,650 lbs of corrosive acid would be entering our fragile environment each year. The SEIS characterizes this as "temporary short term increases in water acidity." It also notes that "acidification of water generally results ...in lower oxygen levels." Yet no data is provided to evaluate the oxygen requirements of seagrass beds, mangrove nurseries or other potential aquatic receptors or how they will be affected. This is a glaring oversight in light of the ongoing eutrophication problems that have been experienced in Florida Bay and nearshore waters and the tremendous efforts and expenditures that are being made to understand and correct these problems.

~Furthermore, the SEIS states that because the Key's major coral reef tracts are located on the Atlantic side, they fall outside of the "Region of Influence" affected by launches. This does not take the well documented tidal flushing of Bay waters out across the reef tract into account. Any degradation of Bay water quality has the potential to impact sensitive reef ecosystems.

~The general conclusion of the SEIS regarding acidification and other environmental impacts resulting from launches can be summed up "dilution is the solution to pollution." In a fragile ecosystem such as the Keys that is already coping with the impacts of coastal development and agricultural pollution, the dilution potential has been exhausted. Impacts from missile testing such as the reduction in dissolved oxygen will only serve to accelerate the cascade of coastal eutrophication and other risks to this ecosystem. This is not an acceptable alternative.

Speaking on behalf of the Board of Directors of Reef Relief and thousands of our local and national members who deeply value the unique and irreplaceable natural resources of the Florida

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Keys and who believe that this ecosystem deserves the highest level of protection, we ask that you once and for all remove the Keys from any potential or alternative missile launch site lists. The SEIS doesn't begin to adequately research or address the complex needs of our diverse ecosystem and the costs of conducting adequate, accurate research would be prohibitive. Missile testing produces no benefits and many deficits for the ecological, economical and cultural resources of the Florida Keys; this is a Sanctuary, not a test range and we ask that you respect that reality and the fact that many people have worked for years to preserve and protect these islands and their surrounding waters. Those people will never give up the fight against missile testing in the Keys.

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Comments by Dennis Henize, on SAFETY - LAUNCH HAZARD AREA, NOISE IMPACTS, AIR QUALITY, VISUAL IMPACT (TMD EIS Public Hearing, Marathon, Florida, March 13, 1998)

At last night's hearing in Key West, I said that the 6,500 foot Launch Hazard Area for Hera launches in the Keys is not large enough. I cited a recent study prepared by a senior staff scientist at the Union of Concerned Scientists and MIT, which concluded that in some plausible mishaps, debris could travel 2 or miles from the launch site, well outside the LHA.

The red shaded area at the bottom of the LHA is the area carved out of the LHA because my wife and I and 22 other families live there.

And I stated that the LHA *should* take into account, but does *not*, at least two other launch hazards *that are identified in the EIS*: compression waves from potential explosions, and chemical clouds from potential combustion accidents. The Draft SEIS acknowledges that launch pad explosions could cause overpressures of 2 pounds per square foot at a distance of 1.9 mile, enough to cause minor structural damage. At least 23 homes are closer than that.

With respect to chemical clouds resulting from potential combustion accidents, the Draft SEIS acknowledges that the *highest concentrations* of hydrogen chloride would fall *outside* the Launch Hazard Area. In fact, results of the EPA-approved model used to estimate HCl concentrations showed levels in excess of the Short-term Public Emergency Guidance Level, at distances of 2 and 3 miles from the launch site. Then a "more refined" model was used, one not yet approved by EPA or the state of Florida, and wouldn't you know it, it shows the HCl levels *below* the guidance level. But very significantly, even the more refined model still shows that the highest concentrations fall *outside* the LHA. Given that fact, and that there is not agreement on the exact amounts, it is obvious that the LHA is insufficient to encompass this hazard.

The LHA should be sufficiently large to encompass the full extent of *ALL* the launch hazards identified in the SEIS, which it definitely does *NOT*. Sixty-five hundred feet is not sufficient, much less conservative.

NOISE-

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The Draft LHA cites plenty of technical information about noise, but obscures the issue by using methodology that looks at the impact of missile launch noise *averaged* over long periods. The Draft SEIS also considers "sensitive noise receptors", the Sugarloaf School and a day-care on Cudjoe, 3 or more miles away, and ignores that hundreds of homes are closer than that, some as near as 1.5 mile. And using very bizarre methods, it concludes that the percentage of Cudjoe residents who would be "highly annoyed" by noise from missile launches are *already* "highly annoyed" by everyday sounds. That's nonsense. The SEIS also says that ambient noise on Cudjoe is from aircraft, while, in fact, *very few* aircraft fly over Cudjoe, especially northern Cudjoe, because of restricted airspace surrounding the aerostat.

VISUAL AESTHETICS-

What can be said about something so subjective, except that the SEIS rates the view of the backcountry from the Blimp Road boat ramp as "minimal" as it is now. This artist's rendition doesn't show the aerostat because it's usually flying. Rating this view as "minimal" underscores just how little appreciation for the Keys the preparers of this document have. The Draft SEIS then concludes that this view, having sprouted a missile facility, will retain "moderate" visual integrity. I don't think so.

This is not an *impact* statement at all. It underestimates impacts on human safety, and it does not even attempt to seriously examine long-term effects on ecosystems peculiar to the Keys. With respect to several critical issues, it is merely a statement of wishful thinking.

The Final EIS should eliminate the Keys as even an alternative, as the Draft SEIS does NOT support its findings of negligible impacts.

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limited to nonexistent, however what is there, is crucial to the existing wildlife.

Sea-water:

Although no environmental studies have been identified which specifically evaluate the fate of ammonium perchlorate, in the marine environment, in one study, involving propellant submerged in seawater, the penetration was about one-half inch per month. What about after ten years?

The seagrass beds and scattered coral heads are extremely sensitive habitats for a wide variety of aquatic organisms, including several Federal and state listed species of mammals, turtles, and fish.

Launch Mishap:

An early flight termination of a Hera target missile could result in the second stage booster impacting within the LHA, or elsewhere. This second stage booster... could explode on impact. The amount of energy from the explosion that is propagated underwater could injure marine mammals in the vicinity. The threshold of effect on marine mammals is still under analysis.

Noise:

Birds: (Remember these launches are to be at night)

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Short duration high intensity noise levels could cause roosting birds in the area to flush off their nests.

The nearest eagle nest is approximately 4 Km away – 103dB.

The increased activity at the site may result in a temporary disturbance to wildlife in the area, particularly those species that use the mangroves, tidal marsh, and shallow nearshore waters in the immediate vicinity of the launch site, such as turtles, various protected wading and shore birds, and the white-crowned pigeon.

The launch noise would generally extend over a 5.6-mile radius and may cause nesting and foraging birds to react by either becoming alert or temporarily leaving nests.

The nearest rookeries for colonial nesting birds on Little Crane, Sawyer, and Johnston keys are located 3.4 to 4.3 miles from the site and would experience peak noise levels of 93 dB. Riding Key (northwest of Cudjoe Key) is the fifth most important nesting site for great white herons. Missiles will be at least 6,562 feet above any rookeries. (115 dB)

Due to the approximately 60 second duration of the target launch noise, the only animals that would likely be

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affected are <u>those within the 90 dB and greater contours.</u> <u>(Not shown)</u> <i>ON THEIR CHART</i>	03	Cudjoe Key would not exceed 12 per year. This basically assures <u>permanent duty for ten years.</u>	08
Sources of ambient noise at the proposed Cudjoe Key launch site include aircraft traffic from the NASKW airfield and the Key West International Airport. Noise contours from the 1989 NASKW study show that the smallest contour in the study <u>does not overlay the Cudjoe Key noise ROI.</u> You can't have it both ways! <u>The study stopped 9 miles short of Cudjoe Key.</u> Air traffic is further limited over the Cudjoe launch site by Restricted Area 2916, which keeps aircraft away from the blimps.	04	Potable water for Cudjoe Key shows a 395% increase. Wastewater is assumed to be the same quantity as potable water.	09
<u>Turtles:</u> As launch preparation activities would be done primarily during night time hours, sea turtles coming on shore at night to nest at Sawyer Key, 4.3 miles from the site, could be minimally affected - <u>95 dB.</u>	05	<u>Other Errors and Inconsistencies:</u> The mainland portion of Monroe County includes Everglades National Park, the Big Cypress National Preserve, and the City of Miami. <u>Wrong!</u>	10
There is some chance of some debris washing onshore after launches. Such debris <u>could entangle or harm wildlife.</u>	06	The Cudjoe Gardens Marina is located 1.9 kilometers southwest of the Cudjoe Key site and includes six boat ramps and a marina. <u>Wrong twice!</u>	11
<u>Port-a-potties:</u> For 30 days before a launch, test personnel would be present at the site. The total number of launches at	07	The conversion of Kg to pounds for aluminum oxide in the table on 3-14 is <u>incorrect.</u> This error is carried forward.	12
		Missiles would <u>not be shipped with initiators or other explosive devices.</u>	13
		The Hera missile is considered a <u>D.O.D. Class 1,1 Explosive</u> – these represent an explosion hazard that affects almost <u>the entire load instantaneously.</u> Proposed TMD target vehicles include various components and rocket motors that <u>are considered explosive materials.</u>	14

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The worst case scenario would involve a booster with DOD class 1.1 explosives, such as the second stage of the Hera missile, which is shipped with the destruct assembly attached. In the remote event of a severe accident, there is potential that a DOD class 1.1 missile component could detonate, initiating the destruct system and burning the propellant and releasing hydrogen chloride.

Safety:

Monroe County Emergency Planning will respond to any significant event, which would include all locations within approximately 1,000 feet of U.S., 1, and any secondary connecting roads, bridges, and adjacent locations along selected shipping routes.

A transportation mishap could knock out our telephone, cable TV, electrical power, water, food supply and means to evacuate, since all of these are within 1,000 feet of U.S. 1, and along the entire transportation route.

Emergency Response Plan: Appendix J does not cover Cudjoe or Saddlebunch, only Eglin AFB. Eglin AFB has the following resources available:

1. An on scene commander,
2. Crisis action team,
3. Initial response element,

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Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)

Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

1) It's not true that the Florida keys is an area with low density of population because millions of tourists come to visit the Florida keys and the cities that are on the Gulf side. Please see the statistics about.

2) It's not true that the disturbance to wildlife is temporary because it will start from the time that started the site preparation and will last for years after the last launch. Animals are not like robots, you cannot push a button to ask them to leave and to come back. Everyday we can see dolphins and whales that lose their bearings, apparently, and go on the beaches. We saved dolphins

Please place form in the comment box or mail to:
Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

Printed on recycled paper

March 1998

① Jaime Tecoloco Rehorio
ph. 305.745-1412
781 Superloop Blvd
33042 Suwannee AFB, FL

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Comment Sheet

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of dolphins between Key West and Sugarloaf. The noise and the pollution of the water are their problems.
3) It's not true that the deposition of aluminum oxide and hydrogen chloride on soil will be small because the rain can bring the depositing materials into the shallow water of the Gulf and will last here forever and will grow in quantity from the first launch to the last. Fishes will be contaminated and all the food chain will be affected. Don't we have enough cancers and leukemia nowadays? People come here to recover their body from the polluted areas where they

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Francisco Roberto

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live; everybody knows how hard is the life in the big cities everywhere in the world. It's important the quality of the life and if we lose our clean air, water, wildlife, food; we lose our life and the missiles will not have the power to give back what we are going to destroy now.

4) The Gulf of Mexico is the only sea that America has; it looks like the Mediterranean sea because it is a small area and anything happens in the air, in the water, on the coasts, stays there forever. The coast and all the ecosystem will not be the same.

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Comment Sheet

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5) It's not true that the water acidity will increase for short time because the air will be polluted and the rain will be acid too. I can see in Italy and in other European countries, hundreds of chestnuts destroyed by the acidity of the rain. It took centuries to have the beautiful forests of these wonderful chestnuts and in few years big areas show just dead trees. The soil and the rain are so acid that it's impossible to grow the chestnuts again. What about our mangroves here?? In the world the mangroves you can see mangroves, like in

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46 OG/OGM-TMD
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March 1998

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Comment Sheet

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Florida are very little. Just few areas in Australia and in Bordeaux. It's enough to see the Hong Kong area, it talks by itself. The air is important because when it is polluted, the rain is polluted too, the clouds are polluted and the wind brings the clouds everywhere (in the everglades also). So I say that this Action is wrong in the Gulf of Mexico and not only in the Florida Keys.

6) It's not true that it will be just a temporary impacts on commercial fishing, shipping and recreation in CMA because in few months we can loose the quite atmosphere

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46 OG/OGM-TMD
205 West D. Ave, Suite 241
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March 1998

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Comment Sheet

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of the Gulf of Mexico. People come from north America & from Europe to snorkel, swim, dive, watch the wild life, relax and hear just the noise of the nature: wind, birds. Try to think about somebody that is planning his vacation and knows that the Gulf of Mexico is the place where the missiles fly in its sky. I'm quite sure that it will be the ruin of all the commercial activities of the area.

And now just few words about myself:
I live in Superlago since 5 years ago but just for 6 months a year. My husband and I came

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46 OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

Giuseppe Lodigiani

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March 1998

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here after that my husband had his heart married transplant in Seattle, WA. His doctor told him that to completely recover a warm winter and no pollution should be the best. So we came and bought a lot and built our first house, in order to obtain, from US government, a visa that allows ^{foreign people} to spend more months in the states, we bought another house and we're building the third one so we could have a E-2 visa as investors. That visa consents us to spend all year in Florida and live once a year. We invested all our money in this country for two good reasons:

- ① Very grateful for the new life that Alberto had after his transplant, from doctor Paul Weiden of Virginia Mason in Seattle.
- ② The Florida Keys are the last Paradise under the American flag. We do love this country, Alberto says that he's half American and half Italian but, if the Gulf will be polluted, we have to see everything and to leave because Alberto's immune system doesn't work right in presence of pollution and we don't want that he can relapse.

Giuseppe Lodigiani

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And what about the little children. Their immune system is very fragile too, not everybody can have the same effects in polluted areas. The ecosystem is innocent and fragile like a newborn baby and cannot defend itself. Everything on our planet is in danger if we don't take good care.

I do apologise for my English and I hope it's enough understandable.

God bless you and help you to take the right decision about (I'll pay for that)

God bless ^{the} UNITED STATES OF AMERICA.

Thank you very much
for your kind attention

Sincerely

① Giulio Ladislao Rocco

8 March 1998

Comments on the Theater Missile Defense Extended Test Range
Draft Supplemental Environmental Impact Statement (DSEIS)

1) Eglin Gulf Test Range (EGTR) capabilities

Section 1.3 asserts that EGTR has the capability to fill a gap in testing against mid-range targets and offers "a unique capability" for testing new TMD systems. However, tests against mid-range targets with intercepts over water were already envisioned for the Kwajalein Missile Range in the 1994 TMD Extended Test Range EIS. (See Fig. 2-2.30). These tests would have involved sea-launched targets, which is one of the alternatives considered in the DSEIS. Presumably air-drop or air-launch targets could also be used at the Kwajalein Missile Range (KMR) and at the Pacific Missile Range Facility (PMRF). The final SEIS should discuss these other options and compare their impacts with those at EGTR.

The only capability at EGTR that does not exist at KMR appears to be for land launches of both targets and interceptors for targets with ranges about 800 kilometers. This would require launches of targets from the Florida Keys, which is not part of the preferred alternative of the Proposed Action. In fact, the 24 Nov. 1997 letter to Florida Rep. Deutsch from the Ballistic Missile Defense Organization (BMDO) Director Gen. Lester Lyles stated that launches from the Keys "are unlikely to be approved in my final decision." The final SEIS should include a copy of Gen. Lyles' letter along with a detailed justification for not selecting the Keys as launch sites.

2) Treaty restrictions on targets launched at sea

The DSEIS mentions test restrictions from the START Treaty. On page 2-10 it is asserted that the START bans target launches from sea-based platforms. On page 2-17, it is stated that targets launched from ships would have to have ranges less than 600 kilometers to comply with START. This apparently refers to START Article V, paragraph 18a, which prohibits tests and deployment of "ballistic missiles with a range in excess of 600 kilometers, or launchers of such missiles, for installation on waterborne vehicles, including free-floating launchers, other than submarines." However, the DSEIS does not mention restrictions from the Intermediate-Range Nuclear Forces (INF) Treaty, which appear to impose even tighter constraints. In particular, INF Article VII, paragraph 12d restricts launches of intermediate-range missiles used for research and development so that "the launchers for such booster systems are fixed, emplaced above ground and located only at research and development launch sites which are specified in the Memorandum of Understanding." The Jan. 1994 TMD Extended Test Range EIS does explicitly refer to the INF restrictions in the following statement on page 2-10:

"In order to comply with the Intermediate-Range Nuclear Force (INF) Treaty, mobile and fixed sea launch platforms for targets would be located no more than 500 km (311 mi) from the planned target impact point."

The final SEIS needs to address these INF restrictions.

3) Treaty restrictions on air-drop targets

On page 2-15, the DSEIS states, "Current treaty interpretations allow air delivery of targets from less than 600 kilometers (372.8 miles) from the predicted impact point if no intercept occurred." The final SEIS should explicitly indicate what treaty is being

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interpreted and explain why the requirement for a fixed launcher in INF Article VII, paragraph 12d does not prohibit air-drop launches with range greater than 500 kilometers.	04(cont)	sites shown in Figs. 2.1.3-2 through 2.1.3-5.	
4) Treaty restrictions on air-launch targets On page 2-17, the DSEIS discusses use of the Pegasus missile, which is launched from a cargo aircraft and has a wing that provides lift while the first-stage rocket motor provides thrust. It is stated that, "The wing design of the Pegasus allows for lift after the missile is released from the aircraft, which complies with current treaty interpretations." The final SEIS needs to indicate what treaty is being interpreted and discuss the interpretation in more detail. The statement in the DSEIS may refer to the ban on air-to-surface ballistic missiles (ASBMs) in START Article V, paragraph 18d and also to the Fourth Agreed Statement, which indicates that the ASBM definition "is not intended to describe any missile that sustains flight, or any missile the payload of which sustains flight, through the use of aerodynamic lift over any portion of its flight path." However, use of Pegasus to deliver targets with ranges between 500 and 5,500 kilometers appears to violate the INF Treaty requirement that the launcher be fixed. In addition, because Pegasus has the capability to place objects into orbit, it would appear to have the capability to deliver targets with ranges greater than 3,500 kilometers and with re-entry velocities exceeding 5 km/sec. Such targets are not allowed for TMD tests by the ABM-TMD Demarcation Agreements signed on 26 Sept. 1997. The final SEIS needs to discuss INF and ABM-TMD Demarcation restrictions on use of Pegasus for TMD tests.	05	8) Analysis of previous accidents as possible launch failures Section 2.1.3.3.7 of the DSEIS indicates that advance planning for "mishaps" is done and that the Range Safety Officer can terminate the flight of an off-course missile using the Flight Termination System. However, safety systems can malfunction and people can make mistakes so it is useful to examine past launch failures and analyze the impacts of similar failures for target launches at the sites considered in the DSEIS. Two failures which seem relevant are the 20 Aug. 1991 Aries failure at Cape Canaveral and the Minuteman failure at Vandenberg AFB on 15 June 1993. The Aries missile went off course by nearly 90 degrees but the Range Safety Officer did not activate the flight termination system until 23 seconds after liftoff. The report (Red Tigress Incident Report dated 23 Aug. 1991) on this failure indicated that pieces of debris fell on land as far as 13,500 feet from the launch pad. The Minuteman at Vandenberg AFB did not pitch to the west as planned but instead continued vertically upward after liftoff. The Range Safety Officer terminated the flight at 8 seconds and pieces of flaming debris (including the 2nd and 3rd stages) hit the ground about 5600 feet south-east of the launch pad (i.e. in the direction mostly opposite to the intended trajectory). According to newspaper reports, the brush fires started by this debris burned 400 acres on base plus 600 acres off base. A failure like this for a launch from Santa Rosa Island could have devastating consequences for the residential areas on the coast north of the island, which are about 1.5 miles from the launch pad. (See Fig. 3.1.7-2.)	09
5) Missile reliabilities The DSEIS contains no information about the failure rates of the missiles that would be used. The final SEIS should include this information and estimate the probability of a launch failure for the 240 tests over the 10-year period being used to estimate cumulative impacts. Publicly-available information indicates 1 Hera failure (in the 8th test on 17 Nov. 1997) in 8 launches. The Orbital Access web site table "Pegasus Mission History" indicates 2 failures and 1 "Mixed-Result" in 20 launches.	06	9) Target missile reentry vehicles On page 2-43, the DSEIS gives a typical target reentry vehicle mass as 2,400 kg. This hardly seems typical for intermediate-range missiles. For example, page 1-5 of the 1994 TMD Hera Target Systems Environmental Assessment gives a mass of 820 kg for the Hera ballistic target vehicle. The final SEIS should give the masses of the reentry vehicles for the various target missiles considered.	10
6) Explosive Safety Quantity Distance (ESQD) Page 2-32 of the DSEIS gives the ESQD as 950 feet and Fig. 2.2.2-3 has an ESQD circle of radius 950 feet around the potential target launch pad on Cudjoe Key. These ESQD's conflict with the value of 1,250 feet for the Hera missile given on page 1-29 of the 1994 TMD Hera Target Systems Environmental Assessment. The final SEIS needs to explain why the ESQD was reduced.	07	<i>Michael Jones</i> Michael Jones Dept. of Physics & Astronomy Univ. of Hawaii 2505 Correa Road Honolulu, Hawaii 96822	
7) Launch Hazard Areas (LHA) The final SEIS needs more detailed discussion of how the LHA boundaries were determined. This is particularly necessary whenever the distance between the launch pad and the LHA boundary is less than 7.2 km, which is given as the nominal LHA radius for Hera in three previous environmental analyses. (See page 2-16 of the 1994 TMD Extended Test Range EIS, page 1-30 of the 1994 TMD Hera Target Systems Environmental Assessment, and page 1-21 of the 1994 Wake Island Environmental Assessment.) The final SEIS should indicate how quickly the Range Safety Officer needs to send the signal to the flight termination system so that debris from an off-course flight will be contained within the shortest distance from the launch pad to the LHA boundary at the four target launch	08		

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

Dear Ms. Ninh,
I submit this letter as a plea to
reconsider the proposed site or buffer
let alone the wild life and endangered
species what about us humans
that would potentially be impacted
by missile pollution from blast, let
alone the noise to our ears.
We would love to live out our lives
in our home in Cedar Gardens, please
let this be possible. Sincerely,

Please place form in the comment box or mail to:
Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

Mrs. Suzanne L. Hermer
21091 Beret Ave East
Cedar Key, Florida
33042

Printed on recycled paper

March 1998

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TRANSPORTATION

Elizabeth S. Cofer

I and my friends and neighbors are pleased that the land missile launch from the Florida Keys is not presently under active consideration. However, an Environmental Impact Statement (draft) has been prepared and public hearings are being held. It appears to me and others that the door has been left open a little bit at the present time and possibly more open as to the future.

I think the Keys will become much less desirable as a launch site in the future as our traffic and environmental problems are getting worse rather than better. We are already designated by the State of Florida as an Area of Critical Concern. We are in a National Marine Sanctuary as well as a Wildlife Refuge for the Great White Heron. The current Environmental Statement (EIS) falls short of answering questions we have regarding these sensitive areas as well as many other concerns.

Very little information was given and little attention paid, or so it appears, to the transportation of the missile from Florida City to the proposed launch site. U. S. 1 is referred to as the principal artery into the Keys when in fact it is the ONLY artery into the Keys. The word artery might well be replaced by path as the traffic is so heavy at times that it is stopped or moves at a crawl. We fear that vital travel would be delayed by the missile convoy: such as fire fighting equipment; emergency medical vehicles; police response and necessary medical travel. Our services available to deal with any emergencies are limited: there are only two hospitals along this route (plus one in Key West) and all the fire departments located along this route are volunteer in nature. The EIS states that emergency vehicles will be let through.

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The question then becomes HOW and WHERE? The road has 25 miles of four lane roads and 95 miles of two lane roads. There are 39 bridges as well which allow little or no room for passing of emergency vehicles. Has consideration been given to the special problems that might occur during hurricane season? Would the keys be able to be evacuated without delay?

Is there danger of a fire or explosion while the missile is in transit in the event of a collision with another vehicle? If yes, could this damage a bridge? Our bridges are our life line, among other things carrying our only fresh water to us. All our utilities are vulnerable in this scenario as well as our food supply. The EIS has a description of a fire fighting plan, but it appears to be one of Eglin Air Force Bases' plans. Will fire fighting equipment from Eglin accompany the convoy?

Another concern is the absence of a current traffic study in the EIS. Extrapolations are made from older studies that may well have been extrapolations themselves. For example, the EIS predicts that the traffic in the year 2005 will be up 18% on Cudjoe Key, down 9% on Summerland Key and down 11% on Big Pine Key. Essentially the same traffic is on this entire stretch. And if the traffic EVER goes down on Big Pine, it will be amazing as well as a miracle. Our traffic is very heavy now and getting worse every year. Over half our population excluding Key West centers on U.S. 1 and it is our only way out.

Other questions not answered are how fast will the convoy be traveling? what time of day or night will this travel take place? Has thought been given on how to handle civil disobedience should it occur? It seems obvious to me that the EIS is seriously flawed, inadequate and incomplete.

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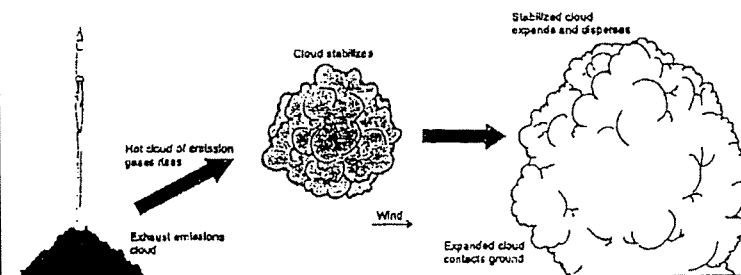
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DAVE MUSSELMAN C6 P0A



Not to Scale

Representative
Exhaust Plume

Figure 3.1.1-2

Draft TMD ETR SEIS - Eglin Gulf Test Range

3-15

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{Note: The use of braces, "{}" indicate the authors comments. A series of periods, "... " indicates a break in the text. Brackets "[]" indicate other references, and references to Draft SEIS pages are enclosed in "()" parenthesis. Please take note the words, "can, may, might, could, should, etc., throughout the text of the SEIS. They imply uncertainty; and indicate the need for further study. The term pH is used to denote the strength of acids and alkalis. A pH of 7.0 is considered neutral. The more acidic, the lower the pH; the higher the pH the more alkaline. Zero is the lowest number and 14 the highest. Each single number of increase or decrease indicates ten-fold change. That is a pH of 4.0 is ten times more acidic than a pH of 5.0. Purpose: The purpose of this presentation is to show that even the Draft SEIS demonstrates that a launch from the Keys is unthinkable. It is likely that a single launch would produce more hazard to the population, human, animal and plant, than that which all of the environmental restraints placed upon us, the citizens, would or could produce in many years. The factual conclusions of the SEIS clearly demonstrate that the mitigation summary is wrong. It is wrong because of a lack of factual data derived from this environment, lack of understanding of the geography of the Keys, and our dependence on the U.S. 1 centered life-link. It is not the purpose of this presentation to humiliate the BMDO, but rather to emphasize the conflicting data in their own study. It is understood that the airforce and BMDO have a need for this project. However, the Keys and the Gulf of Mexico should be ruled out as a setting for these tests. The commerce, delicate waters surrounding the Keys, and proposed flight path dictate a reevaluation of the entire project utilizing the Elgin Test Range. Other testing ranges are available.) [From: <u>TOXICSA TO Z</u> - University of California Press - 1991] ALUMINUM - Patients undergoing kidney dialysis suffered dementia when using water in the machines from which the aluminum had not been removed. It was found that patients suffering from Alzheimer's disease had high concentrations of aluminum in their brains. It is suspected, although not yet proven, to be a factor in the development of this disease. Aluminum does not dissolve readily in water that is neutral in acidity, but as water gets either increasingly acidic or alkaline, it dissolves more readily and therefore	01 02 03 04 05 06 07	becomes more mobile in the environment. Such would be the case caused by the acid rain produced by a launch. High aluminum concentrations have caused massive fish dieoffs. When this happens it is practically impossible to reestablish populations because of the changed water chemistry and absence of food sources HCL - Hydrogen chloride will dissolve in water to form hydrochloric acid. Hydrochloric acid is a strong acid. It is not uncommon for neighborhoods or even whole towns to require evacuation during a spill. At concentration levels below the threshold for smell or taste, hydrochloric acid can cause sneezing, laryngitis, chest pain, hoarseness and a feeling of suffocation. Skin burns, inflammation, and ulceration of the nasal septum can also occur. Hydrogen chloride gas rapidly turns to hydrochloric acid on contact with moisture on the skin, in perspiration and in mucous membranes. Most of the ensuing damage is caused by the acidity, which can often be tasted as a sharp stinging sensation even before it can be smelled. Irritation is mainly to the eyes, nose throat, and airways, but also to the mouth and skin. Hydrogen chloride and hydrochloric acid are toxic to plants, causing leaf burns and internal damage.) The major by products of combustion of a Hera missile are carbon monoxide, water, hydrogen chloride, nitrogen dioxide, and aluminum oxide. (2-13) Hydrogen chloride reacts with water to form hydrochloric acid... This acid may have an adverse effect on plants or on the alkalinity of soils and exposed surface water. Acidification of water generally results in higher solubility of minerals and lower oxygen levels until the acid is neutralized. Acidification of soils may lead to increased plant mortality...depending on the species' resistance to acidity. (3-17) Hydrogen chloride is emitted from the motor {missile} as a gaseous exhaust component. Water (from the exhaust, and open sources, or from the atmosphere) readily scavenges the hydrogen chloride from the exhaust cloud and forms hydrochloric acid. (K-5) Humidity levels {in the Keys} reflect the maritime environment. The mean average humidity is 75 percent, and does not vary significantly by month. (3-357)	08

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Normal target launch operations may result in the release of airborne exhaust products, which may adversely affect the health of persons in the immediate vicinity of a launch site. Also, during target launch operations there is the potential for a launch mishap, which results in explosion, whole-body impact, or debris impact. These effects are limited to the alternative launch locations (Cudjoe Key and Saddlebunch Keys). Launch operations present both occupational and non-occupational safety and health issues. (3-464) Due to the initial heat generated by combustion the exhaust plume tends to rise and drift while cooling. (3-14) & Diagram Maximum exposure occurs at 1.94 km. HCL remains above the safe level from some point before 1.94 km to a point between 3.0 and 4.0 km. Where the initial screening indicated there may be a potential for exceedances beyond the LHA, an additional refined analysis was undertaken... (3-16) The first analysis was a general screening to determine if the amounts of pollutants emitted had the potential to cause exceedances of National or state ambient air quality standards or applicable health-based guidance levels. Those scenarios which the initial screening indicated had a potential to exceed the standards... were subjected to additional refined modeling to better determine the potential concentrations of the applicable pollutant(s). ..., therefore no further action was required. (K-1) While weather conditions and patterns in Florida differ substantially from those at the Fort Wingate launch complex, a similar lack of impacts would be anticipated for normal launches at the proposed launch sites. (3-18) Preliminary analysis of the emissions monitored during a recent launch of the Hera at Ft. Wingate, New Mexico.... {It is} not specifically approved by EPA or the state of Florida...it has been successfully used ... at Dugway Proving Ground... Utah - Western Desert Test Center, 1996. Refined analysis of potential air quality impacts ...was specifically developed to estimate impacts to air quality due to open burning or detonation of explosives and fuels... A release height ... was selected. The elevated release height will tend to underpredict concentrations near the launch site. However, this impact is negligible due to the LHA ... (K-3)		{If all fuel is consumed, some of the by-products would be:} Aluminum oxide - 5,063 pounds; Hydrogen chloride - 3,815 pounds (K-5) {This amounts to approximately 10,039 pounds of concentrated HCL} <u>Into the waters:</u> Deposition of hydrogen chloride onto the adjacent waters would not accumulate as the natural buffering of sea water and brackish estuarine waters would quickly neutralize the localized increased acidity. Currents in the local Gulf waters would also flush such acidic concentrations into larger mixing volumes. (3-393) The coastal marsh ecosystem of the Florida Keys is a valuable and protected resource of the Florida Keys. The coastal marshes are a complex system of shallow water bays and basins surrounded by hundreds of mangrove-fringed keys and developed shorelines. ... Although these tidal passes allow for water exchange, the cluster of islands protects the reef tract from the outflow of seasonally variable Gulf of Mexico water. (3-534) ... the average depth of water on the Gulf of Mexico side is only 1.8 meters (6 feet) 3-425) ...most of these channels are shallow ... 1.97 feet. sec 3-427) {I don't think we have any true estuaries on Cudjoe Key. While it may be true that the onshore water is brackish, it does not readily mix with that offshore. Further, the water off Cudjoe Key is relatively shallow. For this reason, the pH would not be buffered quickly. The flow in this shallow water would be expected to be turbulent. Hydrochloric acid is denser than seawater (1.2 vs. 1.025) and would tend to sink into the lower turbulent area. By the time enough flushing occurred, the damage may well have already been done. An assault on nature of this magnitude must surely require more study, to say nothing of the accumulated affect that 12 launches per year over ten years would have. The buildup of acid and aluminum on near-shore waters would certainly be significant.} In addition to providing habitat for many marine animals, these coastal marsh areas serve as buffers during hurricanes and tropical storms... Because of the area's low population density, low level of industrial development, and lack of major rivers, concentrations of chemical contaminants are generally low. (3-524)	09 10

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<u>Fresh-water supplies:</u> Chloride levels in these lenses are too high for human consumption, but are suitable for most irrigation purposes and provide the major source of drinking water for wildlife. (3-414) Shallow, fresh water in the Florida Keys is limited to nonexistent. (3-527) {What is there, is crucial.} <u>Sea-water:</u> Although no environmental studies have been identified which specifically evaluate the fate of ammonium perchlorate {fuel} in the marine environment... In one study, involving propellant pieces (ammonium perchlorate and HTPB {binder}) submerged in seawater, water penetration was limited to about 1.3 centimeters (0.5 inch) over a period of one month. (3-352) {What about ten years?} The seagrass beds and scattered coral heads are extremely sensitive habitats for a wide variety of aquatic organisms, including several Federal and state listed species of mammals, turtles, and fish. (3-377) <u>Overland Transport to Site:</u> The Hera missile is considered a D.O.D. Class 1.1 Explosive – Explosives that have a mass explosion hazard (one that affects almost the entire load instantaneously). – (Glossary) <u>Launch Mishap:</u> An early flight termination of a Hera target missile could result in the second stage booster impacting within the LHA (or elsewhere). This second stage booster... could explode on impact. The amount of energy from the explosion that is propagated underwater could injure marine mammals in the vicinity. The threshold of effect on marine mammals is still under analysis. (3-271) <u>Noise:</u> Birds: {Remember these launches are to be at night} Short duration high intensity noise levels could cause roosting birds in the area to flush off their nests. (3-372) The nearest eagle nest is approximately 4 Km away (3-389) – 103dB (3-391), louder than a freight train at full speed from 30 feet, jackhammer at 10 feet and a B-747 at 1,000 feet. (3-130)	11 12	The increased activity at the site may result in a temporary disturbance to wildlife in the area, particularly those species that use the mangroves, tidal marsh, and shallow nearshore waters in the immediate vicinity of the launch site, such as turtles, various protected wading and shore birds, and the white-crowned pigeon. (3-389) The launch noise would generally extend over a 9-kilometer (5.6-mile) radius area and may cause nesting and foraging birds to react by either becoming alert or temporarily leaving nests... {The 9.0 kilometer radius is not on the chart.} The nearest rookeries for colonial nesting birds on Little Crane, Sawyer, and Johnston keys are located 5.5 to 7.0 kilometers (3.4 to 4.3 miles) from the site and would experience peak 93 dB noise levels... Riding Key (northwest of Cudjoe Key) is the fifth most important nesting site for great white herons (U.S. Department of the Interior, 1997). Missiles will be at least 2,000 meters (6,562 feet) above any rookeries downrange. {115 dB - louder than a rock concert (110 dB) but below the threshold of pain for humans (120 dB)} (3-390) Due to the short duration of the target launch noise (approximately 60 seconds), the only individuals that would likely be affected are those within the 90 dB and greater contours shown in figure 3.3.3-10. {the figure does not show a 90 dB contour; and linear regression analysis shows discontinuities in the data}. Sources of ambient noise at the proposed Cudjoe Key launch site include aircraft traffic from the NASKW airfield and the Key West International Airport.... Noise contours from the 1989 NASKW... study show that the... smallest contour calculated in the study does not overlay the Cudjoe Key noise ROI. (3-447) {You can't have it both ways. The study stopped at the 60-dB contour (normal conversation) about 9 miles west of Cudjoe Key. Air traffic is further limited over the Cudjoe launch site by Restricted Area 2916 (surface to 14,000 feet) which keeps aircraft away from the aerostats (blimps). See 3-370 and 3-449} <u>Turtles:</u> As launch preparation activities would be done primarily during night time hours, sea turtles coming on shore at night to nest at Sawyer Key, 7 kilometers (4.3 miles) from the site could be minimally affected. {95 dB – louder than a freight train (88 dB), but not as loud as a jackhammer (96 dB)}	13 14 15

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...although there is some chance of some debris washing onshore after launches. Such debris could entangle or harm wildlife. (3-392) <u>Port-a-potties:</u> For 30 days before a launch, test personnel would be present at the site... The total number of launches at Cudjoe Key would not exceed 12 per year. (This basically assures permanent duty for ten years) Potable water for Cudjoe Key Table 3.3.12-1 shows a 395% increase. Wastewater is assured to be the same quantity as potable water consumption. The mainland portion of Monroe County includes the Everglades National Park, the Big Cypress National Preserve, and the city of Miami. The Cudjoe Gardens Marina is located 1.9 kilometers (no it isn't) (3 miles) southwest of the Cudjoe Key site and includes six boat ramps (no it doesn't) and a marina. (3-429) {The conversion of Kg to pounds for Aluminum oxide in the table on 3-14 is incorrect. The conversion factor is 2.205 and not 2.149. This error is also carried forward to the last paragraph on 3-353.} <u>Summary:</u> ... it is possible that some of the natural resources required for the operation of the program may be restored to their pre-project conditions. The ... program would not generally involve the use of resources to such an extent that they would become fully consumed or destroyed. As a result, potential irreversible and irretrievable commitments of resources would be very limited, and would occur only for certain biological and cultural resources. (3-534) {Please expand on which biological and cultural resources would be irreversibly	16	The worst case scenario would involve a booster with DOD class 1.1 explosives, such as are the second stage of the Hera missile, because they are shipped with the destruct assembly attached. In the remote event of a severe accident, there is potential that a DOD class 1.1 missile component could detonate, initiating the destruct system and burning the propellant, releasing hydrogen chloride, which are considered explosive materials. <u>Safety:</u> ... in the event of a significant event (which) would include all locations within approximately ... 1,000 feet of the shipping route. This can include U.S. 1 and any secondary connecting roads, bridges, and adjacent locations along selected {All Emergency Response Plan references site Appendix J (3-154, 160) Appendix J does not cover Cudjoe or Saddlebunch, only Eglin AFB. The Airforce has the following resources available at Eglin, to name a few: 1. An on scene commander 2. Crisis action team 3. Initial response element 4. Range safety office 5. Ground safety element 6. Director of civil engineering 7. Explosive ordinance disposal 8. 96th Medical group 9. Base fire department 10. HAZMAT response team 11. Security police 12. Bioenvironmental engineering 13. Communications group. Our local volunteer fire departments and sheriffs do not have these resources or equipment necessary to handle the challenge. }	19						
	17								
	18		20						

We are only told that a computer model did it. The discussion is woefully lacking in its applicability to section 4.0 should be a summary of proposed environmental impacts and mitigation. A statement on 2-76 sums up their feelings, "Potential safety impacts for all environmental resources were evaluated for both normal interceptor and human health risks. The increased risk to mission personnel and the general public due to TMD mishaps would be negligible." In almost all of the thirteen categories the mitigation was "None required. Short-term and temporary noise sanitation they recommended port-a-potties. In this last case, the previous reference to length of stay should be considered.

Summary:

The TMD Extended Range Program would not generally involve the use of resources to such an extent that they would become fully consumed or destroyed. As a result, potential irreversible and irretrievable commitments of resources would be very limited, and would occur only for certain biological and cultural resources (3-534).

3.1.8.1 Resource Description and Evaluative Methods

Noise is usually described as unwanted sound. Characteristics of sound include amplitude, frequency, and duration. Sound can vary over an extremely large range of amplitudes. The decibel (dB), a logarithmic unit that accounts for the large variation in amplitude, is the accepted standard unit for the measure of sound. Noise levels of common sources are provided in table 3.1.8-1.

Table 3.1.8-1: Noise Levels of Common Sources

Source	Noise Level (dBA)	Comment
Air raid siren	120	at 15.2 meters (50 feet) threshold of pain
Rock concerts	110	
Airplane, 747	102.5	at 304.3 meters (1,000 feet)
Jackhammer	96	at 3.0 meters (10 feet)
Power lawn mower	96	at 0.9 meters (3 feet)
Football game	98	Crowd size: 85,000
Freight train at full speed	88 - 95	at 3.1 meters (30 feet)
Portable hair dryer	86 - 77	at 0.3 meters (1 foot)
Vacuum cleaner	85 - 78	at 1.5 meters (5 feet)
Long range airplane	80 - 70	inside
Conversation	60	
Typical suburban background	50	
Bird calls	44	
Quiet urban nighttime	42	
Quiet suburban nighttime	36	
Library	34	
Bedroom at night	30	
Audiometric hearing testing booth	10	Threshold of hearing without hearing loss

Source: Cowen, 1994.

Because an individual's reaction to noise and attitude toward noise sources varies, it is impossible to accurately predict how an individual will react to a particular noise. However, when entire communities are considered, community reaction to noise may be represented with a high degree of confidence.

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Draft TMD EIS - Eglin Gulf Test Range



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecosystem Office
P.O. Box 2676
Vero Beach, Florida 32961-2676

January 27, 1998

FEB - 2 1998

Linda Ninh
46 OG/OGM
205 West D Avenue, Suite 241
Eglin AFB, FL 32542-6866

RE: Preliminary Draft SEIS for Theater Missile Defense system in the Eglin Gulf Test Range

Dear Ms. Ninh:

Thank you for the copies of the Preliminary Draft Supplemental Environmental Impact Statement (SEIS) dated January 5, 1998. To reiterate, this letter represents the combined responses from three U.S. Fish and Wildlife Service (FWS) field offices responsible for reviewing the Preliminary Draft SEIS (document). Accordingly, the Panama City Field Office provided comments on TMD activities proposed for Eglin AFB; the South Florida Field Office in Vero Beach provided comments on TMD activities occurring in the lower Florida Keys; and the Florida Keys National Wildlife Refuge (NWR) on Big Pine Key provided comments since both potential launch sites in the lower Florida Keys (Cudjoe Key and the Saddlebunch Keys) occur adjacent to refuge boundaries. This letter provides general and specific comments addressing the TMD system's potential effects to threatened and endangered species, migratory birds, anadromous fish, and wetland habitats.

GENERAL COMMENTS

As we stated previously in our review of the Coordinating Draft SEIS, we re-emphasize that the current document does not adequately address our concerns regarding potential effects to Federal trust resources and land management responsibilities. We remain concerned with several issues associated with the proposed action.

1. The effects of ground vibrations from missile or interceptor launches on wildlife, specifically federally listed sea turtle embryos and hatchlings, still needs to be evaluated. Data from the space shuttle and Titan/Delta rocket launches at Kennedy Space Center and their potential effects on sea turtles nesting on nearby Canaveral National Seashore could be used for comparison.
2. The effects of launch activities (e.g., human disturbances, noise impacts) on the following species nesting within the five-mile radius of the Launch Hazard Areas (LHA) for Eglin AFB

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(Santa Rose Island and Cape San Blas) needs to be evaluated: loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), and bald eagle (*Haliaeetus leucocephalus*).

3. The effects of prelaunch and launch activities on populations of the following species existing within the LHA for both Cudjoe Key and Saddlebunch Key needs to be evaluated: silver rice rat (*Oryzomys argentatus*); Lower Keys marsh rabbit (*Sylvilagus palustris hefneri*); transient Key deer (*Odocoileus virginianus clavium*); bald eagle; and eastern indigo snake (*Drymarchon corais couperi*). These activities could interfere with the FWS' recovery efforts for listed species in the Keys, such as repatriating the Key deer to Cudjoe Key.

3. The effects of prelaunch and launch activities on shorebird and wading bird rookeries within the LHA for both the Florida panhandle and the Florida Keys needs to be evaluated. Avifauna, especially in the Florida Keys, are already subjected to significant stress from noise and disturbance. Currently, nesting populations of wading birds are continuously disturbed by the ever increasing presence of humans, such as tour boats around their rookeries. Furthermore, as nesting birds take flight in response to prelaunch and launch activities, they leave their nests exposed to predators, such as the magnificent frigatebird (*Fregata magnificens*), and to the elements. Flushing birds as such unnecessarily expends valuable energy that may otherwise be used for hunting, foraging, and/or maintenance. Thus, we view the launching of target missiles from land-based facilities in the Florida Keys as another level of stress these birds must endure. The cumulative effect of these existing stresses along with the added stress from the proposed action may result in changing the reproductive behavior of nesting birds (e.g., decreased fecundity) and force them to seek other potential nest areas, which are becoming increasingly limited in availability and suitability. Details of the specific mitigative measures designed to ameliorate these effects are lacking in the document.

4. The proposed action is inconsistent with the Congressional designation of "wilderness areas" for 2,278 and 1,900 acres in the Great White Heron NWR and National Key Deer Refuge, respectively. Specifically, wilderness areas are "an area of Federal land retaining its primeval character and influence, without permanent habitation, which is protected and managed so as to preserve its natural conditions such that it (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; and (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation..." (Wilderness Act of 1964). Furthermore, "wilderness areas... shall be administered in such a manner as will leave them unimpaired for future use and enjoyment as wilderness" (50 CFR 35.2).

5. The effects of the proposed action (e.g., visual pollution of wilderness areas, the impact on wilderness solitude, the recreational and economic impact to the highly desired "wilderness experience") on wildlife and human users in federally-designated areas (e.g., Great White Heron NWR, Florida Keys National Marine Sanctuary, wilderness areas) needs to be evaluated.

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SPECIFIC COMMENTS The word "Apalachicola" continues to be misspelled on maps throughout the document. Also, we were incorrect in our last review citing the scientific name of the Gulf sturgeon as <i>Acipenser oxyrinchus desotoi</i>. The correct spelling is <i>Acipenser oxyrinchus desotoi</i>. The Florida Keys National Wildlife Refuge is a common title to refer to four refuges within the Keys: Crocodile Lakes NWR, National Key Deer Refuge, Great White Heron NWR, and Key West NWR. Any reference to a particular refuge or refuges should identify them specifically. <u>Page 3-37, Table 3.1.3-1:</u> The scientific name for the Santa Rosa beach mouse is <i>Peromyscus pollionotus leucoccephalus</i>. <u>Page 3-38, ¶ 1:</u> The Santa Rosa beach mouse should also be included in the list of mammals occurring on Santa Rosa Island. <u>Page 3-53, Figure 3.1.3-13:</u> Either add green turtles to legend or replace loggerhead turtles with sea turtles. <u>Page 3-58, ¶ 8:</u> Additional mitigation efforts should include prohibiting nighttime activity during the sea turtle nesting and hatching season from May 1 through October 31 and monitoring TMD activities for potential effects on sensitive species with the implementation of remedial actions as necessary. <u>Page 3-60, ¶ 2:</u> It should be mentioned that Site D-3A is within the nest protection zone as identified in the FWS management guidelines for bald eagles. The guidelines recommend limitations on activities that could affect bald eagles depending on the time of year, type of activity, and distance from the nest. <u>Page 3-62, Figure 3.1.3-16:</u> Seabird should be shorebird in the legend. <u>Page 3-64, ¶ 7:</u> Additional mitigation efforts should include prohibiting nighttime activity during the sea turtle nesting and hatching season from May 1 through October 31 and monitoring TMD activities for potential effects on sensitive species with the implementation of remedial actions as necessary. <u>Page 3-262, Table 3.2.3-3:</u> <i>Caretta caretta caretta</i> should be <i>Caretta caretta</i>. <u>Page 3-267:</u> Eastern Gulf of Mexico live-bottom habitats should be described, in addition to coral and bank reef habitats. The Minerals Management Service has funded numerous studies to identify and describe these habitat types. <u>Page 3-371:</u> Information on nesting, foraging, wading, and colonial birds is incomplete. The flats and mangrove islands are used extensively by wading birds.	09
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<u>Page 3-377, Table 3.1.3-1:</u> The nesting season for bald eagles is from October 1 to May 15 in the southeast region of the United States. The table incorrectly illustrates the eagle's breeding season from November 1 to early August. <u>Page 3-380:</u> Again, information on nesting, foraging, wading, and colonial birds is incomplete. <u>Page 3-380 ¶ 2:</u> There are no pineislands on Saddlebunch Key. <u>Page 3-389, Figure 3.1.3-10:</u> The figure is inaccurate and the rookery data is incomplete. For example, many of the rookeries are depicted in open water. Also, Riding Key (just north of Cudjoe Key) is the fifth most important nesting site for great white herons. <u>Page 3-398, Figure 3.1.3-15:</u> As before, the figure is inaccurate, the rookery data is incomplete, and rookeries are depicted in open water. <u>Page 3-424, ¶ 1:</u> land snapper should be lane snapper. <u>Page 3-428, ¶ 3 and 4:</u> The surface area protected by the Great White Heron NWR is approximately 192,494 acres (780 square kilometers or 300 square miles). The purpose of the Great White Heron NWR is "as a refuge and breeding ground for great white heron, other migratory birds, and other wildlife." Also, "for use as an inviolate sanctuary, or for other management purpose for migratory birds" (16 U.S.C. 715d). The surface area protected by the National Key Deer Refuge is approximately 8,542 acres (35 square kilometers or 13 square miles). The purpose of the National Key Deer Refuge is "to protect and preserve in the national interest the Key deer and other wildlife resources in the Florida Keys" (71 Stat. 412, 8-22-57) and "to conserve...fish or wildlife which are listed as endangered species or threatened species...or...plants" (16 U.S.C. 1534). The National Key Deer Refuge is incorrectly abbreviated as KDNWR. Also, there is no mention of the designated "wilderness areas" in this section on Protected Areas. <u>Page 3-430, ¶ 1:</u> Wildlife Management Areas of the Florida Keys National Marine Sanctuary were adopted zones originally designated in the 1992 Management Agreement for Submerged Lands (MA-44-088) between the FWS and the State of Florida for the specific management of critical habitat. Figure 3.3.7-4 is incorrectly referenced in this paragraph as Figure 3.2.7-4. <u>Page 3-432, last ¶:</u> Saddlebunch Key site is also located within the Great White Heron NWR. There are several Wildlife Management Areas within the LHA of Saddlebunch Key: Marvin Keys, Seipe Keys, Mud Keys, Lower Harbor Keys, Cayo Agua, Bay Keys, Sawyer Key. <u>Page 3-436, Figure 3.1.7-7:</u> Federal lands should be distinguished between military property and conservation/preservation land.	21
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Page 1-442, Figure 3.3.7-10: Again, Federal lands should be distinguished between military property and conservation/preservation land.

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Page 3-501, ¶ 2: There is significant coral reef development in the lower Keys. Big Pine Key is in the lower Keys, whereas Marathon (incorrectly referred to as Marathon Key) is in the middle Keys. The chain of islands west of the Seven-mile Bridge is considered the lower Keys. Key deer are primarily on Big Pine and No Name keys and transient to Cudjoe and Sugarloaf keys. The Forest Service's Visual Resource Management System may be an inappropriate tool to rate the scenic attractiveness of the Florida Keys' "backcountry" and mangrove habitats.

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Appendix L: GSMFC 1995 is not listed in the Acronyms and Abbreviations section nor is it listed in the References section; does GSMFC refer to the Gulf Fisheries Management Council? Green turtle nesting on Santa Rosa Island and Cape San Blas should be included in the narrative. Information regarding the distinction between loggerhead nesting sub-populations and recovery potential should be included in the narrative. This is based on genetics studies conducted by Brian Bowen and his associates at the University of Florida.

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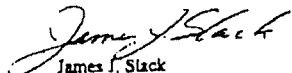
After reviewing the document, we are still concerned with the potential adverse effects of the proposed action on fish and wildlife resources. As a cooperating agency in the NEPA process, we have attempted to identify gaps in the information provided within the document as well as to note any inaccuracies. Specifically, the document does not provide the mitigative measures necessary to offset adverse effects to our trust resources and land management responsibilities as a result of target launch activities proposed in the Florida Keys. Furthermore, we do not believe that the adverse effects (e.g., noise impacts to nesting avifauna) of launching target missiles from the Keys can be ameliorated. As such, the Preliminary Draft SEIS is incomplete in its current form. We will continue to coordinate with your agency prior to completing the Final SEIS on fish and wildlife issues that need to be addressed as part of the environmental review process. In conclusion, it is the FWS' recommendation that the Florida Keys be eliminated from consideration as an alternative launch site for target missiles in the Eglin Gulf Test Range.

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Thank you for the opportunity to provide comments on the Preliminary Draft SEIS. If you have any questions regarding the contents of this letter, please contact Lorna Patrick (Panama City Field Office at 850/769-0552), Susan White (Florida Keys NWR at 305/872-2239) or Kalani Cairns of our office at 561/562-3909.

Sincerely,


James J. Slack
Project Leader
South Florida Field Office

cc:
FWS, Panama City, FL (Attn: Lorna Patrick)
Florida Keys NWR, Big Pine Key, FL (Attn: Susan White)
NMFS, Miami, FL
GFC, Marathon, FL
DEP, Marathon, FL
DCA, Marathon, FL



DEPARTMENT OF DEFENSE
BALLISTIC MISSILE DEFENSE ORGANIZATION
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

FEB 6 1998

To Concerned Public, Organizations, and Commenting Agencies:

Please find enclosed a copy of the Theater Missile Defense (TMD) Extended Test Range Draft Supplemental Environmental Impact Statement (DSEIS) for Eglin Gulf Test Range (EGTR) and Notice of Availability for the Proposed TMD test programs. Additional copies of the DSEIS or Executive Summary may be requested by e-mail to "tmd@eglin.af.mil" or by sending a written request to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D Avenue, Suite 241
Eglin AFB, FL 32578-6866

Comments on the DSEIS can also be sent to the addresses above. In order to consider your comments for the Final SEIS, please ensure comments are received by April 3, 1998.

Sincerely,

Brian H. Moss
BRIAN H. MOSS

Captain, USN
Director, Test and Engineering
Resources

Enclosures:
As stated

13 FEB 98

TW/MC

CONGRATULATIONS - AFTER MUCH TIME & TAX \$
YOU HAVE FIGURED OUT THE OBVIOUS: CHOOSE E.G.T.R. I
HAVE SUPPORTED THIS LOGICAL CHOICE SINCE DAY ONE. HOWEVER
I WOULD FEEL EVEN BETTER IF:

- MSAF WAS ALLOWED COMPLETE OVERSIGHT!
- AN ADJUNCT TO THE TMDR WAS TO DEFEND THE
PORTHOLE AGAINST ERRANT NAVY TOMAHAWK TESTS
- TO EVEN THINK ABOUT FKTR IN THE KEYS, IS PROPF-
POSITIVE YOU EIS IS PURE EYEWASH, *Am 2d Lt, USMC, MSgt USAF (Ret)*

P-W-0023
COMMENT
NUMBER

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DEPARTMENT OF DEFENSE
BALLISTIC MISSILE DEFENSE ORGANIZATION
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

AQT

JUN - 2 1995

Mr. Ron D. Cox
6521 Hiwassee
Panama City, FL 32404

Dear Mr. Cox:

Lieutenant General O'Neill has asked me to respond to your letter of May 20, 1995. The Theater Missile Defense Extended Test Range Environmental Impact Statement presented the environmental analyses to conduct defensive ballistic missile testing at each of four ranges. It did not consider defensive testing against cruise missiles. The Record of Decision was based not only on environmental considerations, but also on the other program factors of cost, performance, and schedule. Consequently, even though testing at Eglin AFB had the least environmental impact, the desired test performance could not be met. Should any of the four factors of cost, schedule, performance and environment impact change, then Eglin may be reconsidered. In fact, there are several concepts in the formulation stage which may lead to ballistic missile defense testing at Eglin. I.E. REINVENT THE WHEEL!

Thank you for your interest in our program.

Sincerely,

Andrew J. Fallon
ANDREW J. FALLON

Colonel, USA
Director, Test & Evaluation

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NUMBER

Candidate Test Areas	Table ES-1. Comparison of the Environmental Consequences of the Alternatives (Continued)											
	Air Quality	Air Space	Biological Resources	Cultural Resources	Geology/ Soils	Hazardous Mat/Waste	Health & Safety	Land Use	Noise	Socio-economics	Infrastructure/ Transportation	Water Resources
Eglin AFB												
Santa Rosa Island	○		○		○	○	○	○	○	○	○	○
Cape San Blas	○	○	○	○	○	○	○	○	○	○	○	○
Sea Launch	○	○	○									
Flight Corridor		○	○			○	○					○
Western Range												
San Nicolas Island	○	○	○	○	○	○	○	○	○	○		○
Vandenberg AFB	○	○	○		○	○	○	○	○	○	○	○
San Clemente Island	○	○	○	○	○	○	○	○	○			○
Sea Launch	○	○	○									
Flight Corridor		○	○			○	○					○
Kwajalein Missile Range												
USAKA	○	○		○	○	○	○	○	○	○	○	○
Wake Island	○	○	○	○	○	○	○	○	○	○	○	○
Sea Launch	○	○	○									
Flight Corridor						○	○					○

☐ No Impact ☐ Not Significant Impact ☒ Significant Impact

Commenter Registration Card
Name MARTIN STEPHEN HALL
Affiliation Former USAF SFC
Address 2206 Seabrook Ave

Please turn in this card at the registration table.

The moderator will call on you to speak when it is your turn.
Please limit your comments to 4 minutes.

DUE TO CHILDREN'S ENTER
MY SHOT COMMENT PLEASE:
I HAD A TOP SECRET, ATOMAL,
OFFICIALS EYES ONLY, CRYPTO
CLEARANCE - I WORKED IN A SECURE
SENSITIVE MESSAGE CENTER - THIS
PROJECT CANNOT BE ALLOWED TO
GET OFF THE DRAWING BOARD - WHAT
WE NEED TO BE DEFENDED FROM ARE
THE PEOPLE IN THE GOV SPENDING OUR
MONEY ON NONSENSE LIKE THIS.

01

Ms. Linda Ninh
46 OG/OGM-TMD
205 West Ave., Suite 241
Eglin AFB, FL 32542-6866

Dear Ms. Ninh,

I live on Cudjoe Key, and am therefore extremely interested in receiving copies of
Volumes I & II of:

*Theater Missile Defense
Extended Test Range
Supplemental Environmental Impact Statement
Eglin Gulf Test Range*

Please send them as soon as you can to:

*James N. Hare
1152 Coates Lane
Summerland Key, FL 33042*

Thank you for your time.

Sincerely,

James N. Hare
James N. Hare

P-W-0025
COMMENT
NUMBER

01

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)

Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you
have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to
ensure they are considered in the Final SEIS.

- ① *IF YOU ARE LAUNCHING INTERCEPTOR FROM PLATFORMS
WHY NOT LAUNCH THE MISSILE FROM A PLATFORM*
- ② *IS YOUR ONLY FILING 12 MILES FROM THE KEYS
THE ONLY TEST FILING WOULD BE DONE*
- ③ *YOU SAID THAT THE WIND CAN EFFECT THE PATH OF THE
WIND OFTEN CROSSES THE HORIZON THE LAUNCH SITE TO
THE SIDE OF THE HORIZON WHERE HOMES ARE*
- ④ *I LIVE IN THE SAND DUNES ON KEY HARA AND THE WATER IS
SO SHALLOW AND SO CLOSE BY ISLANDS THAT THE TIDE
CHANGE IS ONLY ABOUT 1 FOOT INCHES SO THE WATER CAN PUSH
FAST ENOUGH TO KEEP THE PROTECTION DOWN.*
- ⑤ *THEIR ISLAND IS ABOUT 5 MILES OFF OF KEY WEST
WHY CAN'T YOU LAUNCH FROM THEIR AIRCRAFT
THE GUY TORTUGA*

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

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Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

SUSAN DRAKE
P.O. BOX 4311
Key West, FL 33041

Our shallow waters surrounding
the Florida Keys are basically
one huge nursery for 400+
fish species - shrimp - and shell
fish. What an insane place —
trying to play with pinacles —
in a nursery.

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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P-W-0028
COMMENT
NUMBER

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

I must be repeating what many have said
before me. There are too many people, too much
environmental impact, & too many tourists
to use the Florida Keys for war games.
As tax payers, business people, &
the voting public we don't want it.

Phil June S. MacKethen

33042

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

01

02

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

NO TESTS NO FISHING NO BUILDING —
IT IS A MARINE SANCTUARY — ANTI-BALLISTIC
MISSILES WILL BE OK THOUGH. THAT'S THE THING
THINKING THAT HAS THE WORLD LAUGHING AT US.

ARE YOU PEOPLE THINKING AT ALL !!!
OUR NATION TREASURES THIS ELABORATE, NEAR UNIQUE
ECO-SYSTEM & YOU WASTE OUR TIME & ENERGY
ON IDEAS LIKE THIS. 1998-TIME TO STOP
YOUR SILLY GAMES. THERE ARE MORE IMPORTANT
THINGS AHEAD.

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

01

02

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

My impression is that no proof of the accuracy
or effects of this bombing of Kig. West is available —
as it was not accurate in the Vietnam War — Though
it took years before they admitted this.

Also, my daughter was recently asked to be
examined for problems at the Bion Bomb plant at
Paseo Washington. They insisted that she was needed
for a fair test of the effects that leaky unsafe
bomb plant had on residents. Since she was born and
lived before the plant was built, I believe the defense
department has no regard for the health or for the lives
of citizens.

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

01

3-12-98 R.L. BLAZEVIC
MISSILE TESTING 3052 RIVIERA DR
KEY WEST, FL. KEY WEST 33040

The missile testing has caused me to consider the safety of my family, the residents, their children, and damage to our environment. Even with the aircraft launching there has been much exaggerated propaganda about possible danger in the missile testing. I have lived in the Keys for forty years and have three daughters and four grandsons who live here. The County and City leaders are responsible for dealing with facts rather than emotional comments of those who twist and exaggerate the risks involved. The two volumes of the 800 page Environmental Study indicates the extreme attention to detail and the extraordinary effort to consider every possible factor to ensure safety. It contains many important facts about the Florida Keys. Many residents are not considering the extreme danger that we are exposed to every day that is much more hazardous than an occasional missile launch. The constant exposure to injury and death on Highway 1 from speeding illegal passing, careless drivers, and the huge explosive gasoline trucks which continue 24 hours a day and seven days a week. This is not 100 times, 1000 times, but 10,000 times more dangerous than missile launches. More than 50 passenger aircraft that are fuel laden potential bombs over crowded classrooms occur each day as aircraft pass low over the high school. 90 per cent of aircraft accidents occur on take off and landing. The high school was

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built on the end of the runway 25 years after the airport was built. With the extreme every day danger; why hasn't the public insisted that a deteriorating high school be moved to a safer area. This is far more dangerous than the Sugarloaf School location. The long term exposure of the toxic dump that the Provincetown School and Kennedy Drive Sports Complex are built on has been ignored. Constant vigilance makes it imperative that we continually test all the weapons as they are developed to protect the men and women who have no control of when they are sent to protect our interests. I was in high school in World War II and was drafted into Naval Aviation. The constant testing insured my survival in the Korean and Viet Nam Wars. Having survived an aircraft exploding from anti-aircraft fire, small arms sniping, being strafed and bombed gives me a much better perspective than those who have never been there. Our greatest and emotional national danger and tragedy is that we have lost more young people to drugs than to wars. The exaggerated environmental damage is nothing compared to what vandals and terrorists have done every day to the Keys. The reef is much damaged. Sears and Overseas Market were salt water ponds with fish and mangrove shoreline which are now toxic parking lots. Big Pine Key had four brick buildings along the highway, less than 50 residents and no stores. Where were all the abortions while all the

Blazevic

environmental destruction was going on with the bulldozing of entire areas, and the thousands of contaminatory cess pits were being installed. The residents avoid this responsibility waiting for federal grants to replace the cess pits because they want a newer one and least. Residents fail to protect the two Yacht Club septic tanks at Garrison Bight, the cess pits on Hilton Haven, and the sewage injection well near the Garrison Bight entrance. The City dumps ten million gallons of sewage every day into the Channel and the tide brings it back twice a day for water swimming. The sewage plant on Stock Island dumps their sewage into the fresh water ponds on the City Golf Course. I live on a canal in Key West that is sewage polluted and is a ^{dead zone} atmosphere runoff despite the enforceable Clean Water Act of 1975. Mention has been made of noise impacts, but I have 65 decibel from aircraft through the front and back windows 18 hours a day and seven days a week, but they are not going to close the airport. I well understand the unjustified fears of those who oppose the missile testing. I do not resent the man come or tourists who have helped to deteriorate the quality of life in the Keys. I do resent the arrogance of those who consider a mythical tranquility or a remote possibility of minimal annoyance by testing required to ensure the survival of service people and civilians. Essential testing has to be in someone's immediate area and to accept this responsibility is a mature response to a national need.

Red Bluffs

Comment Sheet

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Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

I am definitely not in favor of missile testing in the FL Keys - after listening to the many speakers it is my opinion that FL Keys needs to be kept off the list of alternative sites.

Mary Magill

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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I completely oppose any
missiles in Key West or any
part of the Keys, whether land,
sea, or air. Actually, I oppose
any missiles anywhere

Theresa E. Hendricks

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

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Extended Test Range (ETR)
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Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

The single most important issue at this
point is that the public response to
this issue at this date will be
rather has been affected by the media
coverage. The first Page of the K.W. Citizen
announced that the Keys are no longer
being considered as a site. The radio
announcements were played as jokes and
comments were made during Public Services Announcements
about this meeting that would lead the public
to believe that this is a non-issue for the

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

Keys. If in fact this
is not true the public has
been misled and I'm sure
more people would have made
the 50 (yes fifty miles) mile round trip drive 90

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March 1998

01

02

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

It is clear that there is
no valid reason to consider
using the Florida Keys as a
missile test site.
I feel sure that reason
will prevail
Helen Gashbach
NAMI/KEY West
2325 Sudbury Ave, Key West

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

03

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

I am vehemently opposed to ANY missiles
in the Florida Keys.
Jesse Healy, resident KW

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

01

P-W-0036
COMMENT
NUMBER



March 13, 1998

Ms. Linda Ninh
46/OG/OGM-TMD
205 West D Avenue, Suite 241
Eglin AFB, Florida 323578-6866

RE: Request for DEIS and DSEIS for Flight Testing of Theater Missile Defense (TMD) Systems

Dear Ms. Ninh:

On behalf of ANR Pipeline Company (ANR), I would like to request a copy of the Draft Environmental Impact Statement (DEIS) and Draft Supplement Environmental Impact Statement (DSEIS).

Please send the information to my attention at the following address:

Frank Canneto
ANR Pipeline Company
500 Renaissance, RC612
Detroit, Michigan 48243-1902

Thank you and I look forward to receiving this information.

Sincerely,

Frank Canneto
Environmental Affairs

ANR Pipeline Company
A SUBSIDIARY OF THE COASTAL CORPORATION
500 RENAISSANCE CENTER • DETROIT MI 48243-1902

01

P-W-0037
COMMENT
NUMBER

Draw Richardson
Senior Vice President,
Training, Education and Memberships



11 March 1998

Thomas J. Kennedy, Major
USAF
Director of Test, Theater Missile Defense
46 OG/OGM
205 West Avenue, Suite 241
Eglin, AFB FL 32542-6866

Dear Major Kennedy:

On behalf of the Florida based recreational diving community of dive centers and instructor members of the Professional Association of Diving Instructors, I wish to express our official opposition to the proposed Hera Class ballistic missile launch sites on Saddlebunch and Cudjoe Keys, which are on the edge of the Great White Heron National Wildlife Refuge and pose a negative environmental impact to the area.

We request that the project be re-examined in this context for an alternate solution.

Sincerely,

Draw Richardson
Sr. Vice President
PADI Worldwide Corporation

DR:pt

cc: The Honorable Lawton Chiles, Governor, State of Florida
Representative Peter Deutch
Representative Debbie Horan
Senator Daryl Jones
Senator Connie Mack
Senator Bob Graham
Lt. General Lester Lyles
Ms. Janet Tucker, Eglin Air Force Base, Office of Public Affairs
Bob Harris, Esq.
Vickie Weeks

PADI WORLDWIDE CORP. 1251 East Dyer Road #100 • Santa Ana, CA 92705-5605 U.S.A. • 800.726.7234 • 714.540.7234 • Fax 714.540.2606
Worldwide Offices: Australia, Canada, Europe, Japan, New Zealand, Norway, Singapore, Sweden, United Kingdom, United States

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United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

ER 98/146

MAR 11 1998

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D Avenue, Suite 241
Eglin AFB, Florida 32578-6866

Dear Ms. Ninh:

This is in regard to the request for the Department of the Interior's comments on the Draft Supplemental Environmental Impact Statement for the Theater Missile Defense Extended Test (TMD) Range, Eglin Gulf Test Range (EGTR), Eglin AFB, Florida.

This is to inform you that the Department will have comments, but will be unable to reply within the allotted time. Please consider this letter as a request for an extension of time in which to comment.

Our comments, if any, should be available by April 15, 1998.

Sincerely,

Terence N. Martin

Terence N. Martin
Team Leader, Natural Resources
Management
Office of Environmental Policy
and Compliance

P-W-0038
COMMENT
NUMBER

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P-W-0039
COMMENT
NUMBER

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

Don't send a 44' or larger truck down
US #1. Will slow traffic & tie up
traffic. We have no alternative
routes around an accident. I am
also concerned about safety in case of
accident on missile launch.
Too much chance of toxic fallout to
humans & flora & fauna. Much too
close to human habitat.

Jane Don

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

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P-W-0040
COMMENT
NUMBER

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

I think it is wrong to consider launching
missiles from such a rare and fragile ecological
reserve as The Florida Keys. For the Pentagon to
claim cost effectiveness as the reason to use the Keys
rather than the Western Pacific is not credible. I
suspect convenience and entertainment of the personnel
involved is the real reason. I am also troubled by
the misinterpretation in the environmental impact study
and the glib assurance of the low chance of
mistake. Bruce Wright 1307 Lakes St.
Key West, FL 33040

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

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02

P-W-0041
COMMENT
NUMBER

COUNTY: State

DATE: 02/23/98
COMMENTS DUE-2 WKS: 02/26/98
CLEARANCE DUE DATE: 03/30/98
SAI#: FL9612240949CR

Message:

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	DPE POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm Marine Fisheries Commission OTTED State Transportation	Northwest Florida WMD X South Florida WMD	Environmental Policy/C & BD

The attached document requires a Coastal Zone Management and Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- Federal Assistance to State or Local Government (16 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- X Direct Federal Activity (16 CFR 930, Subpart G). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- Outer Continental Shelf Exploration, Development or Production Activities (16 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- Federal Licensing or Permitting Activity (16 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:
Department of Defense - Theater Missile Defense (TMD) Extended Test Range Draft Supplemental Environmental Impact Statement (DSEIS) for Eglin Gulf Test Range and Notice of Availability for the Proposed TMD Test Program - Florida.

To: Florida State Clearinghouse Department of Community Affairs 2555 Shumard Oak Boulevard Tallahassee, FL 32399-2100 (850) 922-6436 (800 292-6438) (904) 414-0479 (FAX)	EO 12232/NEPA	Federal Consistency
	☐ No Comment ☒ Comments Attached ☐ Not Applicable	☐ No Comment/Consistent ☐ Consistent/Comments Attached ☒ Inconsistent/Comments Attached ☐ Not Applicable

From: REGULATION DEPT.
Division/Bureau:
Reviewer: JFM GOLDEN
Date: 3/26/98

P-W-0042
COMMENT
NUMBER

 South Florida Water Management District
3301 Gun Club Road, West Palm Beach, Florida 33406 • (561) 861-5500 • FAX (561) 861-5501 • TDD (561) 861-5502 • TATS 1-800-432-2045
GOV 04-12 RF: 98303

March 27, 1998

Ms. Cherie Trainor
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100

Subject: Theater Missile Defense Extended Test Range (SAI #9612240949CR)
Draft Supplemental Environmental Impact Statement

Dear Ms. Trainor:

In response to your request, South Florida Water Management District (SFWMD) staff has reviewed the Draft Supplemental Environmental Impact Statement (DSEIS) for the above-referenced proposal for consistency with the Florida Coastal Zone Management Program (FCMP).

Projects reviewed by the SFWMD pursuant to the FCMP are reviewed for consistency with the provisions of Chapter 373, F.S. (Florida Water Resources Act of 1972, as amended), as well as the programs and regulations developed thereunder. Chapter 373, F.S. provides the authority to regulate the withdrawal, diversion, storage, and consumptive uses of water, the construction and operation of stormwater management systems, and work in, on, or over surface waters or wetlands. Chapter 373, F.S. also provides authority to acquire and manage land, to conduct research and investigations into all aspects of water resource management, and to disseminate information relating to the water resources of the state to public and private users. While overall responsibility for administration of most of this act rests with the Florida Department of Environmental Protection (FDEP), most of the implementation is delegated to the five water management districts.

Among the alternatives addressed in the DSEIS are target launch and support activities in the Florida Keys (Cudjoe Key or Saddlebunch Key). These are the only activities proposed within the jurisdictional boundaries of the SFWMD.

Based on an analysis of the mandatory enforceable provisions and recommended policies of the core FCMP statutes and implementing rules administered by the SFWMD, the proposed target launch sites in the Florida Keys are inconsistent with the achievement of the SFWMD's projects, programs, and objectives.

Governing Board:
Frank Williamson, Jr., Chairman
Eugene K. Pettis, Vice Chairman
Mitchell W. Berger

Vera M. Carter
William E. Graham
William Hammond

Richard A. Macheck
Michael D. Ninston
Miriam Singer

Samuel E. Poole III, Executive Director
Michael Slayton, Deputy Executive Director

Mailing Address: P.O. Box 24680, West Palm Beach, FL 33416-4680

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	P-W-0042 COMMENT NUMBER		P-W-0042 COMMENT NUMBER
Ms. Cherie Trainor March 27, 1998 Page 2		Ms. Cherie Trainor March 27, 1998 Page 3	
The above determination is based on the following:			
(1) The proposed target launch facilities in the Florida Keys will require an Environmental Resource Permit (ERP). The requirement for an ERP is not listed in Appendix N (Potential Permits) of the DSEIS. Please be advised that, although SFWMD staff has had some discussions with FDEP staff regarding permitting responsibility for this project, a final decision has not been made as to whether the FDEP or SFWMD will be responsible for the review of this project.	02	(6) Most of the target launch and support activities proposed in the Keys are within the boundaries of the Florida Keys National Marine Sanctuary. SFWMD staff has concerns regarding implementation of the proposed activities within the boundaries of a wildlife refuge. This area is designated as critical habitat for the <i>silver rice rat</i> and also supports numerous other listed species. The proposed activities are projected to impact foraging habitat for numerous species and have the potential to displace nesting areas. Prior to project implementation, the applicant must demonstrate minimization of any potential adverse impacts, as required under Chapter 373.414, F.S. After the applicant has demonstrated minimization of any potential adverse impacts, a mitigation plan must be submitted which offsets potential impacts related to the proposed project. The DSEIS (Page 3-403) indicates that a mitigation plan will be developed in coordination with several agencies. However, the SFWMD is not included. The SFWMD should be included in any coordinated effort to develop a plan to offset any potential adverse impacts (not just listed species) incurred as a result of project implementation.	07 08
(2) According to the DSEIS, use of the Saddlebunch Key site will result in disturbance to unaltered uplands (1.79 acres) and wetlands (2.2 acres) while use of the Cudjoe Key site will not disturb any previously unaltered upland or wetland areas. Section 373.14, F.S. requires the avoidance and minimization of wetland impacts. Once the applicant has demonstrated that impacts to wetlands have been avoided or minimized to the extent practicable, any remaining wetland losses must be mitigated. The DSEIS does not address avoidance and minimization of wetland impacts for the Saddlebunch Key site as required under Chapter 373.414, F.S. Although the DSEIS states that "specific mitigation measures will be developed in consultation with the appropriate agencies," no details regarding the proposed mitigation activities are provided.	03		
(3) Although the DSEIS addresses direct impacts to both sites, the potential for secondary or cumulative impacts at either location are not addressed, as required under Chapter 373.414, F.S.	04	(7) The DSEIS indicates that aluminum oxide and hydrogen chloride may be spilled on the ground during the proposed target launch activities. Staff has concerns related to the potential for this material to enter the groundwater and contaminate wetlands or other surface waters due to the high transmissivity of the soils in the Keys. Please be advised that containment of this material may be recommended if target launch activities are implemented in the Keys. Prior to any missile launching, additional information regarding the toxicity of this material and a demonstration of material containment will be required.	09
(4) The wetland boundaries and acreages existing on the proposed target launch sites have not been field verified by SFWMD environmental staff. Consequently, the applicant-estimated wetland boundaries and acreages may vary significantly from the actual acreages based on the Statewide Wetland Delineation Rule (Chapter 62-340, F.A.C.). If the applicant-estimated wetland acreage is significantly lower than actual on-site acreages, additional on or off-site mitigation may be necessary to meet the SFWMD's minimum mitigation requirements. The DSEIS does not provide any details regarding proposed on or off-site wetland mitigation activities.	05	(8) The breakdown products of the exhaust gases could potentially form harmful acids. These acids could adversely impact the surrounding area by altering surrounding vegetation, the vegetative community structure, and acidifying surrounding waters. Please be advised that the extent of the potential impacts will require quantification and measures to mitigate for these impacts prior to project implementation.	10
(5) The DSEIS indicates that an increase in water acidity will result from missile launching at these sites. Please be advised that the surrounding water bodies are classified as an Outstanding Florida Water (OFW) and an Aquatic Preserve. Consequently, any increase in acidity of surrounding water bodies would not be in compliance with State Water Quality Standards, as set forth in Chapter 62-302, F.A.C.	06	(9) The DSEIS indicates that runoff will be allowed to sheetflow from impervious areas to adjacent waters (i.e., no stormwater management facilities are proposed for these sites). Please be advised that a stormwater management plan will be required prior to construction activities at either of these sites as part of the ERP application review process.	11
		The above comments only address concerns related to activities proposed within the jurisdictional boundaries of the SFWMD. Staff considers activities proposed outside of	

	P-W-0042 COMMENT NUMBER		P-W-0043 COMMENT NUMBER
Ms. Cherie Trainor March 27, 1998 Page 4 SFWMD boundaries as a potential secondary impact. These activities will require thorough evaluation during the ERP application review process. Please note that staff plans to present this inconsistency finding to our Governing Board at their next regularly-scheduled meeting (April 16, 1998) for their concurrence with this finding. Staff will advise you regarding the Governing Board's action on this item. The SFWMD's inconsistency finding is based exclusively upon the information contained in the DSEIS. It is without prejudice towards full consideration of a modified proposal which addresses the potential for adverse impacts outlined in this letter. SFWMD staff are available to meet with the applicant to further discuss the issues and concerns raised in this letter. If the applicant plans to proceed with either of the alternative target launch sites in the Keys, the applicant should coordinate any such efforts with our staff (and/or the appropriate staff from FDEP) prior to finalization of the SEIS or submittal of any permit applications. If any of the above requires additional clarification or if we can be of further assistance, please do not hesitate to contact Jim Golden, Senior Planner in the Regulation Department, at (561) 687-6862. Sincerely, <i>Samuel E. Podie III</i> for Samuel E. Podie III Executive Director South Florida Water Management District SEP/jig c: Jim Golden	12 13	National Florida Marine Keys Sanctuary Program  Mailing Address Administrative Office PO Box 500368 Marathon, FL 33050 Shipping Address 5550 Overseas Hwy. - Main House Marathon, FL 33050 Pursuant to letters from Lester Lyles to Congressman Peter Deutsch dated November 24, 1997 and Thomas Johnson to Virginia Wetherall dated December 23, 1997, we understand that the Keys are no longer in the proposed action and it is unlikely that the Keys will be approved in the final decision unless operational and testing requirements change. June Cradick of my staff recently spoke to Lt. Col. Lehner of your office concerning this matter. Lt. Col. Lehner stated the Keys are no longer an active option. The purpose of this letter is to reaffirm our commitment to protecting the marine resources of the Florida Keys and again request the missile testing initiative be located elsewhere. As this proposal is in draft form, I will further identify areas of concerns that should be addressed in the preparation of the final EIS for this project. The following is a list of issues that come in direct conflict with existing Florida Keys National Marine Sanctuary (FKNMS) regulations. The relevant section of our regulations is cited for each issue. Issue #1: Disruption of wilderness character in the Florida Keys The Supplemental EIS states: "Virtually all of the unoccupied vegetated area surrounding the proposed sites on Cudjoe, Saddlebunch, Sugarloaf, and Boca Chica Keys are jurisdictional wetlands regulated under the Clean Water Act. Furthermore, mangroves are protected by state law."	01 02

It was also noted that Federal and State threatened species have been reported on Cudjoe, Boca Chica and Sugarloaf Keys. Further, Cudjoe Key surrounding the aerostat facility has been designated as critical habitat under Endangered Species Act (ESA) 50 CFR 17.95.

Within the Definitions section of the FKNMS regulations at 15 CFR §922.162:

"(a) The following definitions apply to the Florida Keys National Marine Sanctuary regulations. To the extent that a definition appears in §922.3 and this section, the definition in this section governs."

"Act" means the Florida Keys National Marine Sanctuary and Protection Act, as amended, (FKNMSPA) (Pub. L. 101-605), and the National Marine Sanctuaries Act (NMSA), also known as Title III of the Marine Protection, Research and Sanctuaries Act, as amended, (MPRSA) (16 U.S.C. 1431 et seq.).

Adverse effect means any factor, force, or action that independently or cumulatively damages, diminishes, degrades, impairs, destroys, or otherwise harms any Sanctuary resource, as defined in section 302 (8) of the NMSA (16 U.S.C. 1432 (8)) and in this section, or any of the qualities, values, or purposes for which the Sanctuary is designated."

By definition, the FKNMS is mandated to protect the Keys resources from any adverse effect by regulating activities affecting them. This was in order to protect, preserve and manage and thereby ensure the health, integrity and continued availability of the conservation, ecological, recreational, research, education, historical and aesthetic resources and qualities of these areas.

Issue #2: Toxic emissions from solid fuel rockets that may enter the marine environment and injure marine resources; Damage to mangroves and vegetation due to launch activities; Negative effects to the natural resources due to launching and launch accidents.

Section 4 of the Supplemental EIS states:

- 1) that the greatest concentrations of exhaust products would be released near the ground and with less exhaust being released in any specific area as the missile increases its speed;
- 2) the effect of 12 launches per year may permanently remove or degrade vegetation close to the launch pad;
- 3) cumulative impacts, over the 10-year period the launch activities could result in an overall loss of plant species diversity and total vegetation cover, and this loss could be due to the deposition of hydrogen chloride;

Theater Missile Defense Extended Test Range DSEIS comments
From the Florida Keys National Marine Sanctuary
Page 2

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- 4) if an accident occurs on the launch pad, the explosion and resultant fire could harm Federally or state listed species of nesting or wintering wading birds and shorebirds or their habitat;
- 5) impacts from launch-related activities could result in changes in water chemistry due to deposition of launch emissions, chemicals and missile debris.

Section of 15 CFR §922.163 - ~~Prohibited activities~~-Sanctuary-wide states:

(3) Alteration of, or construction on, the seabed. Drilling into, dredging, or otherwise altering the seabed of the Sanctuary, or engaging in prop-dredging; or constructing, placing or abandoning any structure, material, or other matter on the seabed of the Sanctuary

(4) Discharge or deposit of materials or other matter. (i) Discharging or depositing, from within the boundary of the Sanctuary, any material or other matter, except: (A) Fish, fish parts, chumming materials, or bait used or produced incidental to and while conducting a traditional fishing activity in the Sanctuary; (B) Biodegradable effluent incidental to vessel use and generated by a marine sanitation device approved in accordance with section 312 of the Federal Water Pollution Control Act, as amended (FWPCA), 33 U.S.C. 1322 et seq.;

(11) Possession or use of explosives or electrical charges. Possessing, or using explosives, except powerheads, or releasing electrical charges within the Sanctuary.

Issue #3: Disturbance of marine waterfowl through interference with nesting, feeding and breeding behaviors in the sensitive backcountry environment.

There are threatened and endangered species of birds; such as bald eagles, white-crowned pigeons, and peregrine falcons, within the areas of evaluation and within a Wildlife Management Area. Any impacts to the habitats or disturbances to the marine waterfowl should be done with consideration of the rules under the National Wildlife Refuge System (16 U.S.C)

Within the Supplemental EIS, section 4.2.3.1.3, it was stated there would be a slight chance of direct mortality of protected bird species. Within 16 U.S.C. under (c) Prohibited and permitted activities, it states:

"it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess..., any migratory birds, any part, nest, or eggs of any such bird..."

Theater Missile Defense Extended Test Range DSEIS comments
From the Florida Keys National Marine Sanctuary
Page 3

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"No person shall knowingly disturb, injure, cut, burn, remove, destroy, or possess any real or personal property of the United States, including natural growth, in any area of the System."

Issue #4: Negative impacts on marine resources from secondary vessel activity associated with the rocket facility.

- 1) increased activity at the site may result in the disturbance of the wildlife;
- 2) use of aircraft and patrol vessels could increase the chance of striking protected species;
- 3) increased vessel activity to support the upland facility could be of concern due to the shallow surrounding waters. Improper vessel activity within these areas could result in prop dredging, scarring and vessel groundings.

Section of 15 CFR §922.163 Prohibited activities - Sanctuary-wide states:

(5) Operation of vessels. (i) Operating a vessel in such a manner as to strike or otherwise injure coral, seagrass, or any other immobile organism attached to the seabed, including, but not limited to, operating a vessel in such a manner as to cause prop-scarring.

(iv) Operating a vessel in such a manner as to injure or take wading, roosting, or nesting birds or marine mammals. (v) Operating a vessel in a manner which endangers life, limb marine resources, or property.

Although military activities within the Sanctuary are allowed and may be exempted from FKNMS provisions pending consultation with the Superintendent of the FKNMS, new military activities should be modified so that they are not likely to destroy, or significantly injure Sanctuary resources. If an activity conducted by the Department of Defense is determined to have caused resource damage, they are responsible for taking appropriate actions to cease, respond or mitigate the harm and restore or repair the damage.

If you would like to discuss these comments, or have any questions, please feel free to contact me at (305) 743-2437.

Sincerely,
Billy D. Causey
 Billy D. Causey
 Sanctuary Superintendent

Theater Missile Defense Extended Test Range DEIRIS comments
 From the Florida Keys National Marine Sanctuary
 Page 4

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Comment Sheet

for the
**Theater Missile Defense (TMD)
 Extended Test Range (ETR)
 Supplemental Environmental Impact Statement (SEIS) —
 Eglin Gulf Test Range (EGTR)**

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

1) THERE IS ONLY ONE 2 LANE ROAD DOWN THE LOWER KEYS,
TO HAVE TO DRIVE MISSILES + SUPPORT VEHICLES + PERSONNEL IN
ON IT IS BAD IDEA. THERE IS THE CHANCE THIS ROAD MAY HAVE
TO BE CLOSED. I LIVE IN BIG PINE (HAWAIIAN/TAXIWAY), MY
DOCTORS, HOSPITAL + JOB ARE IN KEY WEST. THE VOLUME OF
TRAFFIC MAKES THE RIDE SLOW + FRUSTRATING ALREADY.

2) THERE HAS BEEN THE WHITE HERON REFUGE "OUT BACK" FOR
DECADES, AND THE MARINE SANCTUARY. DON'T HARM
THEM WITH INCIDENTAL FUEL SPILLS OR FALLING DEBRIS OR NOISE!

3) SCHOOLS ARE TOO CLOSE TO YOUR PROPOSED SITE (AND NEIGHBORHOODS)

4) I DON'T WANT THE NOISE. FIND A LESS INTENSIFIED SPT.

Please place them in the comment box or mail to:
 Ms. Linda Ninh
 46 OQ/OGM-TMD
 205 West D. Ave, Suite 241
 Eglin AFB, FL 32542-6866

Sincerely,
Kathy Wheeler

Kathy Wheeler
 29760 Journeys End Rd
 Big Pine Key, FL 33043-7119

Printed on recycled paper

Richie Anne Marple
1106 Via De Luna Drive
Pensacola Beach, Florida 32561-2266

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D Avenue, Suite 241
Eglin AFB, Florida 32578-6866

March 27, 1998

Dear Ms. Ninh:

Thank you for the opportunity to review and comment on the draft Theater Missile Defense Extended Test Range Supplemental Environmental Impact Statement-Eglin Gulf Test Range Volumes 1 and 2 dated 6 February 1998 (herein referred to as the document). My comments are filed as a resident of Santa Rosa Island and relate only to statements of fact made in reference to Santa Rosa Island.

Comment 1/Ref. Cover Sheet, ES-8

The National Environmental Policy Act (NEPA) requires that all aspects of a proposed action be evaluated. References to the participation of the U.S. Navy are given in the presentation of facts in the document, but the impact evaluation portion of the document does not include analysis of the actions which would be required for the Navy to participate. It would be appropriate to either eliminate all references to the participation of the U.S. Navy AEGIS ship-launch effort, or fully include such an effort in the evaluation.

Comment 2/Overview, page ES-3

This section gives a limit to the overall project as proposed. The limit is a 10-year period of operation. The succeeding sections of the DSEIS use a singular evaluation, not an impact evaluation times 10. Each section should be re-evaluated to include the required cumulative impact of the proposed action; that is, the number of test events per year times a 10-year period of operation.

Comment 3/Section 2.1, page 2-1

The document states, "...a flight test or test event means either a target missile flight, an interceptor missile flight, or an intercept of a target missile." The document repeatedly refers to 24 target launches and up to 48 interceptor launches per year. This would mean according to the document definition there could be 24 targets intercepted by 24 interceptors with a balance of 24 interceptors; this translates to a possible 48 events per year not 24. The entire evaluation portion of the document refers to 24 events per year. The document needs to be consistent.

Comment 4/Section 2.3, page 2-73

The list of considerations for selection of a land launch site include
o Site must not impact major highway or waterway traffic
In most cases the Launch Hazard Area (LHA) will always include the Gulf Intracoastal Waterway

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Richie Marple 

Page 2 of 4

and, dependent on the predictive model for the LHA, may include Highway 98 when discussing the Santa Rosa Island Site A-15. If, for the purposes of this comment we limit the number of events to 24 per year, these two major traffic ways will be closed one hour prior to the launch and possibly up to 4 hours for the event 24 times per year for an overall period of 10 years. Such a closure will definitely have an undesirable impact. These two traffic ways are main east-west transportation arteries.

Comment 5/General

Is Site A-15 within Okaloosa County as stated, or is it in Santa Rosa County?

Comment 6/Section 3.1.1.1, 3.1.1.4.1

Satellite sites separated from the main facility by five miles or greater or by a major highway require a separate PSD permit review. Highway 98 separates Site A-15 from Eglin proper. The review determines if NAAQS have been exceeded. In the case of Eglin Site A-15 such a review should produce a PSD Exemption for Site A-15. This section makes no reference to compliance to this requirement of the Clean Air Act.

Comment 7/Section 3.1.2.4.1, pages 3-31, 3-33

Once again inconsistent reference is made to the launch event window. If the LHA is cleared one hour prior to the event, and the event window itself is 4 hours, the total for the event is 5 not 4 hours. If there are only 24 events, which is another point of inconsistency within the document, then the maximum airspace scheduling is 120 hours not 96. If there are actually 48 possible events, the schedule is 240 hours per year.

Comment 8/Section 3.1.3.3.1, page 3-38

The statement is made, "...Santa Rosa Island is not open to the public." Perhaps the author meant that the federal property at Site A-15 on Santa Rosa Island is closed to the public. Santa Rosa Island is a public recreation island.

Comment 9/Section 3.1.11

There is no analysis of the Navarre Bridge which must be crossed in order to access Site A-15 by road. Can the bridge tolerate the weight of the transport vehicles required for this project? Does the height and/or width of the tollbooth provide access for the required transport vehicles? If the Navarre Bridge is restrictive, the only other road access is through the Pensacola Beach Bridge and its tollbooth. If this became the case, the increased traffic load through the recreation, business, and residential sections of Pensacola Beach has not been analyzed.

Comment 10/Section 3.1.12

Historically, water supplies for the purpose of fighting fires on Santa Rosa Island have been less than dependable. Provisions for this eventuality should be included in the evaluation.

Comment 11/Section 3.2.10.3

The displacement of commercially important fisheries caused by increased activity, debris,

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Richie Marple  Page 3 of 4 sonic booms, etc. should be included in the analysis. Mitigation, or compensation, may be required of the federal agency causing the impact when a particular fishing zone is impacted. Reviewers may want to consider the case law applicable to the Strategic Petroleum Reserve (Department of Energy) and the Shrimpfishermen's Association of Texas. Since the TMD project depends on the same weather windows which provide openings for commercial fishermen, there is potential for decreased revenues to commercial and recreational fishermen within Zone 9. The evaluation in this section, page 3-323, should be reconsidered based on the accurate presentation of clearance times of 5 hours, not 4, and on the accurate number of fast events over a 10 year period. Comment 12/Section 3.2.11.2 Shipping considerations completely disregarded the Port of Pensacola and the effect of the project on the Port. To disregard the Port of Pensacola is the equivalent of disregarding Hurlburt Field as part of the USAF because it falls in the lower percentile by landmass of all USAF facilities. Because a Port is not in the top ten does not mean it is not adjacent to the project and the interruption of shipping to this Port is not directly affected. It is suggested this Port be evaluated when considering A-15 as the location. Since commercial shipping costs include fuel and daily charter-hire rates, avoidance procedures do provide increased economic effects to commercial shipping; proper analyses of these effects should be considered in the DSEIS. Comment 13/Appendix I, Section 3.2, page 1-7 Statements of time for roadblocks are not consistent with other statements in the document relative to clearance of the LHA. According to other statements within the document the very minimum a roadblock would be active is 2 hours; the maximum activation could be 5 hours. Comment 14/Appendix J, Sections 2.12, 2.16, 4.2 Local fire departments are volunteer in nature with perhaps an additional complement of one or two experienced professionals. The extent of hazardous material training usually extends only to level 1 (Awareness). This minimal training is not sufficient to allow the use of these departments in response to possible hazardous events associated with this project. However, because of the outstanding environmental program maintained by the USAF it would seem appropriate for the USAF to offer onsite HAZWOPER training to the members of the fire departments which may be called upon through mutual aid agreements. Summation: In principle, I do not disagree with the mission of this project; but, I believe a consistent evaluation has not been provided throughout the document; therefore, the choice of alternatives may be defective. It would seem the "platform" alternative may provide the least amount of impact to local transportation, the least amount of threat of fire due to a mishap, and the least amount of impact to local emergency services (a minimally staffed Florida Marine Patrol, volunteer fire departments, and the Sheriff's Department). Additionally, most Florida counties support their fire and sheriff's departments through a Municipal Services Benefit Unit (MSBU)	P-W-0045 COMMENT NUMBER 11(cont) 12 13 14 15 16 17	Richie Marple Page 4 of 4 assessment to residents and businesses based, in part, on hours of readiness time. This project may increase the assessment rates to the public unless the document is changed to reflect otherwise. My best wishes for a successful and safe project.  Richie Arne Marple	P-W-0045 COMMENT NUMBER

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Send the missiles to an existing test range somewhere -
Don't waste money and trash a new environment with yet
another test range. People are sick & tired of military waste.

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

- ① The SEIS failed to adequately describe the actual effects of the missile testing on the surroundings. E.g. - The hydrobatic acid will "temporarily increase the acidity of the water" - But what effect will that have on sea creatures? NONE? Will they all die? Will they stop reproducing? Will they grow bigger? ② The noise "averaging" was ridiculous. Who cares about the average noise level over a year's time? What is important is the volume of noise during a launch, and how it will affect people and nature.

Don't put these missiles in the trays - It is a flawed and foolish plan. Your "experts" who wrote up

Please place form in the comment box or mail to: The SEIS are professional bullshitters and the money you spent on this document was wasted.

George Helbert - 16 Hilton Haven - Key West, FL.

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Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

If this idea wasn't so serious it would actually be funny. We don't need protection from our "enemies" we need protection from our government who originates this kind of non-thinking. Even the "information" you passed out was flawed. "You can fool some of the people some of the time, etc. etc." This could be a script for a Mel Brooks movie.

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

P-W-0048
COMMENT
NUMBER



LAWTON CHILES
GOVERNOR

STATE OF FLORIDA
Office of the Governor

THE CAPITOL
TALLAHASSEE, FLORIDA 32399-0001

March 31, 1998

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D Avenue, Suite 241
Eglin AFB, Florida 32578-6866

Dear Ms. Ninh:

The Governor's Environmental Policy, Community and Economic Development Unit appreciates the opportunity to review and comment on the Department of Defense - Ballistic Missile Defense Organization's (BMDO) Theater Missile Defense Extended Test Range Draft Supplemental Environmental Impact Statement for the Eglin Gulf Test Range (DSEIS).

The Air Force Development Test Center (AFDTC) located at Eglin Air Force Base (AFB) is managing the DSEIS with the environmental documentation prepared by the U.S. Army Space and Missile Defense Command (USASMDC) in Huntsville, Alabama. The Eglin AFB staff and the USASMDC have provided opportunities for public review and input on the proposed Eglin Gulf Test Range proposal, including state, federal and local briefings, public scoping meetings, and other presentations at locations in the Florida Keys, as well as northwest Florida.

The Florida Keys has been designated by the Florida Legislature as an "area of critical state concern" and is one of the most environmentally sensitive areas in the state. The state has worked, in concert with local governments and federal agencies, to foster environmental programs to protect this "one of a kind" area in Florida.

In a letter dated November 24, 1997, Lieutenant General Lester Lyles notified the state that the Keys alternative was no longer being considered for missile testing. We support the decision by the BMDO to seek alternative locations to test the mid-range missiles/interceptor capabilities. Further, we understand that if the national security is threatened, the BMDO may reconsider missile testing in the Keys. We request to be kept apprised on this matter and, if another alternative should come under consideration in the future, the state would need to review the environmental documentation regarding the Theater Missile Defense Extended Test Range Site.

We encourage the BMDO to consider comments from the state's reviewing agencies concerning permitting requirements, water quality issues regarding Santa Rosa Sound and St. Joe Bay, and wetland impacts. The Department of State's Division of State Historical Preservation Office

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Ms. Linda Ninh
March 31, 1998
Page Two

(SHPO) has discussed the future of the two U. S. Coast Guard buildings and the light house located on Cape San Blas with the Gulf County Historical Preservation Office, the U. S. Coast Guard and Eglin Air Force Base personnel. Of particular concern to the SHPO is the preservation of the light house lens. We ask that you keep SHPO informed of any future negotiations on these issues.

We appreciate the opportunity to assist the Department of Defense - BMDO in the coordination and review of the draft SEIS on the Theater Missile Defense Extended Test Range.

Sincerely,

Estus D. Whitfield, Policy Coordinator
Environmental Policy/Community and
Economic Development Unit

EDW/mmt

P-W-0048
COMMENT
NUMBER

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Department of Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

March 31, 1998

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State of Florida Clearinghouse

Ms. Cherie Trainor
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Re: Theater Missile Defense (TMD) Extended Test Range Draft Supplemental
Environmental Impact Statement (DSEIS) for Eglin Gulf Test Range and Notice of
Availability for the Proposed TMD Test Programs, Florida

SAI: FL9612240949CR

Dear Ms. Trainor:

The Department of Environmental Protection reviewed the Department of Defense
Ballistic Missile Defense Organization (BMDO) proposal to expand the theater missile
Defense Eglin test range within the Gulf of Mexico. The proposal initially considered
alternative target launch sites to be located in the Florida Keys, either at Saddlebunch or
Cudjoe Key. Construction at Saddlebunch Key, a U.S. Navy facility, would impact 1.79
acres of mangrove and salt marsh wetlands while construction at Cudjoe Key, an existing
Air Force installation, would have less impact on habitat in the area. However, both
sites presented significant concerns for environmental impact to land and water resources
of the Keys and surrounding waters.

The Department of Defense (DOD) now is proposing a preferred alternative for missile
testing which does not launch from either of the sites located in the Keys, or the waters
of the Florida Keys National Marine Sanctuary (FKNMS). The department concurs that
testing outside of the Keys area of impact is a more acceptable approach to conducting
these tests; however, should launch sites in the Keys of surrounding waters be revisited
as an alternative at a later date and a launch site within the Keys or the FKNMS become
desirable, a supplemental revision of the Draft Supplemental Environmental Impact
Statement (DSEIS) document should be developed and circulated for review by the
State.

The following comments refer to the adequacy of the DSEIS and the evaluation of
alternatives, specifically those launch sites located within the Keys or the FKNMS.

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

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March 31, 1998
page 2

Introduction

The State of Florida signed the Florida Keys National Marine Sanctuary (FKNMS)
Management plan in January 1997. Therefore, proposed conflicts with the management
plan are of primary concern to the State. The following is a list of issues which reflect
conflicts between the Keys launch sites and existing sanctuary regulations. Regulations
and statutes are referenced after the identification of each issue when applicable.

Issue #1: Discrepancy with the "Water Resource Regulations" Section

The following was stated within volume 2 of the referenced Supplemental Environmental
Impact Statement, under appendix B, the "Water Resource Regulations" Section:

*"Florida Keys National Marine Sanctuary Management Plan of 1996 - This
management plan sets up a process for current and future changes in fishing
activities including prohibitions, gear restrictions and permits within the
Sanctuary."*

This statement does not correctly define the management plan program goals or
regulations. National marine sanctuaries are built around distinctive natural and historical
resources whose protection and beneficial use require comprehensive planning and
management. Sanctuary regulations address not only fishing activities, but also regulate
activities that affect sanctuary resources or qualities.

Issue #2: Volume 1, 2.0 "Description of Alternatives including the Proposed Action"

According to the Supplemental Environmental Impact Statement, "Cudjoe
Key and Saddlebunch Key are the alternative candidates for target
launch locations."

Should the Florida Keys sites be used as alternative sites, several construction activities
have been identified as being necessary to prepare the areas as launch sites. These
construction activities would include dredging and filling in areas the DSEIS has
identified as "jurisdictional wetlands regulated under the Clean Water Act." In
addition, the DSEIS notes that Federal and state threatened species have been reported
on Cudjoe, Boca Chica and Sugarloaf Keys. Furthermore, the majority of Cudjoe Key
has been designated as critical habitat under the ESA (50 CFR 17.95).

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page 3

By definition, the FKNMS is mandated to protect the Keys resources from any adverse effects. Authorization for this mandate is found in 15 CFR, Section 922.162 which states:

"(a) The following definitions apply to the Florida Keys National Marine Sanctuary regulations. To the extent that a definition appears in Section 922.3 and this section, the definition in this section governs."

"Acts means the Florida Keys National Marine Sanctuary and Protection Act, as amended, (FKNMSPA) (Pub. L. 101605), and the National Marine Sanctuaries Act (NMSA), also known as Title 111 of the Marine Protection, Research, and Sanctuaries Act, as amended, (MPRSA) (16 U.S.C. 1431 et seq.). Adverse effect means any factor, force, or action that independently or cumulatively damages, diminishes, degrades, impairs, destroys, or otherwise harms any Sanctuary resource, as defined in section 302(8) of the NMSA (16 U.S.C. 1432(8)) and in this section, or any of the qualities, values, or purposes for which the Sanctuary is designated."

In addition to Federal regulations, Chapter 161.5, F.A.C., states:

"The Legislature further recognizes that these coastal areas are among Florida's most valuable resources and have extremely high recreational and aesthetic value which should be preserved and enhanced." It is "the intent of the Legislature that the most sensitive portions of the coastal area shall be managed through the imposition of strict construction standards in order to minimize damage to the natural environment, private property, and life."

Should either of the Florida Keys sites become a preferred alternative, it will be necessary for the SEIS to address in greater detail potential impacts to the sanctuary and consistency of the project with Federal and State statutes.

Issue #3: Toxic emissions from solid fuel rockets that may enter the marine environment and injure marine resources; Damage to mangroves and vegetation due to launch activities; Negative effects to the natural resources due to launching and launch accidents.

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Under section 2.4 "Comparison of Alternatives" it was stated:

At Cudjoe Key, site preparation and targetflight test activity would result in minimal environmental impacts for biological resources, land and water use, noise, socioeconomics, transportation, and water resources; potential impacts on other resources would be negligible.

That statement does not completely agree with the previous draft of the Supplemental EIS, Section 4, which outlined the following projections:

- 1) the greatest concentrations of exhaust products would be released near the ground and less exhaust being released in any specific area as the missile increases its speed;
- 2) the effect of 12 launches per year may permanently remove or degrade vegetation close to the launch pad;
- 3) Cumulative Impacts, over the 10-year period the launch activities could result in an overall loss of plant species diversity and total vegetation cover. This loss could be due to the deposition of hydrogen chloride;
- 4) If an accident occurs on the launch pad, the explosion and resultant fire could harm Federally or State listed species of nesting or wintering wading birds and shorebirds or their habitat; and,
- 5) Impacts from launch-related activities could result in changes in water chemistry due to deposition of launch emissions, chemical stimulants and missile debris.

These two drafts contain different opinions on possible resource damage. The SEIS should define "minimal damage" and explain how the impacts listed in the earlier draft were determined to be minimal. Also, the SEIS should recognize that the following activities are prohibited by Section 922.163, 15 CFR:

"3) Alteration of, or construction on, the seabed. Drilling into, dredging, or otherwise altering the seabed of the Sanctuary, or engaging in prop-dredging; or constructing, placing or abandoning any structure, material, or other matter on the seabed of the Sanctuary...."

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(4) Discharge or deposit of materials or other matter. (i) Discharging or depositing, from within the boundary of the Sanctuary, any material or other matter, except: (A) Fish, fish parts, chumming materials, or bait used or produced incidental to and while conducting a traditional fishing activity in the Sanctuary; (B) Biodegradable effluent incidental to vessel use and generated by a marine sanitation device approved in accordance with section 312 of the Federal Water Pollution Control Act, as amended, (FWPCA), 33 U.S.C. 1322 et seq.;....

(11) Possession or use of explosives or electrical charges. Possessing, or using explosives, except powerheads, or releasing electrical charges within the Sanctuary."

The following statutory citations relate to the issues identified above and also mandate either prohibitions or constraints related to proposed activities which cause pollution; cause, authorize, create, suffer or allow an imminent hazard to occur or continue; cause, place or deposit solid waste in or on land or water in a manner not approved by the DEP: Sections 403.161; 403.727; and, 403.708, F.S., respectively.

Issue #4: Disturbance to Marine waterfowl through interference with nesting, feeding and breeding behaviors in the sensitive backcountry environment.

There are threatened and endangered species of birds; such as bald eagles, white-crowned pigeons, and peregrine falcons, within the areas evaluated and within a Wildlife Management Area. Any impacts to the habitats or disturbances to the marine waterfowl should be done with consideration of the rules under the National Wildlife Refuge System (16 U.S.C.).

Within the DSEIS, section 3.3.3.4.1, it was stated that:

"The heat and noise of launch events may cause mortality to those animals in the immediate vicinity (15 meters/50 feet) of the launch pad that were not previously frightened away by increased human activity. Deposition of hydrogen chloride and aluminum oxide emissions... could cause some spotting and browning of plants.... The long-term result would be some loss of biodiversity in the immediate vicinity of the launch pad."

However, these acts are either prohibited or require permits through 16 U.S.C, Section (c) Prohibited and permitted activities, which states:

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"It shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess..., any migratory bird, any part, nest, or eggs of any such bird "

"No person shall knowingly disturb, injure, cut, burn, remove, destroy, or possess any real or personal property of the United States, including natural growth, in any area of the System; "

Also, under Section 63.302, Florida Statutes, it is unlawful to discharge domestic, industrial, agricultural, or other man-induced non-thermal components which are present in concentrations which are carcinogenic, mutagenic, or teratogenic to human beings, wildlife or welfare.

Issue #5: Negative impacts to marine resources from secondary vessel activity associated with the rocket facility were outlined as follows:

- 1) increased activity at the site may result in disturbance to the wildlife;
- 2) use of aircraft and patrol vessels could increase the chance of striking protected species;
- 3) increased vessel activity to support the upland facility could be of concern due to the shallow surrounding waters. Improper vessel activity within these areas could result in prop dredging, scarring and vessel groundings.

Under 15 CFR, Section 922.163, Sanctuary-wide activities which could act to constrain the above activities include the following:

(5) Operation of vessels. (i) Operating a vessel in such a manner as to strike or otherwise injure coral, seagrass, or any other immobile organism attached to the seabed, including, but not limited to, operating a vessel in such a manner as to cause prop-scarring.

(iv) Operating a vessel in such a manner as to injure or take wading, roosting, or nesting birds or marine mammals. (v) Operating a vessel in a manner which endangers life, limb, marine resources, or property.

Although existing military activities within the sanctuary are allowed and may be exempted from FKNMS provisions pending consultation with the Director of the FKNMS, new military activities would need to be modified so that they are not likely to destroy, or significantly injure Sanctuary resources. If an activity conducted by the DOD is determined to have or cause resource damage, the DOD would need to take

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March 31, 1998
page 7

appropriate actions to cease, respond or mitigate the harm and restore or repair the damage.

Issue #6: Permit Requirements:

Any expanded activities within the Florida Keys will require an Environmental Resource Permit (ERP) from either this agency or the South Florida Water Management District. This ERP requirement was not mentioned in Appendix N, which outlines the required permits. Section 373.414, Florida Statutes also requires the minimization and avoidance of wetland impacts which would be involved in the Saddlebunch Key alternative. Impact to those wetlands would need to be avoided and minimized prior to acceptance of a plan for mitigation. The DSEIS did not clearly outline this requirement.

Based on the information provided, it appears construction of support facilities in the Northwest region of the state will primarily be on uplands. In the event construction will impact wetlands, Wetland Resource Permits will be required. For more assistance regarding wetland permitting processes and standards, please contact Ms. Connie Kristoff at the Northwest District Office, (850)595-8300. The proposed construction will also require stormwater discharge permits. For more information, please contact Mr. Cliff Street also at the above mentioned number.

The DSEIS indicated that water acidity will occur as a result of missile launches from the Keys sites. However, it should be pointed out that the waters surrounding the Keys are classified as Outstanding Florida Waters and also within an Aquatic Preserve, protected from degradation by Chapter 62-302, F.A.C. Any changes in water chemistry would need to be accompanied by reasonable assurances that the project would not degrade water quality standards. Further, it was stated that aluminum oxide and hydrogen chloride may be spilled during the proposed target launch activities. Control of these substances would be required in conjunction with a stormwater management plan which provides assurances that water quality degradation would not occur.

Conclusion

The DSEIS did not adequately address the above issues. Since the preferred alternative is an offshore launch site outside of the FKNMS further analysis of impacts to the Keys or the FKNMS may not be warranted at this time. However, if the Air Force determines at a later date that its testing program should include a launch site in the Keys, the EIS should be supplemented with a complete evaluation of the above issues.

In addition, the DSEIS did not include a federal consistency determination as required by the Coastal Zone Management Act. The final EIS should include an appropriate

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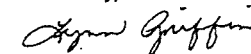
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FL9612240949CR
March 31, 1998
page8

determination in accordance with the requirements of 15 CFR 930, Subpart C, and address consistency of project impacts with the DEP's statutory authorities in the Florida Coastal Management Program, specifically Chapters 373, 403, 161, 370, 253, and 258, Florida Statutes.

We appreciate the opportunity of commenting on this proposal. If you have any questions regarding this letter please call either Mr. Robert Hall or me at (850)487-2231.

Sincerely,



Lynn Griffin
Office of Intergovernmental
Programs

cc: G.P. Schmahl
Anna Marie Hartman
Ron Blackburn

12(cont)

P-W-0050
COMMENT
NUMBER

DIVISIONS OF FLORIDA DEPARTMENT OF STATE
Office of the Secretary
Office of International Relations
Division of Administrative Services
Division of Corporations
Division of Cultural Affairs
Division of Elections
Division of Historical Resources
Division of Library and Information Services
Division of Licensing



FLORIDA DEPARTMENT OF STATE
Sandra B. Mortham
Secretary of State
DIVISION OF HISTORICAL RESOURCES

MEMBER OF THE FLORIDA CANNET
Historic Florida Keys Preservation Board
Historic Palm Beach County Preservation Board
Historic Pensacola Preservation Board
Historic St. Augustine Preservation Board
Historic Tallahassee Preservation Board
Historic Tampa/Hillsborough County
Preservation Board
Ringling Museum of Art

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April 1, 1998

Captain Brian W. Moss
Director, Test & Engineering Resources
Department of the Air Force
Ballistic Missile Defense Organization
7100 Defense Pentagon
Washington, DC 20301-7100

In Reply Refer To:
Laura A. Kammerer
Historic Preservationist Supervisor
Project File No. 981373

RE: Theater Missile Defense Extended Test Range Draft Supplemental Environmental
Impact Statement for Eglin Gulf Test Range
Florida

Dear Captain Moss:

In accordance with the procedures of the National Historic Preservation Act, the National
Environmental Policy Act and Florida's Coastal Management Program, this office has reviewed
the referenced Draft Supplemental Environmental Impact Statement (SEIS). Pursuant to our
responsibilities we will address those sections of the SEIS addressing possible impacts to historic
properties listed, or eligible for listing, in the National Register of Historic Places. Please see
note the following concerns and comments:

It is the opinion of this office that the potential impacts to the historic lighthouse and keeper's
quarters located at Cape San Blas, Gulf County will be more than "minimal". The potential
noise induced vibration impacts may be very significant. We believe the launch noise or sonic
boom will adversely affect the lighthouse lens. If the impacts to the properties are so significant
that they would have to be relocated for protection, this would constitute an adverse effect and a
significant impact.

Launches from Cudjoe Key and Santa Rosa Island may have significant impacts on historic
resources.

We noted that paleontological resources were included throughout the SEIS document under the
cultural resources sections. These are not cultural resources - they pre-date any human life in
Florida.

DIRECTOR'S OFFICE

R.A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399-0250 • (904) 488-1480
FAX: (904) 488-3353 • WWW Address <http://www.dos.state.fl.us>

☐ ARCHAEOLOGICAL RESEARCH (904) 487-2299 • FAX: 414-2207 ☒ HISTORIC PRESERVATION (904) 487-2333 • FAX: 922-0496 ☐ HISTORICAL MUSEUMS (904) 488-1484 • FAX: 921-2503

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P-W-0050
COMMENT
NUMBER

Captain Brian W. Moss
April 1, 1998
Page 2

Do not understand the following statement on Page 3-82, paragraph 1. "Relocation closer to the
launch pad would bring the structures into closer proximity to the coastline, therefore increased
exposure to noise is not anticipated as a result of relocation."

Page 3-82, paragraph 2. It would be more accurate to say "Rehabilitation of ~~one of~~ both of the
keeper's quarters...."

After-the-fact damage assessment and mitigation is not a viable alternative for historic resources.
See Page 3-534, paragraph 3.5.2 as well - "Once a site is disturbed, it may be stabilized and
protected from further deterioration, but it cannot be repaired to its original condition". Why
not?

Throughout the document in the cultural resources sections statements are made such as no
historical resources (shipwrecks or archaeological sites) are "present" or "there are no sites."
Even though an area has been subjected to a cultural resource assessment survey, undiscovered
sites or properties may exist. Therefore it would be more appropriate to use a phrase such as 'no
resources have been identified, or no resources have been encountered' in the underwater site or
the land site. Unexpected discoveries of cultural resources are always a possibility and
provisions for such occurrences have to be addressed.

Page 3-531, paragraph 3.4.4. "The information resulting from the inadvertent loss of some
potentially eligible sites should be useful in future efforts to manage the remaining resources."
This statement makes this office uncomfortable and wish to be able to coordinate further
discussions regarding the Cape San Blas site avoidance and mitigation measures with the Air
Force prior to the completion of the final EIS.

We apologize for being brief, but are trying to provide comments prior to meeting tomorrow in
Washington. We will be more than glad to provide more explanations or meet with SEIS
preparers. If you have any questions concerning our comments, please do not hesitate to contact
us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

for Laura B. Kammerer
George W. Percy, Director
Division of Historical Resources

and
State Historic Preservation Officer

GWP/Kjk

xc: Cherie L. Trainor, State Clearinghouse

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P-W-0051
COMMENT
NUMBER

COUNTY: State

Message:

DATE: 02/23/98
COMMENTS DUE - 2 WKS: 02/26/98
CLEARANCE DUE DATE: 03/30/98
RA#: FL9612240848CR

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm X Marine Fisheries Commission OTTSD State Transportation	Northwest Florida WMD South Florida WMD	Environmental Policy/C & ED

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The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- Federal Assistance to State or Local Government (16 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- X Direct Federal Activity (16 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- Outer Continental Shelf Exploration, Development or Production Activities (16 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- Federal Licensing or Permitting Activity (16 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:
Department of Defense - Theater Missile Defense (TMD) Extended Test Range Draft Supplemental Environmental Impact Statement (DEIS) for Eglin Out Test Range and Notice of Availability for the Proposed TMD Test Program - Florida.

To: Florida State Clearinghouse
Department of Community Affairs
2655 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(850) 822-8438 (SC 292-5438)
(904) 414-0479 (FAX)

EO. 12372/NMFA

Federal Consistency

☐ No Comment
☐ Comments Attached
☐ Not Applicable

☒ No Comment/Consistent
☐ Consistent/Comments Attached
☐ Inconsistent/Comments Attached
☐ Not Applicable

From: _____
Division/Bureau: _____
Reviewer: _____
Date: 2/2/98

01

P-W-0052
COMMENT
NUMBER

COUNTY: State

Message:

DATE: 02/23/98
COMMENTS DUE - 2 WKS: 02/26/98
CLEARANCE DUE DATE: 03/30/98
RA#: FL9612240849CR

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm Marine Fisheries Commission OTTSD State Transportation	X Northwest Florida WMD South Florida WMD	Environmental Policy/C & ED

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- Federal Assistance to State or Local Government (16 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- X Direct Federal Activity (16 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- Outer Continental Shelf Exploration, Development or Production Activities (16 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- Federal Licensing or Permitting Activity (16 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:
Department of Defense - Theater Missile Defense (TMD) Extended Test Range Draft Supplemental Environmental Impact Statement (DEIS) for Eglin Out Test Range and Notice of Availability for the Proposed TMD Test Program - Florida.

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EO. 12372/NMFA

Federal Consistency

☐ No Comment
☒ Comments Attached
☐ Not Applicable

☐ No Comment/Consistent
☒ Consistent/Comments Attached
☐ Inconsistent/Comments Attached
☐ Not Applicable

From: NWPWMS
Division/Bureau: RMD, Bm. Gov. & Res. Plan.
Reviewer: Duncan J. Cairns
Date: 3 March 1998

01

South
Florida
Regional
Planning
Council



RECEIVED
MAR 16 1998

State of Florida Clearinghouse

VIA FACSIMILE AND MAIL

March 12, 1998

Ms. Cherie Trainor
Florida State Clearinghouse
Florida Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

RE: SFRPC #98-0307, SAI #FL9612240949CR - Request for comments on the Theater Missile Defense Extended Test Range Draft Supplemental Environmental Impact Statement for the Eglin Gulf Test Range, U.S. Department of Defense, Boca Chica, Cudjoe, Fleming and Saddlebunch Keys, Monroe County.

Dear Ms. Trainor:

We have reviewed the above-referenced permit application and have the following comments:

- Council staff is greatly concerned about the impacts this project could have on the water quality, wildlife habitat and the overall ecological integrity of the region. The project should be consistent with the goals and policies of the Monroe County and City of Key West comprehensive plans and their corresponding land development regulations and the goals and policies of the Florida Keys National Marine Sanctuary Management Plan.
- Staff recognizes the location of the alternative test launch sites' launch hazard areas in the Florida Keys National Marine Sanctuary, the Key Deer National Wildlife Refuge and the Great White Heron National Wildlife Refuge, natural resources of regional significance as designated in the Strategic-Regional Policy Plan of South Florida (SRPP). Staff recommends that, if the use of these alternative sites is pursued, 1) impacts to the natural systems be minimized to the greatest extent feasible and 2) the Department of Defense determine the extent of sensitive marine life and vegetative communities in the vicinity of the project and protect and or mitigate disturbed habitat. This will assist in reducing the cumulative impacts to native plants and animals, wetlands and deep water habitat and fisheries that the goals and policies of the SRPP seek to protect.
- The goals and policies of the SRPP, in particular those indicated below, should be observed when making decisions regarding this project.

P-W-0053
COMMENT
NUMBER

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Ms. Cherie Trainor
March 12, 1998
Page 2

Strategic Regional Goal

- 3.1 Eliminate the inappropriate uses of land by improving the land use designations and utilize land acquisition where necessary so that the quality and connectedness of Natural Resources of Regional Significance and suitable high quality natural areas is improved.

Regional Policies

- 3.1.1 Natural Resources of Regional Significance and other suitable natural resources shall be preserved and protected. Mitigation for unavoidable impacts will be provided either on-site or in identified regional habitat mitigation areas with the goal of providing the highest level of resource value and function for the regional system. Endangered faunal species habitat and populations documented on-site shall be preserved on-site. Threatened faunal species and populations and species of special concern documented on-site, as well as critically imperiled, imperiled and rare plants shall be preserved on-site unless it is demonstrated that off-site mitigation will not adversely impact the viability or number of individuals of the species.
- 3.1.2 Direct inappropriate uses of land that are not consistent with the protection and maintenance of natural resource values away from Natural Resources of Regional Significance and suitable natural resource areas.
- 3.1.9 Degradation or destruction of Natural Resources of Regional Significance, including listed species and their habitats will occur as a result of a proposed project only if:
- a) the activity is necessary to prevent or eliminate a public hazard, and
 - b) the activity is in the public interest and no other alternative exists, and
 - c) the activity does not destroy significant natural habitat, or identified natural resource values, and
 - d) the activity does not destroy habitat for threatened or endangered species, and
 - e) the activity does not negatively impact listed species that have been documented to use or rely upon the site.
- 3.1.10 Proposed projects shall include buffer zones between development and existing Natural Resources of Regional Significance and other suitable natural resources. The buffer zones shall provide natural habitat values and functions that compliment Natural Resources of Regional Significance values so that the natural system values of the site are not negatively impacted by adjacent uses. The buffer zones shall be a minimum of 25 feet in width. Alternative widths may be proposed if it is demonstrated that the alternative furthers the viability of the Natural Resource of Regional Significance, effectively separating the development impacts from the natural resource or contributing to reduced fragmentation of identified Natural Resources of Regional Significance.
- 3.1.11 Implement monitoring and maintenance of Natural Resources of Regional Significance and other suitable natural resources so that an Overall Positive Gain in quality and quantity of the Natural Resources of Regional Significance is achieved. The monitoring of the Natural Resources of Regional Significance shall be included on all projects that have not been demonstrated to not adversely impact the resource or associated listed species.

P-W-0053
COMMENT
NUMBER

Ms. Cherie Trainor
March 12, 1998
Page 3

3.1.19 Uses of the land shall be consistent with the sustained ecological functioning of the Natural Resources of Regional Significance and suitable adjacent natural buffer areas and will be based upon the radius required to provide protection to the natural system and associated inhabitants. The radius will vary in size depending upon the resource or species that is to be protected.

Strategic Regional Goal

3.2 Develop a more efficient and sustainable allocation of the water resources of the region.

Regional Policies

3.2.6 When reviewing proposed projects and through the implementation of the SRPP, discourage water management and proposed development projects that alter the natural wet and dry cycles of Natural Resources of Regional Significance or suitable adjacent buffer areas or cause functional disruption of wetlands or aquifer recharge areas.

3.2.9 Require all inappropriate inputs into Natural Resources of Regional Significance to be eliminated through such means as; redirection of offending outfalls, suitable treatment improvements or retrofitting options.

3.2.10 The discharge of freshwater to Natural Resources of Regional Significance and suitable adjacent natural buffer areas shall be designed to imitate the natural discharges in quality and quantity as well as in spatial and temporal distribution.

3.2.11 Existing stormwater outfalls that do not meet or improve upon existing water quality or quantity criteria or standard, or cause negative impacts to Natural Resources of Regional Significance or suitable adjacent natural buffer areas shall be modified to meet or exceed the existing water quality or quantity criteria or standard. The modification shall be the responsibility of the outfall operator, permittee or applicant.

Strategic Regional Goal

3.3 Achieve improved air quality throughout the region through a reduction of transportation related impacts and the increased use of natural plantings.

Regional Policies

3.3.6 Proposed development shall be reviewed with respect to the potential for related impacts to the regional air quality, and negative impacts eliminated or effectively mitigated.

Strategic Regional Goal

3.4 Improve the protection of upland habitat areas and maximize the interrelationships between the wetland and upland components of the natural system.

Regional Policies

3.4.4 Require the use of ecological studies and site and species specific surveys in projects that may impact natural habitat areas to ensure that rare and state and federally listed plants and wildlife are identified with respect to temporal and spatial distribution.

Ms. Cherie Trainor
March 12, 1998
Page 4

3.4.5 Identify and protect the habitats of rare and state and federally listed species. For those rare and threatened species that have been scientifically demonstrated by past or site specific studies to be relocated successfully, without resulting in harm to the relocated or receiving populations, and where *in-situ* preservation is neither possible nor desirable from an ecological perspective, identify suitable receptor sites, guaranteed to be preserved and managed in perpetuity for the protection of the relocated species that will be utilized for the relocation of such rare or listed plants and animals made necessary by unavoidable project impacts. Consistent use of the site by endangered species, or documented endangered species habitat on-site shall be preserved on-site.

3.4.6 Require the protection of listed species identified in ecological studies of proposed project areas by such means as, the isolation of suitable habitat or relocation of the individuals to suitable Natural Resources of Regional Significance or other suitable natural areas with sufficient carrying capacity consistent with the requirements of Policies 3.4.1, 3.4.2, 3.4.3, 3.4.4, and 3.4.5.

3.4.7 Natural system corridors shall include upland as well as wetland habitat areas to facilitate the re-establishment of regional system ecological values and functions.

3.4.8 Remove invasive exotics from all Natural Resources of Regional Significance and associated buffer areas. Require the continued regular and periodic maintenance of areas that have had invasive exotics removed.

3.4.9 Required maintenance shall insure that re-establishment of the invasive exotic does not occur.

3.4.10 Local governments shall be encouraged to require invasive exotic removal as a condition of development approvals.

3.4.11 Local governments shall be encouraged to remove invasive exotics from government property.

Strategic Regional Goal

3.8 Enhance and preserve natural system values of South Florida's shorelines, estuaries, benthic communities, fisheries, and associated habitats, including but not limited to, Florida Bay, Biscayne Bay and the coral reef tract.

Regional Policies

3.8.1 Enhance and preserve natural shoreline characteristics through requirements resulting from the review of proposed projects and in the implementation of ICE, including but not limited to, mangroves, beaches and dunes through prohibition of structural shoreline stabilization methods except to protect existing navigation channels, maintain reasonable riparian access, or allow an activity in the public interest as determined by applicable state and federal permitting criteria.

3.8.2 Enhance and preserve benthic communities, including but not limited to seagrass and shellfish beds, and coral habitats, by allowing only that dredge and fill activity, artificial shading of habitat areas, or destruction from boats that is the least amount practicable, and by encouraging permanent mooring facilities. Dredge and fill activities may occur on

Ms. Cherie Trainor
March 12, 1998
Page 5

submerged lands in the Florida Keys only as permitted by the Monroe County Land Development Regulations. It must be demonstrated pursuant to the review of the proposed project features that the activities included in the proposed project do not cause permanent, adverse natural system impacts.

3.8.3 As a result of proposed project reviews, include conditions that result in a project that enhances and preserves marine and estuarine water quality by:

- a) improving the timing and quality of freshwater inflows;
- b) reducing turbidity, nutrient loading and bacterial loading from wastewater facilities, vessels;
- c) reducing the number of improperly maintained stormwater systems; and
- d) requiring port facilities and marinas to implement hazardous materials spill plans.

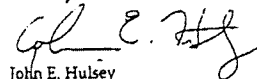
3.8.4 Enhance and preserve commercial and sports fisheries through monitoring, research, best management practices for fish harvesting and protection of nursery habitat and include the resulting information in educational programs throughout the region. Identified nursery habitat shall be protected through the inclusion of suitable habitat protective features including, but not limited to:

- a) avoidance of project impacts within habitat area;
- b) replacement of habitat area impacted by proposed project; or
- c) improvement of remaining habitat area within remainder of proposed project area.

3.8.5 Enhance and preserve habitat for endangered and threatened marine species by the preservation of identified endangered species habitat and populations. For threatened species or species of critical concern, on-site preservation will be required unless it is demonstrated that off-site mitigation will not adversely impact the viability or number of individuals of the species.

Thank you for the opportunity to comment. We would appreciate being kept informed on the progress of this project. Please do not hesitate to call if you have any questions or comments.

Sincerely,



John E. Hulsey
Senior Planner

JEH:kg

cc: Timothy McGarry, Monroe County Planning
Ted Strader, City of Key West Planning

P-W-0053
COMMENT
NUMBER

FLORIDA STATE CLEARINGHOUSE
RPC INTERGOVERNMENTAL COORDINATION
AND RESPONSE SHEET

SAI #: FLW1248949CR

DATE: 02/12/98

COMMENTS DUE TO CLEARINGHOUSE: 03/14/98

AREA OF PROPOSED ACTIVITY: COUNTY: State

☐ FEDERAL ASSISTANCE ☒ DIRECT FEDERAL ACTIVITY ☐ FEDERAL LICENSE OR PERMIT ☐ OCS

PROJECT DESCRIPTION

Department of Defense - Theater Missile Defense (TMD) Extended Test Range Draft Supplemental Environmental Impact Statement (DEIS) for Eglin Gulf Test Range and Notice of Availability for the Proposed TMD Test Programs - Florida.

ROUTING:

RPC

South FL RPC
X West Florida RPC
Apalachicola RPC

RECEIVED
MAR 04 1998

State of Florida Clearinghouse

PLEASE CHECK ALL THE LOCAL GOVERNMENTS BELOW FROM WHICH COMMENTS HAVE BEEN RECEIVED; ALL COMMENTS RECEIVED SHOULD BE INCLUDED IN THE RPC'S CLEARINGHOUSE RESPONSE PACKAGE. IF NO COMMENTS WERE RECEIVED, PLEASE CHECK "NO COMMENT" BOX AND RETURN TO CLEARINGHOUSE.

COMMENTS DUE TO RPC: 03/05/98

NO COMMENTS: ☒

(IF THE RPC DOES NOT RECEIVE COMMENTS BY THE DEADLINE DATE, THE RPC SHOULD CONTACT THE LOCAL GOVERNMENT TO DETERMINE THE STATUS OF THE PROJECT REVIEW PRIOR TO FORWARDING THE RESPONSE PACKAGE TO THE CLEARINGHOUSE.)

NOTES:

ALL CONCERNS OR COMMENTS REGARDING THE ATTACHED PROJECT (INCLUDING ANY RPC COMMENTS) SHOULD BE SENT IN WRITING BY THE DUE DATE TO THE CLEARINGHOUSE. PLEASE ATTACH THIS RESPONSE FORM AND REFER TO THE SAI # IN ALL CORRESPONDENCE.

IF YOU HAVE ANY QUESTIONS REGARDING THE ATTACHED PROJECT, PLEASE CONTACT THE STATE CLEARINGHOUSE AT (904) 922-5438 OR SUNCOM 272-5438.

P-W-0054
COMMENT
NUMBER

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P-W-0055
COMMENT
NUMBER

FLORIDA STATE CLEARINGHOUSE
RPC INTERGOVERNMENTAL COORDINATION
AND RESPONSE SHEET

SAI #: FL9612340949CR DATE: 02/12/98

COMMENTS DUE TO CLEARINGHOUSE: 03/14/98

AREA OF PROPOSED ACTIVITY: COUNTY: State

☐ FEDERAL ASSISTANCE ☒ DIRECT FEDERAL ACTIVITY ☐ FEDERAL LICENSE OR PERMIT ☐ OCS

PROJECT DESCRIPTION

Department of Defense - Theater Missile Defense (TMD) Extended Test Range Draft Supplemental Environmental Impact Statement (DEIS) for Eglin Gulf Test Range and Notice of Availability for the Proposed TMD Test Programs - Florida.

ROUTING: RPC

South FL RPC
West Florida RPC
X Apalachicola RPC

RECEIVED
MAR 17 1998

State of Florida Clearinghouse

RECEIVED
FEB 27 1998
3434
APALACHICOLA REGIONAL
PLANNING COUNCIL

PLEASE CHECK ALL THE LOCAL GOVERNMENTS BELOW FROM WHICH COMMENTS HAVE BEEN RECEIVED; ALL COMMENTS RECEIVED SHOULD BE INCLUDED IN THE RPC'S CLEARINGHOUSE RESPONSE PACKAGE. IF NO COMMENTS WERE RECEIVED, PLEASE CHECK "NO COMMENT" BOX AND RETURN TO CLEARINGHOUSE.

COMMENTS DUE TO RPC: 03/06/98

☐ Bay County
☐ Santa Rosa County

NO COMMENTS: ☒
(IF THE RPC DOES NOT RECEIVE COMMENTS BY THE DEADLINE DATE, THE RPC SHOULD CONTACT THE LOCAL GOVERNMENT TO DETERMINE THE STATUS OF THE PROJECT REVIEW PRIOR TO FORWARDING THE RESPONSE PACKAGE TO THE CLEARINGHOUSE.)

NOTES:

ALL CONCERNS OR COMMENTS REGARDING THE ATTACHED PROJECT (INCLUDING ANY RPC COMMENTS) SHOULD BE SENT IN WRITING BY THE DUE DATE TO THE CLEARINGHOUSE. PLEASE ATTACH THIS RESPONSE FORM AND REFER TO THE SAI # IN ALL CORRESPONDENCE.

IF YOU HAVE ANY QUESTIONS REGARDING THE ATTACHED PROJECT, PLEASE CONTACT THE STATE CLEARINGHOUSE AT (904) 922-5438 OR SUNCOM 272-5438.

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P-W-0056
COMMENT
NUMBER

FLORIDA STATE CLEARINGHOUSE
LOCAL GOVERNMENT COORDINATION
ROUTING SHEET

SAI #: FL9612340949CR

DATE: 02/12/98

COMMENTS DUE TO RPC: 03/05/98

AREA OF PROPOSED ACTIVITY: COUNTY: State

☐ FEDERAL ASSISTANCE ☒ DIRECT FEDERAL ACTIVITY ☐ FEDERAL LICENSE OR PERMIT ☐ OCS

PROJECT DESCRIPTION

Department of Defense - Theater Missile Defense (TMD) Extended Test Range Draft Supplemental Environmental Impact Statement (DEIS) for Eglin Gulf Test Range and Notice of Availability for the Proposed TMD Test Programs - Florida.

ROUTING:

RPC
South FL RPC
West Florida RPC
X Apalachicola RPC

Local Governments
Bay County
Santa Rosa County
X Gulf County

RECEIVED
MAR 17 1998

State of Florida Clearinghouse

RECEIVED
MAR 10 1998
3747
APALACHICOLA REGIONAL
PLANNING COUNCIL

IF YOU HAVE NO COMMENTS, PLEASE CHECK HERE AND RETURN FORM TO RPC:

ALL CONCERNS OR COMMENTS REGARDING THE ATTACHED PROJECT SHOULD BE SENT IN WRITING BY THE DUE DATE TO THE REGIONAL PLANNING COUNCIL(S) SHOWN BELOW. PLEASE REFER TO THE SAI # IN ALL CORRESPONDENCE:

Mr. Mike Donovan
Apalachicola Regional Planning Council
314 West Central Avenue
Room 119
Blountstown, FL 32424

RECEIVED

IMPORTANT: PLEASE DO NOT SEND COMMENTS DIRECTLY TO THE CLEARINGHOUSE!

IF YOU HAVE QUESTIONS REGARDING THE ATTACHED PROJECT OR THE INTERGOVERNMENTAL COORDINATION PROCESS, PLEASE CONTACT THE STATE CLEARINGHOUSE. IF YOU HAVE QUESTIONS REGARDING THE FEDERAL CONSISTENCY REVIEW PROCESS, PLEASE CONTACT THE FLORIDA COASTAL MANAGEMENT PROGRAM. THE TELEPHONE NUMBER FOR BOTH PROGRAMS IS (904) 922-5438 OR SUNCOM 272-5438.

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P-W-0057
COMMENT
NUMBER

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
Project Review Form

RECEIVED
MAR 04 1998

TO: State Clearinghouse
Department of Community Affairs
2858 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
State of Florida Clearinghouse

DATE: March 3, 1998

SUBJECT: Project Review: Intergovernmental Coordination
Title: Dept. of Defense-Theater Missile Defense (TMD) Extended Test Range
Draft Supplemental Environmental Impact Statement (DEIS) for
Eglin Gulf Test Range and Notice of Availability for the Proposed
TMD Test Programs-Florida
SAI #: FL8612240949CR

The District has reviewed the subject application and attachments in accordance with its responsibilities and authority under the provisions of Chapter 373, Florida Statutes. As a result of review, the District has the following responses:

ACTION

- ☐ No Comment.
- ☐ Supports the project.
- ☐ Objects to the project; explanation attached.
- ☐ Has no objection to the project; explanation optional.
- ☐ Cannot evaluate the project; explanation attached.
- ☐ Project requires a permit from the District under ____.

DEGREE OF REVIEW

- ☒ Documentation was reviewed.
- ☐ Field investigation was performed.
- ☐ Discussed and/or contacted appropriate office about project.
- ☐ Additional documentation/research is required.
- ☒ Comments attached.

SIGNED Maria Culbertson
Duncan Jay Calms
Chief, Bur. Env. & Res. Plng.

P-W-0057
COMMENT
NUMBER

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

MEMORANDUM

TO: Duncan Calms, Chief, Bureau of Environmental Management and Planning

FROM: Paul Thorpe, Assistant Water Resource Planner

DATE: March 3, 1998

SUBJECT: Draft SEIS for Theater Missile Defense Test Range, SAI# FL9612240949CR

FILE: H:\p_thorpe\comments\NEPAITMD 980303

Based on the Draft Supplemental EIS submitted, District staff have concerns about the proposed action with regard to wastewater treatment, nonpoint source pollution, and wetland impacts. Additionally, page 3-232 incorrectly states that the waters of St. Joe Bay subject to impact are Class III. These are Class II waters according to Section 62-302.600 (3) (b), Florida Administrative Code (F.A.C.).

Both Santa Rosa Sound and St. Joe Bay are receiving increasing cumulative impacts which may degrade their habitat quality and threaten their viability as recreational and shellfish waters. It would appear that surface water quality may be impacted by increased effluent from septic systems and increased nonpoint source pollution via stormwater runoff during both construction of new facilities and implementation of the proposed action. The proposed actions should involve full consideration of the status of the affected waters. The affected portions of both Santa Rosa Sound and St. Joe Bay are Class II (shellfish propagation and harvesting) waters, and St. Joe Bay is also an Aquatic Preserve and Outstanding Florida Water (OFW). As an OFW, any degradation of water quality, including due to indirect impacts, is prohibited in accordance with Section 62-302.700, F.A.C. Additionally, both Santa Rosa Sound and St. Joe Bay are Surface Water Improvement and Management (SWIM) priority waterbodies, which represents a public commitment to their protection.

Consideration should also be given to whether it would be feasible to avoid or further minimize wetland impacts, such as those planned for Cape San Blas. Additionally, new impervious surfaces should be minimized, the suitability of soils for septic tank use should be evaluated, and all stormwater runoff should be captured and treated on site.

Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

I ask that any plans to launch missiles from the Florida Keys be abandoned by the Air Force. Like most of the Keys residents who attended the SEIS meeting this month in Key West, I find this study flawed. We who live in the Keys are in a delicate environmental area. Building has been dramatically limited and regulations abound to protect our waters, birds, and reef. It is an emergency to even consider launching missiles from our area.

*Lois Semonds
701 Spanish Main
Cudjoe Key, Fla.
33042*

Please place form in the comment box or mail to:

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

Printed on recycled paper

March 1998

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Cape San Blas Taxpayers Association
POST OFFICE BOX 544, PORT St. Joe 32456

March 17, 1998

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

Dear Ms. Ninh:

This Association has surveyed it's member property owners here at Cape San Blas. 91 members, or about one fifth of the total property owners object to the use of Cape San Blas for the selected missile launching site.

At the SEIS briefing no new information was presented to indicate that any other site was offered as an alternative in this proposed test action. I believe that this process of selection should have been subjected to the same selection process as the one three years ago, when several alternative sites were offered.

Your SEIS briefing papers show that there are environmental damages to the land and waters when launches are made. This area is in the St. Joseph Bay Aquatic Preserve, and the impact of launch actions certainly is not consistent with the objectives of an Aquatic Preserve.

Cape San Blas is not the low population density it once was. The population is growing regularly and is expected to increase rapidly as the Port St. Joe and Gulf County activities for economic development take effect. This area will become much more of a tourist and beach retirement and vacation spot, with appropriate infrastructure. The missile launching activity will be a deterrent to economic growth. Here in a small county steady economic growth will be needed as the main industry (the paper mill) slows and eventually goes out of production.

We are concerned that the nesting sea turtles and bald eagle nest will be impacted. We do not believe that the elimination of 1.6 acres of wet land should be required. Since the Department of Defense does not fully and actively utilize all of it's ranges and bases, it would seem reasonable that another location could be found.

Potential damage to the lighthouse and the adjacent historic quarters could be avoided by finding another launch site. Gulf County government is trying to acquire and preserve this area for the people. In a small county where funds are scarce, expenditure of dollars to fix something you damage in launch activity is an unnecessary expense.

Since your plan does not include any substantial or regular inflow of funds to the county for the activities planned, it does not help the County cope with the logistics of your presence here. I feel certain that unless some method of funding to help the local government is worked out, this activity will end up a drain on our local taxpayers.

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COUNTY OF MONROE
530 WHITEHEAD STREET
KEY WEST, FLORIDA 33040

Shirley Freeman
County Commissioner

305-292-3430
Fax 305-292-3577
bocfree@mail.state.fl.us

March 31, 1998

Lieutenant General Lester Lyles
Department of Defense
Ballistic Missile Defense Organization
7100 Defense Pentagon
Washington, D.C. 20301-7100

Dear General Lyles,

I am writing to summarize my concerns, and those of the citizens of Monroe County, regarding the serious deficiencies in the Draft Supplemental Environmental Impact Statement (DSEIS) for the Eglin Gulf Test Range (EGTR). The deficiencies in the assessment of the land launch alternatives at Cudjoe and Saddlebunch Keys were identified in testimony at the public hearings in Key West and Marathon on March 12 and 13, 1998. That testimonies of thoughtful and technically competent individuals, copies of which are in your possession, merit your closest attention. The most important deficiencies in the DSEIS that were identified in the hearings were:

1. *The failure to assess the short and long term effects of the repetitive launching of the Hera missile in the shallow water, high humidity environment of the Lower Keys. Of particular concern is the failure to provide a relevant assessment of the formation and dispersal of Hydrochloric acid in an environment similar to that in the Keys. The DSEIS does not address the toxicological effects of unburned solid rocket propellant that may remain in the environment following a launch failure.*
2. *The reduction in the size of the launch hazard area (LHA) from 4.5 miles to 1.5 miles from the closest human habitation. No discussion was provided of the rationale for departing from established practices. We are particularly concerned about the school and the homes that exist within 4.5 miles of the launch site.*
3. *The failure to discuss in a meaningful way the impact that periodic missile convoys will have on the vital artery that is U.S. Route 1. Size, speed and timing of convoys are not disclosed nor are the specifics of their impact on traffic or emergency response systems.*

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4. *The natural biota of the Keys are misunderstood and understated. The impact of land launch activity on wildlife and plants is underestimated. An abundance of resource material exists from which an accurate listing of biota can be developed. The reassessment described in (1.) above will provide a more accurate estimate of the nature and dispersal of hazardous materials from which a better estimate of environmental impact can be made.*
5. *Averaging the periodic, night-time sound blast of a Hera launch into the year round low level noise of the Keys in order to reach the conclusion that it is of no consequence is contrived and absurd. The discussion of the impact of the proposed activity on nearby residents needs to be rational, complete and credible.*
6. *There is no assessment of the impact of the proposed activity on real estate values and tax revenues. The impact on values and revenues as the result of adopting the land launch alternative requires assessment as does the consequence of an accidental failure.*

These are important issues that need to be acknowledged and addressed in the Final SEIS.

Sincerely,

Shirley Freeman
Commissioner Shirley Freeman
Monroe County, Florida

cc: Ms. Linda Ninh - Eglin AFB

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Daniel C. Probert, P.E.
3728 Flagler Avenue
Key West, FL 33040-4529
(305) 294-7243

After attending the Key West public forum on 12 March 1998, I feel that the team fielded by Commissioner Freeman presented a rather strong case to show flaws in the draft SEIS. The factual level of the material presented might be questioned because of the presenter's emotional feelings due to their geographic proximity to the proposed launch areas.

I have advocated a sea launch as the preferred site almost since the inception of the program. It eliminates most of the environmental complaints since it would move the launch site a significant geographic distance from any population.

I understand that the Army is already building an un-powered sea launch platform. They may not be using the best approach, but in any event I think they have the right concept for this geographic location. I would like for the Army to know that an excellent maritime support activity exists in Key West at the Naval Air Warfare Center Detachment (NAWC Det).

Missiles could be assembled at Eglin, loaded on the launch platform and towed to the desired launch location. They could be highway transported to Bradenton and craned aboard the launch platform. Bradenton (by Tampa) has an ordnance handling area and is convenient to I-75. Or they could be trucked down to the Navy ordnance storage facility on Fleming Key (near Key West) and loaded aboard subject platform.

The NAWC Det has an ordnance certified vessel capable of craning over 100,000 pounds with only 12 feet of draft. This shallow draft allows it to utilized most dockside facilities.

I would like to suggest that you move the sea launch option up to a preferred status in your SEIS. I would also like to see a Memorandum Of Understanding (MOU) in place with the NAWC Det and make this program even more of a joint services project. The NAWC Det presently provides maritime services to the Air Force to support the tracking towers in the Tactical Air Combat Training System (TACTS) range. These are located in an area which would encompass a likely sea launch site.

NOTE: A copy of an area chart is attached..

Dan Probert 3/28/98

Dan Probert 3/28/98

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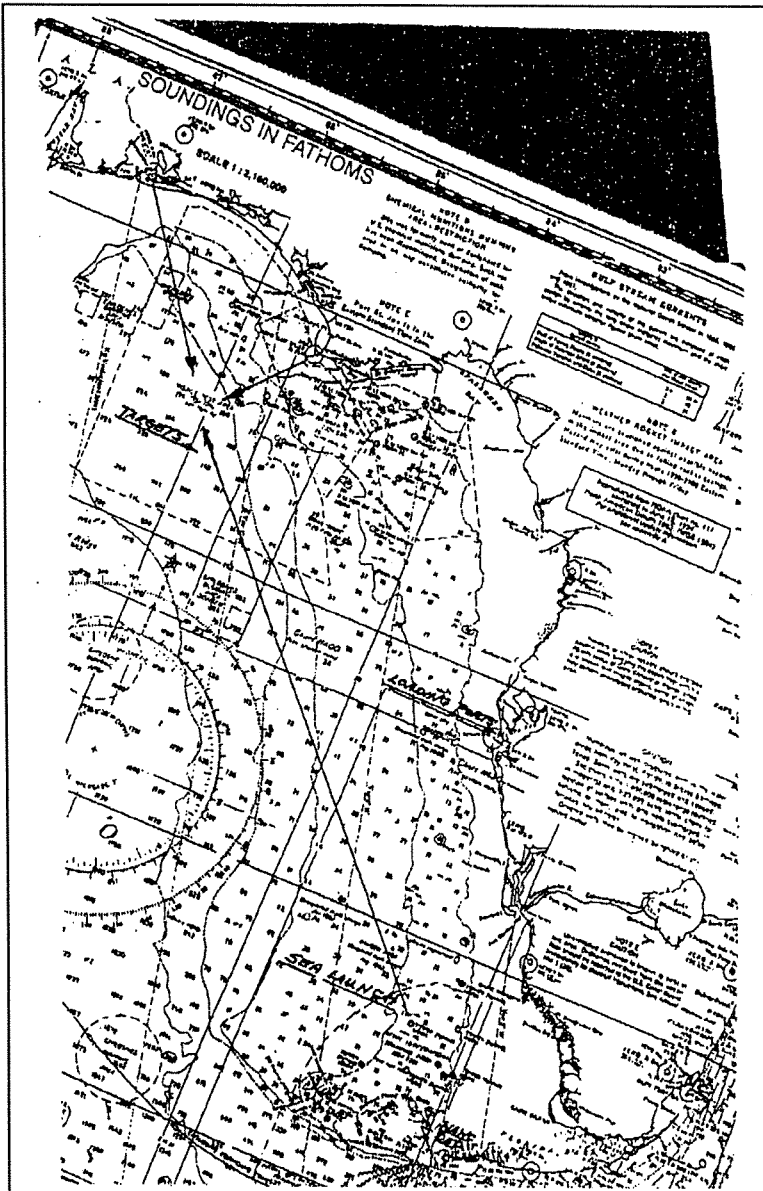
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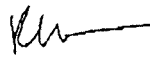
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	P-W-0062 COMMENT NUMBER		P-W-0062 COMMENT NUMBER
Lieutenant General Lester Lyles Department of Defense Ballistic Missile Defense Organization 7100 Defense Pentagon Washington, D.C. 20301-7100 Dear General Lyles, As with all Environmental Impact Studies (EIS) an economic impact survey must be included. This survey should include not just personnel expenditures, local procurement, and salary impacts but it must include the effects on real estate, both in respect to value up or down and the desirability to the human habitat. I don't have a dog in this fight. I don't own real estate in the Cudjoe/Saddlebunch area, and I don't sell or deal in real estate. I don't have any interest in living in the Cudjoe/Saddlebunch area however I do own property and am long time resident of Key West. I am a member of the missile task force that made a presentation March 7, 1998 in Key West. The proposed activity regarding missile firing of up to twelve per year for ten years is a significantly active schedule. The proposed estimate is budgeted at \$6 million per event and \$720 million over the 10 year life of the testing program. All these funds will be spent in and around Eglin AFB. Less than half of one percent will be spent in the Keys. According to the SEIS, this will be spent on temporary duty (TDY-food and lodging) There is no indication of salaries or any full time civil service employees or wage earners/taxpayers in Monroe County. I believe this is the main reason for the glaring omission from the Air Force EIS. The desirability of property and the degradation of the environment in the launch hazard areas (LHA) has become painfully apparent. The possibility of a launch disaster has been ratcheted up considerably. All this will have a negative impact on real estate values. A recent unscientific survey of Realtors, appraisers and tax assessors has rendered some disturbing figures. It is estimated that a degradation of value as much as 20 to 35% can occur under the ambitious testing schedule. A disaster could reduce property values as much as 50 - 60% depending on proximity to the LHA. This loss includes commercial, residential and unimproved property appraisals as well as the possibility for resale and the desirability to relocate in the LHA. This will not only translate into serious financial loss to the homeowner but to the tax base in Monroe County. The taxing districts of 100B and 100C will be the most heavily impacted. The total value of these two districts is \$585 million. County tax revenues of \$7.9 million	01	were collected in 1997. Using the degraded figure of 20% reduction of value the adjusted value would be \$468 million and reduced taxes paid to Monroe County \$1.6 million. This multiplied by the ten year proposed USAF launch schedule, not adjusted for inflation or appreciation in today's dollars would amount to a loss of \$15.7 million - not an insignificant amount. In the worst case example (and not an unlikely occurrence), a missile demolition within ten seconds of flight could reduce the real estate values by 50% and possibly making 20-50 residences permanently uninhabitable. Extend to the full LHA and the five mile radius, the personal loss in property values would be \$292.5 million tax base revenues reduced to \$3.9 million. An astounding amount of \$39.4 million loss over 10 years (not adjusted for inflation in today's dollars) would be realized. The omission of this data in the EIS for SEIS is unacceptable. A full review of real estate values must be included in the final EIS and be reviewed by our local tax office, the real estate board and the county commissioners. There are absolutely no good reasons for launching missiles from the Keys - not environmentally, not financially and not logically. Sincerely,  Richard Moody 918 White Street Key West, FL 33040 (305) 296-5624 cc: Congressman Peter Deutch Representative Debbie Horan Ms. Linda Niah - Eglin AFB	06(cont)
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Comment Sheet

for the
Theater Missile Defense (TMD)
Extended Test Range (ETR)
Supplemental Environmental Impact Statement (SEIS) —
Eglin Gulf Test Range (EGTR)

Thank you for attending this meeting. Please use this sheet to write down comments that you have regarding the SEIS. Your comments must be received by Ms. Ninh by April 3, 1998 to ensure they are considered in the Final SEIS.

- I am opposed to Missile Testing over the Gulf of Mexico completely.
- ① How many successfully completed launches are you planning for each in
 - ② Have you estimated the total effect for each fall of these launches or are
your EIS estimates for only one launch? Repeated launches can not only
have an immediate but also a long term detrimental as each launch can compare
the effects of each previous launch, thus preventing ecosystem recovery
 - ③ In the past few years, Fla. shore residents have been plagued by red tide along
the gulf. It has been associated with coastal runoff and mainland major
rivers emptying into the gulf. This red tide has severely affected fish, and
other marine life, especially the manatees, which have had serious
mortality rates from it. Have you considered and measured —

Please place form in the comment box or mail to:
Ms. Linda Ninh
46 OG/OGM-TMD
205 West D. Ave, Suite 241
Eglin AFB, FL 32542-6866

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March 1998

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what kind and what amount of plant and animal kills will occur from each launch due to toxic rocket emissions, debris and chemical residue?

Along with the adverse environmental impacts we've had in the gulf from red tide, El Nino and coral reef loss during the past few years (all of which we have little control of) my question is ... do we need one more adverse intrusion such as missile launches (which we can control) over the gulf of Mexico?! NOT!

Coastal cleanup of dead fish, autopsies of dead manatees and protection of coral reefs all cost taxpayers, you and me, lots of money. Missile launches cost taxpayers lots of money too. Why can't you come up with a plan that won't cost us taxpayers more in years of cleanup and lost revenues due to lost tourist income. No one wants to go to Florida's beautiful beaches littered with dead smelly fish!

Respectfully,
Mari T. Hanley

1-0418433
Mrs. Mari T. Hanley
14641 Double Eagle Ct.
Fort Myers, FL 33912

Naturalists with Lee County
Parks, Florida

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Texaco Exploration and Production Inc
Offshore Division

P O Box 60252
New Orleans LA 70160
504 524 8611

March 31, 1998

Ms. Linda Ninh
46 OG/OGM-TMD
205 West D Avenue, Suite 241
Eglin AFB, FL 32578-6866

Re: Theater Missile Defense-Extended Test Range
Eglin Gulf Test Range
Supplemental Environmental Impact Statement (SEIS)
Comments on Draft SEIS

Dear Ms. Ninh;

Texaco Exploration and Production Inc. (TEPI) welcomes this opportunity to submit comments on the Ballistic Missile Defense Organization's Draft Supplemental Environmental Impact Statement (SEIS) covering the proposed action to enhance the capability of the Eglin Gulf Test Range (EGTR) to conduct Theater Missile Defense (TMD) testing or training activities. The Draft SEIS supplements the TMD Extended Test Range Final EIS prepared by the U.S. Army Space and Missile Defense Command in 1994.

TEPI is a wholly owned subsidiary of Texaco Inc. a fully integrated international energy company engaged in all aspects of the oil and gas business in the United States and around the world. Texaco Inc.'s activities include, but are not limited to, exploring, producing, refining, transporting and marketing crude oil, natural gas and various refined products. Texaco Inc. and certain of its subsidiary companies have held and operated oil and gas leases in the Gulf of Mexico since 1936. TEPI currently owns and operates numerous federal and state leases throughout the Gulf of Mexico including leases located in the existing EGTR and the proposed TMD launch hazard, booster drop, and debris impact areas.

TEPI recommends the Ballistic Missile Defense Organization select the No-action Alternative for the TMD program in the EGTR. Under this alternative no TMD tests or training activities would be conducted in the Eastern Gulf of Mexico. Current and future oil and gas activities would therefore not be adversely affected.

TEPI has reviewed the Draft SEIS as it applies to oil and gas activities in the proposed TMD launch hazard, booster drop, and debris impact areas, known collectively as the clearance areas, and is concerned about the impact conducting TMD testing and training in this area of the Gulf of Mexico will have on oil and gas activities. Even though there

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are only a few federal leases currently located in the clearance areas, in the future this may not be the case. It is anticipated the United States government will offer for lease, under future Five (5) Leasing Programs, federal acreage located in the Eastern Gulf of Mexico Planning Area. At this time the Department of the Interior plans to conduct one lease sale (Sale 181) in late 2001 covering only a small portion of the Eastern Gulf of Mexico Planning Area. It is believed this will be an extremely active sale as access to the Eastern Gulf of Mexico continues to be an industry priority. If in fact oil and gas leasing activity increases in the Eastern Gulf of Mexico, subsequent drilling and development will follow increasing the possibility of conflicts arising with the Department of Defense (DOD) activities including the proposed TMD training and testing program. The impact on future oil and gas leasing activity needs to be addressed in the Draft SEIS.

It is our understanding DOD and the Department of Interior (DOI), a few years ago, executed a Memorandum of Agreement/Understanding regarding their respective regulated activities in the EGTR. As a result of this agreement a mechanism was established to allow military and oil and gas activity to be conducted in the Eastern Gulf of Mexico with minimal impact on DOD or DOI regulated activities. Historically this mechanism has allowed oil and gas drilling to be conducted within certain areas of the EGTR, at specific times, with little interference with military training and testing. There, however, have been no oil and gas discoveries commercially developed to date in federal waters in the Eastern Gulf of Mexico even though this is about to change as noted in the Draft SEIS.

Federal leases located in the EGTR contain stipulations that specify obligations to the military oil and gas Lessees must address prior to and during operations conducted on any lease in the EGTR. The military has requested operators of leases in the EGTR execute documents referred to as "Operating Agreements" prior to beginning any activity on a lease. These Operating Agreements detail the specific military obligations Lessees must address as stipulated in the lease. The oil and gas industry has operated under these Operating Agreements for many years and understands the risk associated with conducting oil and gas activities in the EGTR. What is not clear is how the proposed TMD testing and training activities will effect the current DOD/DOI understanding regarding oil and gas operations on existing and future leases located in the clearance areas. Will new stipulations be added to new leases issued in the EGTR? Will regulations be modified to address existing leases located in the EGTR? If new operational procedures are to be followed, what are those procedures and how will those new procedures impact future activities on current and future oil and gas leases?

In addition to the above, we are very concerned about the total size of the clearance areas proposed under the Draft SEIS. A composite of the clearance areas depicts an area that encompasses a large portion of the Eastern Gulf of Mexico Planning Area. If new obligations are placed on the oil and gas industry as a result of TMD activities, and these obligations are more prohibitive and/or restrictive than existing obligations, creation of

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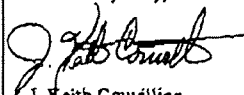
the TMD testing and training area in the Eastern Gulf of Mexico could seriously inhibit future oil and gas leasing, drilling and development activities.

Our final comments deal with oil and gas developments located in the clearance areas. Even though this is not an immediate problem, it is one that most likely will occur in the future. Offshore in the Central and Western Planning Areas of the Gulf of Mexico, most oil and gas discoveries have been located in shallow water and developed using conventional oil and gas production systems. These systems have historically been fixed legged platforms attached to the seafloor with production decks and facilities located above the surface of the water. Oil and/or gas wells are normally drilled from these structures or from remote locations and tied back to the platform via pipelines. Platforms typically remain in place until production ceases and the wells are permanently plugged and the structures removed. The Draft SEIS does not address the specific impact associated with traditional oil and gas production platforms located in the TMD clearance area. Evacuating personnel can be easily accomplished given proper advanced notice; however, protecting a structure that cannot be readily removed from falling debris is another matter. Production platforms contain pipes, vessels, tanks, engines and other equipment that could be damaged or destroyed from falling debris. In addition, the majority of the piping and vessels located on platforms are under pressure and would not react favorably to being punctured or severely jarred. Escaping natural gas or leaking oil from damaged equipment would have a serious impact on the environment. Even wells completed on the seafloor and tied back to a central production facility could be in jeopardy of being damaged from falling debris as that debris falls through the water column before settling on the bottom. *These are issues we believe need to be addressed in the Draft SEIS.*

In summary, TEPL appreciates the opportunity to comment on the Draft SEIS and supports the Ballistic Missile Defense Organization's No-action Alternative as the preferred action to take regarding the proposed TMD testing and training area in the EGTR.

Should there be any questions regarding the above, do not hesitate contacting the undersigned at (504) 680-1321 [Fax No. (504) 680-6838] or by e-mail at couvilk@texasco.com.

Yours very truly,



J. Keith Couvillion
Land Manager - OCS

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

APR 3 1994

Captain Brian W. Moss
U.S. Department of Defense
Ballistic Missile Defense Organization
7100 Defense Pentagon
Washington, DC 20301-7100

Subject: Draft Supplemental Environmental Impact Statement (DSEIS) for the
Theater Missile Defense (TMD) Extended Test Range at Eglin Air Force
Base (EAFB) Gulf Test Range (EGTR), FL

Dear Captain Moss:

Pursuant to Section 309 of the Clean Air Act and Section 102 (2)(C) of the National Environmental Policy Act (NEPA), EPA, Region 4 has reviewed the subject document, an evaluation of the potential consequences associated with development and operational flight testing of TMD systems. Specifically, the DSEIS examines missile launch and support locations, facility construction, launch preparation activities, missile flight tests, radar and optical tracking operations, and intercept tests in the Gulf of Mexico. The preferred alternative involves the target/interceptor launch from facilities at EAFB together with target launches from an air configuration array or possibly a Navy ship.

TMD missile testing is being expanded to determine the capabilities of U.S. Department of Defense (DOD) weapon systems to intercept enemy missiles with medium-range ballistic characteristics, i.e., trajectories of 550 to 1,100 kilometers. Currently there are no plans by DOD to use EGTR for this type testing; however, in the event circumstances change and use of this facility becomes warranted, its NEPA documentation would be completed.

EGTR is a logical site for a mid-range test area. In 1995, it conducted approximately 10,000 missions similar to those envisioned within this testing protocol. Three principal types of TMD training/testing activities were examined in the DSEIS: (1) target launches from land at EAFB and/or from aircraft above the Gulf of Mexico, (2) interceptor launches from EAFB and/or ships, (3) interception of the target missile (launched from Florida Keys) by the interceptor over the Gulf of Mexico and EGTR. All constituent elements of the testing have important ramifications which are assessed in the text.

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Most tests would include a launch of a target missile, tracking by range and interceptor missile sensors, launch of an interceptor missile, intercept, and debris (missile components; penetration aids, etc.) impact into the Gulf of Mexico. The "intercept box's" remote location together with its restricted access during testing limit the more obvious societal concerns. Associated safety considerations and procedures to address them have been elaborately devised and are noted for rigorous enforcement. For example, notwithstanding their great distance from the shore, debris impact and booster drop areas are repeatedly modeled for most likely "splash-down" locations. Moreover, the area will be cleared prior to and during testing via standard notification procedures. Similar determinations are made in/around the launch site to maximize the safety of mission personnel and adjacent residents during the test periods.

If/when DOD begins testing, maximum use would be made of existing infrastructure and facilities at ground-based launch sites. Modification and/or any new construction needs would be relatively small; in many cases the launch vehicles are motorized, portable structures which are merely moved after launch events. Road, rail, and air transportation will be necessary to bring components to launch sites, but volumes are considered incidental in comparison to existing traffic on roadway systems servicing the area. Given the value of the launch equipment, stringent safety monitoring is in place during transport. The same restrictions are in force for transporting the missile propellants and other associated hazardous materials necessary to operate the various missile systems.

To add an additional measure of safety to the proposed testing, offshore launch platforms could be used to enlarge the safety clear zone during actual testing. These structures would involve incrementally more construction impacts than the shore-based mobile vans which are merely parked on existing hardstands. However, long-term adverse effects of the structure, per se, are probably negligible and would compare to an equivalently-sized fishing pier. In fact, it was assumed that these platforms may function as habitat (vertical structure) after construction activities subside. Further, their use would obviate the relatively minor wetland impacts at the land based Interceptor launch site, viz., A-15 and D-3A. More importantly, the need to recurrently restrict vehicle traffic during launches would be removed. On the other hand, the impact(s) of air emissions from missile engines on local water quality and associated biota remain undetermined, but should be examined in the final document. We suggest that a long-term monitoring plan be developed to ascertain the impacts of these emissions.

Air drop and ship target launch testing modes appear to have lesser overall impact(s) than their shore-based counterparts. More importantly, the societal implications associated with using the launch site at Saddlebunch/Cudjoe Key would be eliminated. However, there are other considerations which must be taken into account, viz., strategic arms treaty (START) stipulations. For example, while the technology to launch long-range target missiles from a towed ship platform is available, their use would have to be restricted to a 600-kilometer arc to avoid treaty violations. Use of platforms to launch targets is similarly restricted. Hence, all technically practical options are not necessarily available for other compelling reasons.

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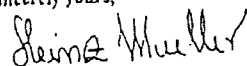
While testing activities in the mid-Gulf do not affect the public at large, there are nevertheless some impacts. Shipping and commercial airline interest must take these tests into consideration when planning schedules and routes. Since this could be a new mission, there is an additive effect to its implementation. It was noted that these tests would add approximately 100 hours to the current use of the existing restricted areas. The significance of this increase remains to be determined, but is unavoidable.

Target launches from Santa Rosa/Cape San Blas would result in direct adverse impacts to wetland habitat and possible disturbance of sensitive species by increased human activity. Additional construction would convert less than 10 acres of natural areas to various testing facilities. Launch emissions containing elevated concentrations of hydrogen chloride may cause some leaf necrosis beyond the construction site. Heat generated by the rocket motor during lift-off may also cause some adverse effects to adjacent vegetation, but the EIS did not consider these significant impacts. Overall, the effects of TMD testing can be mitigated by design changes, or if that proves infeasible, by compensation. However, in our opinion, there are a few instances, e.g., noise effects on wildlife and permanent removal of vegetation, where the impacts appear unavoidable/unmitigable and would just have to be considered a cost of the TMD training.

On the basis of our review, a rating of "EC-2" has been assigned the preferred alternative. That is, we have some of environmental concerns about the future testing using the air/sea launch options; some additional information/exposition in the final document will be necessary. However, in the event that land-based target launches from the Florida Keys were to become an active alternative, our reservations would be pronounced. The objections we have in this regard are detailed in the attached Comments. If the latter scenario eventuates, we suggest that additional NEPA coordination both with the public and federal/State agencies will have to be accomplished.

If you wish to discuss this matter further, Dr. Gerald J. Miller (404-562-9626) of my staff will serve as initial point of contact.

Sincerely yours,



Heinz J. Mueller, Chief
Office of Environmental Assessment

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SPECIFIC COMMENTS

We believe that there are practical alternatives to the use of the Florida Keys launching sites. It is our understanding that the U.S. Army Kwajalein Atoll long-range test facility in the Pacific can deal with targets with flight distances greater than 1,100 km (683 miles). With modification, this facility could accommodate testing missiles with the theater flight parameters with acceptable societal/environmental outcomes. On the other hand, the Saddlebunch and Cudjoe Key options could have some significant consequences to the Keys and especially the Florida Keys National Marine Sanctuary (FKNMS).

This preserve was created with the signing of HR5909 (Public Law 101-605, Florida Keys National Marine Sanctuary and Protection Act) on 16 November 1990. The Sanctuary encompasses 2,800 square nautical miles of nearshore waters extending from just south of Miami to the Dry Tortugas. The designation was made in recognition of its unique character and diversity of the marine environments. NOAA has prepared a Final Management Plan/Environmental Impact Statement for the FKNMS that was implemented on July 1, 1997. The Water Quality Protection Program for the Sanctuary that was prepared by EPA and the State of Florida at the direction of Congress is included in the Final Management Plan.

Missiles launched from sites in the Florida Keys would conflict with goals, objectives, mandates, and regulations of the FKNMS. This operational clash includes:

Further degradation of the wilderness character of the Florida Keys "back country", i.e., virtually all of the unoccupied vegetated areas surrounding the proposed sites in the Keys are jurisdictional wetlands and sea grass beds regulated by State and federal laws. In addition, federal and State threatened species have been reported from the lower Keys and the area surrounding the arostat facility on Cudjoe Key; the latter has been designated as Critical Habitat under the Endangered Species Act. The proposed launch sites are in or immediately adjacent to the Great White Heron National Wildlife Refuge which was designated by Congress as a "Wilderness." NOAA using the FKNMS process is mandated to protect resources of the Keys from adverse effects. This includes assuring the health, integrity, and continued availability of the ecological, recreational, research, education, historical, and aesthetic resources and qualities of these areas. In our opinion, construction and operation of missile launching facilities at the proposed locations in the Keys is not consistent with the wilderness character and other, more environmentally friendly uses of these environs.

Damage to sensitive plant and animal resources is likely. The impacts of approximately 12 launches per year for ten years could result in significant and long-lasting detrimental impacts to vegetation and marine life. In addition, water quality could be detrimentally affected. Chemical fallout from solid fuel target missiles includes aluminum oxide and hydrogen chloride compounds that could lead to plant mortality within the fallout zone. The potential physical impacts due to an

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accidental explosion at the launch pad could have long-term effects on surrounding vegetation and animal communities. Noise from missile launches would have negative impacts on bird and animal life (roosting, nesting, feeding and breeding behaviors) and the tranquility of the wilderness. Increased numbers and activities of aircraft and vessels in the launch and target zones increase the chance of negatively impacting wildlife resources. All proposed launch sites in the Keys are adjacent to shallow waters; improper vessel activities in those areas could result in propeller dredging, seagrass/coral impacts, vessel groundings, and other damages to the ecological resources.

If you wish to discuss any of the above matters in greater detail, Dr. Bill Kruczynski, EPA Program Scientist, at the FKNMS can be contacted at (305) 743-0537.

Relative to air quality, it does not appear as if any of the subject testing/training activities will negatively impact the continued attainment of the National Ambient Air Quality Standards (NAAQS). However, a minor error was noted in Table 3.1.1-1-National and Florida Ambient Air Quality Standards. The new standard for ozone is an eight-hour standard during which time the average can not exceed 0.08 ppm. The one-hour standard, which is still in effect in existing ozone nonattainment areas elsewhere, is 0.12 ppm averaged over one hour. The table transposes the two standards; however, it was noted that the EGTR area is in attainment for other standards. If you wish to discuss any air issues further, Mr. Dale Aspy (404-562-9041) will serve as point of contact.

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United States Department of the Interior

OFFICE OF THE SECRETARY
OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

April 14, 1998

ER-98/146

Ms. Linda Ninh
46 OG/OGM-TMD
205 West "D" Ave., Suite 241
Eglin AFB, FL 32578-6866

RE: DSEIS for the Theater Missile Defense Extended Test Range
Eglin AFB, FL

Dear Ms. Ninh:

The Department of the Interior has reviewed the referenced document, as requested. The enclosed comments are a compilation of comments received from the bureaus within this Department.

If there are questions related to fish and wildlife resources, please contact Bruce Bell, Fish and Wildlife Service, at 404/679-7089. If there are questions related to oil and gas leasing operations, please contact Archie Melancon at 703/787-1547. If you have other questions concerning these comments, you may reach me at 404/331-4524.

Thank you for the opportunity to review the draft supplement EIS.

Sincerely,

James H. Lee
Regional Environmental Officer

	P-W-0066 COMMENT NUMBER		P-W-0066 COMMENT NUMBER
THEATER MISSILE DEFENSE EXTENDED TEST (TMD) RANGE EGLIN GULF TEST RANGE (EGTR) EGLIN AFB, FLORIDA ER-98/146 <u>GENERAL COMMENTS</u> The Fish and Wildlife Service (FWS) believes the current document does not adequately address concerns regarding potential effects to Federal trust resources and land management responsibilities. The effect of ground vibrations from missile or interceptor launches on wildlife, specifically federally listed sea turtle embryos and hatchlings, still needs to be evaluated. Data from the space shuttle and Titan/Delta rocket launches at Kennedy Space Center and their potential effects on sea turtles nesting on nearby Canaveral National Seashore could be used for comparison. The effects of launch activities (e.g., human disturbances, noise impacts) on the following species nesting within the five-mile radius of the Launch Hazard Areas (LHA) for Eglin AFB (Santa Rosa Island and Cape San Blas) needs to be evaluated: loggerhead sea turtle (<i>Caretta caretta</i>), green sea turtle (<i>Chelonia mydas</i>), and bald eagle (<i>Haliaeetus leucocephalus</i>). The effects of pre-launch and launch activities on populations of the following species existing within the LHA for both Cudjoe Key and Saddlebunch Key needs to be evaluated: silver rice rat (<i>Oryzomys argentatus</i>); Lower Keys marsh rabbit (<i>Sylvilagus palustris hefneri</i>); transient Key deer (<i>Odocoileus virginianus clavium</i>); bald eagle; and eastern indigo snake (<i>Drymarchon corais couperi</i>). These activities could interfere with the FWS's recovery efforts for listed species in the Keys, such as repatriating the Key deer to Cudjoe Key. The effects of prelaunch and launch activities on shorebird and wading bird rookeries within the LHA for both the Florida panhandle and the Florida Keys needs to be evaluated. Avifauna, especially in the Florida Keys, are already subjected to significant stress from noise and disturbance. Currently, nesting populations of wading birds are continuously disturbed by the ever increasing presence of humans, such as tour boats around their rookeries. Furthermore, as nesting birds take flight in response to prelaunch and launch activities, they leave their nests exposed to predators, such as the magnificent frigatebird (<i>Fregata magnificens</i>), and to the elements. Flushing birds unnecessarily expend valuable energy that may otherwise be used for hunting, foraging, and/or maintenance. Thus, the launching of target missiles from land-based facilities in the Florida Keys is another level of stress	01 02 03 04	these birds must endure. The cumulative effect of these existing stresses along with the added stress from the proposed action may result in changing the reproductive behavior of nesting birds (e.g., decreased fecundity) and force them to seek other potential nest areas, which are becoming increasingly limited in availability and suitability. Details of the specific mitigative measures designed to ameliorate these effects are lacking in the document. The proposed action is inconsistent with the Congressional designation of "wilderness areas" for 2,278 and 1,900 acres in the Great White Heron NWR and National Key Deer Refuge, respectively. Specifically, wilderness areas are "an area of Federal land retaining its primeval character and influence, without permanent habitation, which is protected and managed so as to preserve its natural conditions such that it (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; and (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation" (Wilderness Act of 1964). Furthermore, "wilderness areas . . . shall be administered in such a manner as will leave them unimpaired for future use and enjoyment as wilderness" (50 CFR 35.2). The effects of the proposed action (e.g., visual pollution of wilderness areas, the impact on wilderness solitude, the recreational and economic impact to the highly desired "wilderness experience") on wildlife and human users in federally-designated areas (e.g., Great White Heron NWR, Florida Keys National Marine Sanctuary, wilderness areas) needs to be evaluated. The document should identify ongoing natural resource monitoring and management programs at Cape San Blas and Santa Rosa Island. Eglin AFB has a history of strong environmental management and much of their existing programs may need to be continued or expanded to address endangered species issues regarding the project. Furthermore, a more complete description of potential mitigative actions to reduce impacts on federally listed species should be included in the document. These actions could include changes in TMD activity protocol and schedules during species reproductive or migration seasons (sea turtles and shorebirds), incorporation of existing FWS management guidelines (bald eagle), and studies to determine or evaluate effects of the proposed action (e.g., noise, vibration, and human presence) and implementation of remedial actions as necessary. The document contains little discussion of oil and gas operations in the Eastern Gulf, and the conclusion that "TMD activities would	04(cont) 05 06 07 08 09

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have little effect on the oil and gas exploration use in the Gulf of Mexico" (Section 3.2.7, page 3-296) is not supported. The DSEIS does not adequately evaluate the impacts of the proposal to oil and gas operations in the Eastern Gulf. To improve the analysis, we encourage a more extensive coordination with Minerals Management Service (MMS). The document also does not address alternatives which would allow oil and gas activities to proceed with minimal interference from the proposal such as modified impact areas, timing of missile testing activities and oil and gas activities, or some combination of these two and perhaps other procedures. Additional consultation between the MMS and the Air Force would be useful to develop alternatives and/or mitigating measures which will allow both oil and gas operations and missile testing without unduly interfering with either use of the area and to improve the analysis in the SEIS regarding reasonably foreseeable oil and gas activities and the cumulative effects of OCS oil and gas activities and DOD activities.	09(cont)	helicopter flights; safety to oil and gas operations and structures is not addressed; nor is there any discussion of transportation in general involving oil and gas activities. In addition, the SEIS omitted other analysis such as: economic impacts associated with enhanced structural design, construction delays, production delays, personnel evacuation; impact to routine operations such as hampered support vessel transit (air and water) during testing, impeded platform construction, and halted production; impacts to human safety and platform integrity from debris striking a platform; impacts to the existing and future leases (e.g., Could this testing program inhibit existing lessees from exercising lease rights? Will new mitigation be required of leases issued from Sale 181?).	12(cont)
The Air Force proposes to conduct 24 test events per year over a 10 year period (except in 1999 when it conducts 55 tests) from all test ranges. The number of test events per year if carried out without close cooperation with MMS, poses a significant conflict with exploration for oil and gas resources. Drilling for these resources may take up to 150 days in the Eastern Gulf of Mexico. During that time period drilling rigs/ships are rarely easily evacuated or moved from the site. The preferred alternative in Section 2.2.1.1. would impact 98 leases within the Eastern Gulf of Mexico and with the proposed TMD testing schedule, without the consideration of additional alternatives or mitigation, it could prevent or hinder oil and gas exploration on those leases.	10	The current 5-year OCS leasing program schedules only one OCS lease sale in the Eastern Gulf. This sale is currently scheduled for late 2001. The decision process for that sale, lasting about 3 years, will begin with a Call for Information and Nominations/Notice of Intent to Prepare an EIS and will include extensive consultations with the States, Federal Agencies, and other interested parties. This proposed sale may result in the issuance of additional leases in the Eastern Gulf, followed by as yet unknown levels of exploration and development activity. A decision on whether or not there may be additional lease sales scheduled in the Eastern Gulf in the future will be made in the context of the development of the next 5-year program which would cover the years 2002-2007. There are a number of currently active leases in the Eastern Gulf. Considerable exploration has already been accomplished, and development plans are being formulated. The DSEIS needs to address these reasonably foreseeable activities and how the proposal will impact them.	13
The analysis is based on the current status of activity in the EGOM and not on potential OCS build-out which will likely occur during the life of the missile testing program. When assessing the impact to OCS oil and gas activities, the SEIS states that, "No surface structures associated with oil and gas extraction are currently located in the EGOM planning area." However over the life of the testing program, OCS platforms could be sited in the Air Force's "Interceptor Debris and Evacuation" areas. Omitting this information and associated impact analysis is an oversight that could affect the conclusion of "little effect to oil and gas use."	11	The DSEIS does not address pre-lease geological or geophysical activities in the EGOM area. Permits are issued to companies to collect data and information. Stipulations attached to a G&G permit require the operator to coordinate their use in an area with the various military groups that require notification. The effects of evacuation on seismic activities should be addressed.	14
Oil and gas operations are only mentioned in two tables and in Section 3.2.7 (Gulf of Mexico: Land and Water Use). There is no discussion of the economic implications of conflicts between this proposal and oil and gas activities (indeed the only "socioeconomic" discussion involves commercial fishing); there is no mention of airspace use conflicts with oil and gas related	12	<u>SPECIFIC COMMENTS</u> Page 3-38: The correct spelling for the Gulf sturgeon is <i>Acipenser oxyrinchus desotoi</i> . The Santa Rosa beach mouse should also be included in the list of mammals occurring on Santa Rosa Island. Page 3-39, Table 3.1.3-1: <i>polionatus</i> should be <i>polionotus</i> .	15 16
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Page 3-61, ¶ 5: It should be mentioned that Site D-3A is also within the nest protection zone as identified in the FWS's habitat management guidelines for bald eagles. The guidelines recommend limitations on activities that could affect bald eagles depending on the time of year, type of activity, and distance from the nest. Page 3-238: The SEIS inaccurately describes the jurisdiction of air regulation. In Section 3.2.1.2 Region of Influence, Air Pollution Emissions Sources, the first paragraph states, "Platform emissions are controlled by Outer Continental Shelf regulations." Although the OCSLA regulates OCS facilities in the Western and Central Gulf of Mexico, it does not cover those located offshore Florida. The sentence should be replaced with: "Jurisdiction over OCS-related emissions is shared: the U.S. Environmental Protection Agency regulates OCS emissions offshore Florida and the U.S. Department of the Interior regulates OCS emissions offshore the remaining Gulf Coast States." Page 3-267, ¶ 3: Eastern Gulf of Mexico live-bottom habitats in addition to coral and bank reef habitats should be described. The Minerals Management Service has funded numerous studies to identify and describe these habitats. Page 3-298: Some of the SEIS's descriptions of OCS activities in the EGOM Planning Area are either unneeded, out-of-date, or incomplete. The discussion about Pensacola Block 889 is unnecessary because Mobil Oil does not intend to proceed with exploratory drilling and this discussion could be deleted. Page 3-298, ¶ 3: The information regarding Chevron's Destin Dome 56 Unit Development and Production Plan completeness review is out of date. The plan proposes a manned Central Production Facility complex with 14 satellite platforms spread over 10 blocks with numerous flowlines to connect the platforms as well as a 30" export pipeline. It was deemed complete by the MMS on August 12, 1997. The Notice of Intent to Prepare an EIS was published in the Federal Register on August 22, 1997. The EIS process will take about 2 years. The MMS has provided the Air Force and it's EIS contractor with extensive information concerning the DD 56 Unit; however, the information was not considered. It is noteworthy that in Table ES-2 the alternative to test over Matagorda Island, Texas, was eliminated because of the lack of "appropriate safety areas, trajectories overfly existing oil rigs." Yet, the 18 proposed structures in the DD 56 Unit are not considered. Additionally, the OEDC Exploration and Production discussion is incomplete because it does not mention the future surface structures associated with that project. If these changes are made	17 18 19 20 21 22

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to the overview, the SEIS will have a "scenario" to more accurately evaluate the full impact of its testing program on OCS activities. Other OCS activity information presented in the EIS is not used in the evaluation. For example, the SEIS lists the right-of-way applications associated with constructing three pipelines in the EGOM but does not assess impacts to the future pipe laying/construction activities from any of the potential impact sources of the testing program (e.g., evacuation of surface vessels). Further, the information on the plans for Destin Dome 1 and 2 and Pensacola 881 is out of date. These were approved September 5, 1997. The discussion should include details regarding the proposed facilities. MMS has also recently been informed that further development activities may be proposed in the near future in this area. Pages 3-373, ¶ 5: Information on nesting, foraging, wading, and colonial birds is incomplete. Page 3-382, ¶ 3: Again, information on nesting, foraging, wading, and colonial birds is incomplete. Page 3-391, Figure 3.3.3-10: The figure is inaccurate and the rookery data is incomplete. For example, many of the rookeries are depicted in open water. Page 3-400, Figure 3.3.3-15: As before, the figure is inaccurate, the rookery data is incomplete, and rookeries are depicted in open water. Page 3-433, ¶ 1: Wildlife Management Areas of the Florida Keys National Marine Sanctuary were adopted zones originally designated in the 1992 Management Agreement for Submerged Lands (MA-44-088) between the FWS and the State of Florida for the specific management of critical habitat. Page 3-439, Figure 3.3.7-7: Federal lands should be distinguished between military property and conservation/preservation lands. Page 3-445, Figure 3.3.7-10: Again, Federal lands should be distinguished between military property and conservation/preservation lands. Page 3-530: There is no mention of oil and gas activities in Section 3.4 (Relationship Between Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity), even though subsections include such topics as "Airspace Use", "Geology and	23 24 25 26 27 28 29 30 31

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Soils", "Land and Water Use", "Safety", "Socioeconomics", and "Transportation".		environmental review process. The FWS recommends that the Florida Keys be eliminated from consideration as an alternative launch site for target missiles in the Eglin Gulf Test Range.	
Tables 3.3.11-16 11-2: The Forest Service's Visual Resource Management System may be an inappropriate tool to rate the scenic attractiveness of the Florida Keys' "backcountry" and mangrove habitats.	32	While development and testing of missile defense systems and other DOD activities in the Eastern Gulf are very important, the OCS oil and gas program in the Gulf of Mexico, including the Eastern Gulf, is also of importance to the nation. While MMS believes the impacts of this proposal to activities associated with OCS oil and gas activities are not "negligible" as stated in the DSEIS, we believe that, with additional analysis of potential impacts and reasonable mitigating measures, that potential impacts can be avoided or minimized. Decisions by DOD and DOI regarding the near- and long-term effects of their respective programs in the Eastern Gulf should be made based on complete and sound information and in the context of the importance of these programs to the National interest.	39
Appendix A: The MMS Gulf of Mexico Region should be added as an agency to be notified for upcoming launch activities. The MMS is not listed in Appendix A, page 1-11.	33		
Appendix B: The OCS Lands Act (43 U.S.C. 1331-1356, as amended) should be mentioned in Appendix B (Laws and Regulations Considered); it was not.	34		
Appendix D: Appendix D (Draft Air Drop Environmental Assessment) should consider oil and gas operations.	35		
Appendix I: The Draft Evacuation Plan does not mention oil and gas operations specifically; it should, since moving personnel out of the area and securing platforms and equipment (if such is possible considering the operations in question here) is not a trivial matter and will require considerable advance notice and will entail considerable costs.	36		
Appendix L: Information regarding the distinction between loggerhead nesting sub-populations and recovery potential should be included in the narrative. This is based on genetics studies conducted by Brian Bowen and his associates at the University of Florida. This information provides support on the importance of conserving the Florida panhandle sea turtle population.	37		
After reviewing the document, FWS is still concerned with the potential adverse effects of the proposed action on fish and wildlife resources. As a cooperating agency in the NEPA process, FWS attempted to identify gaps in the information provided within the document as well as to note any inaccuracies. Specifically, the document does not provide the mitigative measures necessary to offset adverse effects to trust resources and land management responsibilities as a result of target launch activities proposed in the Florida panhandle and, in particular, the Florida Keys. Furthermore, FWS does not believe that the adverse effects (e.g., noise impacts to nesting avifauna) of launching target missiles from the Keys can be ameliorated. As such, the Draft SEIS is incomplete in its current form. FWS will continue to coordinate with your agency prior to completing the Final SEIS on fish and wildlife issues that need to be addressed as part of the	38		
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STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS
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Governor

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Secretary

April 13, 1998

Ms. Linda Ninh
 Department of Defense
 46 OG/OGM-TMD
 205 West D Avenue, Suite 241
 Eglin Air Force Base, Florida 32578-6866

RE: U.S. Air Force - Department of Defense - Theater Missile Defense (TMD) Extended Test Range - Draft Supplemental Environmental Impact Statement - Eglin Gulf Test Range and Notice of Availability for Proposed TMD Test Programs - Florida
 SAL: FL9612240949CR

Dear Ms. Ninh:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4333, 4341-4347, as amended, has coordinated a review of the above-referenced Draft Supplemental Environmental Impact Statement (DSEIS).

The Department of Community Affairs (Department), designated as the State's lead coastal agency pursuant to section 306 of the federal Coastal Zone Management Act, 16 U.S.C. section 1456(c), and section 380.22, Florida Statutes (F.S.), hereby notifies the Air Force that implementation of the preferred alternative identified in the DSEIS is consistent with the Florida Coastal Management Program (FCMP). However, based on the information contained in the DSEIS, implementation of any alternative which includes land launches from the Florida Keys would be inconsistent with the FCMP.

The State of Florida understands and appreciates the fact that the Air Force does not currently intend to initiate land launches from the Florida Keys; therefore, further action is not currently required to address the problems associated with the use of the Florida Keys sites. If the Air Force decides to reconsider the use of any sites in the Florida Keys, the concerns identified by our reviewing agencies, as enclosed and summarized below, must be addressed in a revised DSEIS. If necessary, the revised DSEIS should be provided to the Florida State Clearinghouse for interagency review.

The Department of State (DOS) and the Northwest Florida Water Management District (NFWFWD) have expressed concerns regarding the implementation of the preferred alternative. The

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GREEN SWAMP
 Area of Critical State Concern Field Office
 151 East Livingston
 Tallahassee, Florida 32304-4141

SOUTH FLORIDA RECOVERY OFFICE
 P.O. Box 4237
 1826 N.W. 5th Street
 Ft. Lauderdale, Florida 33304-4237

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Air Force is advised that the concerns identified by the DOS and the NFWFWD must be addressed prior to the implementation of the preferred alternative.

The DOS indicates that missile launches and other project activities at Cape San Blas could result in adverse impacts to the historic lighthouse and keeper's quarters and may affect historic resources at Santa Rosa Island and Cudjoe Key. The DOS also notes that the statements in the DSEIS which suggest otherwise are inaccurate. Therefore, the Air Force is advised to coordinate with the DOS prior to completion of the final Environmental Impact Statement (FEIS) to ensure that the proposed action is revised to avoid and/or minimize impacts to historic and archaeological resources. Please refer to the enclosed DOS comments.

The NFWFWD indicates that the proposed project may result in adverse impacts to wetlands and the water quality of St. Joe Bay and Santa Rosa Sound, which are both designated as Class II waters (shellfish harvesting and propagation) and Surface Water Improvement and Management priority water bodies. St. Joe Bay is also an Aquatic Preserve and an Outstanding Florida Water; therefore, degradation of water quality is prohibited by Rule 62-302.700, Florida Administrative Code (F.A.C.). The NFWFWD recommends additional evaluation of potential impacts and the incorporation of additional measures designed to minimize wetland impacts and to improve stormwater and wastewater treatment. Please refer to the enclosed NFWFWD comments.

The Environmental Policy/Community and Economic Development Unit, Executive Office of the Governor (EOG); Florida Game and Fresh Water Fish Commission (FGFWFC); Department of Environmental Protection (DEP); South Florida Water Management District (SFWMD); and South Florida Regional Planning Council (SFRPC) indicate that the Florida Keys is an environmentally sensitive area of regional significance. The Florida Keys and surrounding waters are subject to protection through special federal and state designations and management plans including the Florida Keys National Marine Sanctuary; Florida Keys Area of Critical State Concern, pursuant to section 380.05, F.S.; Outstanding Florida Water; and Aquatic Preserve. Several endangered and threatened species, as well as significant wetland and marine habitat, also occur in the area. Impacts to the area's resources must be thoroughly evaluated in a revised DSEIS if the Air Force revises its plans to include land launches from the Florida Keys. If a revised DSEIS is prepared, the DSEIS should identify specific measures designed to avoid and minimize potential impacts to wetlands and which ensure that state water quality standards are not violated.

If target launch sites in the Florida Keys are selected, a state Environment Resource Permit issued by the DEP or SFWMD will be required. As noted by the SFWMD, primary, secondary and/or commutative impacts to wetlands, surface water and ground water of the Florida Keys described in the DSEIS are inconsistent with the requirements of section 373.414, F.S.; the discussion of impacts to wetlands, surface water and ground water must be revised to comply with section 373.414, F.S. Specifically, section 373.414, F.S., requires that impacts to wetlands and critical habitat be avoided or

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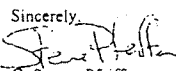
Ms. Linda Ninh
April 13, 1998
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minimized and when impacts cannot be avoided, mitigation must be provided. The DSEIS does not address these requirements. If the project is revised to include the Florida Keys, the Air Force is advised to coordinate closely with the SFWMD to ensure compliance with the Chapter 373, F.S. requirements. Please refer to the enclosed comments for further detail of these issues.

The Department, pursuant to its role as the state land planning and emergency management agency, indicates that Appendix J - Draft Emergency Response Plan contains incomplete or inaccurate information regarding notification procedures and time frames for informing local authorities and other government agencies of impending launches, accidents, evacuation and response activities. Some of the sections of the Plan relating to communication and notification do not include the Department's Division of Emergency Management (DEM). The Air Force is required to notify the DEM of planned launches, mishaps and HAZMAT incidents and to coordinate all activities and information concerning scheduled launches and emergency incidents with the DEM. Please refer to the Department's enclosed comments.

Thank you for the opportunity to review this project. If you have any questions regarding the letter, please contact Cherie Trainor, Clearinghouse Coordinator, at (850) 922-5438 or the address above.

In accordance with 15 CFR 930.42(c), a copy of this letter has been sent to the U.S. Department of Commerce, NOAA, Office of Ocean and Coastal Resource Management. Please be advised that pursuant to 15 CFR 930, subpart G, mediation by the Secretary of the U.S. Department of Commerce may be sought by the Air Force, if the Air Force decides to initiate land based launches from the Florida Keys in the absence of federal consistency concurrence from the State of Florida.

Sincerely,

G. Steven Pfeiffer
Assistant Secretary

GSP/rk

Enclosures

cc: Jeff Benoit, Office of Ocean and Coastal Resource Management
Estus D. Whitfield, EOG
George Percy, DOS
Duncan Jay Cairns, NFWFMD
Bradley J. Hartman, FGFWFC
Lynn Griffin, DEP
Samuel E. Poole, III, SFWMD
John Hulsey, SFRPC

PAGE 12



FLORIDA GAME AND FRESH WATER FISH COMMISSION



QUINTON L. REDDIE, DDC
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Milton

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JAMES L. "JAMIE" ADAMS JR.
Bucknell

JULIE K. MORRIS
Sarasota

ALLAN L. ROBERT, Ph.D., Executive Director
VICTOR J. MILLER, Assistant Executive Director

Ms. Karl Akers
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oaks Boulevard
Tallahassee, Florida 32399-2100

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FEB 26 1998

State of Florida Clearinghouse

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(904) 488-6661
TUMMOCK 371-6661
FAX (904) 932-9479
TTY (904) 494-9943

Re: Department of Defense, BMDO Theater
Missile Defense Testing, Draft SEIS,
Manatee County

Dear Ms. Akers:

The Office of Environmental Services of the Florida Game and Fresh Water Fish Commission has reviewed the Draft Theater Missile Defense Extended Test Range Supplemental Environmental Impact Statement-Eglin Test Range (SEIS) dated 6 February 1998. We offer the following comments in addition to our previous comments (see enclosed letter dated 22 January 1998) on this proposed project.

The Department of Defense Ballistic Missile Defense Organization (BMDO) has proposed to test theater missile defense (TMD) in the Eglin Test Range located off of the west coast of Florida in the Gulf of Mexico. Initially, the BMDO Proposed Action included a land-based missile launch site to be located in the Florida Keys, at either Cudjoe Key or Saddlebunch Key. The Cudjoe Key site is an existing U.S. Air Force facility, and construction would not have significantly impacted native habitats. Construction at the Saddlebunch site, a U.S. Navy facility, would have resulted in the destruction of 1.79 acres of mangrove and salt marsh wetlands. Our previous letter outlines the specific concerns associated with construction of a missile launch facility at these locations.

On 24 November 1997, the director of the BMDO amended the Proposed Action in the SEIS to state that launching targets from the southern Gulf of Mexico would be from aircraft. The land-based Florida Keys missile launch sites were moved to the category of Alternatives Considered. Although the Florida Keys launch sites are analyzed in the SEIS for procedural reasons, their selection as launch sites is unlikely to be approved.

We support the BMDO's decision to remove the Florida Keys launch sites from the proposed action. We were initially concerned that the proposed TMD activities may adversely impact wildlife in the Florida Keys, notably the Lower Keys marsh rabbit, silver rice rat, and the

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diverse wading bird populations adjacent to the proposed launch locations. Removal of the Florida Keys launch sites from the Proposed Action effectively removes this concern, and makes the overall proposal much more acceptable. Should the Proposed Action change to include the Florida Keys as a missile launch site, please notify us so that we may initiate additional coordination.

Sincerely,

Bradley J. Hartman
Bradley J. Hartman, Director
Office of Environmental Services

BJH/pf
ENV 8-4-1
Enclosure

01

LAST STAND
PETITION AGAINST MISSILE TESTING IN THE FLORIDA KEYS

I support Last Stand in opposing a plan for Eglin Air Force base to locate any missile testing site in the Florida Keys. Such testing would endanger human life and local land, air and marine environments which are now part of the State and Federally mandated Florida Keys National Marine Sanctuary. Further it would negatively affect the local quality of life and further congest US 1. The only reason given for testing here is that it is cost effective. Last Stand deprecates the argument that dollars are more important than human lives and the priceless Florida Keys environment.

PRINT NAME	PRINT ADDRESS	SIGNATURE
1. Michael Mosier	2411 Baya Ave NW Miami FL 33141	Michael Mosier
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4. Jade Lennington	3775 Doerr Manelona MI 49659	Jade Lennington
5. Rosa Spencer	54 Riviera Drive K.W.	Rosa Spencer
6. Roberto Peralta	3302 Emmeranc	Roberto Peralta
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9. Tia Williams	5110 Matilda St. Miami 33141	Tia Williams
10. D'Lana Clark	3058 S. Oakland Forest Dr. #2105 Ft. Lauderdale FL 33309	D'Lana Clark
11. Barbara Klein	3056 S. Oakland Forest Dr. #2105 Ft. Lauderdale FL 33309	Barbara Klein
12. Karen Price	59 Hickory Ln. K.W.	Karen Price
13. Joe Hout	4009 Virginia K.W.	Joe Hout
14. Catherine Johnson	17 E. Main St. K.W. CATHERINE JOHNSON	Catherine Johnson
15. Anthony Klein	804 Eisenhower K.W.	Anthony Klein
16. Jackie Volmer	1647 Lakeshore Dr. Mandeville LA 70470	Jackie Volmer

RETURN TO: LAST STAND, PO BOX 146, KEY WEST FL 33041

LAST STAND
PETITION AGAINST MISSILE TESTING IN THE FLORIDA KEYS

I support Last Stand in opposing a plan for Eglin Air Force base to locate any missile testing site in the Florida Keys. Such testing would endanger human life and local land, air and marine environments which are now part of the State and Federally mandated Florida Keys National Marine Sanctuary. Further it would negatively affect the local quality of life and further congest US 1. The only reason given for testing here is that it is cost effective. Last Stand deprecates the argument that dollars are more important than human lives and the priceless Florida Keys environment.

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2. Lisa Vaccaro	227 Carleton Ln. Mt Laurel NJ 08054	Lisa Vaccaro
3. NEWMAN CLAUDE	114 20th St. K.W.	NEWMAN CLAUDE
4. MARY PIERCE	902 FLEMING	Mary Pierce
5. Bruce Trigg	4745 NE Miami Ct. K.W. FL 33137	Bruce Trigg
6. Thomas E. Baker	21 WINDFLOW DR. NEWARK DE 19711	Thomas E. Baker
7. Laura Leigh Lampy	120 NE 108th St. Mia. Shg. FL 33161	Laura Leigh Lampy
8. Ronald W. Cox	126 NE 108th St. Miami Beach FL 33139	Ronald W. Cox
9. Pamela Shriman	14011 Borden Ave. OAK PARK, ILL. 60452	Pamela Shriman
10. Patrick Frisco	14011 Borden Ave. OAK PARK, ILL. 60452	Patrick Frisco
11. Michael Ray	723 CAMILO AVE. CORAL GABLES FL 33134	Michael Ray
12. Neil Kolner	155 S. Miami Ave. - PH 5	Neil Kolner
13. Brittany Loy	3050 1st St. SE. K.W.	Brittany Loy
14. Scott Turbe	15303 Montrose Way 40	Scott Turbe
15. Diane Gauthier	750 Prado Circle	DIANE GAUTHIER
16. Brenda Dute	2111 1st St. SE. 33107	Brenda Dute

RETURN TO: LAST STAND, PO BOX 146, KEY WEST FL 33041
THANK YOU!

**LAST STAND
PETITION AGAINST MISSILE TESTING IN THE FLORIDA KEYS**

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PRINT NAME	PRINT ADDRESS	SIGNATURE
1. Wm B. Deese	530 Grinnell St, Key West	[Signature]
2. E. Justin	400 Front St	[Signature]
3. G. E. Egan	P.O. Box 547, Miami	[Signature]
4. S. Sompler	73 GARDEN DR. TEANECK, NJ 07669	[Signature]
5. M. Hollis	300 Breezy Vista Hwy #102, P.O. Box 33412, Miami, FL 33142	[Signature]
6. Gary Bailey	1559 Continental	[Signature]
7. Michele Mack	2122 W. 1st St, Miami, FL 33135	[Signature]
8. Allen Blacklock	3148 E. Alton Rd, Fort Lauderdale	[Signature]
9. Mark Archer	327 Spica Ln, Key West	[Signature]
10. Linda Germanis	11742 Colman Rd, Littleton, CO 80120	[Signature]
11. Victor Germanis	11742 Colman Rd	[Signature]
12. Lisa Germanis	11742 Colman Rd	[Signature]
13. Jodie Reever	2909 Autumn Ave, Albany, GA 31707	[Signature]
14. Richard Reever	2909 Autumn Ave, Albany, GA 31707	[Signature]
15. Mike Gentry	3163 Stewart Rd, Summerville, SC 29586	[Signature]
16. Rachel Miller	682 Whitehall St, Key West, FL 33701	[Signature]

RETURN TO: LAST STAND, P.O. BOX 146, KEY WEST, FL 33701
THANK YOU!

**LAST STAND
PETITION AGAINST MISSILE TESTING IN THE FLORIDA KEYS**

I support Last Stand in opposing a plan for Eglin Air Force base to locate any missile testing site in the Florida Keys. Such testing would endanger human life and local land, air and marine environments which are now part of the State and Federally mandated Florida Keys National Marine Sanctuary. Further it would negatively affect the local quality of life and further congest US 1. The only reason given for testing here is that it is cost effective. Last Stand deplors the argument that dollars are more important than human lives and the priceless Florida Keys environment.

PRINT NAME	PRINT ADDRESS	SIGNATURE
1. Debra Monte	127 Picta Rd, Montclair, NJ 07042	[Signature]
2. Pam DeMala	36 Wood Road, P.O. Box 361, Sugar Land, TX 77478	[Signature]
3. David DeMala	36 Wood Road, P.O. Box 361, Sugar Land, TX 77478	[Signature]
4. Debra & Michael McKean	18 E. Harrison Ave, Babylon, NY 11702	[Signature]
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RETURN TO: LAST STAND, P.O. BOX 146, KEY WEST, FL 33701
THANK YOU!

Table 5.1-2: Responses to Written Comments

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
Hadden, Alexander	P-W-0001.01	Launch mishap	3.1.9.4	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites. The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and the Department of Defense safety policies.
	P-W-0001.02	Safety	2.1.3.2.3 3.1.9.2	The Launch Hazard Area is drawn to protect community resources. The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area.
	P-W-0001.03	Safety	3.1.9.2	The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. The Launch Hazard Area has not been shrunk. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. As stated previously, the more constrained a Launch Hazard Area, the more restrained the Range Safety Officer.
	P-W-0001.04	Launch mishap	2.1.3.3.7	As described in the Draft SEIS, the Flight Termination System is a linear shaped charge. The Flight Termination System is initiated by a radio command from the Range Safety Officer using doubly redundant systems.
	P-W-0001.05	Safety	2.1.3.2.3	Current missile launch locations on Santa Rosa Island and Cape San Blas involve similar distances to inhabited areas, and test launches have been performed safely.
	P-W-0001.06	Safety	2.1.3.2.3	This proposal is not a departure from safety precautions. The launch sites proposed at Santa Rosa Island and Cape San Blas are on land. The off-shore platforms are in the Other Alternatives Considered category, just like the Florida Keys.
	P-W-0001.07	Water quality-Keys	3.1.14.4 3.2.14.4 3.3.14.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long-term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near-field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near-field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1,399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to a maximum of 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels. Deposition of hydrogen chloride at a rate of no more than 1.64g/m ² over the area of this water body would not decrease the pH more than 0.1 unit.
	P-W-0001.08	Transportation-Keys	3.3.11.4.2	Scheduling of missile transport and other Theater Missile Defense test-related traffic would be coordinated with local agencies to avoid peak traffic hours and minimize potential effects on local traffic movement. Emergency vehicles would not be affected by Theater Missile Defense test activities, since they will not close the Overseas Highway.
	P-W-0001.09	Transportation-Keys	3.3.11.4	Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0001.10	launch mishap	3.1.9.2	The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. As stated previously, the more constrained a Launch Hazard Area, the more restrained the Range Safety Officer. Should the Keys be selected, an emergency response plan would be developed in cooperation with local emergency response authorities for the Florida Keys prior to any launches.
	P-W-0001.11	Transportation-Keys	3.1.9.4	Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.
	P-W-0001.12	Transportation-Keys	3.1.9.4	There has never been an explosion involving the truck transport of missile components; therefore, the probability of an accident resulting in an explosion is much lower than the probability of an accident.
	P-W-0001.13	Transportation-Keys	3.1.9.4	The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. The system failure mode analysis and attendant risk probability calculations for each failure mode are calculated. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and the Department of Defense safety policies.
Freeman, Shirley County Commissioner, Monroe County	P-W-0002.01	Draft SEIS		In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites.
	P-W-0002.02	Launch emissions	3.1.1.4 3.3.1.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long-term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near-field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near-field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1,399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
Lowe, Donald S.	P-W-0003.01	Visual Aesthetics	3.1.13.4 3.3.13.4	To better assess the visual impact of constructing a missile assembly building or erecting a 50 foot tall missile on a site, a visual simulation for each vantage point photograph used in the Draft SEIS has been prepared (sections 3.1.13.1 and 3.2.13.1.) The photographic visual simulations are published in the Final SEIS section 3.1.13.4 for the Panhandle sites and section 3.2.13.4 for the Keys sites. It is apparent in reviewing these photographs that neither the building nor the missile are visible from most accessible vantage points. The view from those closer vantage points will include the existing military buildings as well as the new Missile Assembly Building and missile. The new buildings will be seen in the context of the existing military facilities.
	P-W-0003.02	Visual Aesthetics-Keys	3.1.13.2	State and local regulatory requirements, some of which are derivative of Federal statutes, are recognized in the planning process. Military projects on military land comply with applicable state and Federal regulations. The building height restriction does not apply.
	P-W-0003.03	Noise	3.1.8.1 3.3.8.1	The SEIS provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible. See section 3.1.9.4 of the Final SEIS for additional discussion of potential noise impacts.
	P-W-0003.04	Noise	3.1.8.1 3.3.8.1	The SEIS provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible. There will be high maximum noise levels resulting from missile launches. These levels will last for less than 60 seconds.
	P-W-0003.05	Noise	3.1.8.4 3.3.8.4	There may be startle effects among the population. Prior notification of scheduled launches should reduce some of the anxiety of hearing brief loud noise events.
	P-W-0003.06	Biology-Keys	3.3.3.4	Studies of launch effects at Cape Canaveral have shown that birds disturbed by launch noise normally return to their nest soon after the launch event.
	P-W-0003.07	Noise	3.1.8.4 3.3.8.4	The SEIS provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible.
	P-W-0003.08	Visual Aesthetics-Keys	3.3.13.4	The facilities and operations that would be required for Theater Missile Defense activities in the Keys would not be greatly different from the existing facilities and operations on these sites.
	P-W-0003.09	Socioeconomic	3.1.10.4 3.3.10.4	Socioeconomic impacts are addressed in sections 3.1.10.4, 3.2.10.4 and 3.3.10.4. An evaluation of quality of life is outside the scope of this document.
	P-W-0003.10	Draft SEIS	1.2 1.3	The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. The Program Overview in section 1 explains the factors that will be considered in making the final decision following the completion of the Final SEIS. In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process.
Henize, Dennis	P-W-0004.01	Safety-Keys	Appendix G	Appendix G of the Draft SEIS described the method of establishing a Launch Hazard Area. Each Launch Hazard Area is different, depending on the available land launch trajectory, type of missiles, and distance to populated areas or structures. Less operational constraints, such as permissible wind conditions at the time of launch and the reaction time of the Range Safety Officer are required when more land is available for a Launch Hazard Area. Conversely, more operational constraints are required when less land is available. The geographic extent of the Launch Hazard Area and the operational constraints associated with it are established for each site to ensure that the launch can be safely conducted. This is done in accordance with Air Force Development Test Center policies and procedures to ensure that the general public will be protected to an individual and collective risk significantly less than the average public exposure. A Launch Hazard Area of 4.5 miles was never proposed for the Hera launch sites at Santa Rosa, Cape San Blas, or Cudjoe or Saddlebunch Keys. The 4.5 mile figure was originally associated with the Fort Wingate launch site. However, even at Fort Wingate, the eventual Launch Hazard Area was significantly less than 4.5 miles northeast of the launch site due to the existence of a school or residence.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0004.02	Launch mishap	2.1.3	The Launch Hazard Area is drawn to protect community resources. The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area. An inquiry is held following any launch mishap to fully document and understand all system anomalies. No launch will be scheduled until all issues raised during the inquiry are resolved.
	P-W-0004.03	Safety-Keys		The Launch Hazard Area considers the case of the missile flying in the wrong direction prior to any destruct action occurring.
	P-W-0004.04	Safety-Keys		We acknowledge but do not agree with Dr. David Wright's conclusions.
	P-W-0004.05	Noise-Keys		We acknowledge but do not agree with Dr. David Wright's conclusions. Section 3.3.8.4 of the Draft SEIS addressed the issue of shock waves from explosions within the Launch Hazard Area. The Launch Hazard Area is drawn to protect community resources. The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area.
	P-W-0004.06	Noise-Keys		The 2.0 pounds per square foot explosion is due to a complete Hera stage 2 impacting the ground or the water. In the case of a mishap, the Range Safety Officer may prescribe destroying the second stage prior to impact to prevent this explosion.
	P-W-0004.07	Safety-Keys		As the Draft SEIS states, while models predict the highest possible concentration at ground level outside the Launch Hazard Area, the highest predicted concentration at ground level is less than the short-term public exposure guidelines.
Wright, David C. Ph.D. Union of Concerned Scientists	P-W-0005.01	Safety	Appendix G	Appendix G of the Draft SEIS described the method of establishing a Launch Hazard Area. Each Launch Hazard Area is different, depending on the available land, launch trajectory, type of missiles and distance to populated areas or structures. Less operational constraints, such as permissible wind conditions at the time of launch and the reaction time of the range safety officer are required when more land is available for a Launch Hazard Area. Conversely, more operational constraints are required when less land is available. The geographic extent of the Launch Hazard Area and the operational constraints associated with it are established for each site to ensure that the launch can be safely conducted. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. A Launch Hazard Area of 4.5 miles was never proposed for the HERA launch sites at Santa Rosa Island, Cape San Blas or Cudjoe or Saddlebunch Keys. The 4.5 mile figure was originally associated with the Fort Wingate launch site. However, even at Fort Wingate, the eventual Launch Hazard Area was significantly less than 4.5 miles Northeast of the launch site due to the existence of a school.
	P-W-0005.02	Safety-Keys	Appendix G	Operational constraints at the Cudjoe were specifically considered in the design of the Launch Hazard Area such that it would not include these homes. These are the same procedures used at every other launch site.
	P-W-0005.03	Safety-Keys	Appendix G	We acknowledge but do not agree with Dr. David Wright's conclusions.
	P-W-0005.04	Safety-Keys	Appendix G	We acknowledge but do not agree with Dr. David Wright's conclusions.
	P-W-0005.05	Safety-Keys	Appendix G	We acknowledge but do not agree with Dr. David Wright's conclusions.
	P-W-0005.06	Safety-Keys	Appendix G	We acknowledge but do not agree with Dr. David Wright's conclusions.
	P-W-0005.07	Safety-Keys	Appendix G	We acknowledge but do not agree with Dr. David Wright's conclusions.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0005.08	Launch mishap	Appendix G	Data is not releasable (sensitive material). While specific information is not releasable to the public, the missile has been tested and flown at White Sands Missile Range. The Launch Hazard Area has been determined, and the reliability of the missile will meet the safety (flight determination) standard and procedures. The Eglin range safety office has determined that the missile components of the flight test meets the safety launch procedures.
Wright, David C. Ph.D.	P-W-0006.01	Safety	Appendix G	We acknowledge but do not agree with Dr. David Wright's conclusions.
Rosenblatt, Sol	P-W-0007.01	Launch emissions	3.1.14.4 3.2.14.4 3.3.14.4	The total exhaust from a Hera launch is 13,820 pounds, 3,078 pounds of which is hydrogen chloride, with 221 pounds of hydrochloric acid deposited in the vicinity of the launch pad.. The Hera near-field deposition rates do not exceed 1.64g/m ² . Deposition of 1.64.g/m ² on brackish or sea water will not decrease the pH level.
	P-W-0007.02	Launch emissions	3.3.1.4	See answer above.
	P-W-0007.03	Florida Keys-reef	3.3.3.3	Comment noted.
	P-W-0007.04	Launch emissions	3.1.14.4 3.3.14.4	The balance of the hydrogen chloride is airborne transported to the far-field and may be deposited there at rates far lower than the near-field rates. Far-field deposition is sufficiently dispersed and variable launch to launch that successive launches seldom affect the same areas. No changes in plant community or structure due to cumulative effects of far-field deposition have been seen. National Aeronautics and Space Administration environmental monitoring of ten years of space shuttle launches at the Kennedy Space Center indicate that large quantities of hydrogen chloride combined with the sound suppression deluge water can deposit large amounts of hydrochloric acid on the land and waters immediately adjacent to the shuttle launch pad. This monitoring indicates that no more than 17 percent of the hydrogen chloride is deposited in the near-field of the launch pad even in the optimum conditions for combining hydrogen chloride and water into hydrochloric acid.
	P-W-0007.05	Launch emissions	3.1.14.4 3.3.14.4	See response above.
	P-W-0007.06	Launch emissions	3.1.14.4 3.3.14.4	See response above.
	P-W-0007.07	Launch emissions	3.1.1.4 3.3.1.4	The total exhaust from a Hera launch is 13,820 pounds, 3,078 pounds of which is hydrogen chloride, with 221 pounds of hydrochloric acid deposited in the vicinity of the launch pad. The remaining hydrogen chloride could be deposited in the far-field. Far-field deposition is sufficiently dispersed and variable from launch to launch that successive launches seldom affect the same areas.
	P-W-0007.08	Launch emissions	3.1.1.4 3.3.1.4	See response above.
	P-W-0007.09	Launch emissions	3.1.1.4 3.3.1.4	The solid propellant in the first stage of the missile burns at a constant rate from initial launch through burn out. Since the missile is accelerating from the launch pad during its first few seconds of flight, a slightly greater level of emissions occur near the earth's surface.
	P-W-0007.10	Hazardous wastes	3.1.9.4	Potential safety and health impacts of normal launch activities are addressed in section 3.1.9.4 of the Final SEIS. This same section addresses potential safety and health consequences in the event of a launch mishap.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0007.11	Launch failure	3.1.9.4 3.1.14.4 3.2.14.4 3.3.14.4	National Aeronautics and Space Administration conducted an evaluation of the effects of missile systems in the marine environment as part of the EIS prepared for its Sounding Rocket Program. It concluded that the release of hazardous materials and decaying propellant would be rapidly diluted within a marine environment, and except in the immediate vicinity of the debris, would not be found in concentrations identified as producing any adverse effects. (National Aeronautics and Space Administration, 1973) The dissolution of ammonium perchlorate when in a polybutadiene rubber binder would be minimal because the binder is not water soluble. Additional studies provide findings that indicate that ammonium perchlorate would not result in significant changes in pH and nitrogen levels.
	P-W-0007.12	launch mishap	3.1.14.4 3.2.14.4	See response above.
	P-W-0007.13	Launch mishap	3.3.14.4	There is little literature extant because ammonium perchlorate is not disposed of in the marine environment in the United States. The Soviet literature was a source, not necessarily an endorsement.
	P-W-0007.14	Hazardous waste	3.3.14.4	Citing the literature did not propose using Soviet safety criteria. The findings were that ammonium perchlorate in fresh water environment does not substantially affect the biochemical consumption of oxygen, nor the processes of growth among saprophytic microflora.
	P-W-0007.15	Launch mishap	3.1.9.4 3.2.14.4	Potential ecological consequences of a launch mishap are addressed in section 3.1.9.4 of the Final SEIS.
	P-W-0007.16	Launch emissions	3.1.1.1	Hydrogen chloride is a gas. Hydrochloric acid is hydrogen chloride in aqueous form. At standard temperature and pressure, it is a liquid. Due to similarities of dispersion and deposition mechanics, liquids and solids are both considered particulates.
	P-W-0007.17	Water quality-Keys	3.1.14.3 3.2.14.3 3.3.14.3	The affected environments of the Panhandle, the Gulf of Mexico, and the Florida Keys are described in the respective resource areas of the Draft SEIS.
	P-W-0007.18	Water quality	3.1.14.3 3.2.14.3 3.3.14.3	Deposition of hydrogen chloride at a rate of no more than 1.64g/m ² over the area of this water body would not decrease the pH more than 0.1 unit. The alkaline environment buffers the effect of acid deposition, reducing the acidification from a given amount of acid deposition.
	P-W-0007.19	Water quality-Keys	3.1.14.3 3.2.14.3 3.3.14.3	See response above.
	P-W-0007.20	Water quality-Keys	3.3.14.4	There has not been a flow measurement. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly even with low flow and mixing.
	P-W-0007.21	Launch emissions	3.1.1.1	Models use mathematical formulas to calculate the probable result of a series of factors that may affect emissions dispersion. These include such things as: wind speed, humidity, release height of the emissions, atmospheric stability, and mixing layer altitude, among others. For the purposes of this analysis we varied each model parameter to produce the most conservative (worst) result for each step in the model. The result was the highest possible predicted concentration and the greatest distance that could result from the launch of a Hera missile at any location. The results did not reflect the climate of New Mexico, the Keys, or any other specific location, but the worst possible combination of climatic conditions. The calculated results yield greater emission concentrations than would be realistically be expected.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0007.22	General		In so far as these are quantifiable, they are addressed, otherwise they are beyond the scope of this document.
Hoffman, Wayne National Audubon Society	P-W-0008.01	Draft SEIS	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. The Program Overview in section 1 explains the factors that will be considered in making the final decision following the completion of the Final SEIS. In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and, to assist in the decision making process.
	P-W-0008.02	Draft SEIS	1.0	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. Primary field investigations were to verify and supplement existing data.
	P-W-0008.03	Biology-Keys	3.2.3.3	The listed species presented in the SEIS were obtained from the Florida Game and Fresh Water Fish Department and the U.S. Fish and Wildlife Service and are specific to the Region of Influence for each alternative site.
	P-W-0008.04	Biology-Keys	3.3.3.3	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-W-0008.05	Biology-Keys	3.3.3.4	It is recognized that endangered or threatened species may utilize previously disturbed areas. Potential impacts to endangered plants at alternative sites in the Florida Keys sites are discussed in section 3.3.3.4 of the Final SEIS.
	P-W-0008.06	Biology-Keys	3.3.3.3	The listed species presented in the SEIS were obtained from the Florida Game and Fresh Water Fish Department and the U.S. Fish and Wildlife Service and are specific to the Region of Influence for each alternative site.
	P-W-0008.07	Biology-Keys	3.3.3.3	See response above.
	P-W-0008.08	Biology-Keys	3.3.3.3	See response above.
	P-W-0008.09	Biology-Keys	3.3.3.3	This information has been included in section 3.3.3.3 of the Final SEIS.
	P-W-0008.10	Biology-Keys	3.1.3.4 3.3.3.4	Low pressure sodium lighting away from the beach would be used to minimize potential impacts. See section 3.1.3.4 and 3.3.3.4 in the Final SEIS.
	P-W-0008.11	Biology-Keys	3.3.3.3	This information has been included in section 3.3.3.3 in the Final SEIS.
	P-W-0008.12	Biology-Keys	3.1.3.4 3.3.3.4	Wildlife that remained in the immediate launch area (near field) during a test could be affected by launch emissions. Previous test programs have shown that most wildlife leave the launch area prior to a launch event due to human presence and activity, hence the potential for harm is extremely small.
	P-W-0008.13	Launch mishap	3.1.9	Potential impacts to biological resources result from a launch mishap are addressed in section 3.1.9 of the Final SEIS. Small scale habitat destruction, individual displacement, and incidental mortality are acknowledged in the near-field launch area.
Cofer, Elizabeth	P-W-0009.01	Utilities-Keys	3.3.11.3	The importance of Highway 1 to the Florida Keys has been recognized. An early alternative site was eliminated because it would have required closing Highway 1.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0009.02	Land Use-Keys	3.1.7.3 3.3.7.3	The affected environments of the Panhandle, the Gulf of Mexico, and the Florida Keys are described in the respective resource areas of the Draft SEIS. The status of the refuges has been recognized in the Draft SEIS.
	P-W-0009.03	Land Use-Keys	3.3.7.3 3.3.7.4	The Launch Hazard Area for the alternative target launch sites on the Keys does overlap the Florida Keys National Marine Sanctuary; about 4.3 percent of the Florida Keys National Marine Sanctuary is in the Cudjoe Key Launch Hazard Area and 1.6 percent of the Florida Keys National Marine Sanctuary is in the Launch Hazard Area for the Saddlebunch Keys (see section 3.3.7 in the Final SEIS). New military uses in the Florida Keys National Marine Sanctuary are permitted but would require specific consultation. This consultation would require that any proposed action be designed and implemented so that potential impacts to any habitat or species be 1) avoided to the extent possible, 2) minimized when avoidance is not possible, and 3) mitigated to compensate for potential long-term adverse effects. Consultation with the Director of the National Marine Sanctuary began early in the planning process for the Theater Missile Defense testing program and is ongoing. If the Keys are selected they would continue.
	P-W-0009.04	Air quality-Keys	3.1.1.3 3.2.1.3 3.3.1.3	The affected environments of the Panhandle, the Gulf of Mexico, and the Florida Keys are described in the respective resource areas of the Draft SEIS.
	P-W-0009.05	Biology-Keys	3.3.3.3	The presence of the Silver Rice Rat at alternative sites in the Keys was discussed in section 3.3.3.3 of the Draft SEIS.
	P-W-0009.06	Biology-Keys	3.3.3.3	The presence of the Lower Keys Marsh Rabbit at alternative sites in the Keys was discussed in section 3.3.3.3 of the Draft SEIS.
	P-W-0009.07	Biology-Keys	3.3.3.3	Normal launch activities would not result in adverse impacts to the hardwood hammocks or pine rockland.
	P-W-0009.08	Biology-Keys	3.1.9.4 3.3.3.4	The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process.
	P-W-0009.09	Alternatives-Keys	1.0	The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Weeks, Vicki	P-W-0010.01	General		Thank you for submitting these resolutions.
	P-W-0010.02	General		Thank you for submitting this letter.
	P-W-0010.03	Program	1.0	Comment noted.
	P-W-0010.04	Program	1.0	Comment noted.
	P-W-0010.05	Biology-Keys	3.1.3.3 3.3.3.3	The listed species presented in the SEIS were obtained from the Florida Game and Fresh Water Fish Department and the U.S. Fish and Wildlife Service and are specific to the Region of Influence for each alternative site.
	P-W-0010.06	Launch emissions	3.1.1.3 3.3.1.3	According to the Biological Assessment, no species would be jeopardized by the Theater Missile Defense test program.
	P-W-0010.07	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
FKNMS Advisory Council	P-W-0011.01	Alternatives-Keys		Comment noted.
	P-W-0011.02	Alternatives-Keys		Comment noted.
Drew Richardson, Professional Association of Diving Instructors	P-W-0012.01	Alternatives-Keys		Comment noted.
	P-W-0012.02	Alternatives	1.0	The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Drew Richardson	P-W-0013.01	Alternatives-Keys		Comment noted.
Orlandi, Robin, Board of Directors of Reef Relief	P-W-0014.01	Draft SEIS	1.0	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. Primary field investigations were to verify and supplement existing data.
	P-W-0014.02	Launch activity	1.4	Should one of the sites in the Florida Keys be selected for Theater Missile Defense testing, no more than 12 launch events would occur in any year. There is no plan to establish a permanent presence should the Florida Keys be selected. Cumulative impacts for each project alternative and environmental resource are presented at the end of the Environmental Impacts and Mitigations section for each resource in chapter 3 of the Draft and Final SEIS. Depending on the specific resource, cumulative impacts may or may not be additive in nature. For example, the utilities used by program activities would be fully additive, deposition of launch emissions on nearby soil would be somewhat additive, and noise events separated by a one month period would not be additive.
	P-W-0014.03	Air Quality	3.1.1.2; 3.3.1.2	The most recent and available data was used to characterize the existing environments of potential sites in the Florida Keys. Primary field investigations were to verify and supplement existing data. The Open-Burn Open-Detonation Dispersion Model is a model that calculates predicted depositions using worst case climatological parameters such as wind speed, humidity, and temperature. The results of the model represent the greatest concentrations of emissions that could occur under any conditions.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0014.04	Air Quality-Keys	3.3.1.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long-term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near-field for the Shuttle is considered 1.5 kilometers from the launch pad. The near-field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1,399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to a maximum of 20 percent under normal conditions). Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels. Deposition of hydrogen chloride at a rate of no more than 1.64g/m ² over the area of this water body would not decrease the pH more than 0.1 unit.
	P-W-0014.05	Launch emissions	3.3.1.4	Comment noted.
	P-W-0014.06	Biology	3.3.3.4	The proposal would not cause a sufficient change in water oxygenation to warrant an evaluation of the baseline requirement for oxygen. See section 3.3.3 of the SEIS.
	P-W-0014.07	Biology-Keys	3.3.14.4	Normal launch activities would not affect the reef ecosystem. In the unlikely case of a launch mishap, no debris would fall on reef tracts which are outside the Launch Hazard Area. Mishap debris would have incidental small scale impacts on water quality in the immediate vicinity. This would not be enough to be measured after flushing through the Keys channels.
	P-W-0014.08	Water quality-Keys	3.3.14.4	See response to Comment P-W-0014.04.
	P-W-0014.09	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-W-0014.10	Alternatives-Keys		Comment noted.
Henize, Dennis	P-W-0015.01	Safety-Keys	Appendix G	The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site.
	P-W-0015.02	Noise-Keys	3.3.8.4	The Launch Hazard Area is drawn to protect community resources. The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0015.03	Air Quality	3.1.1.4 3.1.9.4	The TSCREEN PUFF model predicts concentrations at various distances from the launch point. For a normal launch, there were no exceedances. For a launch mishap scenario, TSCREEN PUFF indicated potential exceedance beyond the Launch Hazard Area. In that case, per Environmental Protection Agency guidance, using the more refined model, Open-Burn Open-Detonation Dispersion Model, indicated that there would not be exceedance of Occupational Safety and Health Administration occupational exposure standards or short term public emergency guide lines beyond the Launch Hazard Area.
	P-W-0015.04	Safety-Keys	Appendix G	The Launch Hazard Area is developed to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area.
	P-W-0015.05	Noise	3.1.8.4 3.3.8.4	The SEIS provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible. There will be high maximum noise levels resulting from missile launches. These levels will last for less than 60 seconds.
	P-W-0015.06	Visual Aesthetics-Keys	3.1.13.4 3.3.13.4	The perceived degree of change is subjective. To assist in the comparison of vistas, visual simulations have been provided in sections 3.1.1.3.4 and 3.3.13.4 of the Final SEIS to illustrate potential visual impacts of Theater Missile Defense facilities.
	P-W-0015.07	Draft SEIS	3.1.3.4 3.3.3.3 3.5	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites. Potential human health and safety impacts were evaluated with respect to existing Environmental Protection Agency and Occupational Safety and Health Administration standards. Cumulative impacts for each project alternative and environmental resource are presented at the end of the Environmental Impacts and Mitigations section for each resource in chapter 3 of the Final SEIS.
	P-W-0015.08	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Henize, Dennis	P-W-0016.01	General		Comment noted.
	P-W-0016.02	Noise	3.3.3.4	Potential impacts on shorebird and wading bird rookeries are presented in section 3.3.3.4 of the Final SEIS.
	P-W-0016.03	Noise	3.3.8.3	See response above.
	P-W-0016.04	Noise	3.3.8.3	Comment noted.
	P-W-0016.05	Noise	3.3.8.3	Comment noted.
	P-W-0016.06	Biology-Keys	3.3.3.4	Potential impacts on sea turtles are presented in section 3.3.3.4 of the Final SEIS. Low pressure sodium lighting aimed away from the beach are proposed to minimize potential impacts.
	P-W-0016.07	Launch debris	3.1.3.4	Comment noted.
	P-W-0016.08	Utilities	3.3.12.4	There is no plan to establish a permanent presence should the Florida Keys be selected. Sanitary wastes would be disposed and treated off-site at approved wastewater treatment facilities.
	P-W-0016.09	Utilities-Keys	3.3.12.4	Bottled water would be provided to support personnel to reduce demands on local drinking water supplies. See section 3.3.14.4 of the Final SEIS.
	P-W-0016.10	Land Use-Keys	3.3.7.3	Comment noted; this has been corrected in section 3.3.7.3 in Final SEIS.
	P-W-0016.11	Land Use-Keys	3.3.7.3	Comment noted; this has been corrected in section 3.3.7.3 in Final SEIS.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0016.12	Launch emissions-AIO2	3.1.1.3	This information has been corrected in the Final SEIS (table 3.1.1.4).
	P-W-0016.13	Transportation	3.3.11.4	Stage 2 of the Hera missile is shipped with the Flight Termination System attached to the motor casing. The Flight Termination System is not shipped with initiators attached. Without initiators, the Flight Termination System would not detonate.
	P-W-0016.14	Transportation	3.3.11.4	If the Flight Termination System did function, it would split the casing of the Stage 2 motor casing. This split may initiate a fire in the mass of the Stage 2 propellant. There would not be a detonation since the propellant is not configured in a pressure vessel; both ends of the motor are open in shipping.
	P-W-0016.15	Transportation	3.3.11.4	See previous response.
	P-W-0016.16	Transportation-Keys	3.1.9.4	Should a vehicle accident damage the booster, it is more likely to burn than explode. The booster motors are shipped with both ends open, so any fire would not result in sufficient compression for an explosion or propulsion. In fact, the propellant has less equivalent energy per mass than gasoline. A gasoline truck has a greater likelihood of exploding in an traffic accident than does a missile transport truck.
	P-W-0016.17	Safety-Keys	3.3.11.4 3.1.9.4	Should one of the sites in the Keys be selected for Theater Missile Defense testing, a specific emergency response plan (similar to the example in appendix J) would be prepared and implemented.
Rebosio, Gianne T.	P-W-0017.01	Socioeconomic	3.3.10.4	The most recent and reliable data concerning tourism in the Keys was compiled by a consortium that comprised National Oceanic and Atmospheric Administration, the Monroe County Tourist Development Council, the Nature Conservancy, the U.S. Forest Service, the Bicentennial Volunteers and the University of Georgia. The study, titled Linking the Economy and Environment of Florida Keys/Florida Bay, estimated that there were 2.54 million tourist visits made to the Keys between June 1995 and May 1996 (Visitor Profiles: Florida Keys/Key West, November 1996, Leeworthy and Wiley, National Oceanic and Atmospheric Administration).
	P-W-0017.02	Biology	3.1.3.4 3.2.3.4 3.3.3.4	Sections 3.1.3.4, 3.2.3.4, and 3.3.3.4 of the Draft SEIS address the long-term impacts to biological resources.
	P-W-0017.03	Biology-Gulf	3.2.3.4	The short-term noise events and low hydrogen chloride deposition rates of launch activities are not sufficient to affect marine mammals.
	P-W-0017.04	Geology and Soils	3.1.5.4 3.3.5.4	The maximum possible near-field or far-field hydrogen chloride deposition rates for a Hera launch would not exceed the buffering capacity of the soils or waters in the vicinity of the launch. Repeated launches may accumulate effects in the near-field of the Hera launch pad, causing loss of plant diversity and diminished buffering capacity and fertility of the soils.
	P-W-0017.05	General	3.1.9.4	Comment noted.
	P-W-0017.06	Socioeconomics	3.1.10.4 3.3.10.4	Comment noted.
	P-W-0017.07	General		The potential effects of Theater Missile Defense testing and training activities on the Gulf of Mexico are addressed in section 3.2 of the Draft SEIS.
	P-W-0017.08	Water quality	3.1.1.4 3.3.1.4	The volume of hydrogen chloride emitted by the target missile in the volume of air it transits is negligible and does not contribute to acid rain.
	P-W-0017.09	Biology-Keys	3.3.3.3	The presence of mangroves at alternative sites in the Keys was discussed in section 3.3.3.3 of the Draft SEIS.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0017.10	Air Quality-Keys	3.1.1.4 3.2.1.4 3.3.1.4	Comment noted.
	P-W-0017.11	Program		Comment noted.
	P-W-0017.12	Socioeconomics	3.3.10.4	Comment noted.
	P-W-0017.13	Socioeconomics	3.3.10.4	Over 78 percent of the visits were made by car, less than 9 percent by air and a little over 12 percent by cruise ship. Visitor preference for destinations within the Keys varied greatly. The most popular location, by a substantial margin, was Key West, with over 55 percent of the visits being made there. The least popular destination was the Lower Keys, which received just under 12 percent of the total visits. Furthermore, fewer than 5 percent of visits were made solely to the Lower Keys, compared to almost 40 percent of visits which were spent exclusively in Key West. The Visitor Participation Survey, which is described as the most comprehensive ever conducted in the region, further emphasizes the relatively minor role that the Lower Keys plays in the Keys tourist economy. The top three activities in which visitors participated were sightseeing and attractions (55 percent participation rate), beach activities (34 percent) and visiting museums and historical sites (33 percent). The top rated activity in the Lower Keys was viewing wildlife/nature study in which 5.8 percent of all visitors to the Keys participated.
	P-W-0017.14	General		Comment noted.
	P-W-0017.15	General		Comment noted.
Jones, Michael	P-W-0018.01	Alternatives	1.1	As described in section 1.1 of the Draft SEIS, this document supplements the Theater Missile Defense Extended Test Range EIS that evaluated four alternative ranges, including Eglin AFB; it analyzes new alternatives within the Eglin Gulf Test Range.
	P-W-0018.02	Alternatives	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. The Program Overview in section 1.0 explains the factors that will be considered in making the final decision following the completion of the Final SEIS.
	P-W-0018.03	Program	2.1.2	The discussion of detailed treaty requirements is outside the scope of the EIS. The Department of Defense treaty compliance group determines the applicable treaties to missile testing. It has been determined that short range ship and air launch of target missiles is treaty compliant.
	P-W-0018.04	Program	2.1.2	See response above.
	P-W-0018.05	Program	2.1.2	See response above.
	P-W-0018.06	Launch mishap	3.1.9.4	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites. The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. The system failure mode analysis and attendant risk probability calculations for each failure mode are calculated. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and the Department of Defense safety policies.
	P-W-0018.07	Safety	2.1.3.2.3	The required minimum fragment distance is 900 feet. Air Force Manual 91.201, Explosive Safety Standards, allows for a reduction in the minimum fragment distance of 1250 feet when the Potential Explosion Site is located in a sparsely populated area. The following is the reference from AFM 91.201, Table 3.3, Column 9, Line 28, Note 60: "Sparsely populated locations reduce the minimum 1,250 foot fragment distance to 900 feet (270 meters) if the PES does not exceed 11,400 pounds (5140 kilograms). Allow no more than 25 persons in any sector bounded by the sides of a 45 degree angle, with the vertex at the Potential Explosion Site, and the 900 feet and 1250 feet arcs from the Potential Explosion Site."

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0018.08	Safety	Appendix G	Appendix G of the Draft SEIS described the method of establishing a Launch Hazard Area. Each Launch Hazard Area is different, depending on the available land, launch trajectory, type of missiles, and distance to populated areas or structures. Fewer operational constraints, such as permissible wind conditions at the time of launch and the reaction time of the range safety officer are required when more land is available for a Launch Hazard Area. Conversely, more operational constraints are required when less land is available. The geographic extent of the Launch Hazard Area and the operational constraints associated with it are established for each site to ensure the launch can safely be conducted. A Launch Hazard Area of 4.5 miles was never proposed for the Hera launch sites at Santa Rosa, Cape San Blas or Cudjoe or Saddlebunch Keys. The 4.5 mile figure was originally associated with the Fort Wingate launch site. However, even at Fort Wingate, the eventual Launch Hazard Area was significantly less than 4.5 miles Northeast of the launch site due to the existence of a school or residence.
	P-W-0018.09	Launch mishap	3.1.9.3	Comment noted.
	P-W-0018.10	DOPAA	2.1.2.1	Hera target missile reentry vehicles vary in configuration and mass to replicate threat reentry vehicles. Typical reentry vehicles mass ranges from approximately 448 kilograms (1,650 pounds) to 884 kilograms (1,950 pounds).
Germer, Suzanne	P-W-0019.01	Alternatives-Cudjoe	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed. Air quality and noise impacts to humans are addressed in sections 3.3.1.4 and 3.3.8.4 of the Draft and Final SEIS.
Cofer, Elizabeth	P-W-0020.01	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-W-0020.02	Draft SEIS	3.3	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. Should either of the alternative sites in the Keys be selected, there would be further consultation with Federal and State agencies.
	P-W-0020.03	Transportation-Keys	3.3.11.3	The evaluation of potential traffic impacts on Highway 1 in the Draft SEIS forecast an increase in traffic volume by 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation.
	P-W-0020.04	Safety -Keys	3.1.11.3 3.3.11.3	The ability to control the movement of missile components is important to the overall safety of the proposed Theater Missile Defense testing system. A specific evacuation plan for the missile and other test-related components and non-critical personnel would be implemented at the first notice of potential hurricane activity. This would ensure that Theater Missile Defense-related evacuation movements would precede standard public evacuation plans and would not interfere with the planned process.
	P-W-0020.05	Transportation	3.1.9.4 3.3.11.4	Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch. Since there has never been an explosion involving the truck transport of missile components, the probability of an accident resulting in an explosion is much lower than the probability of an accident.
	P-W-0020.06	Transportation	3.1.9.4 3.3.11.4	Transportation of the missile segments would involve standard freight transports and would not require a convoy. Emergency procedures for all contingencies would be established through cooperative agreements with local public safety agencies. No specific fire fighting vehicles would accompany the shipment, although all vehicles would be equipped with standard fire suppression equipment.
	P-W-0020.07	Transportation-Keys	3.3.11.3	In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-W-0020.08	Transportation-Keys	3.3.11.3	Traffic volumes over multiple segments of a highway can differ considerably on the basis of the origin and destination of vehicles entering and exiting the highway. Section 3.3.11 of the Final SEIS notes that traffic volumes on U.S. 1 are currently at or near its design capacity.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0020.09	Transportation	3.3.11.3	Missile components would normally be shipped by standard freight transport vehicles and would not involve a convoy. Standard safety and security precautions would be employed where necessary to ensure that movement of emergency vehicles is not hindered.
	P-W-0020.10	Transportation	3.3.11.3	See response above.
	P-W-0020.11	Safety	3.3.11.3	Local law enforcement personnel would maintain order in cases of civil disobedience.
	P-W-0020.12	Draft SEIS		Comment noted.
Musselman, David	P-W-0021.01	Draft SEIS		Since an environmental impact analysis is a prediction of potential program impacts should one or more of its alternatives be implemented, it is traditional to use the conditional tense to describe possible future outcomes.
	P-W-0021.02	launch effects		Comment noted.
	P-W-0021.03	Draft SEIS	3.1._.3 3.2._.3 3.3._.3	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. A list of available mitigations to avoid or minimize potential environmental impacts has been included at the end of each resource evaluation in chapter 3 of the Final SEIS.
	P-W-0021.04	Draft SEIS		Comment noted.
	P-W-0021.05	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-W-0021.06	General	3.1.9.4	Comment noted.
	P-W-0021.07	Water Quality	3.3.14.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle.
	P-W-0021.08	Water Quality	3.3.14.4	Environmental monitoring at Kennedy Space Center found that fish kill was a direct result of acidification of shallow surface waters resulting from deposition of up to 1,700 kilograms of hydrogen chloride on the surface layer of a lagoon in the immediate vicinity of the launch pad. This deposition resulted in pH reduction of 6 to 7 points. By comparison a normal Hera launch would deposition hydrogen chloride at a rate of no more than 1.64g/m ² over near-field water bodies and would decrease the pH by less than 0.1 units. As a result, only incidental fish mortality would be expected. No fish species would be jeopardized by the Theater Missile Defense test program.
	P-W-0021.09	Air Quality	3.3.14.3	The total exhaust from a Hera launch is 13,820 pounds, 3,078 pounds of which is hydrogen chloride, with 221 pounds of hydrochloric acid deposited in the vicinity of the launch pad. The remaining hydrogen chloride could be deposited in the far-field. Far-field deposition is sufficiently dispersed and variable from launch to launch that successive launches seldom affect the same areas. The most recent and available data was used to characterize the existing environments of potential sites in the Florida Keys. Primary field investigations were to verify and supplement existing data. The Open-Burn Open-Detonation Dispersion Model is a model that calculates predicted depositions using worst case climatological parameters such as wind speed, humidity and temperature. The results of the model represent the greatest concentrations of emissions that could occur under any conditions.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0021.10	Water Quality-Keys	3.3.14.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly with no long-term elevation.
	P-W-0021.11	Water Quality-Keys	3.3.14.4	Potable water is supplied to the Florida Keys by the Florida Keys Aqueduct Authority. Fresh water impoundments are recognized as important to local wildlife.
	P-W-0021.12	Launch mishap	3.2.14.4 3.3.14.4	Ammonium perchlorate would only be introduced into the Gulf of Mexico in the unlikely event of a launch mishap. The slow process of hydration would continue until the material was completely saturated. These quantities of ammonium perchlorate distributed over a wide area of the Gulf would not be considered toxic to the environment.
	P-W-0021.13	Noise	3.3.8.4	See section 3.3.8.4 in the Final SEIS.
	P-W-0021.14	Noise	3.3.3.3	See section 3.3.8.4 in the Final SEIS.
	P-W-0021.15	Noise	3.3.8.3	The AICUZ study was developed by the Naval Air Station, Key West to evaluate their noise environment, not that of Cudjoe Key. See section 3.3.8.3 in the Final SEIS.
	P-W-0021.16	General	3.3.12.4	There is no plan to establish a permanent presence should the Florida Keys be selected.
	P-W-0021.17	Land Use-Keys	3.3.7.3	This has been corrected in section 3.3.7.3 in the Final SEIS.
	P-W-0021.18	Land Use-Keys	3.3.7.3	This has been corrected in section 3.3.7.3 in the Final SEIS.
	P-W-0021.19	Safety-Keys	Appendix J	Should one of the sites in the Keys be selected for Theater Missile Defense testing, a specific emergency response plan (similar to the example in appendix J) would be prepared and implemented.
	P-W-0021.20	Safety-Keys		Should the Keys be selected, MOAs with local officials on how to handle these situations would be developed. Appropriate officials would be consulted.
	P-W-0021.21	Safety-		Comment noted.
James J. Slack, South Florida Field Office, Fish and Wildlife Service	P-W-0022.00	Draft SEIS		This letter was submitted prior to release of the Draft SEIS. All comments were incorporated into the Draft SEIS prior to its release.
	P-W-0022.01	Draft SEIS		In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. Should either of the alternative sites in the Keys be selected, there would be further consultation with Federal and State agencies.
	P-W-0022.02	Biology	3.1.3.4	Comment noted.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0022.03	Biology-Eglin	3.1.3.4 3.3.3.4	Comment noted.
	P-W-0022.04	Biology-Keys	2.1.3 3.3.3.4	Comment noted.
	P-W-0022.05	Biology-Keys	3.3.3.4	Potential impacts on shorebird and wading bird rookeries are presented in section 3.3.3.4 of the Final SEIS.
	P-W-0022.06	Draft SEIS	3.1.3.4 3.3.3.4	Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. A mitigation plan, describing the specific measures, will be developed and implemented prior to beginning site preparation and test activities.
	P-W-0022.07	Land Use-Keys	3.3.7.4	The conservation land uses including the refuges that you mention are a critical part of the resource management program for the Florida Keys. The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. The Launch Hazard Area for these alternative sites does, however, overlap the National Marine Sanctuary and several wildlife refuges. New military uses in these areas are permitted but would require specific consultation with appropriate Federal and state resource agencies.
	P-W-0022.08	Biology-Keys	3.3.3.3 3.3.7.3	Military activities associated with Theater Missile Defense site preparation and test preparation on military land would have minimal effect on the wilderness area. The missile launch would be intrusive, but of short duration, no more than once a month.
	P-W-0022.09	Land use-Keys		Comment noted.
	P-W-0022.10	Biology-Eglin	3.1.3.3	Comment noted.
	P-W-0022.11	Biology-Eglin	3.1.3.3	Comment noted.
	P-W-0022.12	Biology-Eglin	3.1.3.3 3.3.3.3	Comment noted.
	P-W-0022.13	Biology-Eglin	3.1.3.4	Low pressure sodium lighting aimed away from the beach are proposed to minimize potential impacts.
	P-W-0022.14	Biology-Eglin	3.1.3.3	Comment noted.
	P-W-0022.15	Biology-Eglin	3.1.3.3 3.3.3.3	Comment noted.
	P-W-0022.16	Biology-Eglin	3.1.3.4 3.3.3.4	Comment noted.
	P-W-0022.17	Biology	3.1.3.3 3.3.3.3	Comment noted.
	P-W-0022.18	Biology-Eglin	3.2.3.3	Comment noted.
	P-W-0022.19	Biology-Gulf	3.3.3.3	Comment noted.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0022.20	Biology-Keys	3.1.3.3 3.3.3.3	Comment noted.
	P-W-0022.21	Biology-Keys	3.3.3.3	Comment noted.
	P-W-0022.22	Biology-Keys	3.3.3.3	Comment noted.
	P-W-0022.23	Biology-Keys	3.3.3.3	Comment noted.
	P-W-0022.24	Biology-Keys	3.3.3.3	Comment noted.
	P-W-0022.25	Biology-Keys	3.3.7.3	Comment noted.
	P-W-0022.26	Biology-Keys	3.3.3.3 3.3.7.3	Comment noted.
	P-W-0022.27	Land Use-Keys	3.3.7.3.2	Comment noted.
	P-W-0022.28	Land Use-Keys	3.3.7.3	Comment noted.
	P-W-0022.29	Land Use-Keys	3.3.7.3.2	Comment noted.
	P-W-0022.30	Land Use-Keys	3.3.7.3.2	Comment noted.
	P-W-0022.31	Land Use-Keys	3.3.7.3	Comment noted.
	P-W-0022.32	Land Use-Keys	3.3.7.3	See response above.
	P-W-0022.33	Land Use-Keys	3.3.3.3	Comment noted.
	P-W-0022.34	Biology-Keys	3.3.7.3	Comment noted.
	P-W-0022.35	Land Use-Keys	3.3.3.3.1	Comment noted.
	P-W-0022.36	Biology-Keys	3.3.3.3.1	Comment noted.
	P-W-0022.37	Visual Aesthetics-Keys	3.1.13.2 3.3.13.2	The Forest Service's methodology provides a basis to compare visual setting before and after any modification or addition. The perceived degree of change is subjective. To assist in the comparison of vistas, visual simulations have been provided in sections 3.1.13.4 and 3.3.13.4 of the Final SEIS to illustrate potential visual impacts of Theater Missile Defense facilities.
	P-W-0022.38	General		This acronym refers to the Gulf States Marine Fisheries Commission.
	P-W-0022.39	Biology-Keys	3.1.3.3	Comment noted.
	P-W-0022.40	Draft SEIS	3.1.3.4 3.3.3.4	Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. A mitigation plan, describing the specific measures, will be developed and implemented prior to beginning site preparation and test activities.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0022.41	Biology-Keys	1.0	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Ron Cox	P-W-0023.01	Alternatives	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Hind, Martin S	P-W-0024.01	General		Comment noted.
Hare, James N.	P-W-0025.01	General		Shipped 17 March 1998.
unsigned	P-W-0026.01	Alternatives	2.1.1.2.2	Launch of missiles that can be defined as ICBMs from a fixed platform are prohibited by treaty.
	P-W-0026.02	Program	1.4	If a target launch site in the Keys is chosen, no more than 12 launches would be scheduled in any year; however, there would probably less.
	P-W-0026.03	Air Quality-Keys	3.1.1.3 3.3.1.3	The prevailing winds have historically averaged 2 meters per second (7 feet per second) in a southeasterly direction in the summer and 4 meters per second (12 feet per second) in a northeasterly direction in the winter in the Florida Keys. These conditions were used in the calculations of exhaust depositions. The concentration of emissions would be far below permissible health levels by the time wind borne pollution reached residential areas.
	P-W-0026.04	Water Quality-Saddlebunch	3.3.1.4 3.3.14.4	Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly even with low flow and mixing.
	P-W-0026.05	Alternatives	2.3	Section 2.3 of the Draft and Final SEIS presents the range of site alternatives that were originally evaluated for the Theater Missile Defense program. Specific factors that eliminated these alternatives from further consideration are summarized.
Drake, Susan	P-W-0027.01	Biology-Keys		Comment noted.
Mc Arthur, Phil and Jane	P-W-0028.01	Alternatives-Keys	3.3.10.3	It is not proposed to conduct war games from the Florida Keys.
	P-W-0028.02	Alternatives-Keys		Comment noted.
unsigned	P-W-0029.01	Land use-Keys		It is not proposed to launch anti-ballistic missiles from the Florida Keys.
	P-W-0029.02	Program		Comment noted.
unsigned	P-W-0030.01	Program		Comment noted.
Blazevic, R. L.	P-W-0031.01	Draft SEIS		Comment noted.
Magill, Mary	P-W-0032.01	Alternatives-Keys	1.0	Comment noted.
Hendricks, M.E.	P-W-0033.01	Alternatives-Keys		Comment noted.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
Gernacht, Helen	P-W-0034.01	Draft SEIS		Comment noted.
	P-W-0034.02	Draft SEIS		Comment noted.
	P-W-0034.03	Alternatives-Keys		Comment noted.
illegible	P-W-0035.01	Alternatives-Keys		Comment noted.
Canneto, Frank Pipeline Company	P-W-0036.01	Draft SEIS		Shipped 18 March 1998.
Richardson, Drew Professional Association of Diving Instructors	P-W-0037.01	Alternatives-Keys		Comment noted.
	P-W-0037.02	Alternatives	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. The Program Overview in section 1.0 explains the factors that will be considered in making the final decision following the completion of the Final SEIS.
Martin, Terence N. Office of Environmental Policy and Compliance, U.S. Dept. of the Interior	P-W-0038.01	Draft SEIS		Comment noted.
Deut, Jane	P-W-0039.01	Transportation-Keys	3.3.11.4	The evaluation of potential traffic impacts on U.S. 1 forecast an increase in traffic volume in 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation.
	P-W-0039.02	Safety	3.3.11.4	Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.
	P-W-0039.03	Biology-Keys		A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.5 in the SEIS.
Wright, Bruce	P-W-0040.01	Program		Comment noted.
	P-W-0040.02	Draft SEIS		Comment noted.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
Golden, Jim	P-W-0041.01	Draft SEIS		Comment noted.
Poole, Samuel E. III, South Florida Water Management District	P-W-0042.01	Land Use-Keys	3.3.7	Comment noted.
	P-W-0042.02	Land Use-Keys	Appendix N	Once a decision is made on which sites or sites would be included in the Theater Missile Defense test program, an Environmental Resource Permit would be obtained from either the Florida Department of Environmental Protection or the South Florida.
	P-W-0042.03	Biology-Keys	3.3.3	The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process. Additional mitigations for wetlands have been included in section 3.3.3.4 of the Final SEIS.
	P-W-0042.04	Draft SEIS	3.3.3	Cumulative impacts for each project alternative and environmental resource are presented at the end of the Environmental Impacts and Mitigations section for each resource in chapter 3 of the Draft and Final SEIS.
	P-W-0042.05	Biology-Keys	3.1.3 3.3.3	See response P-W-0042.03 above.
	P-W-0042.06	Water Quality-Keys	3.1.14 3.3.14	The OFW status of the waters surrounding the Keys is recognized in the Draft SEIS. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly with no long-term elevation.
	P-W-0042.07	Land Use-Keys	3.3.7	As described in the Draft SEIS, the Launch Hazard Area for the alternative target launch sites on the Keys does overlap the Florida Keys National Marine Sanctuary; about 4.3 percent of the Florida Keys National Marine Sanctuary is in the Cudjoe Key Launch Hazard Area and 1.6 percent of the Florida Keys National Marine Sanctuary is in the Launch Hazard Area for the Saddlebunch Keys (see section 3.3.7 in the Final SEIS). New military uses in the Florida Keys National Marine Sanctuary are permitted but would require specific consultation. This consultation would require that any proposed action be designed and implemented so that potential impacts to any habitat or species be 1) avoided to the extent possible, 2) minimized when avoidance is not possible, and 3) mitigated to compensate for potential long-term adverse effects.
	P-W-0042.08	Biology	3.1.3.4 3.3.3.4	Comment noted.
	P-W-0042.09	Geology & Soils-Keys	3.1.5.4 3.3.5.4	Aluminum oxide and hydrogen chloride are bound in the solid rocket motor binder matrix, polybutadiene rubber. This material has the consistency of rubber, and will not spill on site. Aluminum oxide and hydrogen chloride are combustion products and will be deposited on the ground and water in low rates after a launch. This is addressed in the air quality section, the geology and soils section and the water section of the Draft SEIS.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0042.10	Launch emissions	3.1.1.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1,399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions). Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels.
	P-W-0042.11	Water Quality	3.1.14.4 3.3.14.4	It is recognized that the small increases in impervious surfaces required for program facilities could increase nonpoint source pollution. Final design planning and engineering will minimize the creation of new impervious surfaces and will establish procedures systems to minimize untreated surface runoff from program-related sites.
	P-W-0042.12	Land use-Keys		Comment noted.
	P-W-0042.13	Land use-Keys		Comment noted.
Causey, Billy D. Florida Keys National Marine Sanctuary Program	P-W-0043.01	Land use-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-W-0043.02	Land Use-Keys	3.3.7.4	The Launch Hazard Area for the alternative target launch sites on the Keys does overlap the Florida Keys National Marine Sanctuary; about 4.3 percent of the Florida Keys National Marine Sanctuary is in the Cudjoe Key Launch Hazard Area and 1.6 percent of the Florida Keys National Marine Sanctuary is in the Launch Hazard Area for the Saddlebunch Keys (see section 3.3.7 in the Final SEIS). New military uses in the Florida Keys National Marine Sanctuary are permitted but would require specific consultation. The disruption of a normal test event would consist of a loud noise (similar to the takeoff of a commercial jet aircraft) no more than once a month. Should either of these sites be selected, consultation with Federal and state resource agencies would establish specific mitigations to avoid or minimize the disturbance of protected areas. Consultation with the Director of the National Marine Sanctuary began early in the planning process for the Theater Missile Defense testing program and is ongoing.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0043.03	Launch emissions	3.3.1.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1,399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions). Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels.
	P-W-0043.04	Biology-Keys	3.3.3.4	Potential disturbance of marine waterfowl is addressed in section 3.3.3.4 in the Final SEIS.
	P-W-0043.05	Biology-Keys	3.3.3.4	All patrol activity required for the Theater Missile Defense test program would be provided by the U.S. Coast Guard and Florida Marine Patrol who are familiar with navigation along the coast and the administration of coastal regulations.
	P-W-0043.06	Land Use-Keys	3.3.7.4	Comment noted.
Wheeler, Kathy	P-W-0044.01	Transportation-Keys	3.3.11.4.1, 3.3.11.4.2	In the SEIS, the evaluation of potential traffic impacts on U.S. 1 forecast an increase in traffic volume in 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation. There are no plans to close Highway 1.
	P-W-0044.02	Biology-Keys	3.3.7.4	In the SEIS the evaluation of potential impacts to wildlife and sensitive habitats concludes that the risk of disturbance or harm to these resources is extremely small. Hazardous waste management plans, spill prevention plans, and spill recovery procedures have been established to minimize the probability of spills and to assure quick and thorough clean-up should a spill ever occur. The likelihood of a launch mishap is very remote, and the safety procedures that been put in place would minimize any potential damage to these protected areas.
	P-W-0044.03	Safety-Keys	Appendix G	The schools are outside the proposed Launch Hazard Area. Each Launch Hazard Area is different, depending on the available land launch trajectory type of missiles and distance to populated areas or structures. Less operational constraints, such as permissible wind conditions at the time of launch and the reaction time of the range safety officer are required when more land is available for a Launch Hazard Area. Conversely, more operational constraints are required when less land is available. The geographic extent of the Launch Hazard Area and the operational constraints associated with it are established for each site to ensure the launch can safely conducted.
	P-W-0044.04	Noise	3.3.8.4	Comment noted.
Marple, Richie Anne	P-W-0045.01	Draft SEIS	1.0	The Navy is a cooperating agency for this SEIS. The Navy's possible participation in proposed Theater Missile Defense testing in the Eglin Gulf Test Range and the potential environmental impacts of this participation have been evaluated in the Draft and Final SEIS.
	P-W-0045.02	Draft SEIS		Cumulative impacts for each project alternative and environmental resource are presented at the end of the Environmental Impacts and Mitigations section for each resource in chapter 3 of the Draft and Final SEIS.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0045.03	Program	1.4	The maximum Theater Missile Defense program requirement would involve up to 24 testing and/or training activities occurring in the Eglin Gulf Test Range during each year. Multiple interceptor testing (2 per target) could require that up to 48 interceptor missiles be launched each year. See sections 1.4 and 2.1 of the Final SEIS.
	P-W-0045.04	Transportation-Santa Rosa	3.1.11.4 3.2.11.4	Highway 98 does not fall in the proposed Launch Hazard Area. The Intracoastal Waterway would be closed for periods up to 4 hours per test event, no more often than 24 times per year.
	P-W-0045.05	Land use-Eglin	3.1.7	Site A.15 is located in Santa Rosa County.
	P-W-0045.06	Air Quality	3.1.1.4.1	Site A-15 air quality impacts are described in section 3.1.1.4.1.
	P-W-0045.07	Airspace	3.3.2.4	The proposed action is for 24 test events per year requiring clearance of airspace for no more than 4 hours per test event.
	P-W-0045.08	Land use-Eglin	3.1.7.3.1	Section 3.1.7.3.1 of the Draft SEIS describes the two parcels of Air Force land on Santa Rosa Island. These two are not open to the public. Site A-15 is on the western parcel.
	P-W-0045.09	Transportation-Santa Rosa	3.1.11.4.1	Access over the Navarre Bridge is not proposed. Access would be through Ft. Walton Beach.
	P-W-0045.10	Safety-Santa Rosa	3.1.12.4.1	There is a fire station onsite and water to provide adequate fire fighting capability.
	P-W-0045.11	Socioeconomics	3.2.10.4	The socioeconomic effects of the proposal are addressed in sections 3.1.10.4, 3.2.10.4, and 3.3.10.4 of the Draft SEIS. Economic dislocation of commercial fisheries is estimated to be less than 1 percent per year.
	P-W-0045.12	Transportation-Santa Rosa	3.2.11.4	Section 3.2.11.4 of the Draft SEIS addresses the impacts of Theater Missile Defense testing on maritime traffic within the Gulf of Mexico. Pensacola is not in the list of top ten shipping volume ports, but is displayed in figure 3.2.11-1 with 1.6 million tons per year.
	P-W-0045.13	Transportation	3.2.11.4	The Launch Hazard Area would be cleared for no more than 4 hours at one time. Roads within the proposed Launch Hazard Area would be closed for no more than 4 hours, likely much less.
	P-W-0045.14	Safety	3.1.9.4	In accordance with current Air Force operational agreements with the local fire departments, training would be provided if needed.
	P-W-0045.15	Draft SEIS	1.0	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process.
	P-W-0045.16	Alternatives	2.1.1.2.2	The platform launch alternative is in the other categories considered category just like the Florida Keys.
	P-W-0045.17	Socioeconomics	3.1.10.4 3.3.10.4	The Theater Missile Defense test program would not generate additional demand for public services provided by local governments and resulting fiscal impacts would be minimal. Memoranda of Agreement would be reached with local governments describing the support.
Halloran, George	P-W-0046.01	Biology-Keys	3.2.3.4 3.3.3.4	The potential impacts to marine animals are addressed in sections 3.2.3.4 and 3.3.3.4.
	P-W-0046.02	Noise	3.1.8.4 3.3.8.4	The SEIS provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible. There will be high maximum noise levels resulting from missile launches. These levels will last for less than 60 seconds.
	P-W-0046.03	Land use-Keys		Comment noted.
	P-W-0046.04	Draft SEIS	5.0	Comment noted.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0046.05	Alternatives	1.0	The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-W-0046.06	Land use-Keys	1.0	Comment noted.
No Name	P-W-0047.01	Program		Comment noted.
Whitfield, Estus D., Environmental Policy/Community and Economic Development Unit, Office of the Governor, State of Florida	P-W-0048.01	Land use-Keys	3.0	Thank you for the DSEIS comments provided in your letter dated 31 March 1998. We greatly appreciate the time you and your staff have spent in reviewing and commenting on the DSEIS. We will continue to coordinate with your office during development of the Final SEIS, anticipated for release in August 1998. We recognize the area's designation as an "area of critical state concern" and have designed the proposal to avoid or minimize potential environmental impacts.
	P-W-0048.02	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed. As you are aware, the Florida Keys sites are no longer under consideration as part of the preferred alternative. If future requirements indicate a need to further address potential use of either Cudjoe or Saddlebunch Keys, additional Federal and state agency consultation and a supplemental biological assessment will be accomplished for those specific areas. This Biological Assessment would be fully coordinated with all appropriate resource agencies and would incorporate site-specific mitigations developed in cooperation during the consultation process.
	P-W-0048.03	Draft SEIS		All comments prepared by state agencies will be carefully will be considered in the decision process for the Theater Missile Defense test program..
	P-W-0048.04	Cultural-Cape San Blas	3.1.4.4	Coordination with the Florida State Historic Preservation Office has continued throughout the environmental assessment process for the Theater Missile Defense testing program. A determination of National Register of Historic Places eligibility for any site selected in the Record of Decision would be conducted prior to any site preparation and flight test activity. Specific mitigations for the lighthouse on Cape San Blas have been included in section 3.1.4.4 of the Final SEIS.
Griffin, Lynn, Office of Intergovernmental Programs, Florida Department of Environmental Protection	P-W-0049.01	Alternatives-Keys	3.1.3.4 3.3.3.4	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed. Land use and water impacts are addressed in sections 3.3.7.4 and 3.3.1.4.4 of the Draft and Final SEIS.
	P-W-0049.02	Alternatives-Keys	1.0	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-W-0049.03	Land Use-Keys	3.3.7.	Comment noted.
	P-W-0049.04	Land Use-Keys	3.3.3.4	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0049.05	Launch emissions	3.1.1.4 3.3.1.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly. The potential impacts of launch emission on marine resources are addressed in sections 3.1.3.4, 3.2.3.4, and 3.3.3.4 of the Final SEIS. Potential ecological impacts of a launch mishap are presented in section 3.1.9, 3.2.9, and 3.3.9.
	P-W-0049.06	Draft SEIS		Preliminary review documents that were prepared prior to the release of the Draft SEIS were work-in-progress documents for internal review. The information and conclusions presented in these earlier documents were preliminary and did not reflect the full data and analysis included in the Draft SEIS.
	P-W-0049.07	Biology-Keys	3.3.7.4 3.3.3.3	The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. The Launch Hazard Area for these alternative sites does, however, overlap the National Marine Sanctuary and several wildlife refuges (see section 3.3.7 in the Final SEIS). New military uses in these areas are permitted but would require specific consultation with appropriate Federal and state resource agencies. See sections 3.1.3.4 and 3.3.3.3 in the Final SEIS for proposed mitigations. Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. A mitigation plan, describing the specific measures, will be developed and implemented prior to beginning site preparation and test activities.
	P-W-0049.08	Land Use-Keys	3.1.14.4 3.3.14.4	All patrol activity required for the Theater Missile Defense test program would be provided by the U.S. Coast Guard and Florida Marine Patrol who are familiar with navigation along the coast and the regulations that apply to the area.
	P-W-0049.09	Land use-Keys	Appendix N	Once a decision is made on which sites or sites would be included in the Theater Missile Defense test program, the appropriate permit applications will be made.
	P-W-0049.10	Water quality Keys	3.3.14.4	Deposition of aluminum oxide and hydrogen chloride during normal launch activities is addressed in sections 3.1.1.4.4, 3.2.1.4.4, and 3.3.1.4.4. Both of these chemicals are bound into a solid rocket motor fuel matrix of polybutadiene rubber binder and could not spill. The handling, transportation, storage, use and disposal of hazardous materials or wastes required for the Theater Missile Defense test program would be in accordance with the Department of Defense, Air Force, and Navy regulations and instructions. The life cycle control and management of all toxic and hazardous substances ensures that they are not enter pathways to human or ecological exposure.
	P-W-0049.11	Land use-Keys	3.3.7.4	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-W-0049.12	Land Use-Keys	3.3.7.4	A letter from the Florida Department of Community Affairs dated April 13, 1998 stated "implementation of any alternative which includes land launches from the Florida Keys would be inconsistent with the FCMP."
Percy, George W. Division of Historical Resources, Florida Dept. of State	P-W-0050.01	Cultural-Cape San Blas	3.1.4.4	Noise-induced vibration could cause significant impacts. However, as no definitive studies exist on such impacts, a conclusive statement as to the exact effects is impossible. Noise-induced vibration could adversely affect the lighthouse lens. Specific mitigations for the lighthouse on Cape San Blas have been included in section 3.1.4.4 of the Final SEIS. Relocation is proposed as an option to avoid possible impacts. If mutually acceptable mitigations are included in the document to protect the lens in place, adverse effects may be avoidable. Suggest that the lens be removed only for the duration of the testing program.
	P-W-0050.02	Cultural-Eglin	3.1.4.4	Potential impacts to historic resources on Cudjoe Key and Santa Rosa Island are addressed programmatically in the text of the SEIS. As the eligibility of these resources is unknown, the document does not attempt to determine specific impacts. However, the document states that should launch options that require alteration of these resources be chosen, a determination of eligibility would be conducted and appropriate mitigations developed in consultation with the State Historic Preservation Office.
	P-W-0050.03	Cultural	3.1.4.4	Comment noted.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0050.04	Cultural-Eglin	3.1.4.4	This statement has been modified in section 3.1.4.4 of the Final SEIS.
	P-W-0050.05	Cultural-Eglin	3.1.4.4	This statement has been modified in section 3.1.4.4 of the Final SEIS.
	P-W-0050.06	Cultural	3.1.4.3	This statement is in reference to the removal of archaeological material from its original context. A distinction between historic structures and archaeological sites has been included in section 3.1.4.4 of the Final SEIS.
	P-W-0050.07	Cultural-Eglin	3.1.4.4	This statement has been modified in sections 3.1.4.4, 3.3.4.4 and 3.5 of the Final SEIS.
	P-W-0050.08	Cultural-Eglin	3.5	This statement has been deleted from section 3.5 of the Final SEIS.
Marine Fisheries Commission	P-W-0051.01	Draft SEIS		Comment noted.
Cairns, Duncan J., North West Florida Water Management District	P-W-0052.01	Draft SEIS		Comment noted.
Hulsey, John, South Florida Regional Planning Council	P-W-0053.01			The Draft SEIS was not a permit application.
	P-W-0053.02	Land Use-Keys	3.3.7.4	The planning and siting process for the proposed Theater Missile Defense test program in the Eglin Gulf Test Range considered many factors in identifying alternative sites including mission requirements, environmental conservation, human and ecological health and land use compatibility. The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. New military uses in these areas are permitted. Should either of these sites be selected, consultation with Federal and state resource agencies would establish specific mitigations to avoid or minimize the disturbance of protected areas.
	P-W-0053.03	Land use-Keys	3.3.7.4	When a decision is made selecting one or more alternative sites for Theater Missile Defense testing, consultation with Federal and state resource agencies will establish specific mitigations to avoid or minimize the disturbance of protected areas. These mitigations will be documented in the Record of Decision. A mitigation plan, incorporating specific measures, will be developed and implemented prior to initiation of site preparation and test activities. See sections 3.1.3.4 and 3.3.3.3 in the Final SEIS for proposed mitigations.
	P-W-0053.04	Land Use-Keys	3.3.7.4	See previous response.
West Florida Regional Planning Council	P-W-0054.01	Draft SEIS		Comment noted.
Apalachee Regional Planning Council	P-W-0055.01	Draft SEIS		Comment noted.
Gulf County	P-W-0056.01	Draft SEIS		Comment noted.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
Thorpe, Paul Northwest Florida Water Management District	P-W-0057.01	Water quality- Keys		Comment noted.
	P-W-0057.02	Water quality- Eglin	3.1.14.4	Normal launch activities would not result in appreciable adverse impacts to water quality in the Gulf of Mexico. Should a launch mishap occur, efforts would be made to recover the debris and propellant.
	P-W-0057.03	Biology-Eglin	3.3.3.4	The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process.
	P-W-0057.04	Water quality	3.3.14.4	It is recognized that the small increases in impervious surfaces required for program facilities could increase nonpoint source pollution. If either of these sites is selected, final design planning and engineering will minimize the creation of new impervious surfaces and will establish procedures systems to minimize untreated surface runoff from program-related sites.
Simonds, Lois	P-W-0058.01	Alternatives- Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
McGee, William Cape San Blas Taxpayers Association	P-W-0059.01	Alternative-Cape San Blas	1.1	As described in section 1.1 of the Draft SEIS, this document supplements the Theater Missile Defense Extended Test Range EIS that evaluated four alternative ranges, including Eglin AFB; it analyzes new alternatives within the Eglin Gulf Test Range.
	P-W-0059.02	Water quality- Eglin	3.1.3.4 3.3.3.4	Comment noted.
	P-W-0059.03	Socioeconomics- Cape San Blas	3.3.10.4	The real estate values within an area are directly related to the levels of income and employment that occur within the area. Socioeconomic impact studies that have been prepared by the Air Force over the past decade have shown that housing values and military programs are generally positively related. The areas near Eglin AFB and Vandenberg AFB, which are both installations where missile testing occurs, have experienced generally stable and appreciating property values. The only negative changes in housing values that have been recorded resulted from mission reductions and base closures that have occurred. Since the proposed Theater Missile Defense test program would not have an appreciable effect on income or employment levels at any of the alternative test sites, no related changes in property or housing value would be expected.
	P-W-0059.04	Biology-Eglin	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed. The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process.
	P-W-0059.05	Cultural-Eglin	1.0	Coordination with the Florida State Historic Preservation Office has continued throughout the environmental assessment process for the Theater Missile Defense testing program. A determination of National Register of Historic Places eligibility for any site selected in the Record of Decision would be conducted prior to any site preparation and flight test activity. Specific mitigations for the lighthouse on Cape San Blas have been included in section 3.1.4.4 of the Final SEIS
	P-W-0059.06	Socioeconomic	3.3.10.4	The Theater Missile Defense test program would not generate appreciable additional demand for public services provided by local governments and resulting fiscal impacts would be minimal.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
Freeman, Shirley Commissioner, County of Monroe	P-W-0060.01	Draft SEIS		Responses to comments made during the public hearing are included in Volume 2 of the Final SEIS.
	P-W-0060.02	Water quality-Keys	3.3.14.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly. Potential impacts of launch mishaps, including the effects of unburned solid rocket propellant is presented in section 3.1.9.4 of the Draft and Final SEIS.
	P-W-0060.03	Safety	Appendix G	Appendix G of the SEIS describes the method of establishing a Launch Hazard Area. Each Launch Hazard Area is different, depending on the available land launch trajectory type of missiles and distance to populated areas or structures. Less operational constraints, such as permissible wind conditions at the time of launch and the reaction time of the range safety officer are required when more land is available for a Launch Hazard Area. Conversely, more operational constraints are required when less land is available. The geographic extent of the Launch Hazard Area and the operational constraints associated with it are established for each site to ensure the launch can safely be conducted. A Launch Hazard Area of 4.5 miles was never proposed for the Hera launch sites at Santa Rosa Island, Cape San Blas or Cudjoe or Saddlebunch Keys. The 4.5 mile figure was originally associated with the Fort Wingate launch site. However, even at Fort Wingate, the eventual Launch Hazard Area was significantly less than 4.5 miles Northeast of the launch site due to the existence of a school or residence.
	P-W-0060.04	Transportation-Keys	3.3.11.4	Transportation of the missile segments would involve standard freight transports and would not require a convoy. Emergency procedures for all contingencies would be established through cooperative agreements with local public safety agencies. No specific fire fighting vehicles would accompany the shipment, although all vehicles would be equipped with standard fire suppression equipment. The evaluation of potential traffic impacts on U.S. 1 forecast an increase in traffic volume in 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation.
	P-W-0060.05	Biology-Keys	3.3.3.3	In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-W-0060.06	Noise	3.1.8.4 3.3.8.4	The SEIS provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible. See section 3.1.9.4 of the Final SEIS for additional discussion of potential noise impacts.
	P-W-0060.07	Socioeconomics	3.1.10.4 3.3.10.4	The real estate values within an area are directly related to the levels of income and employment that occur within the area. Socioeconomic impact studies that have been prepared by the Air Force over the past decade have shown that housing values and military programs are generally positively related. The areas near Eglin AFB and Vandenberg AFB, which are both installations where missile testing occurs, have experienced generally stable and appreciating property values. The only negative changes in housing values that have been recorded resulted from mission reductions and base closures that have occurred. Since the proposed Theater Missile Defense test program would not have an appreciable effect on income or employment levels at any of the alternative test sites, no related changes in property or housing value would be expected.
Probert, Daniel P.E.	P-W-0061.01	Draft SEIS		Comment noted.
	P-W-0061.02	Alternatives	2.1.2.1.2, 2.2.2.1.3	Sections 2.1.2.1.2 and 2.2.2.1.3 of the Draft and Final SEIS describes the mobile sea-launched target. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-W-0061.03	Alternatives	2.1.2.1.2, 2.2.2.1.3	Comment noted.
	P-W-0061.04	Alternatives	2.1	Comment noted

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0061.05	Alternatives	2.1	Comment noted.
	P-W-0061.06	Alternatives	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Moody, Richard	P-W-0062.01	Socioeconomic	3.3.10.4	The real estate values within an area are directly related to the levels of income and employment that occur within the area. Socioeconomic impact studies that have been prepared by the Air Force over the past decade have shown that housing values and military programs are generally positively related. The areas near Eglin AFB and Vandenberg AFB, which are both installations where missile testing occurs, have experienced generally stable and appreciating property values. The only negative changes in housing values that have been recorded resulted from mission reductions and base closures that have occurred. Since the proposed Theater Missile Defense test program would not have an appreciable effect on income or employment levels at any of the alternative test sites, no related changes in property or housing value would be expected.
	P-W-0062.02	General	3.3.10.4	Comment noted.
	P-W-0062.03	Socioeconomic	3.3.10.4	There are no plans for a Theater Missile Defense permanent party presence in Monroe County.
	P-W-0062.04	Socioeconomic	3.3.10.4	The real estate values within an area are directly related to the levels of income and employment that occur within the area. Socioeconomic impact studies that have been prepared by the Air Force over the past decade have shown that housing values and military programs are generally positively related. The areas near Eglin AFB and Vandenberg AFB, which are both installations where missile testing occurs, have experienced generally stable and appreciating property values. The only negative changes in housing values that have been recorded resulted from mission reductions and base closures that have occurred. Since the proposed Theater Missile Defense test program would not have an appreciable effect on income or employment levels at any of the alternative test sites, no related changes in property or housing value would be expected.
	P-W-0062.05	Socioeconomic	3.3.10.4	See previous response.
	P-W-0062.06	Socioeconomic	3.3.10.4	See previous response.
	P-W-0062.07	Socioeconomic	3.3.10.4	See previous response.
	P-W-0062.08	Socioeconomic	3.3.10.4	See previous response.
Hanley, Mari	P-W-0063.01	Alternatives-Keys		Comment noted.
	P-W-0063.02	Program	1.4 2.1	The maximum Theater Missile Defense program requirement would involve up to 24 testing and/or training activities occurring in the Eglin Gulf Test Range during each year. There are no more than 12 target missile launches per year proposed from the Florida Keys alternative site.
	P-W-0063.03	Draft SEIS	3.1._4 3.2._4 3.4._4	Cumulative impacts for each project alternative and environmental resource are presented at the end of the Environmental Impacts and Mitigations section for each resource in chapter 3 of the Draft and Final SEIS. Depending on the specific resource, cumulative impacts may or may not be additive in nature. For example, the utilities used by program activities would be fully additive, deposition of launch emissions on nearby soil would be somewhat additive, and noise events separated by a one month period would not be additive.
	P-W-0063.04	Biology	3.2.1.4 3.3.1.4.4	In the SEIS the evaluation of potential impacts to wildlife and sensitive habitats concludes that the risk of disturbance or harm to these resources is extremely small. Hazardous waste management plans, spill prevention plans, and spill recovery procedures have been established to minimize the probability of spills and to assure quick and thorough clean-up should a spill ever occur. The likelihood of a launch mishap is very remote and the safety procedures that have been put in place would minimize any potential damage to these protected areas.
	P-W-0063.05	Draft SEIS		Comment noted.
	P-W-0063.06	Socioeconomics	3.1.10.4 3.3.14.4	Comment noted.
Couvillion, Keith J. Texaco Exploration and Production, Inc	P-W-0064.01	Land and Water Use-Gulf	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. The Program Overview in section 1 explains the factors that will be considered in making the final decision following the completion of the Final SEIS. In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and, to assist in the decision making process.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0064.02	Land and Water Use-Gulf	3.2.7.4	It is uncertain where and when oil and gas exploration facilities would be constructed in the areas of the Gulf of Mexico potentially affected by the Theater Missile Defense test program. Any evaluation of potential impacts would be speculative. Prior to the siting of such oil and gas facilities, appropriate environmental documentation for these projects would need evaluate all environmental issues including the presence of Theater Missile Defense and other military test program in the Gulf.
	P-W-0064.03	Land and Water Use-Gulf	3.2.7.4	Comment noted.
	P-W-0064.04	Land and Water Use-Gulf	3.2.7.4	A Memorandum of Agreement will be developed with the Mineral Management Service to accommodate Theater Missile Defense testing in the Expanded Eglin Gulf Teat Range. Procedures for scheduling, notification, clearance and mitigation for Theater Missile Defense launch activities will be developed in cooperation with Minerals Management Service and other Federal resource agencies.
	P-W-0064.05	Land and Water Use-Gulf	3.2.7.4	Comment noted.
	P-W-0064.06	Land and Water Use-Gulf	3.2.7.4	A Memorandum of Agreement will be developed with the Mineral Management Service to accommodate Theater Missile Defense testing in the Expanded Eglin Gulf Teat Range. Procedures for scheduling, notification, clearance and mitigation for Theater Missile Defense launch activities will be developed in cooperation with Minerals Management Service and other Federal resource agencies. These issues would be considered in the planning for these oil facilities in the Gulf. It is assumed that Air Force test activities would be considered the Mineral Management Service. The National Environmental Policy Act documentation.
	P-W-0064.07	Land and Water Use-Gulf	3.2.7.4	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. The Program Overview in section 1 explains the factors that will be considered in making the final decision following the completion of the Final SEIS. In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and, to assist in the decision making process.
Mueller, Heinz J. Chief, Office of Environmental Assessment, U.S. Environmental Protection Agency, Region 4	P-W-0065.01	Draft SEIS		Comment noted.
	P-W-0065.02	Draft SEIS		This Final SEIS is the completed NEPA documentation.
	P-W-0065.03	Air Quality	3.2.1.4	The Final SEIS does propose air quality monitoring as part of an overall mitigation program.
	P-W-0065.04	Draft SEIS		Comment noted.
	P-W-0065.05	Land & Water Use, Airspace		Appropriate planning and notification would minimize potential delays to shipping and commercial air traffic.
	P-W-0065.06	Draft SEIS		Comment noted.
	P-W-0065.07	Draft SEIS		Comment noted.
	P-W-0065.08	Draft SEIS		Comment noted.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0065.09	Draft SEIS		Comment noted.
	P-W-0065.09	Draft SEIS		Comment noted.
	P-W-0065.10	Draft SEIS		Comment noted.
Lee, James H. Office of Environmental Policy and Compliance, U.S. Dept. of the Interior	P-W-0066.01	Biology	3.1.3 3.3.3	The sand habitat in which sea turtle nests are generally located would normally attenuate the brief vibration caused by the low-frequency sound pressure of a target launch. No known effects on embryos and hatchlings would be expected to result from launch test vibration. Data from the launches at Kennedy Space Center has been incorporated in sections 3.1.3 and 3.3.3 of the Final SEIS.
	P-W-0066.02	Biology-Eglin	3.1.3.4	Section 3.1.3.4 of the SEIS addresses these issues.
	P-W-0066.03	Biology-Keys	3.3.3.4	Potential impacts to listed species at alternative sites in the Florida Keys are discussed in section 3.3.3.4 of the Final SEIS.
	P-W-0066.04	Biology	3.1.3.4 3.3.3.4	See sections 3.1.3.4 and 3.3.3.4 in the Final SEIS for proposed mitigations. Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. A mitigation plan, describing the specific measures, will be developed and implemented prior to beginning site preparation and test activities.
	P-W-0066.05	Land use-Keys	3.3.7.4	Comment noted.
	P-W-0066.06	Land use-Keys	3.3.7.4	Comment noted.
	P-W-0066.07	Environment-Eglin	3.1.3.4	Eglin AFB has an active natural and cultural resources management program, including monitoring programs for sea turtles.
	P-W-0066.08	Biology-Eglin	3.1.3.4 3.3.3.4	See sections 3.1.3.4 and 3.3.3.4 in the Final SEIS for proposed mitigations. Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. A mitigation plan, describing the specific measures, will be developed and implemented prior to beginning site preparation and test activities.
	P-W-0066.09	Geology and Soils	3.2.7.4	A Memorandum of Agreement will be developed with the Minerals Management Service to accommodate Theater Missile Defense testing in the Eglin Gulf Test Range. Procedures for scheduling, notification, clearance and mitigation for Theater Missile Defense launch activities will be developed in cooperation with Minerals Management Service and other Federal resource agencies.
	P-W-0066.10	Geology and Soils	3.2.7.4	The maximum Theater Missile Defense program requirement would involve up to 24 testing and/or training activities occurring in the Eglin Gulf Test Range during each year. Multiple interceptor testing (2 per target) could require that up to 48 interceptor missiles be launched each year. See sections 1.4 and 2.1 of the Final SEIS. The potential for 55 tests in 1999 includes testing at all ranges including White Sands Missile Range, WMR, and KMR. A Memorandum of Agreement will be developed with the Minerals Management Service to accommodate Theater Missile Defense testing in the Expanded Eglin Gulf Test Range. Procedures for scheduling, notification, clearance, and mitigation for Theater Missile Defense launch activities will be developed in cooperation with Minerals Management Service and other Federal resource agencies.
	P-W-0066.11	Geology and Soils	3.2.7.4	It is uncertain where and when oil and gas exploration facilities would be constructed in the areas of the Gulf of Mexico potentially affected by the Theater Missile Defense test program. Any evaluation of potential impacts would be speculative. Prior to the siting of such oil and gas facilities or initiation of exploration operations, appropriate Minerals Management Service environmental documentation for these projects would need to evaluate all environmental issues including the presence of Theater Missile Defense and other military test program in the Gulf.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0066.12	Geology and Soils	3.2.7.4	Comment noted.
	P-W-0066.13	Geology and Soils	3.2.7.4	Comment noted.
	P-W-0066.14	Geology and Soils	3.2.7.4	Comment noted.
	P-W-0066.15	Biology		Comment noted.
	P-W-0066.16	Biology	3.1.3.3	Comment noted.
	P-W-0066.17	Biology-Cape San Blas	3.1.3.3 3.3.3.3	Comment noted.
	P-W-0066.18	Air Quality	3.2.1.3	Comment noted.
	P-W-0066.19	Biology-Gulf	3.2.3.3.	Comment noted.
	P-W-0066.20	Geology and Soils	3.2.7.3	Comment noted.
	P-W-0066.21	Geology and Soils	3.2.7.3	Comment noted.
	P-W-0066.22	Geology and Soils	3.2.7.3 3.2.7.4	Comment noted.
	P-W-0066.23	Geology and Soils	3.2.7.3 3.2.7.4	Comment noted.
	P-W-0066.24	Biology-Keys	3.3.3.3	Comment noted.
	P-W-0066.25	Biology-Keys	3.3.3.3	Comment noted.
	P-W-0066.26	Biology	3.3.3.3	Comment noted.
	P-W-0066.27	Biology	3.3.3.3	Comment noted.
	P-W-0066.28	Land use-Keys	3.3.7.3	Comment noted.
	P-W-0066.29	Land use Keys	3.3.7.4	Military and non-military Federal lands on Cudjoe Key are illustrated in figure 3.3.7.2 in the Final SEIS. Conservation and preservation lands for the lower Florida Keys are presented in figure 3.3.7.4.
	P-W-0066.30	Land use Keys	3.3.7.4	See previous response.
	P-W-0066.31	Geology and Soils	3.2.7.4	This has been added to 3.4.5

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0066.32	Visual Aesthetics	3.1.13.1 3.3.13.1	The Forest Service's methodology provides a basis to compare visual setting before and after any modification or addition. The perceived degree of change is subjective. To assist in the comparison of vistas, visual simulations have been provided in sections 3.1.13.4 and 3.3.13.4 of the Final SEIS to illustrate potential visual impacts of Theater Missile Defense facilities.
	P-W-0066.33	Geology and Soils	3.2.7.4	Minerals Management Service Gulf of Mexico Region has been added to the notification list in the Final SEIS.
	P-W-0066.34	Geology and Soils		The OCS Lands Act has been included in the List of Regulations on the Final SEIS.
	P-W-0066.35	Geology and Soils	3.2.7.4	The Air Drop EA is a programmatic environmental assessment and does not address specific impacts at any of the candidate Air Drop test locations.
	P-W-0066.36	Geology and Soils	3.2.7.4	A Memorandum of Agreement will be developed with the Minerals Management Service to accommodate Theater Missile Defense testing in the Eglin Gulf Test Range. Procedures for scheduling, notification, clearance, and mitigation for Theater Missile Defense launch activities will be developed in cooperation with Minerals Management Service and other Federal resource agencies.
	P-W-0066.37	Biology-Eglin	3.1.3.4 3.3.3.4	Comment noted.
	P-W-0066.38	Biology	3.3.3.4	Specific mitigations that would avoid or minimize potential adverse impacts have been identified in the Final SEIS for each environmental resource. Section 3.3.3.4 in the Final SEIS addresses proposed mitigations for biological resources. Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. A mitigation plan, describing the specific measures, will be developed and implemented prior to beginning site preparation and test activities. No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. The Program Overview in section 1 explains the factors that will be considered in making the final decision following the completion of the Final SEIS. In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and, to assist in the decision making process.
	P-W-0066.39	Geology and Soils	3.2.7.4	Comment noted.
Pfeiffer, Steven G. State of Florida, Dept. of Community Affairs	P-W-0067.01	Land Use	3.3.7.4 3.1.3.4 3.3.3.4	The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. The Launch Hazard Area for these alternative sites does, however, overlap the National Marine Sanctuary and several wildlife refuges (see section 3.3.7 in the Final SEIS). New military uses in these areas are permitted but would require specific consultation with appropriate Federal and state resource agencies. See sections 3.1.3.4 and 3.3.3.4 in the Final SEIS for proposed mitigations. Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. This mitigation plan, which would avoid or minimize potential adverse impacts on protected areas, would be developed and implemented prior to initiating site preparation and test activities.
	P-W-0067.02	Alternatives-Keys		In accordance with the Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. Primary field investigations were to verify and supplement existing data.
	P-W-0067.03	Water quality-Eglin		Comment noted.

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
	P-W-0067.04	Cultural-Cape San Blas	3.1.7.4	Coordination with the Florida State Historic Preservation Office has continued throughout the environmental assessment process for the Theater Missile Defense testing program. A determination of National Register of Historic Places eligibility for any site selected in the Record of Decision would be conducted prior to any site preparation and flight test activity. Specific mitigations for the lighthouse on Cape San Blas have been included in section 3.1.4.4 of the Final SEIS.
	P-W-0067.05	Water Quality-Eglin	3.1.13.4 3.3.13.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly with no long-term elevation. The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process. Should an alternative be selected, the specific mitigations to avoid or minimize potential environmental impacts will be identified in the Record of Decision. A mitigation plan, prepared in consultation with Federal and state resource agencies, will be developed and implemented prior to initial site preparation and test activities. Additional mitigations for wetlands have been included in section 3.3.3.4 of the Final SEIS.
	P-W-0067.06	Water quality	3.3.3.4	See response above.
	P-W-0067.07	Water quality		Once a decision is made on which sites or sites would be included in the Theater Missile Defense test program, an Environmental Resource Permit would be obtained from either the Florida Department of Environmental Protection or the South Florida. This permit has been added to Appendix N, Potential Permits, in the Final SEIS. The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process. Should an alternative be selected, the specific mitigations to avoid or minimize potential environmental impacts will be identified in the Record of Decision. A mitigation plan, prepared in consultation with Federal and state resource agencies, will be developed and implemented prior to initial site preparation and test activities. Additional mitigations for wetlands have been included in section 3.3.3.4 of the Final SEIS.
	P-W-0067.08	Safety		The Draft Emergency Response Plan has been modified to reflect these notification requirements. See Appendix J of the Final SEIS.
Hartman, Bradley Director, Florida Game and Fresh Water Fish Commission	P-W-0068.01			Comment noted.
	P-W-0068.02			Comment noted
	P-W-0068.03			Comment noted

Table 5.1-2: Responses to Written Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Section & Page	RESPONSE
Morrison, Michael et al; Last Stand - petition against missile testing in the Florida Keys	P-W-0069.01	Program		Comment noted

5.2 E-MAIL COMMENT DOCUMENTS

Individuals who commented on the Draft SEIS in e-mail form are listed in table 5.2-1 along with their respective commentor identification number. This number can be used to find the e-mail document that was submitted and to locate the corresponding table on which responses to each comment is provided.

5.2.1 E-MAIL COMMENTS

Exhibit 5.2-1 presents reproductions of the e-mail comment documents that were received in response to the Draft SEIS. Comment documents are identified by commentor ID number, and each statement or question that was categorized as addressing a separate environmental issue is designated with a sequential comment number.

5.2.2 RESPONSE TO E-MAIL COMMENTS

Table 5.2-2 presents the responses to substantive comments to the Draft SEIS that were received in e-mail form. Responses to specific comments can be found by locating the corresponding commentor ID number and sequential comment number identifiers.

Table 5.2–1: Public Comments on the Draft SEIS (E-Mail Documents)

Commentor and Affiliation	ID Number
Fender, Heyward	P-E-0010
Frank, Mr. & Mrs. Burt	P-E-0003
Frank, Dan and Pam	P-E-0007
Girard Jr, Harlowe D.	P-E-0006
Henize, Dennis	P-E-0005
Hurlburt, Mary	P-E-0002
Kanter, Charles	P-E-0011
Ludwig, Carol E., Lt. Col. USAF	P-E-0008
Marsh, William	P-E-0001
Moran, Robert J.; National Ocean Industries Association	P-E-0009
Palmerton, Dr. & Mrs. Keith E.	P-E-0004
Thiel, Don; Cape San Blas Camping Resort	P-E-0012

	P-E-0001 COMMENT NUMBER		P-E-0001 COMMENT NUMBER
From: William A. Marsh To: tmd@eglin.af.mil Subject: SEIS for Proposed Enhancement of the Eglin Gulf Test Range to test Theater Missile Defense Systems Date: Thursday, March 19, 1998 1:25PM I attended the public hearing for the subject SEIS on March 13, 1998 at the Marathon, Florida Government Center. I was shocked at what I heard. The proposed alternative to use Cudjoe Key or Saddlebunch Keys as land based launch sites for target missiles can best be described by one word. Bizarre! The alternative to use a mobile sea launch platform can best be described as a pipe dream. The capability is still on the drawing boards and is not operational.. While the proposal was presented in a very professional manner using the latest in technology to make the presentation, the content (which is much more important) was sadly deficient and lacking in adequate factual data. In more detail, following are my concerns over the potential environmental impacts of the proposed action and alternatives presented as they related to Cudjoe Key and Saddlebunch Keys: Air Quality - No information was presented which described the impact on Air Quality in a worst case scenario. That is, the destruction of a missile on the launch pad, within the LHA, or down range. Airspace use - The proposed testing would require the rerouting of commercial and private aircraft. It would impact traffic in the area. Biological Resources - The SEIS does not describe in any way the nature of the "temporary disturbance to wildlife" that would result following a worst case scenario. The impact is dismissed in a rather cavalier fashion with no data to support the conclusion. The same could be said of the impact of an A-bomb on Hiroshima. Geology and Soils - Once again, the SEIS only addresses a successful launch. Addition study is required to determine the impact of a catastrophic failure. Hazardous Material and Waste - Once again, only successful testing has been considered. Land and Water Use - The Monroe County Commission has stated that the proposed use is not compatible with the County Comprehensive Plan! The LHA has been reduced in size to disguise the overlap of non-Federal parcels. It is obvious that no one with marine experience has adequately investigated the impact on water based activities. Clearance of the area for short periods is not practical. At any given time, there are hundreds, if not thousands, of sailboats traversing the area. These vessels are, for the most part, not capable of speeds in excess of 6 mph. In four hours, they could travel a maximum of 24 statute miles. Interdicting these vessels would be a monumental task. In addition, there are charter vessel which make their livelihood from the millions of visitors to the Keys who come from all over the world. Weather conditions dictate when they can go out. Canceling their operations during a good weather window could put them out of business and severely		impact the use of the Keys as a tourist destination. Collateral impacts would be the reduction of motel rentals, restaurant business and every other tourist oriented activity. And then there are the commercial fisherman who must pull their traps and catch fish when conditions are right. Noise - Again, the worst case scenario is not considered. Even the successful launch noise and air pressure is dismissed and compared to the noise of a hair dryer! The noise and pressure waves created by successful A-bomb testing could also be dismissed as temporary. Safety - Data from credible sources say that missile debris resulting from a plausible accident could be scattered up to 2 miles in the wrong direction. The 6500 foot LHA is clearly not realistic. The LHA does not include any number of events which could cause a missile to travel in the wrong direction and then explode. The LHA does not cover other launch hazards which are clearly identified in the DEIS. Socioeconomic - See land and water use. The temporary impact on commercial fisherman is severe and, in many cases, cannot be properly mitigated. Transportation - No data was presented that identified the impact of any abnormal disturbance (such as an accident on one of our many bridges) to the Keys. Not only is US 1 the major artery from Key Largo to Key West, it is the only artery. Severing this artery, even for a short time, would cause a severe impact. This artery not only carries traffic, it also is our only water and electricity conduit. The traffic study presented indicates that the traffic in Big Pine is less than Cudjoe. How can that be? All traffic to and from Cudjoe from the mainland must pass through Big Pine. Utilities - The DEIS does not adequately address the quality of the electric service in the Keys. We suffer frequent outages of varying duration due to any number of causes. Visual Aesthetics - Target missile launch pad and buildings are a major impact. Please require the the Final SEIS contains graphic representations of the are before and after the construction of the proposed facilities. Water Resources - The DEIS does not attempt to estimate the volume of water available for the HCL to mix with. There is nothing in the DEIS that shows the effects of HCL on the delicate sea grass beds adjacent to both areas. These sea grass beds are so fragile that a mariner anchoring or touching these beds is subject to severe fines which could be in the hundreds of thousands of dollars. Also, there are several families nearby that rely on water collected in cisterns as their sole source of water. The effects of HCL and Aluminum Oxide on their drinking water is not even mentioned. Fresh water resources required by the wildlife (including endangered species) are very limited. The quantity of fresh water available and the impact of HCL and Aluminum Oxide on that water are not covered. In summary, the DEIS I reviewed does not adequately address many serious issues. If it did, the proposed use of the Florida Keys would immediately be removed from consideration and the expanded use of the Eglin Gulf Test Range in any manner would be brought into question. As a private citizen I feel very frustrated that my concerns will not be seriously considered by the "steamroller" that is coming in my direction. It is putting me, other citizens, and a very fragile ecological subsystem, unique in the world, in harm's way.	
	01		09
	02		10
	03		11
	04		12
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	06		14
	07		15
	08		16
			17
			18
			19
			20

P-E-0002
COMMENT
NUMBER

01

From: MaryPat183
To: tmd@eglin.af.mil
Subject: Key West Missiles
Date: Friday, March 20, 1998 6:46PM

No, No, a thousand times No. Please do not jeopardize the environment. There is absolutely no reason to test missiles off Key West. It SHOULD NOT even be considered as an alternative site.

Thank you.

Mary Hurlburt
Swanton, OH

P-E-0003
COMMENT
NUMBER

01

> From: NanaPoppa
> To: tmd@eglin.af.mil
> Subject: missile site
> Date: Thursday, March 19, 1998 3:14PM
>
> Add my name along with my husband's name to the list of people opposed
> to any
>
> sort of missile site here in the Keys. The devastation would be
> horrendous to
> us
>
> and our home. Mr. and Mrs. Burt Frank , Big Pine Key, 33043
>

P-E-0004
COMMENT NUMBER

01

> From: KGeeP
> To: tmd@eglin.af.mil
> Subject: Theatre missile testing
> Date: Monday, March 23, 1998 11:38PM
>
> Dear Sir,
> My wife and I are very strongly opposed to the idea of testing
> theatre
> missile defense systems in the Gulf of Mexico. Please note that we
> believe it
> would be a grievous mistake to risk upsetting the delicate
> environmental
> balance of South Florida and especially the Florida Keys.
> Dr. and Mrs. Keith
> E.
> Palmerton
>

P-E-0005
COMMENT NUMBER

01

02

03

> From: DHenize
> To: tmd@eglin.af.mil
> Subject: EGTR Draft SEIS Comment
> Date: Friday, March 27, 1998 3:28AM
>
> Please see that these comments are addressed in the Final EGTR Theater
> Missile
> Defense SEIS.
>
>
> RELIABILITY of the Hera missile:
> This issue was raised many times in the scoping process, yet it is not
> mentioned in the Draft SEIS. Given that the proposed action includes
> reducing
> the Hera's nominal Launch Hazard Area (1994 Theater Missile Defense
> EIS) by
> over a factor of 3, launching Hera target missiles approximately 3
> times
> closer to several hundred homes in the Keys than they are to even
> isolated
> homes elsewhere, the missile's reliability is very relevant. Previous
> claims
> by BMDO of 99.6% reliability for the Hera are known to be highly
> exaggerated;
> even if 99.6% were valid as the probability only that catastrophic
> accidents
> wouldn't happen, it's not good enough for justifying launches
> unprecedentedly
> close to populations, for in the course of 120 launches, that failure
> has a
> 48% chance of occurrence. That is NOT insignificantly small. //
>
> The Final SEIS needs to fully address reliability of the Hera missile,
> including all components and systems which propel and control its
> flight.
>
>

	P-E-0005 COMMENT NUMBER		P-E-0005 COMMENT NUMBER
> The LAUNCH HAZARD AREA: > The explanation of development of LHA (Appendix G) is inadequate. It is even more simplified than the extremely over-simplistic presentation on the TMD Web site. > The final SEIS needs to include complete and detailed information relevant to reducing the Hera's nominal LHA by over 300% in order to place Hera launches directly adjacent to neighborhoods. > The SEIS needs to disclose the exact times by which the nominal "worst turn plus 5 seconds" criterion for flight termination would be reduced. > Since human error cannot be ruled out, and in fact is the cause for many missile failures, the Final SEIS needs to include discussion of the impact of potential human error in critical situations such as a missile pitching over away from its intended trajectory, at critical times when small fractions of a second are significant. > Even discounting "error", it must be considered that reaction time varies from person to person. Significant reduction in the nominal "5 seconds to terminate" will require action in short enough time to be near the range of variation in human reaction time. > General comment on the Draft SEIS: > Many issues that were brought up in the scoping process are simply not addressed in the Draft SEIS. The preparers of the SEIS should go back over all the input received during the scoping process, and include, in the Final SEIS, discussion of all issues. > Having read the Draft SEIS, I can only conclude that it is inadequate in ways too numerous to mention. Most issues are addressed very superficially, and most of the conclusions of minimal impact are not at all supported by facts contained in the document. > Overall, the document is very poorly prepared, and shows even minimal	04 05 06 07 08 09	> or no proofreading at all. The address for TMD is incorrect on the cover; > the document contains ridiculous oversights, such as placing the City of Miami in Monroe County. It should not be the job of the concerned public to find such things wrong with the document. The careless mistakes are inexcusable even in a Draft. > Content-wise, the Draft SEIS is nothing short of scientific fraud. > Conclusion: > The safety and reliability issues for the Hera launches, and other issues relating to the reduced Launch Hazard Areas for the proposed Hera target sites, simply cannot be resolved. > Cumulative impact on wildlife and habitat have not been addressed, and legitimate study of impacts on the various Keys ecosystems would take considerable time and expense. > I strongly urge that the Final SEIS eliminate consideration of the Keys launch proposals as even alternative actions. > Dennis Henize > PO Box 421162 > Summerland Key, FL 33042-1162	10 11 12 13

	P-E-0006 COMMENT NUMBER		P-E-0006 COMMENT NUMBER
----- From: jghdg@juno.com To: tmd@eglin.af.mil Subject: The SEIS for the proposed missile tests from the Florida keys Date: Thursday, March 26, 1998 2:56PM The Draft of the Secondary Environmental Impact Statement is a misleading study of a unique environment. It is not applicable to the Florida Keys. Monroe County has the only easily accessible, shallow water, living Coral Reef in the United States. There are thousands of acres of shallow water and wild mangrove islands providing a life-sustaining nursery for marine and bird life surrounding the proposed sites. The area from the Everglades through Florida Bay to the coral reef is already under intense scrutiny by federal and state pollution control experts and would only suffer more damage from highly toxic chemicals during normal launches. The ecological environment here is so fragile, that the state of Florida has declared Monroe County an Area of Critical State Concern. The water quality, population density, traffic density, land use, marine resources, and EVEN the rate of growth is strictly regulated. The proposed land and water use is not compatible with the Monroe County Comprehensive Land Use Plan This is the only county in America primarily made up of islands, strung together by 41 bridges, for 120 miles, with ONE road. That ONE road carries all the traffic necessary for our daily living; food and supplies, emergency and medical transportation, school buses, and all of our water and electricity. I reside in Sugarloaf Shores, a seven hundred lot plated subdivision within five miles of the LHA. There are approximately 550 homes already built and a few more are added every quarter, giving this area an assessed valuation of nearly six hundred million dollars. There are two other major sub-divisions on Cudjoe key closer to the LHA with similar property values. The economic impact of monthly missile launches would greatly reduce the property value of all our homes according to recent Real Estate studies. Monroe County already suffers	01 02 03 04 05 06 07	the highest average per capita property tax in the state and an even greater tax burden would have to be assumed by the other tax payers in the county for our devalued property. Recognizing this unique environment, the federal government, as far back as 1908, began designating specific wildlife areas in Monroe County. Today there are four refuges and two contain the only Key Deer and American crocodiles in the U.S. Superimposed over all of this is the federally mandated Florida Keys National Marine Sanctuary. Established in 1990, it covers two thousand eight hundred square miles from Biscayne National Park to the Dry Tortugas and expressly forbids the type of activity contemplated in this draft. This is the only county in the continental United States in a subtropical zone with consistent high humidity. Missile exhaust would spew out HCL that would quickly combine with water in the atmosphere to make about 10,000 pounds of concentrated hydrochloric acid. Wind effects have not been properly considered in chemical cloud disbursement scenarios. On land surrounding the proposed site, the endangered Silver Rice Rats habitat extends from Cudjoe to the Saddle bunch keys and no where else. The endangered Florida Marsh Rabbits habitat extends from Big Torch to the Saddlebunch and is the rarest mammal in the keys. The last remaining stands of tropical hardwood hammocks are on Cudjoe Key and Sugarloaf Key. Pine rockland is unique in the world, a globally endangered ecosystem lying alongside the launch hazard area boundary on Sugarloaf Key. Wetlands surround both proposed sites so that any mishap will spill directly into the marine environment affecting fish, invertebrates, and defoliating the native flora. The Ballistic Missile Defense Organization continues to regard this area as a viable alternative. We believe that launching missiles from the Florida Keys should not be an alternative and suggest you amend the draft to state exactly that. Should any of the above be construed to be an indictment of, or anti-U.S. Air Force in any way, please be advised that my father and I both proudly wore that uniform. After a distinguished career, he was buried in Arlington National Cemetery in 1983. Sincerely, Harlowe D. Girard, Jr. P.O.Box 440052	08 09 10 11 12 13 14

Exhibit 5.2-1: Reproductions of E-Mail Comment Documents (Continued)

> From: NoPyrz1
 > To: tmd@eglin.af.mil
 > Subject: Missile Test Site
 > Date: Wednesday, March 25, 1998 1:24PM
 >
 > Major Kennedy,
 > Please add my wife's and my name to the list of those opposed to
 > the
 > testing of theater missiles in the Florida Gulf. We feel that in our
 > many
 > years of travelling to the Florida Keys and the Everglades that it has
 > been
 > adversely affected by too many attacks from various sources that have
 > done
 > irreparable harm to the fragile ecosystem.
 > We firmly believe in a strong military force and can see the need
 > for
 > testing of theater weapons, but we feel this is not a sound choice for
 > a test
 > area.
 > Thank you for your consideration.
 >
 >
 > Sincerely,
 > Dan and Pam Frank
 >

P-E-0007
 COMMENT
 NUMBER

01

> From: Carol Ludwig
 > To: tmd@eglin.af.mil
 > Subject: TMD DSEIS
 > Date: Friday, April 03, 1998 10:47AM
 >
 >
 > Maj Kennedy,
 >
 > I reviewed the Draft SEIS dated 6 Feb 98 and have no comments.
 > The
 > FAA reviewer at Southern Region indicated to me that he had no
 > comments on the document. Also, I understand that Hq FAA
 > Environmental specialists will attend a meeting in the near
 > future to
 > discuss their views on the document.
 >
 >
 > Carol E. Ludwig, Lt Col, USAF
 > AFREP
 > FAA Southern Region

P-E-0008
 COMMENT
 NUMBER

01

Exhibit 5.2-1: Reproductions of E-Mail Comment Documents (Continued)

P-E-0009
COMMENT
NUMBER

01

> From: Bob Moran
> To: tmd@eglin.af.mil
> Subject: EGTR
> Date: Wednesday, April 08, 1998 5:01PM
>
> April 8, 1998
>
> Ms. Linda Ninh
>
> The EGTR information package signed by Captain Brian W. Moss lists an
> internet address for information on the proposed action. The address
> listed is as follows:
> <http://twf.eglin.af.mil/46mtd/tmd.htm>
>
> I have been unable to access this address and retrieve the
> information.
> Do I have the correct address? Is the information still available?
>
> Thank you.
>
> Robert J. Moran
> Director, Government Affairs
> National Ocean Industries Association
> 1120 G Street, N.W. Suite 900
> Washington, DC 20005
> (202) 347-6900
> (202) 347-8650
> bobm@noia.org

P-E-0010
COMMENT
NUMBER

01
02

> From: Spalts, Michael
> To: TMD,
> Cc: Wright, Newell
> Subject: Comments
> Date: Friday, April 03, 1998 1:01PM
>
> Received on Apr. 3, 1998 at 1030 hrs., by Mike Spalts.
> Comments by Mr. Heyward Fender, 863-2996:
>
> 1. Were native Americans included in the planning?
> 2. Were all the Keys looked at?
>
> VR
> Mike
>

P-E-0011
COMMENT NUMBER

From: KISSCOOK
To: tmd@eglin.af.mil
Subject: Missiles In The Gulf of Mexico
Date: Friday, April 03, 1998 2:49PM

Charles E. Kanter
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TO:
Vice President, Al Gore
Secretary of Defense, William Cohen
Secretary of the Air Force
Florida Governor Lawton Chiles
Senator Connie Mack
Senator Bob Graham
Congressman Richard Deutsch
Florida State Senator Daryl Jones
State Representative Debbie Horan
Monroe County Mayor Emeritus, Shirley Freeman

THE FLORIDA KEYS FACE A MILITARY THREAT! The threat comes from a domestic source rather than a foreign one!

The United States Department of Defense, Ballistic Missile Defense Organization (BMDO) under the direction of Lieutenant General Lester L. Lyles using incomplete data and 1941 attitudes, desires to turn one of the most ecologically sensitive, busiest and most prosperous area of the United States into a live ammunition missile testing range.

The program Lieutenant General Lester L. Lyles and the BMDO is proposing a program that would construct a missile launching site in the lower "Fabulous Florida Keys." Missiles launched from the Keys would then be intercepted and destroyed (hopefully) by other missiles launched from Eglin Air Force Base, some 800 miles to the north, across the Gulf of Mexico. This scenario presents the following catastrophic problems.

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1. The proposed missile Keys site in the midst of four (4) extremely sensitive major ecological preserve areas, any military usage of any kind would be devastating. (see report generated by Monroe County Mayor Emeritus, Shirley Freeman)

2. The Fabulous Florida Keys, permanent population 80,000 but hosting up to four million visitors per year, has many businesses and attractions that cannot possibly survive the economic uncertainty of unscheduled (depending upon weather) monthly missile launches. This is forcing Fisherman, (both commercial and recreational) tour boats, bird watchers, sailors, intercity ferries and a host of others that depend upon the same good weather to operate as do the missile launchers, to compete for the territory.

2. (cont.)Disruption of those businesses will have devastating consequences to the flourishing tourist business in the Fabulous Florida Keys. Even though cash payments for disrupted business is allocated, there is no possible mitigation, no amount of money will make up for these losses. Not even considered in the report are the potential legal consequences to fishermen who have obligations under federal and state statute.

No where considered is the interruption and physical threat to scheduled airlines, oil rigs, freighters, barge traffic, sailboats and law enforcement personnel. Since these are heavily traveled international waters, many vessel operators do not speak English nor monitor VHF radio nor read the published "Notice To Mariners."

3. The Florida Keys are a chain of islands linked together by a single, two-lane highway (US Rt. 1) which carries not only 100% of our traffic and sustenance but our single water line and our electric power lines. There are no alternate routes to the Keys! Missiles must be trucked by convoy for 110 miles over this precarious but very crowded two-lane highway with 41 bridges to reach their destination. An accident would cut off the entire county and the City of Key West. An explosion on a bridge would sabotage the County and might create panic when visitors found they could not leave

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and residents found there were no fresh supplies, water or electricity.

Nowhere in General Lester L. Lyles report does he cover the very real probability of civil disobedience based upon the very real threat to safety, livelihood and ecology. Nowhere in the seis report does General Lester L. Lyles acknowledge that there is any more than just "temporary" damage will occur. His definition of "temporary" is absurd. He considers dropping thousands of pounds of acid into a critical biological area a "temporary" disturbance.

4. General General Lester L. Lyles is placing us in harm's way. The Fabulous Florida Keys are only ninety (90) miles from Cuba, a nation with which the United States is currently holding an embargo. A nation with a mercurial, unpredictable dictator that last year, shot down two US civilian aircraft. Three times in recent years, Cuban planes landed in the Keys on US soil completely undetected, this means to us, on the front lines, that any hostilities will probably occur here first and the Air Force is unable to protect us. The question for us is: Is creating a missile base in the Keys saber-rattling? It certainly seems like an open act of aggression to us. We are the people who will absorb the destruction if it comes to that.

5. Based on the evidence outlined above and the myriad documents presented to yourselves and to the appropriate agencies, we can only concluded that General Lester L. Lyles is incompetent and unfit for the command he has and, therefore, we call for his immediate relief from duty.

It is obvious to all of us that General Lester L. Lyles has a world-view based on the 1941 model, that he has used data based on woefully out-of-date research and expressed a cavalier disregard for the ecology, industry and safety of the very people he is pledged to defend.

He is wasting and has wasted millions in taxpayer dollars trying to promote this ludicrous scheme when a few phone calls to other government agencies could have given him all the information he needed. For instance, NOAA Marine Sanctuary, US Fish & Wildlife both testified against this proposal as have

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every other involved government agency.

It should be blatantly obvious, even by the shoddy report presented by General Lester L. Lyles that the Gulf Of Mexico and The Fabulous Florida Keys are no longer appropriate places for missile testing. Anybody with a reasonable world-view can see that times and priorities have changed. It is no longer feasible to test ANY live ammunition weapons ANYWHERE in the Gulf of Mexico.

We are patriots to the core. We are proud to pay our taxes and demand the best air force and the best defense money can buy. That does not mean we must not take into account a new reality based upon demographic change. Take the missile testing to a safer, more suitable location.

As our elected representatives, we expect you to take immediate action on this very serious issue.

Yours truly,

Charles E. Kanter

CC: Newspapers

PS
Instilled in me during my military experience was the principle that the job of the military was to seek out and destroy the enemy. That means we messed up his neighborhoods, not ours!

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From: CapeSanBla
 To: tmd@eglin.af.mil
 Cc: gccofc@digitalexp.com; AThorpe363@aol.com
 Subject: TMD Extended Test Range Supplemental EIS (SEIS)
 Date: Friday, April 03, 1998 11:13AM

Ms. Linda Ninh
 April 3, 1998
 U.S. Army Space and Strategic Defense Command
 ATTN.: CSSD-EN-V
 Post Office Box 1500
 Huntsville, AL 35807-3801

Subject: TMD Extended Test Range Supplemental EIS (SEIS)

I am providing a response to the Draft SEIS for TMD Extended Test Range.
 My comments are directed toward various deficiencies or areas not addressed in the document. In general, I am disappointed in the overall quality of the SEIS as published. I especially take issue with the "best case" approach taken in the document, especially when it comes to socioeconomic impacts. Also, it is less than specific when it comes to the timing of these tests, which is a key issue when considering socioeconomic impact.

The bulk of the Cape San Blas busy season is compacted into several weeks in the spring, and several weeks in mid summer. This is why I asked for specific dates and times for the tests, such that I can evaluate the impact on our business. Since this information was not provided, I can only plan for a "worst case" scenario as to the impact on our business. The best case approach has also led to the inference that the tests will have only positive impacts on our

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economy.
 However, the economy here will most certainly be impacted when we experience long lines of halted traffic on our roads, and closed beaches at times when we would otherwise be our busiest. The saying "timing is everything" is quite appropriate for our situation.

The document speaks frequently of the "4 hours" during which the beaches will be closed for tests. I could live with this if procedures are implemented to insure that closures are kept as close to 4 hours as possible. I understand that there can be delays or complications that can extend the closure of the launch hazard area. However, past experience indicates that even though it may have been your intention to close the beach for only 4 hours, the barricades remained in place for 2 to 4 weeks. Possibly, this was a staffing issue. Also, since RADAR emission was not mentioned in the document, we can assume that this was used as an excuse for past closures exceeding 4 hours. Please address this issue as necessary to insure that barricades are set up and removed on a timely basis, thus minimizing the impact to our businesses (e.g., new procedures, additional staff, etc.).

I requested that the document address the road closure issue by examining queue lengths at specific test times and locations. This was intended to provide information to us to (again) assess impact to our business. The document has responded only with traffic increases due to additional test personnel. If roads are closed for 4 or more hours during our busy season, there could be a long line of vehicles on the road in front of our business. This could effectively shut us down for the duration of the test because no one could enter our facility. Campers are by

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definition "mobile", so if they are blocked from our entrance, they will go somewhere else (that is if they can turn around). What this all boils down to is that the timing of these tests is critical. Testing during peak season would most certainly be a problem. The SEIS needs to address the issue from a worst case standpoint.

The main focus of the economic impact section of the document appears to be that the additional people required to run these tests will spend money for supplies and services, resulting in a positive economic impact. Again, the impact is unclear because the document does not consider peak season impact. Last year (1997), we were booked solid from April through Labor Day. Although there are more rentals being built, the popularity of this area will continue to fill rentals to capacity for the foreseeable future. So, the test personnel will either displace tourists, or will have to stay off the cape. There are other similar capacity issues, which if applied to peak season numbers will result in little or no impact to our economy. Again, the document needs to address worst case scenarios and provide realistic projections of the impacts.

As a final note, our business (Cape San Blas Camping Resort) was not mentioned as one of the campgrounds in the area (where others are mentioned by name). I made it perfectly clear in our previous cover letter that we are located 100 feet from the Air Force's property line at Cape San Blas (Eglin site D-3). It is also clear from our name and our response that we are a camping facility. An error such as this is not in itself very alarming, but it has taken away any confidence that I have in the rest of the report. If an omission of a non-technical nature such as this exists, what else has been overlooked?

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Kindly respond that you have received this email. Thank you in advance for including more detail regarding these issues in your study.

Sincerely,

Don Thiel
Cape San Blas Camping Resort
P.O. Box 645
Port St. Joe, FL 32457
E-Mail: CapeSanBla@aol.com

cc: via E-Mail: tmd@eglin.af.mil
gccoafc@digitalexp.com
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Table 5.2-2: Responses to E-Mail Comments

Commentor and Affiliation	Comment Number	Resource Area	Reference Section & Page	RESPONSE
William Marsh	P-E-0001.01	Air Quality	3.1.1.4.1, 3.1.9.4, 3.3.9.4	Potential air quality impacts resulting from a launch mishap are addressed in section 3.1.9 of the Draft and Final SEIS. As sections 3.1.1.4.1 and 3.1.9.4 of the Draft SEIS explain, the TSCREEN PUFF model predicts concentrations at various distances from the launch point. For a normal launch, there were no exceedances. For a launch mishap scenario, TSCREEN PUFF indicated potential exceedance beyond the Launch Hazard Area. In that case, per EPA guidance, using the more refined model, OBODM, indicated that there would not be exceedance beyond the Launch Hazard Area. The OBODM is a model that calculates predicted depositions using worst case climatological parameters such as wind speed, humidity, and temperature. The results of the model represent the greatest concentrations of emissions that could occur under any conditions.
	P-E-0001.02	Airspace Use	3.1.2.4, 3.2.2.4, 3.3.2.4	Rerouting and rescheduling of air traffic would be requested through the appropriate Federal Aviation Administration regional control center. Such air traffic adjustments would have less effect on annual average air traffic patterns than would normal rerouting for inclement weather over parts of the Gulf of Mexico or Florida. Air traffic in the area of the launch site by the implementation of a launch firing area.
	P-E-0001.03	Biology	3.1.9.4	The worst-case scenario for a launch mishap could be the combustion of most of a missile's propellant on or near the launch pad. This type of mishap would create extreme temperatures and pressures, scarring or burning living organisms in the immediate vicinity of the pad. Considerable levels of preparation activities prior to a launch should generally cause most wildlife to leave the area. In order to avoid or minimize potential impacts to remaining wildlife, mitigative actions would be coordinated with the U.S. Fish and Wildlife Service and the Florida Department of Environmental Protection. These actions could include relocation of the individuals or postponement of the launch. If a mishap were to occur, hazardous waste specialists would immediately respond to the site to remove toxic and other debris from the area to prevent residual effects on wildlife.
	P-E-0001.04	Geology and Soils	3.1.9, 3.2.9, 3.3.9	The Safety sections (3.1.9, 3.2.9, and 3.3.9) of the SEIS provide a discussion of the human and ecological risks of the proposed test program under normal and mishap conditions. Potential impacts of a catastrophic failure under a full range of mishap scenarios are presented for each environmental resource in section 3.1.9 of the Draft and Final SEIS.
	P-E-0001.05	Hazardous materials and wastes	3.1.6.4, 3.2.6.4, 3.3.6.3	Sections 3.1.9, 3.2.9, and 3.3.9 of the SEIS provide a discussion of the safety of the proposed test program under normal and mishap conditions.
	P-E-0001.06	Land Use-Keys	3.3.7.4	The planning and siting process for the proposed Theater Missile Defense test program in the Eglin Gulf Test Range considered many factors in identifying alternative sites including mission requirements, environmental conservation, human and ecological health, and land use compatibility. The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. New military uses in these areas are permitted. The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. The Launch Hazard Area has not been shrunk. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. As stated previously, the more constrained a Launch Hazard Area, the more restrained the Range Safety Officer.
	P-E-0001.07	Land and Water Use	2.1.3.2.3, 3.3.7.4	Prior public notice of test event schedules would be publicized, posted in marinas, and noted in Notices to Mariners. Radar surveillance prior and during the test would enable the test officer to monitor the marine traffic in the area. It is believed that with the cooperation of the Florida Marine Patrol, the Coast Guard, and the boating public, the area can be cleared for the period to assure safe testing.
	P-E-0001.08	Socioeconomics	3.1.10.4, 3.2.10.4, 3.3.10.4	The socioeconomic effects of the proposal are addressed in sections 3.1.10.4, 3.2.10.4, and 3.3.10.4 of the Draft SEIS. Economic dislocation of commercial fisheries is estimated to be less than 1 percent per year. Over 78 percent of the visits to the Florida Keys were made by car, less than 9 percent by air, and a little over 12 percent by cruise ship. Visitor preference for destinations within the Keys varied greatly. The most popular location, by a substantial margin, was Key West, with over 55 percent of the visits being made there. The least popular destination was the Lower Keys, which received just under 12 percent of the total visits. Furthermore, fewer than 5 percent of visits were made solely to the Lower Keys, compared to almost 40 percent of visits which were spent exclusively in Key West. The Visitor Participation Survey, which is described as the most comprehensive ever conducted in the region, further emphasizes the relatively minor role that the Lower Keys play in the Keys tourist economy. The top three activities in which visitors participated were sightseeing and attractions (55 percent participation rate), beach activities (34 percent), and visiting museums and historical sites (33 percent). The top rated activity in the Lower Keys was viewing wildlife/nature study in which 5.8 percent of all visitors to the Keys participated.

Table 5.2-2: Responses to E-Mail Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section & Page	RESPONSE
William Marsh, cont.	P-E-0001.09	Noise	3.1.9.4, 3.3.9.4	The potential environmental impacts of a launch mishap on all environmental resources including noise are addressed in section 3.1.9 of the Draft and Final SEIS. The noise analysis provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible. In addition, potential noise impacts on biological resources are addressed in section 3.1.3.4 and 3.3.3.4 of the Draft and Final SEIS. Minor damage to structures may occur within 3 kilometers (1.9 miles) of the mishap. Exposure to an impulsive noise with an SPL equal to or greater than 140 dBA may cause temporary or permanent hearing loss in people within 1,000 meters (3,280 feet) of the mishap. Noise effects of a launch mishap would have a startling effect on wildlife, with possible incidental mortality. The near-field disruption of a normal test event would consist of a loud noise (similar to the takeoff of a commercial jet aircraft) no more than once a month.
	P-E-0001.10	Safety-Keys	3.1.9.4, 3.3.9.4	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would ensure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing is described in section 3.1.9 for normal and mishap scenarios. The primary role of the Range Safety Officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish an Launch Hazard Area as described in section 2.1.3.2.3 in the SEIS. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude). If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community.
	P-E-0001.11	Socioeconomics	3.2.10.4	Our analysis indicates that temporary dislocation from fishing grounds for periods will displace less than 2 percent of the volume of catch or value of catch at a worst case.
	P-E-0001.12	Transportation-Keys	3.3.11.4	The target missiles proposed for Theater Missile Defense testing are Minuteman stages I and II. Over a 30 year operational period, frequent transport of Minuteman missile components to and from 1000 sites never resulted in an explosion. Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.
	P-E-0001.13	Utilities-Keys	3.3.12.4	The Theater Missile Defense test program would not affect existing or future utility corridors.
	P-E-0001.14	Transportation-Keys	3.3.11.4	Traffic flows over multiple segments of a highway can differ considerably on the basis of the origin and destination of vehicles entering and exiting the highway. Section 3.3.11 of the Final SEIS notes that traffic volumes on U.S. 1 are currently at or near its design capacity.
	P-E-0001.15	Utilities-Keys	3.3.12.4	The Theater Missile Defense test program would not generate appreciable additional demand for public services such as electric power and therefore would not contribute to the potential for service outages.
	P-E-0001.16	Visual Aesthetics-Keys	3.3.13.4	To better assess the visual impact of constructing a missile assembly building or erecting a 50 foot tall missile on a site, a visual simulations for each vantage point photograph used in the Draft SEIS has been prepared (sections 3.1.13.1 and 3.2.13.1). These visual simulations use computer graphics programs to ensure that the apparent visibility of the building or missile in the photograph is what would actually be seen from each respective vantage point. Specifically, a known dimension in each photograph was determined from sources at the respective sites. This known dimension was projected into the photograph via planographic projection to provide a perspective scale of the distance between two objects. In this case, the two objects were the tower or known object, and the Hera missile, which would be 50 feet tall on its launch stool. The site mapping indicated the horizontal distance between the known object and the Hera missile launch site. The resultant photographic visual simulations are published in the Final SEIS section 3.1.13.4 (pages 3- 223 and 226) for the Panhandle sites and section 3.2.13.4 (pages 3-518 and 3-521) for the Keys sites. It is apparent, reviewing these photographs, that neither the building nor the missile are visible from most accessible vantage points. The view from those closer vantage points will include the existing military buildings as well as the new MAB and missile. The new buildings will be seen in the context of the existing military facilities.

Table 5.2-2: Responses to E-Mail Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section & Page	RESPONSE
William Marsh, cont.	P-E-0001.17	Air quality	3.3.1.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, Florida. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1,399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels.
	P-E-0001.18	Biology-Keys	3.3.3.4	Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly even with low flow and mixing. As such, no appreciable impact to sea grass beds would be expected.
	P-E-0001.19	Water Quality-Keys	3.2.14.4, 3.3.14.4	The Theater Missile Defense test program would not introduce any contamination into drinking water supplies. Bottled water would be provided to support personnel to reduce demands on local drinking water supplies. See section 3.3.14.4 of the Final SEIS.
	P-E-0001.20	Water quality-Keys	3.2.14.4, 3.3.14.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly with no long-term elevation.
Mary Hurlburt	P-E-0002.01	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Mr. & Mrs. Burt Frank	P-E-0003.01	Alternatives-Keys	1.0	Comment noted.
Dr. & Mrs. Keith E. Palmerton,	P-E-0004.01		1.0	Comment noted.
Dennis Henize	P-E-0005.01	Safety-Keys	3.1.9.4, 3.3.9.4	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would assure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the Range Safety Officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish an Launch Hazard Area as described in section 2.1.5 in the SEIS. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude). If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community. The residences near the Santa Rosa Island and Cape San Blas locations are closer to their respective missile launch sites.

Table 5.2-2: Responses to E-Mail Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section & Page	RESPONSE
	P-E-0005.02	Safety	3.1.9.4, 3.3.9.4	The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. The system failure mode analysis and attendant risk probability calculations for each failure mode are calculated. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and Department of Defense safety policies.
	P-E-0005.03	Safety	3.1.9.4, 3.3.9.4	Data is not releasable (sensitive material). While specific information is not releasable to the public, the missile has been tested and flown at White Sands Missile Range. The Launch Hazard Area has been determined and the reliability of the missile will meet the safety (flight determination) standard and procedures. The Eglin range safety office has determined that the missile components of the flight test meets the safety launch procedures.
	P-E-0005.04	Safety	1.0	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-E-0005.05	Safety-Keys	2.1.3.2.3, 3.1.9.4, 3.3.9.4	The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area. The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. The Launch Hazard Area has not been shrunk. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude). If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community.
	P-E-0005.06	Safety	3.1.9.4, 3.3.9.4	The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. The system failure mode analysis and attendant risk probability calculations for each failure mode are calculated. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and Department of Defense safety policies.
	P-E-0005.07	Draft SEIS	1.6	The process by which scoping comments were documented and tracked throughout the environment impact assessment process is described in section 1.6 of the Draft and Final SEIS. Based on this data base, all issues identified during the scoping process have been addressed in the Final SEIS.
	P-E-0005.08	Draft SEIS	1.0	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-E-0005.09	Draft SEIS	1.0	Comment noted.
	P-E-0005.10	Draft SEIS	1.0	Comment noted.
	P-E-0005.11	Safety	3.1.9	Comment noted.
	P-E-0005.12	Biology-Keys	3.3.3.4	Cumulative impacts for each project alternative and environmental resource are presented at the end of the Environmental Impacts and Mitigations section for each resource in chapter 3 of the Draft and Final SEIS. Depending on the specific resource, cumulative impacts may or may not be additive in nature. For example, the utilities used by program activities would be fully additive, deposition of launch emissions on nearby soil would be somewhat additive, and noise events separated by a one month period would not be additive. Small scale habitat destruction, individual displacement, and incidental mortality are acknowledged in the near-field launch area. See sections 3.1.3.4, 3.2.3.4, and 3.3.3.4 of the Final SEIS.
	P-E-0005.13	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.

Table 5.2-2: Responses to E-Mail Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section & Page	RESPONSE
Harlowe D. Girard Jr	P-E-0006.01	Draft SEIS	1.0	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-E-0006.02	Biology-Keys	3.3.3.4	The coral reef is not within the region of influence of the Keys alternative.
	P-E-0006.03	Biology-Keys	3.3.3.4	The existing environment is described in section 3.3.3.3 of the SEIS.
	P-E-0006.04	Biology-Keys	3.3.3.4, 3.1.9.4, 3.3.9.4	Normal launch activities would not affect the reef ecosystem. In the unlikely case of a launch mishap, no debris would fall on reef tracts which are outside the Launch Hazard Area.
	P-E-0006.05	Biology-Keys	3.3.3.4	Comment noted.
	P-E-0006.06	Transportation-Keys	3.3.11.4	The evaluation of potential traffic impacts on U.S. 1 forecast an increase in traffic volume in 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation. If program activities were planned for this alternative, vehicle movement would be scheduled to avoid peak hours.
	P-E-0006.07	Land Use-Keys	3.3.7.4, 3.3.10.4	The real estate values within an area are directly related to the levels of income and employment that occur within the area. Socioeconomic impact studies that have been prepared by the Air Force over the past decade have shown that housing values and military programs are generally positively related. The areas near Eglin AFB and Vandenberg AFB, which are both installations where missile testing occurs, have experienced generally stable and appreciating property values. The only negative changes in housing values that have been recorded resulted from mission reductions and base closures that have occurred. Since the proposed Theater Missile Defense test program would not have an appreciable effect on income or employment levels at any of the alternative test sites, no related changes in property or housing value would be expected.
Harlowe Girard Jr, cont.	P-E-0006.08	Biology-Keys	3.3.3.4	The conservation land uses including the refuges that you mention are a critical part of the resource management program for the Florida Keys. The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. The Launch Hazard Area for the alternative target launch sites on the Keys does overlap the Florida Keys National Marine Sanctuary (FKNMS); about 4.3 percent of the FKNMS is in the Cudjoe Key Launch Hazard Area and 1.6 percent of the FKNMS is in the Launch Hazard Area for the Saddlebunch Keys (see section 3.3.7 in the Final SEIS). New military uses in the FKNMS are permitted but would require specific consultation. This consultation would require that any proposed action be designed and implemented so that potential impacts to any habitat or species be 1) avoided to the extent possible, 2) minimized when avoidance is not possible, and 3) mitigated to compensate for potential long-term adverse effects. Consultation with the Director of the National Marine Sanctuary began early in the planning process for the Theater Missile Defense testing program and is ongoing.
	P-E-0006.09	Air Quality-Keys	3.3.1.4	Increased acidity (decreased pH) in bodies of water has various effects upon the plant life, invertebrates, and fish in that water depending upon degree and duration of the increased acidity. The shallow waters of ponds on the Keys are predicted to have a pH drop of as much as 0 to 0.1 units. This decreased pH could persist for as long as 72 hours considering the low rate of dilution and slow currents in these ponds. The back country shallow waters are predicted to have no appreciable decrease in pH. This is due to the natural buffering effect of salt sea water on acids. This pH drop is anticipated to be of short duration due to the mixing and dilution of the currents. The hydrogen chloride and hydrochloric acid in the exhaust cloud would dissipate or deposit within minutes of a launch, and meters of the launch site (the near field). The hydrochloric acid in the exhaust cloud could damage the eyes of bird exposed to the cloud. The concentration of hydrogen chloride and the density of hydrochloric acid in the near field exhaust cloud would be negligible compared to the greater effects of heat and noise that close to a launch event
	P-E-0006.10	Biology-Keys	3.3.3.4	Comment noted.
	P-E-0006.11	Biology-Keys	3.3.3.4	Comment noted.
	P-E-0006.12	Biology-Keys	3.3.3.4	Normal launch activities would not result in adverse impacts to the hardwood hammocks. There is, however a remote possibility that a launch mishap could result however result in impacts on this resource.
	P-E-0006.13	Biology-Keys	3.3.3.4, 3.3.7.4, 3.3.14.4	The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process. Mishap recovery measures would be conducted in consultation with appropriate resource agencies to ensure minimal disturbance of resources such as wetlands.

Table 5.2-2: Responses to E-Mail Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section & Page	RESPONSE
	P-E-0006.14	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Dan and Pam Frank	P-E-0007.01	Alternatives-Keys	1.0	Comment noted.
Carol E. Ludwig, Lt. Col., USAF	P-E-0008.01	Airspace Use	3.1.2, 3.2.2, 3.3.2	Comment noted.
Robert J. Moran, Director, Government Affairs, National Ocean Industries Association	P-E-0009.01	Draft SEIS		The correct e-mail address is "http://tw1.eglin.af.mil/46mtd/tmd.htm". Note! The third character is the digit "1" (one), not the letter "l".
Heyward Fender	P-E-0010.01	Cultural	Appendix O	The Draft SEIS was submitted to Native American Tribal Officials for review and comment..
	P-E-0010.02	Alternatives-Keys	2.0	Target launch site alternatives throughout the Gulf of Mexico were considered.
Charles Kanter	P-E-0011.01	Alternatives-Keys	2.0	Comment noted.
	P-E-0011.02	Alternatives-Keys	2.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-E-0011.03	Biology-Keys	3.3.3.4	The conservation land uses including the refuges that you mention are a critical part of the resource management program for the Florida Keys. The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. The Launch Hazard Area for these alternative sites does, however, overlap the National Marine Sanctuary and several wildlife refuges (see section 3.3.7 in the Final SEIS). New military uses in these areas are permitted but would require specific consultation with appropriate Federal and state resource agencies.
	P-E-0011.04	Socioeconomic	3.2.10.4	The socioeconomic effects of the proposal are addressed in Sections 3.1.10.4, 3.2.10.4, and 3.3.10.4 of the Draft SEIS. Economic dislocation of commercial fisheries is estimated to be less than 1 percent per year.
	P-E-0011.05	Socioeconomics	3.1.10.4, 3.2.10.4, 3.3.10.4	Comment noted.
	P-E-0011.06	Socioeconomic	2.1.3.2, 3.1.2.4, 3.2.2.4, 3.3.2.4	The proposed process for clearance of the Launch Hazard Area is described in section 2.1.3.2 of the Draft and Final SEIS. Potential impacts on airlines are addressed in sections 3.1.2.4, 3.2.2.4, and 3.3.2.4; potential impacts on oil and gas exploration is addressed in section 3.2.5.4 and 3.2.7.4; Potential Gulf shipping impacts are presented in section 3.2.10.4; and potential impact on recreational boating is addressed in section 3.2.7.4. The Theater Missile Defense test program would not generate appreciable additional demand for public services provided by local governments and resulting fiscal impacts would be minimal. Cooperative agreements with local law enforcement and safety departments would be reached to accommodate potential service requirements.
	P-E-0011.07	Transportation-Gulf	3.2.11.4	Prior public notice of test event schedules would be publicized, posted in marinas, and noted in NOTMARS. Radar surveillance prior and during the test would enable the test officer to monitor the marine traffic in the area. It is believed that with the cooperation of the Florida Marine Patrol, the Coast Guard, and the boating public, the area can be cleared for the period to assure safe testing.
	P-E-0011.08	Transportation-Keys	3.3.11.4	The evaluation of potential traffic impacts on Highway 1 in the Draft SEIS forecast an increase in traffic volume by 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation. If program activities were planned for this alternative, vehicle movement would be scheduled to avoid peak hours. Should one of the sites in the Keys be selected for Theater Missile Defense testing, a site-specific emergency response plan (similar to the example in Appendix J) would be prepared and implemented. Emergency procedures for all contingencies would be established through cooperative agreements with local public safety agencies. Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch. Transportation of the missile components would involve standard freight transports and would not require a convoy. Emergency procedures for all contingencies would be established through cooperative agreements with local public safety agencies. No specific fire fighting vehicles would accompany the shipment, although all vehicles would be equipped with standard fire suppression equipment.
	P-E-0011.09	Alternatives-Keys	2.0 3.3.11.4	Scheduling of missile transport and other Theater Missile Defense test-related traffic would be coordinated with local agencies to avoid peak traffic hours and minimize potential effects on local traffic movement. Local law enforcement personnel would be expected to maintain order.

Table 5.2-2: Responses to E-Mail Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section & Page	RESPONSE
	P-E-0011.10	Draft SEIS	3.1.1.4 3.2.1.4 3.3.1.4	The volume of hydrogen chloride emitted by the target missile in the volume of air it transits is negligible; not enough to contribute to acid rain. The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, Florida. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels.
	P-E-0011.11	Program	2.0	Comment noted.
	P-E-0011.12	Program	2.0	Comment noted.
	P-E-0011.13	Program	2.0	No decision has yet been made about which alternative may be selected. NEPA requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed. In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-E-0011.14	Program	2.0	Comment noted.
Don Thiel, Cape San Blas Camping Resort	P-E-0012.01	Draft SEIS	2.0	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-E-0012.02	Socioeconomics-Cape San Blas	3.1.10.4	Up to 24 flight test events could be conducted from Cape San Blas in any one year. These number represent realistic upper limits of testing frequency for purposes of analyzing potential cumulative impacts. The actual number of test is likely to be much lower.
	P-E-0012.03	Socioeconomics-Cape San Blas	3.1.10.4	Nearly all of the activities that would be required for the Theater Missile Defense test program at Site D-3 on Cape San Blas are similar in nature and intensity to activities that are or have taken place at this site. Prior to a launch event, advance notification of planned road closures would be published and distributed to reduce road delays and inconvenience to the extent possible. Road closures could last up to 4 hours, but would normally be about 1 hour. The Theater Missile Defense test program would not generate appreciable traffic or create much additional demand for tourist accommodation and services.
	P-E-0012.04	Land Use-Keys	3.3.7.4	Notification of upcoming launches will be made through the media and provided to local businesses. County road 30E would be closed for up to 4 hours for each launch. The beaches would be closed for a similar period of time.
	P-E-0012.05	Transportation-Cape San Blas	3.1.11.4	A launch event would last from 1 to 4 hours including time delays for clearance of the LHS. Beyond this time period, the flight test would be canceled. There are areas on the Air Force property that may be closed for extended periods while missile components are on site.
	P-E-0012.06	Transportation-Cape San Blas	3.1.11.4	Public notification of planned road closures would reduce road delays and queuing during test activities. Roads would be closed for no more than 4 hours, and every effort would be made to reopen the road as soon as possible after the initial closing.
	P-E-0012.07	Socioeconomics-Cape San Blas	3.1.11.4	Theater Missile Defense launch activities would not have an appreciable effect on the tourist industries operating on Cape San Blas. If accommodations for Air Force and civilian personnel are not available locally, arrangements could be made to transport workers in vanpools from Tyndall AFB or off site hotel and motel facilities.
	P-E-0012.08	Land Use-Cape San Blas	3.1.7.4	The Final SEIS incorporates technical amendments, editorial revisions and typographical corrections.

5.3 TRANSCRIPT COMMENT DOCUMENTS

Individuals who commented on the Draft SEIS in at one of the four public hearings are listed in table 5.3-1 along with their respective commentor identification number. This number can be used to find the transcript document and each speaker's comments and to locate the corresponding table on which responses to each comment is provided.

5.3.1 TRANSCRIPT COMMENTS

Exhibit 5.3-1 presents reproductions of the transcript comment documents that were received in response to the Draft SEIS. Comment documents are identified by commentor ID number, and each statement or question that was categorized as addressing a separate environmental issue is designated with a sequential comment number.

5.3.2 RESPONSE TO TRANSCRIPT COMMENTS

Table 5.3-2 presents the responses to substantive comments to the Draft SEIS that were received in transcript form. Responses to specific comments can be found by locating the corresponding commentor ID number and sequential comment number identifiers.

Table 5.3–1: Public Comments on the Draft SEIS (Transcript Documents)

Commentor and Affiliation	ID Number
Allen, Joe	P-T-0033
Biddle, Joel; Reef Relief	P-T-0023
Blazevic, R. L.	P-T-0014
Casella, Loraine	P-T-0038
Cofer, Elizabeth	P-T-0008
Cofer, Elizabeth	P-T-0042
Colburn, Carol	P-T-0035
Ehrenreiter, Barbara	P-T-0026
Eliot, Robert	P-T-0036
Freeman, Shirley; Monroe County Commissioner	P-T-0006
Freeman, Shirley; Monroe County Commissioner	P-T-0040
Girard, Geraldo	P-T-0041
Girard, Gerry	P-T-0007
Gouldy, Ralph; Monroe County Growth Management Division	P-T-0025
Hadden, Alexander	P-T-0013
Hadden, Alexander	P-T-0046
Halloran, George	P-T-0034
Harvey, Anne; Park Manager, St. Joseph Peninsula State Park	P-T-0002

Table 5.3–1: Public Comments on the Draft SEIS (Transcript Documents) (Continued)

Commentor and Affiliation	ID Number
Hendrick, Muriel	P-T-0030
Henize, Dennis	P-T-0010
Henize, Dennis	P-T-0043
Henize, Tina	P-T-0020
Henize, Tina	P-T-0039
Hoffman, Wayne; National Audubon Society	P-T-0045
Hoffman, Wayne; National Audubon Society	P-T-0012
Kanter, Charles	P-T-0048
Lehman, Christopher; Monroe County	P-T-0005
Leslie, John	P-T-0028
Linn, Diane	P-T-0049
Lowe, Donald S.	P-T-0009
Lunden, Blue; Unitarian Universal Fellowship	P-T-0027
Miller, Archer	P-T-0029
Musselman, David	P-T-0016
Musselman, David	P-T-0044
Nelson, Harriet	P-T-0037
Orlandi, Robin	P-T-0032
Pike, Malcolm	P-T-0024
Poole, Lizzy; Women’s International League for Peace and Freedom	P-T-0017
Putnam, Nick	P-T-0050
Rebosio, Alberto	P-T-0004
Rebosio, Gianna Todisco	P-T-0003
Robinson, Annie	P-T-0031
Rosenblatt, Sol	P-T-0011
Seese, Bill; Florida Keys National Wildlife Refuges	P-T-0015
Simms, Mark & Amy	P-T-0022
Smith, R.C.	P-T-0018
Steiglitz, Barry	P-T-0047
Tanzonieri, Albert	P-T-0051
Traczyk, Tom	P-T-0001
Weeks, Vicki	P-T-0019
Zachariah, Dale	P-T-0021

THEATER MISSILE DEFENSE

EXTENDED TEST RANGE SUPPLEMENTAL

ENVIRONMENT IMPACT STATEMENT

* * * * *

EGLIN GULF TEST RANGE PUBLIC HEARING

* * * * *

March 9, 1998

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COURT REPORTER:

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ANCHOR COURT REPORTING

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Pensacola, Florida 32501

1 HEARING

2 MR. MICHAELSON: Good evening, and welcome to

3 tonight's public hearing on the Eglin Gulf Test Range

4 Supplemental Environmental Impact Statement. My name

5 is Lewis Michaelson and I have been asked by the

6 Ballistic Missile Defense Organization to moderate

7 tonight's meeting. And before I go over tonight's

8 agenda and ground rules, I would like to take this

9 opportunity to introduce you to the government

10 representatives who are here with us tonight.

11 Representing the Air Force Development Test

12 Center at Eglin Air Force Base is Major Tom Kennedy.

13 As the Theater Missile Defense Test Manager, Major

14 Kennedy has a responsibility for preparing the

15 Supplemental Environmental Impact Statements. Also,

16 we have from the Ballistic Defense Organization

17 Lieutenant Colonel Rick Lenner, and also in the

18 audience we have Colonel Mark Shackelford Commander,

19 of the 46th Test Wing at Eglin.

20 To start the meeting, I would like to take a

21 minute to briefly outline the purpose of tonight's

22 meeting and to go over the agenda so you will know

23 what to expect as we proceed.

24 Just over a year ago, some of you may remember

25 that the Ballistic Missile Defense Organization and

1 the Air Force held scoping meetings here in Northern

2 Florida and also in the Keys on the Theater Missile

3 Defense Extended Test Range Proposal. The purpose of

4 these scoping meetings was to obtain your comments on

5 the environmental issues you believe they should

6 examine in the Supplemental and Environmental Impact

7 Statement.

8 Scoping comments were then used from the public

9 and from agencies in the preparation of the Draft

10 Supplemental and Environmental Impact Statements,

11 which is the subject of tonight's hearing.

12 Tonight's public hearing then has three

13 essential purposes. The first is to describe to you

14 the nature of the program that is being examined in

15 the Environmental Impact Statement. In this case the

16 Theater Missile Defense Extended Test Range Proposal.

17 The second is to briefly describe the

18 environmental impact statements process and the

19 findings in the Draft Supplemental Environmental

20 Impact Statement, or SEIS as it is known by its

21 initials.

22 The third and primary purpose is to listen to

23 your concerns and comments on the draft SEIS. Your

24 comments tonight will then be used in the preparation

25 of the final SEIS.

1 I would like to go over the agenda from six
2 o'clock to seven o'clock a Ballistic Missile Defense
3 Organization and Air Force representatives were
4 available to answer questions about the proposed
5 action and environmental task assessment processes.
6 Hopefully, many of you took advantage of that
7 opportunity.

8 The rest of that agenda is that, after I finish
9 my introductory remarks, we will have a presentation
10 by Major Tom Kennedy, who will provide a brief
11 description of the Theater Missile Defense Extended
12 Range Tests followed by an overview of the
13 environmental impact that are identified and assessed
14 in the SEIS.

15 The last item on the agenda, public comments,
16 however, is really the most important. Remember that
17 the draft SEIS is just that, a draft. This is your
18 opportunity to tell to the Ballistic Missile Defense
19 Organization and the Air Force how they could improve
20 their analysis of the potential environmental impact
21 before the document is finalized and before a decision
22 is made on whether or not to proceed with the proposed
23 action.

24 A few administrative points on making your
25 comments. If you have already signed up to speak,

1 that's great, but if not and you would like to speak
2 tonight, please go to the registration table and sign
3 up, using one of the cards. Everyone is welcome to
4 speak. It just makes the process go more smoothly.

5 Everyone will have four minutes to speak. The
6 Air Force also has a court reporter here tonight
7 seated to my left. She is here to make a verbatim
8 transcript of this hearing and all of your oral
9 comments and to make sure that they are recorded
10 accurately. And in part of making that transcript, an
11 audio record is being made as well.

12 You also may make your comments in writing, and
13 if you wish to do so, there are four ways.

14 First, you may hand in written comments that
15 you may have brought with you tonight.

16 Second, you should probably notice when you
17 came in tonight that there were these written comment
18 sheets if you want to take advantage of those and fill
19 those out and hand those in tonight. You are welcome
20 to save yourself the thirty-two cents.

21 The third way you can do it is either using
22 that sheet or any other way that you want to write
23 them down, and you can mail them in to the address
24 which appears on the handout that you received when
25 you came in tonight.

1 The forth way that you can do it is that you
2 can E-mail your comments if you prefer and that E-mail
3 address is on the fax sheet as well.
4 Tmv@eglin.af.mill.

5 Whichever option you choose your written
6 comments will be entered into the formal record public
7 comments on the draft SEIS and it will be given the
8 same consideration as all the comments received here
9 tonight.

10 If you choose to mail in comments, please be
11 sure to send them by April 3rd, which is the closing
12 date for the comments. And keep in mind that written
13 and oral comments received will be responded to in the
14 final SEIS.

15 If you want to receive a copy of the final SEIS
16 when it becomes available, there are three ways to do
17 that. First of all, if you have already received a
18 copy of the draft SEIS, you are on the mailing list
19 and you will automatically receive a final, unless you
20 tell us otherwise.

21 If your comments on the draft SEIS either
22 orally or in writing, provide us with your address,
23 then you will also receive a copy.

24 Finally, if you haven't met either one of those
25 conditions, there is a sign-up list in the back that

1 is actually a yellow card which you can fill out and
2 indicate what you would like to receive the full SEIS
3 or the executive summary. And that way you will
4 receive either one of those documents when they become
5 available.

6 And also, if you don't want to receive a whole
7 document but just want to take a look at it, again,
8 this same fax sheet has a list of all the information
9 repositories that you can go view those documents and
10 many others associated with this SEIS process.

11 Finally, it is important for you to understand
12 that the Ballistic Missile Defense Organization and
13 Air Force are not here today to make any decisions.
14 Their role is to take the results of this meeting and
15 the others, including the comments received at this
16 hearing, and make sure that they are considered in the
17 preparation of the final SEIS. Their main purpose in
18 being here tonight is to listen to your concerns and
19 suggestions firsthand. With that we will begin
20 tonight's meeting with Major Kennedy's presentation.

21 MAJOR KENNEDY: Thank you. Mr. Michaelson.
22 Good evening, I am Major Tom Kennedy. I work for
23 Colonel Shackelford in the 46th Test Wing. We are
24 representing Major General Michael Kostelnik, the
25 Commander of the Air Force Development Test Center at

1 Eglin Air Force Base. My job is to determine if it is
2 feasible to test Theater Missile Defense Systems
3 within the Eglin Gulf Test Range.

4 The National Environmental Policy Act of 1969
5 requires Federal decision makers to consider the
6 impact on the environment along with safety, cost,
7 schedule and technical requirements.

8 One of the first steps in doing this is the
9 preparation of an environmental impact statement.

10 The purpose of this presentation is to describe
11 the Supplemental Environmental Impact Statements. For
12 simplicity, I will refer to this document as the SEIS.

13 First, I will describe that the proposed action
14 our team evaluated in the SEIS. Then I will describe
15 the findings in the SEIS.

16 The proposed action is to enhance the Eglin
17 Gulf Test Range to test theater missile defense
18 systems against target missiles with ranges up to
19 1,100 kilometers, approximately six hundred and
20 eighty-five miles.

21 There are two primary organizations involved
22 with the SEIS. The Ballistics Missile Defense
23 Organization is a department of Defense Level
24 Organization that was established by Congress. They
25 are responsible for developing and managing the

1 development and acquisition of missile defense systems
2 for all services.

3 As such, there are proponents of this action.

4 This means the Director of the Ballistics Missile
5 Defense Organization will make his decision on whether
6 or not to select any of the alternatives in the Eglin
7 Gulf Test Range.

8 The Ballistic Missile Defense Organization
9 asked the Air Force Development Test Center to lead
10 the steps required to develop test capabilities here.

11 That's why we are writing the SEIS for them.

12 This SEIS supplement is two earlier
13 environmental impact statements. In 1993 the
14 Ballistic Missile Defense Organization completed the

15 Theater Missile Defense Programmatic Environmental
16 Impact Statement. This is a broad EIS that is
17 considered the general environmental impact of
18 developing theater missile defense systems. It is the
19 baseline for location specific EIS's.

20 The Theater Missile Defense Extended Test
21 Range, EIS, was completed in 1994 considered the
22 impact of theater missile defense testing at four
23 ranges. White Sands Missile Range in New Mexico, the
24 Western Test Range off the coast of California, the
25 Eglin Gulf Test Range, and Kwajalein Missile Range in

1 the Western Pacific.
2 At that time, Whit Sands and Kwajalein were
3 selected as theater missile defense extended test
4 ranges. The Eglin Gulf Test Range was not selected
5 because of the difficulty and the cost of providing a
6 sea-launched target. The only option considered at
7 that time. This SEIS supplements the 1994 extended
8 range EIS.

9 Eglin Air Force Base, Key West Naval Air
10 Station and Pensacola Naval Air Station regularly use
11 vast amounts of airspace over the Eastern Gulf of
12 Mexico. This blue line defines the airspace that
13 Eglin Air Force Base has scheduled responsibility
14 for. While this is the area that is scheduled by
15 Naval Air Station Key West.

16 There is no other location within the
17 Continental United States that combines so much of
18 available military airspace with low population
19 density. The large size of the Eglin Gulf Test Range
20 makes it ideal for performing tests that cover long
21 distances, such as theater missile defense testing.

22 Also, the missile flights can be done over the
23 broad open waters of the Gulf, which greatly enhances
24 safety.

25 Eglin Air Force Base has existing radar,

1 optical and other sensor systems to conduct its
2 current mission. These types of instrumentation
3 systems are expensive to develop from the ground up.
4 By enhancing an existing range, like Eglin's, we can
5 save millions in taxpayer dollars.

6 To determine if an interceptor works, you have
7 to test it against a target. Some interceptors are
8 ground-based and some are sea-based. The Eglin Gulf
9 Test Range would provide flexibility to test either
10 type of system.

11 I will describe the preferred alternatives
12 first. For the Eglin Gulf Test Range to be enhanced
13 for use as a Theater Missile Defense Test and Training
14 Range, launching options for both interceptor missiles
15 and target missiles would have to be selected.

16 Although no final decisions will be made until
17 the record of decision is reached. The Director of
18 the Ballistic Missile Defense Organization indicated
19 last November that these are the alternatives they
20 would prefer to use over the other alternatives
21 considered. After that, I will describe the other
22 alternatives considered. These alternatives are shown
23 in the handout you should have received when you
24 arrived.

25 Since the interceptors are the actual things

1 being tested, I will start with them. Interceptors
2 could be ground-based here on Eglin Air Force Base, at
3 Santa Rosa Island or Cape San Blas.

4 Interceptors could also be ship-based in the
5 open Gulf, within the military airspace.

6 We are also considering the potential launch
7 target missiles from ground-based locations at Santa
8 Rosa Island and Cape San Blas. The air-drop has also
9 being considered. Air-drop is a term that the
10 Ballistic Missile Defense Organization is using to
11 describe short-ranged air-launched targets. These
12 targets are restrictive to ranges of up to six hundred
13 kilometers, approximately three hundred and
14 eighty-five miles by treaties.

15 Finally, all the interceptors would take place
16 over the Gulf of Mexico. This ensures the debris can
17 be contained over the water, which is one of our
18 safety criteria.

19 This is a diagram of how the proposed air-drop
20 target would work. The missile is pulled out of the
21 back of an airplane on a sled by a parachute. After
22 is clears the airplane, the missile and sled
23 separate. There's another parachute attached to the
24 missile. After the missile rights itself, the
25 parachute is released and the missile is launched.

1 Even though the Director of the Ballistic
2 Missile Defense Organization defined his preferred
3 alternative, we are required by the National
4 Environmental Policy Act of 1969 to consider all
5 reasonable alternatives to this preferred
6 alternative. These are considerations in the
7 Supplemental and Environmental Impact Statement in the
8 category "Other Alternatives Considered."

9 These other alternatives could be selected if
10 there were a great national need to provided a
11 specific test capability. This national need could be
12 due to technical, environmental or other national
13 policy considerations. The Director of the Ballistic
14 Missile Defense Organization would make a decision on
15 whether or not to use these alternatives.

16 Again, starting with the interceptor
17 alternatives, we are considering launching interceptor
18 missiles from platforms off the coast at either Santa
19 Rosa Island or Cape San Blas. These platforms would
20 allow intercepts closer to the launching point of the
21 interceptor missile. This would still keep the
22 missile and interceptor debris offshore and provide
23 the required safety margins for the personnel and
24 equipment directly involved in the test.

25 There are treaty restrictions against launching

1 ballistic missiles from sea-based platforms that are
2 tethered to the sea floor. This prevents us from
3 considering launching target missiles from platforms.
4 Also, in the other alternatives considered
5 category are land-launched targets from the Florida
6 Keys.
7 There are two Keys under consideration, Cudjoe
8 Key and Saddlebunch Keys, only one of which would be
9 chosen if this alternative were to become necessary.
10 Our sea-based target option was the reason the
11 Eglin Gulf Coast Test Range was not selected in the
12 earlier SEIS. The Army is now developing the
13 capabilities to launch target missiles from a ship.
14 This alternative is limited to less than three hundred
15 and seventy-five miles, just like current limits on
16 the air-launched capability.
17 The Director of the Ballistic Missile Defense
18 Organization also has the option of selecting the
19 no-action alternative. In fact, the National
20 Environmental Policy Act of 1969 requires the decision
21 maker to consider the impacts should the proposed
22 actions not take place.
23 For the Eglin Gulf Test Range, the no-action
24 alternative describes the environmental impacts of the
25 proposed action to enhance the Eglin Gulf Test Range

1 for theater missile defense testing is not
2 implemented.
3 Our baseline was to analyze the maximum impacts
4 possible. In developing the baseline for evaluation
5 in the SEIS, we used the Patriot as the baseline
6 interceptor. In all cases, the analysts used the best
7 available data for the analysis.
8 The team used the Hera target missile as the
9 typical target missile. This is because it is the
10 biggest target missile considered. Although we assume
11 the highest number of launches proposed at each site,
12 the actual number of launches would be considerably
13 less. The combined potential impacts from the Hera
14 are greater than those of the proposed interceptors.
15 At Santa Rosa Island and Cape San Blas, where both
16 interceptors and targets are proposed, we used the
17 Hera as a baseline.
18 These are the fourteen resource areas the team
19 evaluated for each alternative. The potential impacts
20 are outlined in your handout.
21 Many of the potential impacts are similar at
22 each site. First, I will discuss the impacts that are
23 common to each site. Then, I will describe those that
24 are unique to each proposed location. However, before
25 I can discuss any potential impacts, I need to show

1 you the launch hazard areas that would be established
2 for each alternative location.

3 These launch hazard areas define the regions of
4 influence the team analyzed at each site.

5 The purpose of the launch hazard area is to
6 insure that nobody is inside the area that could be
7 affected should the missile self-destruct or the range
8 safety officer needs to terminate the missile flight.

9 When the range safety officer develops a launch
10 hazard area, he's uses a computer model. This model
11 predicts where the debris from an errant missile would
12 go should it be destroyed. He also considers the
13 effects of wind. Finally, the range safety officer
14 determines if there are protected areas, such as
15 private property within the launched hazard area. If
16 so, he establishes wind restrictions to prevent this
17 debris from falling on these protected areas. This is
18 why the launch hazard areas are different shapes and
19 sizes at each location.

20 The launch hazard area for a Hera target
21 missile is 6500 feet without any wind effects. Once
22 the effects of wind are considered the launch hazard
23 area is expanded to incorporate any additional safety
24 area.

25 Here at Santa Rosa Island the launch hazard

1 area would extend into Santa Rosa Sound and it
2 encompasses this portion of the island.

3 At Cape San Blas, the launch hazard area would
4 go back into St. Joseph Bay and extend over State Road
5 30-E.

6 At Cudjoe Key, it encompasses the Northwest
7 section of the Key. It is primarily over the waters
8 of the National Marine Sanctuary and the Great White
9 Heron National Wildlife Refuge. This extends out to
10 the airspace scheduled by Naval Air Station Key West.
11 The launch hazard area crosses Blimp Road.

12 The launch hazard area at Saddlebunch Keys is
13 similar to that at Cudjoe Key. It is primarily over
14 the National Marine Sanctuary and the Great White
15 Heron National Wildlife Refuge. Since the Key is
16 primarily military property north of Highway 1, the
17 launch hazard area would include that entire area.

18 Now, I will discuss the common potential
19 impact. The first resource area I will discuss is Air
20 Quality. Air Quality impacts would be similar at all
21 proposed locations.

22 The primary emissions from a missile launch are
23 shown here. The primary emissions of concern are:
24 aluminum oxide, carbon monoxide, and hydrogen
25 chloride.

1 All of these emissions are within the standard
2 established by the Environmental Protection Agency and
3 the National Ambient Air Quality Standards.

4 We just discussed air quality. We are not
5 proposing any additional airspace restrictions, so
6 there are no impacts to the air resource area.

7 The noise of a launch could startle birds and
8 other wildlife. However, experience at Cape Canaveral
9 shows that after an initial flushing, where the birds
10 fly around, they return to their nests within a few
11 minutes. There are also location specific biological
12 resources potential impacts, which I will discuss in a
13 few minutes.

14 Potential impacts to cultural resources are
15 site specific.

16 In the areas nearest to a launch facility, any
17 hydrogen chloride that settles to the ground may
18 result in an increase in surface soils acidity.
19 Increases in soil acidity would be temporary and would
20 be diluted and buffered by rainfall.

21 The amount of aluminum oxide settling on the
22 ground would not result in a substantial change in
23 soil fertility or be in concentrations toxic to the
24 growth of existing plants and microorganisms.

25 The hazardous waste that would be produced by

1 this program consists primarily of solvent soaked
2 cleaning rags. The amount generated easily fits
3 within the current capacity for Eglin Air Force Base
4 and Naval Air Station Key West.

5 For land and water use, the launch hazard area
6 would be cleared of people and private vehicles up to
7 four hours on launch day. This would restrict access
8 to the land and water areas within the launch hazard
9 area.

10 This includes the waters offshore, which would
11 also be cleared of boats for up to four hours.

12 The peak noise at the edge of the launch hazard
13 area is predicted to be 107 decibels. This is similar
14 to a 747 flying overhead at a thousand feet. However,
15 this would only be a momentary sound. The continuous
16 sound level is predicted to be 86.3 decibels for
17 forty-five seconds. This is similar to a portable
18 hair dryer held one foot away. Both of these are
19 within the Occupational Safety and Health
20 Administration exposure limit for 115 decibels for
21 fifteen minutes. So there would be no health related
22 sound exposures outside of the launch hazard area.

23 Should launches occur before 7:00 a.m. it is
24 anticipated that some people may be awakened by the
25 launch noise.

1 Safety is primarily defined by the launch
2 hazard areas. The policy of the Air Force Development
3 Test Center is that the general public will not have
4 any additional risk due to test activities than they
5 would experience in everyday life.

6 The potential impacts to socioeconomics are
7 similar to those for land and water use, as the launch
8 hazard area would also have to be cleared of
9 commercial activities. This clearance would occur up
10 to four hours on launch days.

11 Each Hera target missile launch could result in
12 over \$100,000 in personnel peridium. Each interceptor
13 missile launch could result in nearly \$150,000 in
14 peridium expenditures.

15 The potential impacts to transportation are
16 location specific.

17 The utilities currently available at each
18 location are sufficient to handle the requirements of
19 the proposed program. However, bottled water and
20 portable toilets may be used to reduce any impact on
21 these resources.

22 Each of the proposed sites has historically
23 been used for military purposes. The visual
24 aesthetics of the proposed facilities would be
25 consistent with the existing facilities.

1 Temporary small increases in water acidity and
2 surface water acidity may occur. The amounts of time
3 for these to dilute depends on the water movement and
4 activities. The amount of acid created is not
5 expected to be harmful to wildlife.

6 I will now discuss the potential impacts for
7 each proposed site.

8 The facilities on Santa Rosa Island site A-15
9 are potentially eligible for listing on the National
10 Register of Historic Places. This is due to the
11 Bomarc missile testing that occurred there from 1959
12 until 1985. These are concerned Cold War-era
13 facilities. The potential impact would be the
14 modification of these facilities from their original
15 intent.

16 The Florida Department of Transportation
17 estimates US 98 will be over capacity by 2005.

18 These are the current average daily traffic
19 counts. This is the current capacity of US 98. As
20 you can see, some of the sections are already over
21 capacity. This is estimated traffic in the year 2005.

22 The additional amount of traffic due to the
23 proposed testing adds very little traffic to this
24 total. The project traffic is primarily rental
25 vehicles used by the engineers and technicians in

1 preparing the missiles for launch.

2 A line-of-sight corridor 5,500 feet long and 40

3 feet wide is needed to range safety instrumentation

4 currently planned for Hera target launches. This

5 would pass within seventy-five feet of a bald eagle's

6 nest. This violates the US Fish and Wildlife Service

7 primary protection zone of four hundred and fifty

8 meters, which is approximately 1,475 feet.

9 Cape San Blas has the highest sea turtle

10 nesting density in Northwest Florida, approximately

11 15.3 nests per mile. Since a lot of the launch

12 preparations would occurred during the night prior to

13 a launch, sea turtles could be adversely affected

14 during the nesting and hatching seasons.

15 The launch facilities to support a Hera target

16 launch site would cause the permanent loss of 1.62

17 acres of wetland habitat that is used by a variety of

18 birds.

19 Hera target missile launches could cause

20 short-term noise effects of 124 decibels in the area

21 of the lighthouse and keeper's quarters. These

22 historic facilities are inside the launch hazard area.

23 This has the potential to damage the lighthouse lens

24 and the keeper's quarters.

25 State Road 30-E would have to be closed on each

1 side of the launch hazard area approximately one hour

2 prior to the launch. This is a standard practice that

3 we have used for other missile launches from Cape San

4 Blas. Emergency vehicles would be allowed access.

5 Traffic would be increased by forty percent on

6 State Road 30-E during the last couple of weeks

7 leading up to a launch. This represents a total of

8 less than 2,000 vehicles projected for the year 2005,

9 which is well within the total capacity State Road

10 30-E of 9,200 daily vehicles.

11 The proposed launch site on Saddlebunch Keys

12 would disturb up to 2.23 acres of wetlands. There

13 would be no additional wetlands disturbed at Cudjoe

14 Key.

15 There is a potential that vegetation near the

16 launch site would be singed. However, at the Hera

17 launch from Fort Wingate last November, snow twenty

18 feet from the launch site was not melted.

19 The Florida Game and Freshwater Fish Commission

20 performed a survey at Cudjoe Key last spring to try to

21 determine the silver rice rat population. The silver

22 rice rat is on the listing as an endangered species.

23 No silver rice rats were captured after one week of

24 trapping.

25 The Cudjoe Key aerostat facilities are

1 potentially eligible for listing on the National
2 Register of Historic Places. These facilities may be
3 eligible because they are considered Cold War-era
4 facilities. The potential impact would be
5 modifications of these facilities from their original
6 intent.

7 If the Cudjoe Key alternative were to be
8 selected, Blimp Road would be closed at Asturis Road.
9 This would not restrict access to or from Cudjoe
10 Acres.

11 The Florida Department of Transportation
12 estimates that Highway 1 would be over capacity by
13 2005.

14 These are the average daily traffic counts.
15 This is a current capacity of Highway 1, and this is
16 the estimated traffic by 2005.

17 The additional amount of traffic due to the
18 proposed testing adds very little traffic to this
19 total. The project traffic is primarily rental
20 vehicles used by engineers and technicians preparing
21 the missiles for launch.

22 Some of the launches, all of the missile
23 flights and the interceptors would occur over the Gulf
24 of Mexico. These are some of the potential impacts
25 for the Gulf. The existing airspace warning areas

1 would be closed to aircraft for a period of up to four
2 hours. This would result in rerouting commercial
3 aircraft around these warning areas, a standard
4 procedure used today.

5 The effects of sonic booms on marine mammals is
6 not very well understood. There may be sonic booms
7 penetrating the water's surface. We are investigating
8 the impact to marine mammals with the National Marine
9 Fisheries Service.

10 In addition to the airspace, portions of some
11 of the shipping lanes in the Gulf and intercoastal
12 waterway would be cleared for short periods.

13 The Federal agencies listed here have reviewed
14 earlier drafts of the SEIS. They have provided
15 comments to us to aid in our preparation of the draft
16 SEIS. This draft was mailed to the public in
17 February.

18 We will continue to consult with the federal
19 agencies as well as the state agencies listed here.
20 Should any regulatory permits be required, these are
21 the agencies that would issue those permits.

22 The next steps for the SEIS are shown here.
23 First and most important, we need your comments on the
24 SEIS. To insure your comments are incorporated in the
25 final SEIS, we need to receive them by April 3rd.

1 These comments will be addressed in the final SEIS.

2 The final SEIS should be completed sometime

3 this fall. We are hoping to complete it by September.

4 The Director of the Ballistic Missile Defense

5 Organization would make a record of decision no

6 earlier than thirty days after the final SEIS is

7 completed.

8 That's all I have tonight. Thank you for your

9 interest and concerns with this important national

10 defense project.

11 MR. MICHAELSON: Thank you, Major Kennedy. We

12 are now going to take a five minute break to set up

13 the podium and collect the speaker cards. So if you

14 will just bear with us for five minutes, we will be

15 ready to go.

16 (Whereupon, a short break was taken.)

17 MR. MICHAELSON: We are ready to start calling

18 the names of those who have signed up to speak. At

19 this point I have a single individual. I do want to

20 mention that we are going to ask you to come up to the

21 podium and speak clearly into it and give us your

22 name, if you would, for the court reporter. We also

23 have a time limit for oral comments that we are using

24 at all the locations at all the places that we will be

25 holding these and to give everyone a fair and equal

1 chance to comment.

2 To aid you in knowing when four minutes are up,

3 when three minutes have passed, I will put up one

4 finger like this and you will know that you have one

5 minute to go. And when your four minutes is up, I

6 will put up my hand like this indicating it's time to

7 end your comments. We greatly appreciate your

8 understanding and cooperation in observing that

9 limit.

10 Also, again, keep in mind that oral comments

11 are only one way to show your thoughts and concerns

12 regarding the SEIS, and you can also hand in or send

13 in written comments by April 3rd and they will be

14 given the same consideration as oral comments offered

15 here tonight.

16 With that, I would like to call Tom Traczyk to

17 offer his comments.

18 MR. TRACZYK: My name is Tom Traczyk. I am a

19 retired civil service employee, and I have some

20 comments and suggestions regarding your selection of

21 target missiles. Back into the 1970s and early '80s a

22 target missile developed at Eglin Air Force Base

23 called the high altitude supersonic target duty with

24 advanced development, subsequently called the fire

25 bolt, detonated A2M818 full scale development. And

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01

1 that missile was basically built up at Eglin, loaded
2 on an aircraft and flown down range to the long range
3 missions south of Tampa where the aircraft would turn
4 inbound and launch the missile much on the same
5 profile that you showed on your chart.

6 The missile was rocket powered and its
7 acceleration cruise conditions, which basically ranged
8 from forty thousand to a hundred thousand feet, mock
9 1.2 mock 4. And that was off the coast of Eglin. It
10 was recoverable by parachute and reusable.

11 Now, this system underwent development testing
12 of an evaluation and IOT here at Eglin and did not go
13 into production because at the time the Air Force said
14 that the requirement was soft. But I think this
15 system, from what I've seen will fulfill your
16 requirements and my recommendation to you is twofold.

17 First of all, you look into the fire bold
18 characteristics to see if, indeed, it will meet your
19 requirements.

20 And secondly, if so, look into the feasibility
21 of dusting it off and going into a limited
22 production. That system was used to test the Navy
23 AEGIS shipboard defense system and the Phoenix system
24 here at Eglin, using development target missiles, and
25 it also set the altitude and speed record here at

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1 Eglin back in, I think, 1983. So I think it would be
2 worthwhile to pursue looking at that for an
3 alternative. Thank you.

4 MR. MICHAELSON: Is there anyone who would like
5 to offer their comment tonight? If that's it, then we
6 appreciate very much you coming tonight. As we say,
7 we have three more of these. Many of you may have
8 decided that you want to take some more time to think
9 about this, and read up on it some more. We do
10 strongly encourage you to develop any written comments
11 that you would like to make and you could send them to
12 us. With that, we will adjourn the meeting at 7:44
13 p.m.

14 (Whereupon, the hearing was concluded)

15 * * * * *

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P-T-0001
COMMENT NUMBER

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1	CERTIFICATE OF REPORTER	P-T-0001
2		COMMENT
3		NUMBER
4	STATE OF FLORIDA	
5	COUNTY OF ESCAMBIA	
6		
7	I, RUTH YURCHAK, Court Reporter, certify that I	
8	was authorized to and did stenographically report the	
9	hearing, that a review of the transcript is a true and	
10	complete record of my stenographic notes.	
11		
12	I further certify that I am not a relative,	
13	employee, attorney, or counsel of any of the parties, nor	
14	am I a relative or employee of any of the parties' attorney	
15	of counsel connected with the action.	
16		
17	Dated this 3rd of March, 1998.	
18		
19		
20		
21		
22		
23		
24		
25		

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1	BALLISTIC MISSILE DEFENSE ORGANIZATION
2	EGLIN AIR FORCE BASE
3	AIR FORCE DEVELOPMENT TEST CENTER
4	U.S. ARMY SPACE AND STRATEGIC
5	DEFENSE COMMAND
6	MARCH 10, 1998
7	IN RE: Port St. Joe, Cape Can Blas
8	Scoping meeting held March 10, 1998 commencing at
9	approximately 6:00 p.m. EST, at Port St. Joe High School,
10	Port St. Joe, Florida.
11	APPEARANCES
12	Mr. Lewis Michaelson
13	Ballistic Missile Defense Organization
14	Major Tom Kennedy
15	Theater Missile Defense Test Manager
16	46 OG/OGM-Eglin Air Force Base
17	U.S. Air Force
18	Reported By: Kim Clark
19	
20	
21	
22	Gulf Bay Reporting
23	P.O. Box 2131
24	Panama City, Florida 32402
25	(904) 769-4853
	1-800-761-4853

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1 PUBLIC HEARING
2 MARCH 10, 1998
3 PORT ST. JOE, FLORIDA
4 MR. MICHAELSON: Good evening and welcome to
5 tonight's public hearing on the Eglin Gulf Test Range
6 Supplemental Environmental Impact Statement. My name is
7 Lewis Michaelson and I have been asked by the Ballistic
8 Missile Defense Organization to moderate tonight's meeting.
9 Before I go over tonight's agenda and ground rules, I would
10 like to take the opportunity to introduce you to the
11 Government representatives who are here with us tonight.
12 Representing the Air Force Developmental Test Center
13 at Eglin Air Force Base is Major Tom Kennedy. And as the
14 Theater Missile Defense Test Manager, Major Kennedy has the
15 responsibility for preparing the Supplemental Environmental
16 Impact Statement. And from the Ballistic Missile Defense
17 Organization we have Lt. Colonel Rick Lehner. I should
18 also mention that in the audience we Colonel Jim Heald who
19 is the Commander of the 46th Test Wing Operations Group at
20 Eglin.
21 To start the meeting I would like to briefly outline
22 the purpose of the meeting and to go over the agenda so
23 you'll know what to expect as we proceed.
24 Just over a year ago, I'm sure some of you will
25 remember the Ballistic Missile Defense Organization and the

1 Air Force held scoping meetings here and in the Keys. I
2 recognize a couple of faces from when we did those scoping
3 meetings.
4 The purpose of those meetings was to obtain your
5 comments on the environmental issues you believe should be
6 examined in the Supplemental Environmental Impact
7 Statement. Scoping comments from the public and agencies
8 were then used in the preparation of the draft
9 Environmental Impact Statement which is the subject of
10 tonight's hearing. Tonight's hearing, then, has three
11 essential purposes.
12 The first is to describe to you the nature of the
13 program that is being examined in the Environmental Impact
14 Statement, again, in this case, the Theater Missile Defense
15 Extended Test Range proposal.
16 The second purpose is to briefly describe the
17 Environmental Impact Statement process and the findings in
18 the draft Supplemental Environmental Impact Statement or
19 SEIS as it is known by its initials.
20 The third and primary purpose is to be here and to
21 listen to your concerns and comments on the draft SEIS.
22 Your comments tonight will then be used in the preparation
23 of the final SEIS.
24 I would like to go over the agenda now. From 6:00 to
25 7 o'clock I know many of you took advantage of the

1 opportunity to talk to the various experts that we have
2 here from the Ballistic Missile Defense Organization and
3 the Air Force and associated staff and hopefully they were
4 able to answer some of the questions you may have had about
5 the proposed action in the EIS process.

6 The agenda, then, for the rest of the meeting is that
7 after I finish my introductory remarks, we'll have
8 presentation by Major Tom Kennedy who will provide a brief
9 description of the Theater Missile Defense Extended Range
10 Test followed by an overview of the Environmental acts that
11 have been identified and assessed in the SEIS.

12 The last thing on the agenda, public comments, is
13 really the most important. Remember that the draft, SEIS,
14 is just that, a draft. So this is your opportunity to tell
15 the Ballistic Missile Defense Organization and the Air
16 Force how they could improve their analysis of potential
17 environmental impacts before the document is finalized and
18 before the decision is made on whether or not to proceed
19 with the proposed action.

20 A few administrative points on making comments. We
21 already have a couple of people who signed up, if you have
22 that's great. If not, and you'd like to speak tonight, if
23 you would please go to the registration table and please
24 fill out one of these cards. It simply makes the process
25 run more smoothly. Everyone will have four minutes to

1 speak. And by the way Air Force has a court reporter here
2 tonight to make a verbatim transcript of this hearing so
3 that all of your oral comments will be recorded accurately.
4 As a part of preparing that transcript an audio recording
5 is being made as well.

6 You may also make your comments in writing and there
7 are four ways to do that. You may hand in written comments
8 that you brought with you tonight, to me or to the
9 registration table. You can also use the written comment
10 sheets that were available at the registration table and
11 leave them here with us tonight if you want to save
12 yourself the 32 cents.

13 The other way, of course, is to mail them in, and you
14 can do that by any way that you see fit, use the written
15 comment sheets or any other way that works for you. Or you
16 may e-mail your comments to the Air Force at
17 T&V@Eglin.AF.MIL. And those addresses appear on this
18 handout that you received when you came in tonight so you
19 don't have to write them down right now.

20 Whichever option you choose in terms of writing and
21 sending in written comments, we ask that you please send
22 them in by April 3rd, which is the closing date of the
23 comment period, and remember that written comments are
24 given the same consideration as oral comments offered here
25 tonight.

1 Finally, to receive the final SEIS, if you want to
2 receive that, there are several ways that you can do that.
3 One is that if you already received the draft SEIS you are
4 already on the list and will receive the final. Second, if
5 you speak tonight and provide us with your name and address
6 or by written comment with your name and address you will
7 be added to the list.

8 Finally if you aren't on either one of those
9 conditions but would, there is a card that you can fill
10 out. Again, it's at the registration table. It's this
11 yellow card, and you can check the box either to receive
12 the full, final SEIS or to receive an Executive Summary,
13 which is a shortened version of that.

14 Also, copies of the SEIS will be placed in the
15 information repositories which are listed on the STAT sheet
16 and--in case you want to look at it but you don't want to
17 receive the entire document.

18 Finally, it's important for you to understand that the
19 Ballistic Missile Defense Organization and the Air Force
20 representatives are not here tonight to make any decisions.
21 Their role is to take the results of the public comment
22 process including the comments received at this hearing and
23 to make sure that they are considered in the preparation of
24 the final SEIS. Their main purpose in being here tonight
25 is to listen to your suggestions and concerns firsthand.

1 With that we will now hear Major Kennedy's presentation.

2 MAJOR KENNEDY: Good evening. I am Major Tom
3 Kennedy. I work for Colonel Shackelford in 46th Test Wing.
4 We are representing Major General Michael Kostelnik, the
5 commander of the Air Force Development Test Center at Eglin
6 Air Force Base. My job is to determine if it is feasible
7 to test theater missile defense systems within the Eglin
8 Gulf Test Range.

9 The National Environmental Policy Act of 1969 requires
10 Federal decision makers consider the impacts on the
11 environment along with safety, cost, schedule and technical
12 requirements. One of the first steps in doing this is the
13 preparation of an Environmental Impact Statement.

14 The purpose of this presentation is to describe the
15 Supplemental Environmental Impact Statement. For
16 simplicity, I will refer to this document as the SEIS.
17 First I will describe the proposed action our team
18 evaluated in the SEIS. Then I will describe the findings
19 in the SEIS.

20 The proposed action is to enhance the Eglin Gulf Test
21 Range to test theater missile defense systems against
22 target missiles with ranges up to 1,100 kilometers or
23 approximately 685 miles.

24 There are two primary organizations involved with the
25 SEIS. The Ballistic Missile Defense Organization is a

1 Department of Defense level organization that was
2 established by Congress. They are responsible for
3 developing and managing the development and acquisition of
4 missile defense systems for all services. As such, they
5 are the proponent for this action. This means the director
6 of the Ballistic Missile Defense Organization will make the
7 decision on whether or not to select any of the
8 alternatives in the Eglin Gulf Test Range. The Ballistic
9 Missile Defense Organization asked the Air Force
10 Development Test Center to lead the steps required to
11 develop test capabilities here. That is why we are writing
12 the SEIS for them.

13 This SEIS supplements two earlier Environmental Impact
14 Statements. In 1993 the Ballistic Missile Defense
15 Organization completed the Theater Missile Defense
16 Programmatic Environmental Impact Statement. This is a
17 broad EIS that considered the general environmental impacts
18 of developing theater missile defense systems. It is the
19 baseline for location specific EIS's.

20 The Theater Missile Defense Extended Test Range EIS,
21 completed in 1994, considered the impacts of theater
22 missile defense testing at four ranges: White Sands
23 Missile Range in New Mexico, the Western Test Range off of
24 California, the Eglin Gulf Test Range, and Kwajalein
25 Missile Range in the Western Pacific.

1 At that time, White Sands and Kwajalein were selected
2 as theater missile defense extended test ranges. The Eglin
3 Gulf Test Range was not selected because of the difficulty
4 and cost of providing a sea-launched target, the only
5 option considered at that time. This SEIS supplements the
6 1994 Extended Test Range EIS.

7 Eglin Air Force Base, Key West Naval Air Station, and
8 Pensacola Naval Air Station regularly use vast amounts of
9 airspace over the Eastern Gulf of Mexico. This blue line
10 defines the area that Eglin Air Force Base has scheduling
11 responsibilities for. While this is the area scheduled by
12 Naval Air Station Key West.

13 There is no other location within the Continental
14 United States that combines so much available military
15 airspace with low population density. The large size of
16 the Eglin Gulf Test Range makes it ideal for performing
17 tests that cover long distances, such as theater missile
18 defense testing. Also, the missile flights can be done
19 over the broad, open waters of the Gulf which greatly
20 enhances safety.

21 Eglin Air Force Base has existing radar, optical and
22 other sensor systems to conduct its current missions.
23 These types of instrumentation systems are expensive to
24 develop from the ground up. By enhancing an existing range
25 like Eglin, we can save millions in taxpayer dollars.

1 To determine if an interceptor works you have to test it
2 against a target. Some interceptors are ground based and
3 some are sea based. The Eglin Gulf Test Range would
4 provide the flexibility to test either type of system.

5 I will describe the preferred alternatives first. For
6 the Eglin Gulf Test Range to be enhanced for use as a
7 Theater Missile defense test and training range launching
8 options for both interceptor missiles and target missiles
9 would have to be selected. Although no final decisions
10 will be made until the Record of Decision is reached, the
11 director of the Ballistic Missile Defense Organization
12 indicated last November that these are the alternatives he
13 would prefer to use over the other alternatives considered.
14 After that, I will describe the other alternatives
15 considered. These alternatives are shown in the handout
16 you should have received when you arrived.

17 Since the interceptors are the actual things being
18 tested, I will start with them. Interceptors could be
19 ground-based here on Eglin Air Force Base properties on
20 Santa Rosa Island and Cape San Blas. Interceptors could
21 also be sea based out in the open waters of the Gulf.

22 I will now discuss the target methods used. Air Drop
23 is the term the Ballistic Missile Defense Organization has
24 termed for short-range air-launched targets. These
25 air-launched targets are restricted to less than 600

1 kilometers by treaty implications. The air drop target
2 will be launched over the open Gulf within the existing air
3 space. Targets could also be now launched from Santa Rosa
4 Island or Cape San Blas. All the intercepts and debris
5 would be contained within the Gulf of Mexico.

6 This is a diagram of how the proposed air-drop target
7 would work. The missile is pulled out of the back of the
8 airplane using a parachute. It is on a sled. The sled and
9 the missile separate. The missile has its own parachutes.
10 Once it rights itself the parachutes are released and the
11 missile is launched towards the landing area.

12 Even though the director of the Ballistic Missile
13 Defense Organization defined his preferred alternative, we
14 are required by the National Environmental Policy Act of
15 1969 to consider all reasonable alternatives to this
16 preferred alternative. These are considered in the
17 Supplemental Environmental Impact Statement in the
18 category, Other Alternatives Considered.

19 These other alternatives could be selected if there
20 were a great national need to provide a specific test
21 capability. This national need could be due to technical,
22 environmental, or other national policy considerations.
23 The director of the Ballistic Missile Defence Organization
24 would make the decision on whether or not to use these
25 alternatives.

1 Again, starting with the interceptor alternatives, we
2 are considering launching interceptor missiles from
3 platforms off of the coast at either Santa Rosa Island or
4 Cape San Blas. These platforms would allow intercepts
5 closer to the launching point of the interceptor missile.
6 This would still keep the missile and intercept debris
7 off-shore and provide the required safety margins for the
8 personnel and equipment directly involved in the test.

9 There are treaty restrictions against launching
10 ballistic missiles from sea-based platforms that are
11 tethered to the sea-floor. This prevents us from
12 considering launching target missiles from platforms.

13 Also in the other-alternatives-considered category are
14 land-launched targets from the Florida Keys. There are two
15 Keys under consideration, Cudjoe Key and Saddlebunch Keys,
16 only one of which would be chosen if this alternative were
17 to become necessary.

18 Although the sea-based target launch option was the
19 reason the Eglin Gulf Test Range was not selected in the
20 earlier EIS, the Army is now developing the capability to
21 launch target missiles from a ship. This alternative is
22 limited to less than 375 miles just like the current limits
23 on the air-launched capability.

24 The director of the Ballistic Missile Defense
25 Organization also has the option of selecting the No-action

1 alternative. In fact, the National Environmental Policy
2 Act of 1969 requires the decision maker to consider the
3 impacts should the proposed action not take place.

4 For the Eglin Gulf Test Range, the No-action
5 alternative describes the environmental impacts if the
6 proposed action to enhance the Eglin Gulf Test Range for
7 theater missile defense testing is not implemented.

8 Our baseline was selected to analyze the maximum
9 impacts possible. In developing the baseline for the EIS,
10 we used the PATRIOT as the baseline interceptor. In all
11 cases, the analysts used the best available data for the
12 analysis.

13 The team used the Hera target missile as the typical
14 target missile. This is because it is the biggest target
15 missile considered. Although we assumed the highest number
16 of launches proposed at each site, the actual number of
17 launches would be considerably less. The combined
18 potential impacts from the Hera are greater than those of
19 the proposed interceptors. At Santa Rosa Island and Cape
20 San Blas, where both interceptors and targets are proposed,
21 we used the Hera as a baseline.

22 These are the 14 resource areas the team evaluated for
23 each alternative. The potential impacts are outlined in
24 your handout. Many of the potential impacts are similar at
25 each site. First, I will describe the impacts that are

1 common to each site. Then I will describe those that are
2 unique at each proposed location. However, before I can
3 discuss any potential impacts, I need to show you the
4 launch hazard areas that would be established for each
5 alternative location. These launch hazard areas define the
6 regions of influence the team analyzed at each site.

7 The purpose of the launch hazard area is to ensure
8 that nobody is inside the areas that could be affected
9 should the missile self-destruct or the range safety
10 officer need to terminate the missile flight.

11 When the range safety officer develops a launch hazard
12 area, he uses a computer model. This model predicts where
13 the debris from an errant missile would go should it be
14 destroyed. He also considers the effect of wind. Finally,
15 the range safety officer determines if there are protected
16 areas, such as private property, within the launch hazard
17 area. If so, he establishes wind restrictions to prevent
18 this debris from falling on these protected areas. This is
19 why the launch hazard areas are different shapes and sizes
20 at each location.

21 The launch hazard area for a Hera target missile is
22 6500 feet without any wind. Once the effects of wind are
23 considered, the launch hazard area is expanded to
24 incorporate additional safety area. At Santa Rosa Island,
25 the launch hazard area would extend to Santa Rosa Sound and

1 encompass this portion of the island. Here at Cape San
2 Blas, the launch hazard area would go back into St. Joseph
3 Bay. It would extend over State Road 30E.

4 At Cudjoe Key, it encompasses the north west section
5 of the key. It is primarily over the waters of the
6 National Marine Sanctuary and the Great White Heron
7 National Wildlife Refuge. This extends out to the airspace
8 scheduled by Naval Air Station in Key West. The launch
9 hazard area crosses Blimp Road.

10 The launch hazard area at Saddlebunch Keys is similar
11 to that at Cudjoe Key. It is primarily over the waters of
12 the National Marine Sanctuary and the Great White Heron
13 National Wildlife Refuge. Since the key is primarily
14 military property north of Highway 1, the launch hazard
15 area would include that entire area.

16 Now I will discuss the common potential impacts. The
17 first resource area I will discuss is Air Quality. Air
18 Quality impacts would be similar at all proposed locations.
19 The primary emissions from a missile launch are shown here.
20 The primary emissions of concern are aluminum oxide, carbon
21 monoxide, and hydrogen chloride. All of these emissions
22 are within the standards established by the National
23 Ambient Air Quality Standards and the Environmental
24 Protection Agency. We just discussed Air Quality. We are
25 not proposing any additional airspace restrictions so there

1 are no impacts for this resource area.

2 Biological Resources: The noise of a launch could
3 startle birds and other wildlife. However, experience at
4 Cape Canaveral shows that after an initial flushing, where
5 the birds fly around, they return to their nests within a
6 few minutes. There are also location specific biological
7 resources potential impacts which I will discuss in a few
8 minutes. Potential impacts to Cultural resources are site
9 specific.

10 Geology and soil in areas nearest the launch
11 facility: Any hydrogen chloride that settles to the ground
12 may result in a temporary increase in surface soils
13 acidity. Increases in soil acidity would be temporary and
14 would be diluted and buffered by rainfall.

15 The amount of aluminum oxide settling on the ground
16 would not result in a substantial change in soil fertility
17 or be in concentrations toxic to the growth of existing
18 plants and microorganisms.

19 The hazardous waste that would be produced by this
20 program consists primarily of solvent soaked cleaning rags.
21 The amount generated easily fits within the current
22 capacity for Eglin Air Force Base and the Naval Air
23 Station, Key West.

24 For land and water use, the Launch Hazard Area would
25 be cleared of people and private vehicles up to four hours

1 on launch day. This would restrict access to the land and
2 water areas within the launch hazard area. This includes
3 the waters off-shore which would also be cleared of boats
4 for up to four hours.

5 The peak noise at the edge of the launch hazard area
6 is predicted to be 107 decibels. This is similar to a 747
7 flying overhead at 1000 feet. However, this would only be
8 a momentary sound. The continuous sound level is predicted
9 to be 86.3 decibels for 45 seconds. This is similar to a
10 portable hair dryer held one foot away. Both of these are
11 within the Occupational Safety and Health Administration
12 exposure limit of 115 decibels for 15 minutes. So there
13 would be no health-related sound exposures outside of the
14 launch hazard area. Should launches occur before 7:00
15 a.m., it is anticipated that some people may be awakened by
16 the launch noise.

17 Safety is primarily defined by the launch hazard
18 areas. The policy of the Air Force Development Test Center
19 is that the general public will not have any additional
20 risk due to test activities than they would experience in
21 everyday life.

22 The potential impacts to socioeconomics are similar to
23 those for land and water use as the launch hazard area
24 would also have to be cleared of commercial activities.
25 This clearance would occur up to four hours on launch day.

1 Each Hera target missile launch could result in over
2 \$100,000 in personnel per diem. Each interceptor missile
3 launch could result in nearly \$150,000 in per diem
4 expenses. The potential impacts to transportation are
5 location specific.

6 The utilities currently available at each location are
7 sufficient to handle the requirements of the proposed
8 program. However, bottled water and portable toilets may
9 be used to reduce any impact on these resources.

10 Each of the proposed sites has historically been used
11 for military purposes. The visual aesthetics of the
12 proposed facilities would be consistent with the existing
13 facilities.

14 The Water Resources: Temporary small increases of
15 surface water acidity may occur. The amount of time for
16 these to dilute depends on water movement and activity.
17 The amount of acid created is not expected to be harmful to
18 wildlife.

19 I will now discuss the potential impacts for each
20 proposed site. On Santa Rosa Island these are the
21 potential impacts to cultural resources. The facilities at
22 site A-15 are potentially eligible for listing on the
23 National Register of Historic Places. This is due to the
24 BOMARC missile testing that occurred there from 1959 to
25 1985. These are considered Cold-War era facilities. The

1 potential impact would be the modification of these
2 facilities from their original intent.

3 For transportation, the Florida Department of
4 Transportation estimates US 98 will be over capacity by
5 2005. These are the current average daily traffic counts.
6 This is the current capacity of US 98. As you can see,
7 some of these sections are already over capacity. This is
8 the estimated traffic in the year 2005.

9 The additional amount of traffic due to the proposed
10 testing adds very little traffic to this total. The
11 project traffic is primarily rental vehicles used by the
12 engineers and technicians preparing the missiles for
13 launch. This maximum traffic would only be for a couple
14 days for each launch.

15 At Cape San Blas, the potential impacts to biological
16 resources are a corridor--a line-of-sight corridor, 5500
17 feet long and 40 feet wide is needed for range safety
18 instrumentation currently planned for Hera target launches.
19 This would pass within 75 feet of a bald eagle's nest.
20 This violates the US Fish and Wildlife Service primary
21 protection zone of 450 meters, which is approximately 1475
22 feet.

23 Cape San Blas has the highest sea turtle nesting
24 density in Northwest Florida - approximately 15.3 nests per
25 mile. Since a lot of the launch preparations would occur

1 during the night prior to a launch, sea turtles could be
2 adversely affected during the nesting and hatching seasons.
3 The launch facilities to support a Hera target launch site
4 would cause the permanent loss of 1.62 acres of wetland
5 habitat that is used by a variety of birds.
6 For cultural resources, Hera target missile launches
7 could cause short-term noise levels of 124 decibels in the
8 area of the lighthouse and the keeper's quarters. These
9 historic facilities are inside the launch hazard area.
10 This has the potential to damage the lighthouse lens and
11 the keeper's quarters.
12 Potential impacts to transportation: State Road 30E
13 would have to be closed on each side of the launch hazard
14 area approximately one hour prior to the launch. This is a
15 standard practice that we have used for other missile
16 launches from Cape San Blas. Emergency vehicles would be
17 allowed access.
18 Traffic would be increased by 40 percent on State Road
19 30E during the last couple of weeks leading up to a launch.
20 This represents a total of less than 2,000 vehicles
21 projected for the year 2005, which is well within the total
22 capacity of State Road 30E of 9,200 daily vehicles.
23 In the Keys, the potential impacts to biological
24 resources are the proposed launch site on Saddlebunch Keys
25 would disturb up to 2.23 acres of wetlands. There would be

1 no additional wetlands disturbed at Cudjoe Key.
2 There is the potential that vegetation near the launch
3 site would be singed. However, at the Hera launch site at
4 Fort Wingate last November snow 20 feet from the launch
5 site was not melted.
6 The Florida Game and Freshwater Fish Commission
7 performed a survey at Cudjoe Key last spring to try to
8 determine the silver rice rat population. The Silver Rice
9 Rat is on the Federal listing as an endangered species. No
10 Silver Rice Rats were captured after one week of trapping.
11 The potential impacts to cultural resources are at
12 Cudjoe Key. The Cudjoe Key aerostat facilities are
13 potentially eligible for listing on the National Register
14 of Historic Places. These facilities may be eligible
15 because they are considered Cold War-era facilities. The
16 potential impact would be the modification of these
17 facilities from their original intent.
18 Potential transportation impacts: If the Cudjoe Key
19 alternative were to be selected, Blimp Road would be closed
20 at Asturius Road. This closure would last up to four hours
21 on launch day. This would not restrict access to or from
22 Cudjoe Acres.
23 The Florida Department of Transportation estimates
24 that Highway 1 will be over capacity by 2005.
25 These are the current average daily traffic counts.

1 This is the current capacity of Highway 1 and this is the
2 estimated traffic in the year 2005.
3 The additional amount of traffic due to the proposed
4 testing adds very little traffic to this total. Again, the
5 project traffic is primarily rental vehicles used by the
6 engineers and technicians preparing the missiles for
7 launch. This maximum traffic would only be for a couple of
8 days for each launch.

9 Some of the launches, all of the missile flights, and
10 the intercepts would occur over the Gulf of Mexico. These
11 are some of the potential impacts for the Gulf. In
12 airspace, the existing airspace warning areas would be
13 closed to aircraft for a period of up to four hours. This
14 would result in rerouting commercial aircraft around these
15 warning areas, a standard practice used today.

16 For biological resources, the effects of sonic booms
17 on marine mammals is not very well understood. There may
18 be sonic booms penetrating the water surface. We are
19 investigating the impact to marine mammals with the
20 National Marine Fisheries Service.

21 Potential transportation impacts in addition to the
22 airspace some portions of some of the shipping lanes in the
23 Gulf and Intracoastal waterway would be cleared for short
24 periods.

25 The Federal agencies listed here have reviewed earlier

1 (Recess taken.)

2 MR. MICHAELSON: Okay. We are--I'm going to call
3 the names of those of you have indicated you would like to
4 make comments tonight. I will call out, at this point, the
5 one name we have is Anne Harvey. I want you to know that
6 we had one person signed up. Maybe after she speaks
7 someone else will be inspired to come up here as well. I
8 notice that Ms. Harvey has lots of yellow stickies all over
9 her EIS. We're always happy to have someone who has read
10 the document to come up and speak to us.

11 In any case, make your comments slowly and accurately
12 we'll ask that you please speak into the microphone, please
13 state your name for the Court Reporter. We also request
14 that you observe the four minute time limit. To give
15 everyone a fair and equal chance to speak, we'll be using
16 that four minute limit at all of the hearings. And just to
17 make it real easy to know when your four minutes are up,
18 I'll put one finger up like this when you're three minutes
19 into it and give you a one minute left. And when your time
20 is up, I'll put my hand up like this indicating it's time
21 to wrap up your comments. And we greatly appreciate your
22 cooperation and understanding in observing that.

23 And also, keep in mind that oral comments are only one
24 way to share your thoughts and concerns with the Air Force
25 regarding the SEIS. You can also hand in written comments

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1 tonight or hand mail them or e-mail them by April 3rd,		1 were coming from Apalachicola or Port St. Joe, they could	04(cont)
2 1998. And as I mentioned, written comments will be given		2 perhaps turn around and visit Salinas County Park for a	
3 the same consideration as all comments offered here		3 short time period while the road was closed rather than	
4 tonight. With that, Ms. Harvey.		4 bottlenecking at the C30 road. Since it's only 18 to 20	05
5 MS. HARVEY: My name is Anne Harvey. I'm the		5 feet wide, it would not provide adequate turn around for a	
6 State Park Manager at St. Joseph Peninsula State Park at		6 rig of that size or for the people that are bringing their	
7 the north end of St. Joseph Peninsula.		7 boats in to go scalloping during scallop season. That's	
8 My comments are mainly in two different areas tonight.	01	8 one primary comment.	
9 One deals with the road closure--temporary road closure of		9 The other comment is that there was some discussion in	06
10 C30E during the launch tests. There doesn't appear to be		10 the geology and soil section on the erosion rates adjacent	
11 any provision for turn arounds on either side of the launch		11 to the target launch construction facility of a rate of--	
12 hazard area.		12 average rate of about 11 meters per year. I believe that	07
13 The population that visits the State Park on an annual	02	13 the technical advisor committee that is now in place that's	
14 basis consists primarily of residents outside of Gulf		14 been arranged between the Department of Environmental	
15 County many of them are visiting the State Park. More than		15 Protection and DOT could look at the Stump Hole erosion	
16 50 percent visit the State Park for their first visit		16 rates. That if you look at the erosion rates that are	
17 coming from the area around Atlanta, Birmingham,		17 being provided for them by private contractor on that	
18 Montgomery, and they're unfamiliar with the roads in this		18 advisor committee, that you may find that the rates are	
19 area. I feel that it would be beneficial if the Air Force	03	19 slightly higher than the rates that are listed in the SEIS.	
20 included in their proposal two turn around locations, one		20 There are some further comments that I will be making,	
21 on either side of the launch hazard area, so that large		21 written comments. One involves the Rish Park. It is under	
22 rigs consisting of perhaps a 30-foot--34-foot motor home		22 the direction, or operation rather, of the Department of	
23 with a tow vehicle would be able to turn around, retrace		23 Children and Family Services not the Department of Health	
24 their steps perhaps to the State Park and visit again there		24 and Rehabilitative Services. That department has been	
25 for a few hours while the roads closed. Or maybe if they	04	25 renamed recently. And there are some other corrections,	

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1 more of a grammatical nature. Thank you.	
2 MR. MICHAELSON: Thank you very much for taking	
3 the time to review the document like that. Anyone else who	
4 would like to speak tonight? If not, of course, many of	
5 you may decide to take more time and take in all of this	
6 and compose your thoughts in the written form. We very	
7 much encourage you to do that. All the comments that we	
8 receive are very helpful in the preparation of the final	
9 SEIS.	
10 Unless there are other closing comments we'll go ahead	
11 and adjourn this evening. Due to the early hour, if there	
12 are anymore questions that you want to ask of the technical	
13 experts, we're going to have them go back to their stations	
14 for a few minutes in case there is anything else based upon	
15 the presentation you saw that maybe you'd like to have	
16 clarified. With that, we will adjourn the meeting 7:45	
17 p.m. Thank you very much.	
18 (Meeting adjourned at 7:45, p.m. eastern standard	
19 time.)	

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	COMMENT
	NUMBER

1 STATE OF FLORIDA
2 COUNTY OF BAY
3
4 REPORTER'S CERTIFICATE
5 I, GERTRUDE DOWNS as agent for KIM CLARK, Court
6 Reporter, DO HEREBY CERTIFY that KIM CLARK was authorized
7 to, and did stenographically report the proceedings taken
8 in the aforesaid matter on March 10, 1998 and that the
9 transcript is a true and complete record of her
10 stenographic notes.
11 I FURTHER CERTIFY that she is not a relative,
12 employee, attorney, or counsel of the parties, nor is she a
13 relative or employee of any of the parties' attorney or
14 counsel connected with the action, nor is she financially
15 interested in the action.
16 DATED this 25th day of March, 1998.
17
18 
Gertrude Downs

Theater Missile Defense Extended Test Range
Supplemental Environmental Impact Statement
Eglin Gulf Test Range

Public Meeting

March 12, 1998

6:00 p.m.

Harvey Government Center, Key West, FL

FLORIDA KEYS REPORTING, INC.
91421 Overseas Highway
Tavernier, FL 33070
(305) 852-2153

1 MR. MICHAELSON: Good evening. If I could
2 have your attention, we're going to go ahead and
3 start it now. I should also mention to those of
4 you who are standing and would like to sit, there
5 are actually seats dotted throughout the seats
6 here, if you want to come up and grab those so you
7 don't have to stand during the meeting. Good
8 evening and welcome to tonight's public hearing on
9 the Eglin Gulf Test Range Supplemental
10 Environmental Impact Statement. My name is Lewis
11 Michaelson and I've been asked by the Ballistic
12 Missile Defense Organization to moderate tonight's
13 meeting.
14 Before I go over tonight's agenda and
15 ground rules, I would like to take this
16 opportunity to introduce you to the government
17 representatives who are here with us tonight.
18 Representing the Air Force Development Test Center
19 at Eglin Air Force Base is Major Tom Kennedy. As
20 the Theater Missile Defense Test Manager, Major
21 Kennedy has the responsibility for preparing the
22 supplemental and Environmental Impact Statement.
23 From the Ballistic Missile Defense Organization we
24 have Lieutenant Colonel Lehner. And also in the
25 audience I would like to introduce Colonel Jim

1 Heal, who is the commander of the 46th Test Wing
2 Operation.

3 To start the meeting I would like to take
4 a minute to briefly outline the purpose of
5 tonight's meeting and to go over the agenda so you
6 know what to expect as we proceed. As many of you
7 may remember, Just over a year ago the Ballistic
8 missile Defense Organization and the Air Force
9 held scoping meetings here in the Keys and in
10 northern Florida on the Theater Missile Defense
11 Extended Test Range proposal. The purpose of
12 those scoping meetings was to obtain your comments
13 on the environmental issues you believe they
14 should examine in the supplemental and
15 environmental impact statement.

16 Those scoping comments from the public, as
17 well as from the agencies were then used in the
18 preparation of the Draft Supplemental
19 Environmental Impact Statement, which is the
20 subject of tonight's hearing.

21 Tonight's public hearing then has three
22 essential purposes. The first is to describe to
23 you the nature of the program that is being
24 examined in the Environmental Impact Statement.
25 The second is to briefly describe the

1 Environmental Impact Statement process and
2 findings in the Draft Supplemental Environmental
3 Impact Statement or SEIS as it is known by its
4 initials. The third and primary purpose is to
5 listen to your concerns and comments on the Draft
6 SEIS. Your oral comments tonight will then be
7 used in the preparation, along with any written
8 comments, in the preparation of the final SEIS.

9 I'd like to now go over the agenda. From
10 six o'clock to seven o'clock the Ballistic Missile
11 Defense Organization and Air Force representatives
12 were available to answer questions about the
13 proposed action and the environmental impact
14 assessment process. I know many of you took
15 advantage of that opportunity.

16 The agenda for the hearing then is as
17 follows: After I finish my introductory remarks
18 we will have a presentation by Major Tom Kennedy,
19 who will provide a brief description of the
20 Theater Missile Defense Extended Test Range
21 followed by an overview of the environmental
22 impacts that are identified and assessed in the
23 SEIS. The last item on the agenda, public
24 comments, is really the most important. Remember
25 that the draft SEIS is that, a draft. This is

1 your opportunity to tell the Ballistic Missile
2 Defense Organization and the Air Force how they
3 could improve their analysis of potential
4 environmental impacts before the document is
5 finalized and before a decision is made on whether
6 or not to proceed with the proposed action.

7 A few administrative points on making
8 comments tonight. If you've already signed up to
9 speak and I know many of you have, that's great.
10 If not and you would like to speak, please go to
11 the registration table and sign up on one of the
12 cards. Everyone is welcome to speak. That makes
13 the process run more smoothly, if we can call
14 people from a list. And again, everyone will have
15 four minutes to speak.

16 The Air Force tonight has a court reporter
17 here seated to my right. She is here to make a
18 verbatim transcript of this hearing, so that all
19 of your oral comments will be recorded accurately.
20 Therefore, it is important that when commentors
21 are speaking, that anyone in the audience refrain
22 from making any comments, so the court reporter
23 can hear and record the speaker's comments
24 accurately. And as a part of that preparing the
25 transcript, an audio recording of tonight's

1 hearing will be made as well. I should probably
2 also inform you, it's not at our direction, but
3 the county here as I understand also has cameras
4 and is videotaping the proceedings so that it can
5 be broadcast at a later time.

6 As far as written comments go, you may
7 wish to do that and there are actually four ways.
8 If you want to, you may have brought written
9 comments with you tonight, several people have
10 already handed those in to us. We are very happy
11 to take those. There are also written comment
12 sheets that look like this. You are welcome to
13 fill those out and hand those in tonight. They
14 will be part of the record. You may also mail
15 them in to the name and address that appears on
16 the back of this fax sheet that all of you should
17 have received when you came in. And the fourth
18 way that you can do it is that you can E mail
19 written comments TMD at Eglin dot af dot mil.
20 That address is also on the fax sheet and
21 whichever option you choose for sending in written
22 comments, please be advised that the deadline for
23 receiving them is April 3rd and that's the closing
24 date for the comment period. And keep in mind
25 also that written comments are given the same

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1 consideration as oral comments offered here
2 tonight.

3 Last piece of administrative business. If
4 you want to receive a copy of the final SEIS when
5 it becomes available, there are two ways to do
6 that. The first is if you receive the draft, that
7 means you're already on the list, you will
8 automatically receive a final unless you tell us
9 otherwise. Second of all, if you comment in
10 writing or orally and provide us with your name
11 and address, commentors will receive a copy of the
12 final SEIS. If you don't meet either one of those
13 conditions and would like to receive one, then
14 there is a yellow card that was at the
15 registration table. Please fill that out and
16 indicate you would like to receive a whole
17 document or the executive summary.

18 Finally, it is important for you to
19 understand that the Ballistic Missile Defense
20 Organization and Air Force representatives here
21 tonight are not here to make any decisions
22 tonight. Their role is to take the results of the
23 public comment process, including the comments
24 received at this hearing and make sure that they
25 are considered in the preparation of the final

1 SEIS. Their main purpose in being here tonight is
2 to listen to your suggestions and concerns
3 firsthand. With that, we will now begin with
4 Major Kennedy's presentation.

5 MAJOR KENNEDY: Good evening. I'm Major
6 Tom Kennedy. I work for Colonel Heal in the 46th
7 test plant. We're representing Major General
8 Michael Selnick at Eglin Air Force Base. My job
9 is to determine if it's feasible to test missile
10 defense systems within the Eglin Gulf Test Range.
11 The National Environmental Policy Act of 1969
12 requires Federal decision makers consider the
13 impacts on the environment along with safety,
14 cost, schedule and technical requirements. One of
15 the first steps in doing this is the preparation
16 of an environmental impact statement.

17 The purpose of this presentation is to
18 describe the Supplemental Environmental Impact
19 Statement. For simplicity I'll refer to this
20 document as the SEIS. First I'll describe the
21 proposed action our team evaluated in the SEIS.
22 Then I will describe the findings in the SEIS.

23 The proposed action is to enhance the
24 Eglin Gulf Test Range to test theater missile
25 defense systems against target missiles with

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1 ranges up to 1100 kilometers or approximately 685
2 miles.

3 There are two primary organizations
4 involved with the SEIS. The Ballistic Missile
5 Defense Organization is a Department of Defense
6 level organization that was established by
7 Congress. They are responsible for developing and
8 managing the development and acquisition of
9 missile defense systems for all services.

10 As such, they are the proponent for this
11 action. This means the director of the Ballistic
12 Missile Defense Organization will make the
13 decision on whether or not to select any of the
14 alternatives in the Eglin Gulf Test Range. The
15 Ballistic Missile Defense Organization asked the
16 Air Force Development Test Center to lead the
17 steps required in developing test capabilities
18 here. That's why we're writing the SEIS for them.

19 This SEIS supplements two earlier
20 environmental impact statements. In 1993 the
21 Ballistic Missile Defense Organization completed
22 the Theater Missile Defense Programmatic
23 Environmental Impact Statement. This is a broad
24 EIS that considered the general environmental
25 impacts of developing theater missile defense

1 systems. It's the baseline for location specific
2 EIS's.

3 The Theater Missile Defense Extended Test
4 Range EIS, completed in 1994, considered the
5 impacts of theater missile defense testing at four
6 ranges; White Sands Missile Range in New Mexico,
7 the Western Test Range off of California, the
8 Eglin Gulf Test Range, and Kwajalein Missile Range
9 in the Western Pacific. At that time, White Sands
10 and Kwajalein were selected as theater missile
11 defense extended test ranges. The Eglin Gulf Test
12 Range was not selected because of the difficulty
13 and cost of providing a sea launched target, the
14 only option considered at that time. This SEIS
15 supplements the 1994 extended Test Range EIS.

16 Eglin Air Force Base, Key West Naval Air
17 Station, and Pensacola Naval Air Station regularly
18 use vast amounts of airspace over the Eastern Gulf
19 of Mexico. This blue line defines the air space
20 that Eglin Air Force Base has scheduling
21 responsibility for. While this is the area
22 scheduled by Naval Air Station, Key West. There
23 is no other location within the continental United
24 States which has so much available military
25 airspace with low population density. The large

1 size of the Eglin Gulf Test Range makes it ideal
2 for performing tests that cover long distances,
3 such as theater missile defense testing. Also,
4 the missile flights can be done over the broad
5 open waters of the Gulf which greatly enhances
6 safety.

7 Eglin Air Force Base has existing radar,
8 optical and other sensor systems to conduct its
9 current missions. These types of instrumentation
10 systems are expensive to develop from the ground
11 up. By enhancing an existing range like Eglin's,
12 we can save millions in taxpayer dollars.

13 To determine if an interceptor works, you
14 have to test it against a target. Some
15 interceptors are ground based and some are sea
16 based. The Eglin Gulf Test Range would provide
17 the flexibility to test either type of system.

18 I will describe the preferred alternatives
19 first. For the Eglin Gulf Test Range to be
20 enhanced for use as a theater missile defense test
21 and training range, launching options for both
22 interceptor missiles and target missiles would
23 have to be selected. Although no final decisions
24 will be made until the Record of Decision is
25 reached, the director of the Ballistic Missile

1 Defense Organization indicated last November that
2 these are the alternatives he would prefer to use
3 over the other alternatives considered. After that
4 I will describe the other alternatives considered.
5 These alternatives are shown in the handout you
6 should have received when you arrived.

7 Since the interceptors are the actual
8 things being tested, I will start with them.
9 Interceptors will be ground based here at Eglin
10 Air Force Base properties on Santa Rosa Island and
11 Cape San Blas. Interceptors will also be ship
12 based in the open Gulf within the military air
13 space.

14 I'll now discuss the methods of delivering
15 target missiles. The primary proposed method of
16 delivering target missiles is using air drop
17 system currently in development. Air drop is a
18 term that Ballistic Missile Defense Organization
19 uses for the short range air launch target.
20 Currently the only air launch targets that are
21 certified as treaty compliant have limited flights
22 of less than 600 kilometers, which is about 375
23 miles. It would be launched over the open Gulf.
24 Air launch targets provide a lot of flexibility
25 with their potential launch location and distances

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1 that could be used. They are also considering the
2 potential to launch target missiles from ground
3 launch locations from Santa Rosa Island and Cape
4 San Blas.

5 Finally, all of the intercepts would take
6 place over the Gulf of Mexico. This ensures that
7 debris can be contained over the water which is
8 one of our safety criteria.

9 This is a diagram of how the proposed air
10 drop target would work. The missile is pulled out
11 of the back of the airplane on a sled by a
12 parachute. After it clears the airplane the
13 missile and sled separate. There is another
14 parachute attached to the missile. After the
15 missile rights itself this parachute is released
16 and the missile is ignited and flies to its
17 prescribed landing area.

18 Even though the director of the Ballistic
19 Missile Defense Organization defines it as an
20 alternative, we are required by the National
21 Environmental Policy Act of 1969 to consider all
22 reasonable alternatives to this preferred
23 alternative. These are considered in the
24 Supplemental Environmental Impact Statement in the
25 category other alternatives considered.

1 These other alternatives could be selected
2 if there were a great national need for finding a
3 specific test capability. This national need
4 deals with technical, environmental, or other
5 national policy considerations. The director of
6 the Ballistic Missile Defense Organization will
7 make the decision on whether or not to use these
8 other alternatives.

9 Again, dealing with the interceptor
10 alternatives, we are considering launching
11 interceptor missiles from platforms off of the
12 coast of either Santa Rosa Island or Cape San
13 Blas. These platforms would allow intercepts
14 closer to the launching point of the interceptor
15 missile. This would still keep the missile and
16 intercept debris offshore and provide the required
17 safety margins for the personnel and equipment
18 directly involved in the test.

19 There are treaty restrictions against
20 launching ballistic missiles from sea based
21 platforms that are tethered to the sea floor.
22 This prevents us from considering launching target
23 missiles from a platform.

24 Also in the other alternatives to consider
25 category are land launched targets from the

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2 potential to launch target missiles from ground
3 launch locations from Santa Rosa Island and Cape
4 San Blas.

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22 This prevents us from considering launching target
23 missiles from a platform.

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25 category are land launched targets from the

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1 Florida Keys. There are two Keys under
2 consideration, Cudjoe Key and Saddlebunch Keys,
3 only one location will be chosen if this
4 alternative were to become necessary.

5 Although the sea based target launch
6 option was the reason for the Eglin Gulf Test
7 Range was not selected in the earlier EIS, the
8 Army is now developing capability to launch target
9 missiles from a ship. This alternative is limited
10 to less than 375 miles just like the current
11 limits on the air launched capability.

12 The director of the Ballistic Missile
13 Defense Organization also has the option of
14 selecting the no action alternative. In fact the
15 National Environmental Policy Act of 1969 requires
16 the decision maker to consider the impacts should
17 the proposed action not take place. For the Eglin
18 Gulf Test Range, the no action alternative
19 describes the environmental impacts if the
20 proposed action to enhance the Eglin Gulf Test
21 Range for theater missile defense testing is not
22 implemented.

23 Our baseline was selected to analyze the
24 maximum impacts possible. In developing the
25 baseline for evaluation in the SEIS, we used the

1 PATRIOT as the baseline interceptor. In all
2 cases, the analysts used the best available data
3 for the analysis.

4 The team used the Hera target missile as
5 the typical target missile. This is because it's
6 the biggest target missile considered. Although
7 we assumed the highest number of launches proposed
8 at each site, the actual number of launches would
9 be considerably less. The combined potential
10 impacts from the Hera are greater than those of
11 the proposed interceptors at Santa Rosa Island and
12 Cape San Blas, where both interceptors and targets
13 are proposed, we used the Hera as a baseline.

14 These are the 14 resource areas the team
15 evaluated for each alternative. The potential
16 impacts are outlined in your handout. Many of the
17 potential impacts are similar at each site.
18 First, I will discuss the impacts that are common
19 to each site. Then I'll describe those that are
20 unique to each proposed location. However, before
21 I can discuss any potential impacts, I need to
22 show you the launch hazard areas that would be
23 established for each alternative location. These
24 launch hazard areas define the regions of
25 influence the team analyzed at each site.

1 The purpose of the launch hazard area is
2 to ensure that nobody is inside the area that
3 could be affected should the missile self-destruct
4 or the range safety officer need to terminate the
5 missile flight.

6 When the range safety officer develops a
7 launch hazard area he uses a computer model. This
8 model predicts where the debris from an errant
9 missile would go should it be destroyed. He also
10 considers the effects of wind. Finally, the range
11 safety officer determines if there are protected
12 areas, such as private property, within the launch
13 hazard area. If so, he establishes wind
14 restrictions to prevent this debris from falling
15 on these protected areas. This is why the launch
16 hazard areas are different shapes and sizes at
17 each location.

18 Launch hazard area for the Hera target
19 missile is 6,500 feet without any wind effects.
20 Once the effects of wind are considered, the
21 launch hazard area is expanded to incorporate any
22 additional safety area. Here at Santa Rosa Island
23 the launch hazard area will extend from the Santa
24 Rosa Sound and encompass this portion of the
25 island. At Cape San Blas, the hazard area would

1 go back to St. Joseph Bay. It extends over State
2 Road 30E.

3 At Cudjoe Key it encompasses the northwest
4 section of the Key. It's primarily over the
5 waters of the National Marine Sanctuary and the
6 Great White Heron National Wildlife Refuge. This
7 extends out to the airspace scheduled by Naval Air
8 Station, Key West. The launch hazard area crosses
9 Blimp Road.

10 This is the launch hazard area at
11 Saddlebunch Keys, similar to that at Cudjoe Key.
12 It is primarily over the waters of the National
13 Marine Sanctuary and the Great White Heron
14 National Wildlife Refuge. Since the Key is
15 primarily military property north of Highway One,
16 the launch hazard area would include that entire
17 area.

18 Now I'll discuss the common potential
19 impact. The first resource area I will discuss is
20 air quality. Air quality impacts would be similar
21 at all proposed locations. The primary emissions
22 from a missile launch are shown here. The primary
23 emissions of concern are; aluminum oxide, carbon
24 monoxide, and hydrogen chloride. All these
25 emissions are within the standards established by

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1 the National Ambient Air Quality Standards and the
2 Environmental Protection Agency.

3 We just discussed air quality. We're not
4 proposing any additional airspace restrictions so
5 there are no impacts for this area.

6 Biological resources. The noise of a
7 launch could startle birds and other wildlife.
8 However, experience at Cape Canaveral shows that
9 after an initial flushing, where the birds fly
10 around, they return to their nests within a few
11 minutes. There are also location specific
12 biological resources potential impacts which I
13 will discuss in a few minutes. Potential impacts
14 to cultural resources are site specific.

15 In areas nearest the launch facility, any
16 hydrogen chloride that settles to the ground may
17 result in an increase in surface soil acidity.
18 Increased in soil acidity would be temporary and
19 will be diluted and buffered by rainfall.

20 The amount of aluminum oxide settling on
21 the ground would not result in a substantial
22 change in soil fertility or be in concentrations
23 toxic to the growth of existing plants and
24 microorganisms.

25 The hazardous waste that would be produced

1 by this program consists primarily of solvent
2 soaked cleaning rags. The amount generated easily
3 fits within the current capacity for Eglin Air
4 Force Base and Naval Air Station in Key West.

5 For land and water use, the launch hazard
6 area would be cleared of people and private
7 vehicles for up to four hours on launch day. This
8 would restrict access to the land and water areas
9 within the launch hazard area. This includes the
10 waters offshore which would also be cleared of
11 boats for up to four hours.

12 The peak noise at the edge of a launch
13 hazard area is expected to be 98 decibels. This
14 is similar to a jack hammer. However, this would
15 only be a momentary sound. The continuous sound
16 level is predicted to be 80 decibels for 45
17 seconds. This is similar to a portable hair dryer
18 held one foot away. Both of these are from the
19 Occupational Safety and Health Administration
20 exposure limit of 115 decibels for 15 minutes. So
21 there would be no health related sound exposures
22 outside of the launch hazard area. Should
23 launches occur before 7 a.m., it is anticipated
24 some people may be awakened by the launch noise.

25 Safety is primarily defined by the launch

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1 hazard areas. The policy of the Air Force
2 Development Test Center is that the general public
3 will not have any additional risk due to test
4 activities than they would experience in everyday
5 life.

6 The potential impacts to socio-economics
7 are similar to those for land and water use as the
8 launch hazard area would also have to be cleared
9 of commercial activities. This clearance would
10 occur up to four hours on launch day.

11 Each Hera target missile could result in
12 over \$100,000 in personnel per diem. Each
13 interceptor missile launch could result in nearly
14 \$150,000 in per diem expenses. Potential impacts
15 to transportation are location specific.

16 The utilities currently available at each
17 location are sufficient to handle the requirements
18 of the proposed program. However, bottled water
19 and portable toilets may be used to reduce any
20 impact on these resources.

21 Each of the proposed sites has
22 historically been used for military purposes. The
23 visual aesthetics of the proposed facilities will
24 be consistent with the existing facilities.

25 Temporary small increases of surface water

1 acidity may occur. The amount of time for these
2 to dilute depends on water movement and activity.
3 The amount of acid created is not expected to be
4 harmful to wildlife.

5 I'll now discuss the potential impacts for
6 each proposed site. On Santa Rosa Island, these
7 are the potential impacts to cultural resources.
8 The facilities at site A-15 are potentially
9 eligible for listing on the National Register of
10 Historic Places. This is due to the BOMARC
11 missile testing that occurred there from 1959 to
12 1985. These are considered cold war era
13 facilities. Potential impact would be the
14 modification of these facilities from their
15 original intent.

16 For transportation, the Florida Department
17 of Transportation estimates US 98 will be over
18 capacity by the year 2005.

19 These are the current average daily
20 traffic counts. This is the current capacity of
21 US 98. As you can see, some of the sections are
22 already over capacity. This is the estimated
23 traffic in the year 2005.

24 Additional amounts of traffic due to
25 proposed testing adds very little traffic to this

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1 total. The project traffic is primarily rental
2 vehicles used by the engineers and technicians
3 preparing the missiles for launch. This maximum
4 traffic would only be for a couple of days before
5 each launch.

6 At Cape San Blas, the potential impacts to
7 biological resources are a line of sight corridor
8 5500 feet long and 40 feet wide is needed for
9 range safety instrumentation currently planned for
10 Hera target launches. It will pass within 75 feet
11 of a bald eagle nest. This violates the US Fish
12 and Wildlife Service primary protection zone of
13 450 meters, which is approximately 1475 feet.

14 Cape San Blas has the highest sea turtle
15 nesting density in Northwest Florida,
16 approximately 15.3 nests per mile. Since a lot of
17 the launch preparations would occur during the
18 night prior to a launch, sea turtles could be
19 adversely affected during the nesting and hatching
20 seasons.

21 The launch facilities to support a Hera
22 target launch site would cause the permanent loss
23 of 1.62 acres of wetland habitat that is used by a
24 variety of birds.

25 For cultural resources, Hera target

1 missile launches could cause short term noise
2 levels of 124 decibels in the area of the
3 lighthouse and keeper's quarters. These historic
4 facilities are inside the launch hazard area.
5 This has potential to damage the lighthouse lens
6 and the keeper's quarters.

7 Potential impacts to transportation are,
8 State Road 30E would have to be closed on each
9 side of the launch hazard area approximately one
10 hour prior to the launch. This is a standard
11 practice that we have used for other missile
12 launches from Cape San Blas. Emergency vehicles
13 will be allowed access.

14 Traffic would be increased by 40 percent
15 on State Road 30E during the last couple of weeks
16 leading up to a launch. This represents a total
17 of less than 2,000 total vehicles projected for
18 the year 2005, which is well within the total
19 capacity of State Road 30E of 9,200 daily
20 vehicles.

21 In the Keys, the potential impacts to
22 biological resources are, the proposed launch site
23 on Saddlebunch Keys would disturb up to 2.23 acres
24 of wetlands. There would be no additional
25 wetlands disturbed at Cudjoe Key. There is the

1 potential that vegetation near the launch site
2 would be singed. However, at the Hera launch from
3 Fort Wingate last November, snow 20 feet from the
4 launch site was not melted.

5 The Florida Game and Freshwater Fish
6 Commission performed a survey at Cudjoe Key last
7 spring to try to determine the silver rice rat
8 population. The silver rice rat is on the Federal
9 listing as an endangered species. No silver rice
10 rats were captured after one week of trapping.

11 The potential impacts to cultural
12 resources on Cudjoe Key, the Cudjoe Key aerostat
13 facilities are potentially eligible for listing on
14 the National Register of Historic Places. These
15 facilities may be eligible because they are
16 considered cold war era facilities. The potential
17 impact would be the modification of these
18 facilities from their original intent.

19 Potential transportation impacts are, if
20 the Cudjoe Key alternative were to be selected,
21 Blimp Road would be closed at Asturius Road. This
22 would be closed up to four hours on launch day.
23 It would not restrict access to or from Cudjoe
24 Acres.

25 The Florida Department of Transportation

1 estimates that Highway One will be over capacity
2 by the year 2005. These are current average daily
3 traffic counts. This is a current capacity of
4 Highway One. This is the estimated traffic in the
5 year 2005.

6 The additional amount of traffic due to
7 proposed testing adds very little traffic to this
8 total. The project traffic is primarily rental
9 vehicles used by the engineers and technicians
10 preparing the missiles for launch. This maximum
11 traffic would only be for a couple days for each
12 launch.

13 Some of the launches, all of the missile
14 flights, and the intercepts would occur over the
15 Gulf of Mexico. These are some of the potential
16 impacts for the Gulf: In airspace, the existing
17 airspace warning areas would be closed to aircraft
18 for a period of up to four hours. This would
19 result in rerouting commercial aircraft around
20 these warning areas, a standard procedure used
21 today.

22 The biological resources, the effect of
23 many sonic booms on marine mammals is not very
24 well understood. There may be sonic booms
25 penetrating the water surface. We are

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1 investigating the impact to marine mammals with
2 the National Marine Fisheries Service.

3 Potential transportation impacts, in
4 addition to the airspace, some portions of the
5 shipping lanes in the Gulf and Intracoastal
6 waterway would be cleared for short periods.

7 The Federal agencies listed here have
8 reviewed earlier drafts of the SEIS. They have
9 provided comments to us to aid in our preparation
10 of the Draft SEIS. This draft was mailed to the
11 public in February. We will continue to consult
12 with the Federal agencies, as well as state
13 agencies listed here. Should any regulatory
14 permits be required, these are the agencies that
15 would issue those permits.

16 The next steps for the SEIS are shown
17 here. First and most important, we need your
18 comments on the SEIS. To ensure your comments are
19 incorporated in the final SEIS, we need to receive
20 them by April 3rd. These comments will be
21 addressed in the final SEIS. The final SEIS
22 should be completed sometime this fall. We are
23 hoping to complete it by September. The director
24 of the Ballistic Missile Defense Organization will
25 make a record of decision no earlier than 30 days

1 after the final SEIS is completed.

2 That's all I have tonight. Thank you for
3 your interest and concern. It's an important
4 National Defense program.

5 MR. MICHAELSON: Thank you Major Kennedy.
6 We're going to take about a three minute break to
7 get the podium ready to go, so if you will stay
8 seated for three minutes, we will be right back
9 with you.

10 (Brief interruption.)

11 MR. MICHAELSON: We're going to get
12 started now. I ask you to take your seats,
13 please. We are ready to start calling the names
14 of those of you who have indicated you would like
15 to make comments tonight. I have a list of people
16 who signed up to speak. Currently there is a list
17 of 36 individuals. What I'm going to do is I will
18 call the first four or five or six names at a time
19 in order, that way you will have some idea of
20 where you're going to come up and how soon you're
21 going to come up. The reason I do that in is
22 order to make the commenting move as expeditiously
23 as possible. If you would be ready to come up
24 when your name is called, I would appreciate it.
25 And then that way you can keep moving through all

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1 of your comments. I'll be calling you in the
2 order in which you have signed up to speak. So if
3 you're the first one's here, you should expect to
4 be up first.

5 Because we want to record your comments
6 fully and accurately, we ask that you please speak
7 clearly in the microphone up here. Also, if you
8 would please state your name for the court
9 reporter. If you will notice the lovely podium we
10 have here in the form of a corrugated box.
11 Apparently some individuals have some comments
12 they would like to be able to set them down, so
13 that's why that's there.

14 Finally, we kindly request that you
15 observe the four minute time limit for all
16 comments. We have used this four minute limit at
17 all of these hearings to give everyone a fair and
18 equal chance to offer their comments. To aid you
19 in knowing when your four minutes are up, I have a
20 simple method for indicating times to you. That's
21 why it's useful to look at me or glance at me
22 every so often. That is that after three minutes
23 are up, I will put up my index finger like this,
24 indicating that you have one minute left and
25 enabling you to find a comfortable place to end

1 your comments. When all four minutes are up, I'll
2 put up my closed hand such as this, indicating
3 it's time for you to finish whatever sentence
4 you're on and make way for the next speaker. We
5 greatly appreciate your cooperation of observing
6 this four minute time limit.

7 Also keep in mind that oral comments are
8 only one way to share your thoughts with the
9 government on this, with the Air Force and
10 Ballistic Missile Defense Organization. You can
11 also hand in written comments, mail them in or E
12 mail them in by April 3rd. And again, those
13 comments will be given the same consideration as
14 oral comments offered here tonight. With that,
15 the names that I have, first in order, are
16 Giovanna Todisco and I apologize in advance for
17 mispronouncing any of the names, Alberto Rebasio,
18 Christopher Lehman, Commissioner Shirley Freeman
19 and Gerry Girard. And there is a series of
20 speakers beginning with Shirley Freeman. I
21 believe there are eight of them in a row who are
22 going to be making use of some audio visual aids
23 up on these screens. So when they get to that
24 portion, if you want to be looking up there, they
25 will be talking to those audio visual aids is my

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0003 COMMENT NUMBER			P-T-0003 COMMENT NUMBER
1	understanding. With that, Giovanna Todisco, will	01	1	on the ground, that the rain will be added too	04
2	you please come up to the microphone. And again,		2	because of also the air could be polluted. So	
3	if you can be ready to come up when your name is		3	these will effect everything. The rain that goes	
4	called we can expedite this for you. If you will		4	on the soil that contains some toxic materials.	
5	turn that microphone down, I think you can get it		5	And also what about the edges. The edges in the	
6	pretty close to you. There you go. That's good.		6	water that these are so shallow and the fish that	
7	GIOVANNA TODISCO: There are too many		7	eat the edge. So all the ecosystem will be	
8	questions. I'm sorry but I'm Italian and I hope		8	affected. Then the water is not fit for some	
9	that you can understand my English. I don't think		9	people can be a lot for some others. So I mean	
10	that the area has enough evidence that there is a		10	for somebody can be very sensitive to this toxic	
11	low number of inhabitants because there are so	02	11	material.	05
12	many tourists coming, so many. So it's important		12	For example, my husband had a bone marrow	
13	also to count all these people that come and go,		13	transplant for leukemia seven years ago in Seattle	
14	come and go everyday. Then I think that even if		14	and now he is completely recovered thanks to this	
15	it's in the north Gulf of Mexico, the location, I		15	place. Because after the transplant we are	
16	mean all the missile launch will affect a big		16	spending in this country six, seven, eight months	
17	area. All the Gulf of Mexico and the water will		17	a year and he is fine because nothing can pollute	
18	be polluted because the water is not very deep.		18	the cancer. But if this happens, we have to	
19	And I come from Italy and I know our sea there is		19	leave, even if we invested a lot of money in this	
20	a very close best is affected from pollution. In		20	country because we are going to build a third	
21	Italy we lost all our coral. In Naples we had	03	21	house just in order to have the visa to stay in	06
22	every kind of coral, black coral that was		22	this country seven, eight months.	
23	beautiful and now is nothing. Then the rain that		23	This is my personal question, but what	
24	was said, the rain that can wash out all of the		24	about the little kids that have the same immune	
25	acid and aluminum and all the stuff that deposit		25	system that my husband has now. The little kids	
					07

		P-T-0003			P-T-0005
		COMMENT			COMMENT
		NUMBER			NUMBER
1	will be affected more than others with the immune	08	1	English. I have the same idea that my wife.	01
2	system. That's it.		2	Thank you.	
3	MR. MICHAELSON: You have one more minute.		3	(Hand clapping.)	
4	GIOVANNA TODISCO: One more. And what		4	MR. MICHAELSON: Thank you very much.	
5	about the mammals, the dolphins and we have the		5	That was Alberto Rebasio. We're now ready for	
6	big mammals that we have here are dolphin. Their		6	Christopher Lehman.	
7	ears are very sensitive. This noise can effect		7	CHRISTOPHER LEHMAN: Good evening. My	
8	them. In fact, we find already on Sugarloaf, we		8	name is Christopher Lehman. I'm here representing	
9	found mammals there that are on the beach and		9	Monroe County. Pleased to be here. The Board of	
10	where we try to help them and to recover and to		10	County Commissioners has been very active on this	
11	put in the ocean again. So I think that this will		11	issue since it first rose in 1995 and the county	
12	effect the mammals that way. Thank you.		12	has worked very closely with the congressional	
13	(Hand clapping.)		13	delegation and also with Colonel Lehner and others	
14	MR. MICHAELSON: Thank you everyone for	01	14	in the Pentagon over the last two years.	02
15	holding your applause and your expressions of		15	The committee's position or the County	
16	appreciation for any comments until the end. That		16	Commission's position has been very clear from the	
17	makes it much easier for the court reporter to		17	beginning expressed opposition to the land	
18	capture the comments. Alberto Rebasio. Excuse		18	launching of missiles from the Keys derived	
19	me, Mr. Rebasio, I need you to come up to the		19	generally from deep concern from two basic issues.	
20	microphone here, that's how we capture this. If		20	The first, public safety, first and foremost.	
21	you would state your name, please. Go ahead and		21	Launching missiles close to population centers,	03
22	put the microphone near you. State your name,		22	houses, schools and so on was a matter of great	
23	please.		23	concern to the county and one which they expressed	
24	ALBERTO REBASIO: Good evening. I think		24	to the Department of Defense and to the Air Force	
25	the same as my wife. I don't speak really well		25	at various junctures. And secondly, the potential	
		P-T-0004			04
		01			

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0005 COMMENT NUMBER			P-T-0005 COMMENT NUMBER
1	for environmental damage or environmental	05	1	In that letter General Lyles also	08
2	degradation. These were the two issues of		2	mentioned that the Keys option was unlikely and	
3	greatest concern.		3	that was in his letter. And therefore, the Board	
4	Mayor Freeman in February of 1996, at the		4	of County Commissioners is pleased that it is no	
5	behest of the Board of County Commissioners wrote	06	5	longer the preferred option. But the	09
6	a letter to the Secretary of Defense expressing		6	Environmental Impact Statement requires that	
7	opposition but primarily urging the secretary to		7	launching from the Keys still be considered as an	
8	consider options other than land launch from the		8	option and because of that, because it is still an	
9	Keys and specifically referred to sea base	07	9	option, the county has asked me to comment.	10
10	launching and air base launching and that was in		10	The draft EIS as it has been reviewed is	
11	February of 1996. And needless to say, about six		11	significantly flawed and primarily for two	
12	or seven or eight months later the Department of		12	reasons. It's really not accurate or adequate on	
13	Defense indicated that they were, in fact, going		13	environmental issues in terms of the study of some	11
14	to consider air launch and in fact, do some		14	of the potential impacts in terms of eagles and	
15	testing to see if that was possible and I was		15	other flora and fauna. And secondly, in terms of	
16	pleased to see the diagram with the missile coming		16	the public safety. The Board of County	
17	out of the back of the C-130 aircraft.		17	Commissioners just doesn't buy the fact that	12
18	Bottom line is in November 1997, General		18	launching a missile as close to approximately a	
19	Lyles wrote a letter to Congressman Deutch and to		19	mile and a half from houses and schools is just	
20	the county announcing that he had decided that the		20	safe. It's just not safe and I don't buy it and	
21	primary or the preferred alternative was for air		21	the county doesn't really buy it.	
22	launch. The county was pleased that the		22	I personally talked to Navy and Army	
23	recommendation they made a year and a half		23	missiles testing experts who have said that	
24	previously had been taken seriously and had, in		24	testing that close to population is just not a	
25	fact, become the preferred option.		25	good idea. And that in their testing it's	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0005			P-T-0006
		COMMENT			COMMENT
		NUMBER			NUMBER
1	generally at a greater distance from populated	13	1	MR. MICHAELSON: Thank you for having us.	01
2	areas where missiles are tested.		2	They are very nice.	
3	In conclusion let me just simply say that		3	COMMISSIONER FREEMAN: Two years ago, as	
4	I urge, on behalf of the county, that you go back		4	Chris Lehman reported to you, I, as mayor, on	
5	to the drawing board on the public safety issues,		5	behalf of the County Commission, wrote to the	
6	number one, and on the environmental issues,		6	Secretary of Defense asking him that the land	02
7	number two, do an honest assessment of these		7	launch option be rejected and to consider the air	
8	issues and I'm confident that if you do, the final		8	launch targets. Today the air launch is the	
9	Environmental Impact Statement will say that to		9	preferred option and we are relieved and grateful.	03
10	testing here in the Keys is a bad idea, was a bad		10	However, we have to finish off the SEIS and to	
11	idea and always will be a bad idea. Thank you.		11	assist me in analyzing this document, I've been	
12	(Hand clapping.)		12	fortunate enough to call on a team of scientists	
13	MR. MICHAELSON: The order in which the		13	and others here in the Florida Keys who are	
14	next set of speakers has been given to me,		14	residents, who have volunteered their time and	04
15	Commissioner Shirley Freeman, Gerry Girard, and		15	expertise to examine this draft SEIS with a fine	
16	again, sometimes I can read these, Elizabeth		16	tooth comb. Their findings of this document are	
17	Cofer, Donald Lowe, Dennis Henize, Sol Rosenblatt,		17	it has many fine attributes, however, it's	
18	Wayne Hoffman and Alexander Hadden. And again, if		18	woefully lacking in evidence which leads to some	
19	you would please state your name at the beginning,		19	very strange conclusions.	05
20	we would appreciate it.		20	It falls short in consideration of the	
21	COMMISSIONER FREEMAN: Good evening, I'm		21	possible toxic damage from chemical discharge and	
22	Shirley Freeman, Monroe County Commissioner and		22	physical fallout that would affect the health and	
23	welcome to the beautiful new commission chambers		23	safety of our citizens, our sensitive environment	
24	here at the Harvey Government Center at Historic		24	which included a national marine sanctuary, and	
25	Truman School.		25	our unique tropical atmosphere.	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0006 COMMENT NUMBER			P-T-0006 COMMENT NUMBER
1	I will now introduce the team and I want		1	Citation for performance during hurricane Andrew.	
2	you guys to stand up and face the back and wave		2	Dennis will speak on the launch hazard area.	
3	when I call your names so we know who you are and		3	Sol Rosenblatt is a chemist with degrees	
4	I'll give your credentials. First is Gerry		4	in both chemistry and chemical engineering. He	
5	Girard. Mr. Girard is a retired airline captain		5	has worked on the rocket development programs and	
6	of 37 years service. He is a member of the board		6	advanced aircraft power systems for organizations	
7	of telecommunications company, and is an avid		7	such as Pratt & Whitney and NASA. He will speak	
8	outdoorsman.		8	on the nature and distribution of toxic emissions.	
9	Elizabeth Cofer is a Duke University		9	Wayne Hoffman has a master's degree in	
10	graduate with a BA in zoology and a MA degree in		10	zoology and Ph.D in biology from the University of	
11	education and has enjoyed a 20 year career as a		11	South Florida and is a research scientist for the	
12	chemistry teacher. She will speak on traffic and		12	National Audubon Society. Specializes in the	
13	transportation. I forgot to say Gerry Girard will		13	ecology of the Everglades and the Florida Keys.	
14	give general comments.		14	Alexander Hadden is a retired attorney and	
15	Donald Lowe will speak on noise and visual		15	Yale graduate and he is part of the task force	
16	aesthetics. Mr. Lowe has a MA degree in physics.		16	because of his concern for the fragile Keys	
17	He was a research manager for Bendix Aerospace		17	environment and its long term survival.	
18	Systems Division. He directed programs related to		18	Richard Moody will not talk but he	
19	ballistic missile launch and re-entry measurements		19	prepared the graphics and he also prepared	
20	and served as US Naval Ordinance Representative to		20	graphics for Congress and many other areas. And	
21	the United Kingdom.		21	Gordon West was the coordinator for the state.	
22	Dennis Henize is a meteorologist and		22	And they will now make their presentations.	
23	served in the US Air Force as a weather observer		23	(Hand clapping.)	
24	and spent 20 years as a National Weather Service		24	MR. MICHAELSON: I probably don't need to	
25	meteorologist. He was awarded the NOAA Unit		25	call you because you probably rehearsed this, but	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0007 COMMENT NUMBER			P-T-0007 COMMENT NUMBER
1	Gerry Girard, you're first.	01	1	where you live with all the vehicular traffic	06
2	GERRY GIRARD: The draft of the secondary		2	necessary for your daily existence confined to one	
3	Environmental Impact Statement is a misleading		3	road. Now add all your water supply and	
4	study of a unique environment. It's not		4	electrical power to that same, mostly two lane	
5	applicable for the Florida Keys. Monroe County is		5	road and you have the reality of our daily lives.	
6	a chain of nearly 900 islands below the Florida	02	6	Recognizing this unique environment, the	07
7	mainland. South of the Overseas Highway chain is		7	federal government, as far back as 1908 began	
8	the only easily accessible, shallow water, living		8	designating refuges in Monroe County. Today, the	
9	coral reef in the United States.		9	Great White Heron National Wildlife Refuge, the	
10	Wrapped around these islands like 250		10	Key West National Wildlife Refuge, the Crocodile	
11	square miles of low water and wild mangrove	03	11	Lake National Wildlife Refuge, and the National	08
12	islands providing a life sustaining nursery for		12	Key Deer Refuge exist here. The Key deer and the	
13	marine and bird life.		13	American crocodile exist only in the Keys.	
14	North is Florida Bay, already under		14	Superimposed over all of this is the	
15	intense scrutiny by state and federal pollution		15	federally mandated Florida Keys National Marine	
16	control experts for over a decade.	04	16	Sanctuary. Established in 1990, it covers 2,800	09
17	The ecological environment here is so		17	square miles from Biscayne National Park to the	
18	fragile, that the state of Florida has declared		18	Dry Tortugas and expressly forbids the type of	
19	Monroe County an Area of Critical State Concern.		19	activity contemplated in this draft.	
20	Our water quality, our population density, our		20	This is the only county in the continental	
21	traffic density, land use, marine resources, and	05	21	United States in a subtropical zone with	
22	even our rate of growth is severely regulated.		22	consistent high humidity. The Keys lie in the	
23	This is the only county in America		23	northern trades and enjoy the highest, daily	
24	primarily made up of islands, strung together by		24	averaged, sustained winds in the continental	
25	41 bridges, for 120 miles, with one road. Imagine		25	United States.	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0007 COMMENT NUMBER
1	There are a host of endangered marine life	10
2	attempting to make a comeback, existing in our	
3	near shore waters and around the coral reef. On	
4	the land surrounding the proposed site, the	
5	endangered silver rice rats habitat extends from	
6	Cudjoe to the Saddlebunch Keys and nowhere else.	
7	The endangered Florida marsh bunnies habitat	11
8	extends from Big Torch to Saddlebunch and is the	
9	rarest mammal in the Keys.	
10	The last remaining stands of tropical	12
11	hardwood hammocks are on Cudjoe Key and Sugarloaf	
12	Key. Pine rockland is unique in the world, a	
13	globally endangered ecosystem lying alongside the	
14	launch hazard area boundary on Sugarloaf Key.	
15	Wetlands surround both proposed sites so	13
16	that any mishap will spill directly into the	
17	marine environment affecting fish, invertebrates,	
18	and defoliating the native flora.	
19	In recent letters to Congressman Deutsch,	14
20	General Lyles, director of BMDO, state that the	
21	land launch alternative from the Florida Keys is	
22	unlikely to be approved in this final decision.	
23	Admiral West, deputy director of BMDO listed	
24	launches from this area as other alternatives	
25	being analyzed.	

1	We believe that the launching of missiles
2	in the Florida Keys should not be an alternative
3	and suggest you amend the draft to state exactly
4	that.
5	(Hand clapping.)
6	MR. MICHAELSON: Elizabeth Cofer.
7	ELIZABETH COFER: I and my friends are
8	pleased that the land missile launch from the
9	Florida Keys is no longer a preferred option.
10	However, a draft Supplemental Environmental Impact
11	Statement, which I will refer to as EIS from here
12	on, has been prepared and public hearings are
13	being held. It appears to us and others that the
14	door has been left open a bit at the present time
15	and possibly more open as to the future.
16	I think the Keys will become much less
17	desirable as a launch site in the future as our
18	traffic and environmental problems are getting
19	worse rather than better. We are already
20	designated by the state of Florida as an area of
21	critical concern. We are in a marine sanctuary
22	and a Great White Heron Wildlife Refuge. The
23	current EIS falls short of answering questions we
24	have regarding these sensitive areas, as well as
25	other concerns.

P-T-0007 COMMENT NUMBER
P-T-0008
01
02

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0008 COMMENT NUMBER			P-T-0008 COMMENT NUMBER
1	Very little information was given and	03	1	be able to be evacuated without delay? Is there	07
2	little attention paid, or so it appears, to the		2	danger of a fire or explosion while the missile is	
3	transportation of the missile from Florida City to		3	in transit in the event of a collision with	
4	the proposed launch site. US 1 is referred to as		4	another vehicle? If yes, could this damage a	08
5	the principal artery into the Keys, when it is the		5	bridge? Our bridges are our life line, among	
6	only artery. The word artery might well be		6	other things carrying our only fresh water to us.	
7	replaced by path as sometimes traffic is so heavy		7	All our utilities are vulnerable in this scenario,	
8	that it is stopped or moves at a crawl. We fear	04	8	as well as our food supply. The EIS has a	
9	that vital travel would be delayed by the missile		9	description of a fire fighting plan, but it	
10	convoy, traffic such as fire fighting equipment;		10	appears to be one for Eglin Air Force Base.	
11	emergency medical vehicles; police response and		11	Another concern is absence of a current	09
12	necessary medical travel. Our services available		12	traffic survey or study. Extrapolations are made	
13	to deal with these emergencies and others are very		13	from older studies that may well be extrapolations	
14	limited. There are two hospitals along this		14	themselves. For example, the EIS predicts that	10
15	approximately 90 mile route and all the fire		15	the traffic will be up 18 percent on Cudjoe in	
16	departments are volunteer in nature and we think		16	2005, down 9 percent on Summerland, and down 11	
17	this is a vital concern. The EIS states that	05	17	percent on Big Pine. Essentially the same traffic	
18	emergency vehicles will be let through. The		18	is on this entire stretch. And if the traffic	11
19	question then becomes how and where? The road has		19	ever goes down on Big Pine, it will be amazing as	
20	25 miles of four lane roads and 95 miles of two		20	well as a miracle. Our traffic is very heavy now	
21	lane roads. There are about 39 bridges as well		21	and getting worse every year. Over half our	
22	which will slow the passing and maybe prevent the		22	population excluding Key West centers on US 1 and	
23	passing of emergency vehicles. Has consideration	06	23	it is our only way out.	
24	been given to the special problems that might		24	One last sentence. It seemed obvious to	12
25	occur during the hurricane season? Will the Keys		25	me that the EIS is seriously flawed, inadequate	

		P-T-0009 COMMENT NUMBER			P-T-0009 COMMENT NUMBER
1	and incomplete. Thank you.	01	1	system, is derived basically -- it's derived from	05
2	(Hand clapping.)		2	land use classification and noises associated with	
3	MR. MICHAELSON: Donald Lowe.		3	land use. The areas that are residential which	
4	DONALD LOWE: Thank you. I'm Donald Lowe		4	are very yellow in here, the noise level	
5	and I will speak tonight only on two issues,	02	5	throughout the whole year is about equivalent to	
6	aesthetics and noise. For the sake of brevity,		6	what you would experience in conversation. Now	
7	I'll be discussing the Cudjoe site, but it's		7	then when we add the Hera launches it surprisingly	
8	equally valid for the Saddlebunch site.		8	doesn't change the noise level in the residential	
9	Most of the views around the proposed	03	9	areas. Why? Because you average about a 60	
10	launch sites are judged in the study to have		10	second impulse over an entire year. This reduces	
11	minimal scenic attractiveness. What can I say		11	the level a factor of over 500,000. Now, this	
12	except that beauty is in the eyes of the beholder.		12	methodology is clearly not satisfactory because I	
13	I for one love these low lying mangrove islands	04	13	can have a dynamite blast go off and blow my ear	
14	set in pristine sparkling water. That is why most		14	drums out. Since it only lasted a second, you	
15	of us live down here at the end of the earth. The		15	average it over a year, it won't even phase the	
16	report further concludes that the 40 foot tall, 90		16	residential noise. Actually, noise measurements	
17	foot long assembly building will only slightly	06	17	of a Hera launch are more helpful toward	
18	alter the scenic integrity of the area. Such a		18	understanding launch noise.	
19	building will be very dominant here in the Keys		19	And the next slide you will see that we	
20	where buildings are restricted by code to a height		20	have the rookeries identified in color there and	
21	of 35 feet.		21	the radius in the db and basically a five mile	
22	As to human reaction to noise, the study		22	radius which includes Summerland and most of	
23	averages the day night background noise level over		23	Sugarloaf. The noise level is reported and this	
24	a year period. The color figure and I'm afraid		24	is right out of your document as being 95,3db.	
25	you won't see it in color with this television		25	This is equivalent to the sound of a full speed	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0009 COMMENT NUMBER			P-T-0010 COMMENT NUMBER
1	freight train at 30 feet. Who could sleep through	06(cont)	1	to launch ballistic missiles near populated areas	01
2	that and once awakened would not listen intensely		2	in a sanctuary is far too important to be based on	
3	to determine whether or not one should dive for		3	trust me judgments. It should be based on hard,	
4	cover.		4	quantitative, scientific evidence which this study	
5	No studies were cited as to the possible	07	5	sorely lacks.	
6	psychological scarring of the residents by this	08	6	(Hand clapping.)	
7	type of disturbance. Regarding wildlife, however,		7	MR. MICHAELSON: Mr. Lowe, I just have a	
8	it is noted that at least one rookery will		8	question, are you planning on providing a copy of	
9	experience 121 db of noise, which is the threshold		9	these visual aids to put into the record?	
10	of pain in humans. The study reports that birds	09	10	DONALD LOWE: I have copies.	
11	will leave their nests but will return. The study		11	MR. MICHAELSON: Appreciate it very much.	
12	concludes that there will be no long term effects.		12	Dennis Henize.	
13	Where is the scientific evidence?		13	DENNIS HENIZE: Dennis Henize. I'm going	
14	I beg you to take the necessary steps to	10	14	to speak to the launch hazard area. For neighbors	
15	correct what I perceive to be misleading		15	within a few miles of the proposed launch sites,	
16	conclusions in the draft SEIS. The launch noise		16	safety is the most crucial issue. The original	
17	will disturb both humans and wildlife, and the		17	theater missile defense EIS cites a nominal launch	
18	exact degree will not be known without an	11	18	hazard area of 4.5 miles for the Hera missile.	
19	extensive scientific investigation. The scenic		19	When the Keys were first looked at as a launch	
20	quality and character of the site will		20	site, the Hera LHA shrunk to 9,000 feet, the	
21	dramatically change with the launch operations.		21	distance to US 1. That's when BMDO thought that	
22	The impacting costs on residents, tourism, and	12	22	nobody lived north of US 1 on Cudjoe Key. When	
23	overall quality of life have not been		23	that area was pointed out, the LHA further shrunk	
24	quantitatively analyzed to determine the true cost		24	to 6,500 feet, less than 1.25 mile and a quarter.	
25	of launching missiles from the Keys. The decision		25	I think I see a pattern emerge.	

		P-T-0010 COMMENT NUMBER			P-T-0010 COMMENT NUMBER
1	The red shaded area on the bottom of the	02	1	such failure is presented in a report published	05(cont)
2	LHA is the area carved out of the LHA because my		2	last week by David Wright, a physicist with MIT	
3	wife and I and 22 other families were found to be		3	and the Union of Concerned Scientists. It was	
4	living there.		4	recorded in Reuter's News Service yesterday.	
5	Shrinking the LHA is rationalized by a	03	5	Doctor Wright's report analyzes the 6500 foot	
6	promise to blow up an errant missile sooner if it		6	launch hazard area proposed for Cudjoe Key. The	
7	head toward us than if it goes off course in some		7	same study would also apply to the Saddlebunch	
8	other direction. There are many problems with		8	site. It describes a failure mode in which debris	
9	that, and it is no comfort. For one thing, it		9	from a flight terminated due to a particular	
10	only means a higher probability that a missile		10	directional control failure a few seconds after	
11	will have to be destroyed after launch, and for		11	launch could cause debris to land outside of the	
12	every such failed launch, there would have to be		12	LHA more than two miles from the launch site.	
13	another one. Building a higher probability of		13	Quoting the reports conclusion, "This	
14	failure into an inherently dangerous activity,		14	analysis concludes that an LHA of 1.5 miles is not	
15	simply because the site is too close to human		15	justified on technical grounds. There appear to	
16	population, shows astoundingly poor planning.	04	16	be possible malfunctions of the Hera missile that	
17	The 6500 foot launch hazard area is far		17	could result in debris outside of the 1.5 mile LHA	
18	from being prudent and conservative, and it does		18	even if the flight is terminated very early.	
19	not consider any of several worst case mishaps.		19	While the probability of such a malfunction is not	
20	It takes into account the debris dispersal for an		20	known, similar events have occurred in the recent	
21	exploding Hera on or directly above the launch		21	past. These results therefore mean that the	
22	pad, but not any of several plausible failure		22	official launch hazard area determined by the BMDO	
23	modes in which the missile moves some distance in		23	for the proposed Cudjoe Key site is too small."	
24	the wrong direction and then explodes.		24	The launch hazard area is inadequate in	06
25	A type of mishap representing just one	05	25	other respects as well. Patterns of falling	

		P-T-0010 COMMENT NUMBER			P-T-0011 COMMENT NUMBER
1	debris from an accident should not be the only	06(cont)	1	SOL ROSENBLATT: Thanks for giving me the	
2	criteria. Noise and shock waves from potential		2	opportunity to present some solid rocket emission	
3	explosions, as well as chemical clouds from		3	observations made during my three and a half years	
4	potential accidents must be considered.		4	as a solid rocket development chemist for the	
5	Your EIS acknowledges that explosions	07	5	Polaris Missile Program.	
6	could result in compression waves of two pounds		6	MR. MICHAELSON: State your name, please.	
7	per square foot overpressure, strong enough to		7	SOL ROSENBLATT: Sol Rosenblatt. For Hera	
8	cause minor structure damage as far away as 1.9		8	1.5 tons of HCl gas emitted per launch. This gas	01
9	miles. There are at least 23 homes that close.	08	9	combines in a humid or excess water environment	
10	The launch hazard area is not big enough.		10	with three tons of water, which brings down the	
11	With respect to the chemical cloud from a		11	HCl in the form of four and a half tons of HCl	
12	combustion accident, both of the dispersion models		12	acid rain. A few drops of this acid will reduce	02
13	used in the EIS's air quality sections show that		13	the PH of a gallon of water to below seven	
14	the highest concentrations of hydrogen chloride		14	instantaneously. Which author of this	
15	are outside the launch hazard area. Hydrogen		15	environmental impact statement considers himself	
16	chloride from an accident burning up the missile		16	or herself versed well enough in the chemical	
17	is a launch hazard, why is it not considered in		17	balance of our back waters, that he or she is	
18	determining the area. The launch hazard area is		18	willing to gamble that introducing four and a half	
19	not big enough. There simply is not enough		19	tons of HCl acid into this shallow environment,	03
20	wide-open space anywhere in the Keys for a launch		20	for each launch, will not cause a deleterious	
21	hazard area that takes into account the very		21	chain reaction? This fragile environment where we	
22	launch hazards that are acknowledged in your EIS.		22	are still are trying to learn the reason for our	
23	Thank you.		23	reefs mysterious dying off at the rate of between	04
24	(Hand clapping.)		24	four and ten percent per year.	
25	MR. MICHAELSON: Sol Rosenblatt.		25	The claim is made that only 20 percent of	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0011 COMMENT NUMBER			P-T-0011 COMMENT NUMBER
1	the HCl in the presence of water combines to form	05	1	hydrochloric acid droplets sufficiently cool to	07(cont)
2	hydrochloric acids. What happens to the 80		2	coalesce to a weight where they fall as	
3	percent balance? Could it be that only 20 percent		3	hydrochloric acid rain. This cloud, also	
4	was detected because there was an assumption that		4	containing very fine aluminum oxide particles	
5	the water produced by the combustion was the		5	sticks around, like a smoke cloud does after a	
6	limiting water available for combining with the	06	6	fireworks display, and moves as a unit, without	08
7	HCl. That at the temperature of the exhaust, only		7	easily dispersing.	
8	a certain amount of water was available. That the		8	Since most of the rocket fuel is burned at	
9	low desert humidity at Fort Wingate, New Mexico		9	the beginning of a launch, and the rockets	
10	limited the water available, and altered readings.		10	acceleration is slowest at the beginning, we can	
11	The fact is that in the presence of excess water	07	11	expect most of the HCl content of the propellants	09
12	or high humidity at standard temperatures and		12	exhaust gases to fall closer to the launch site,	
13	pressures, all the HCl gas combines with water.		13	rather than average along its path of trajectory.	
14	The claim that HCl and/or hydrochloric		14	Unburned propellant. The toxicological	
15	acid clouds easily mix with the air and disperse.		15	effect of unburned solid rocket propellant must be	
16	Warm updrafts are produced by the exothermic		16	addressed, if the rocket chamber accidentally or	10
17	reaction of gaseous HCl and moist air, plus the		17	is purposefully destroyed, allowing unburned	
18	updraft caused by the combustion of the		18	propellant and engine fragments to enter into our	
19	propellant. Both will cause the exhaust trail to		19	surrounding shallow waters. A documented event	
20	rise and form an HCl containing cloud in a humid		20	describing such an occurrence was the failure of	
21	environment of slow moving air. In addition,		21	Oriana 5 launched by the European satellite	
22	there will be an updraft due to the heat of		22	consortium in French Guyana. The slow moving	
23	condensation, as HCl acid vapor condenses into		23	saltwater lagoon surrounding these islands is not	
24	larger droplets giving up its heat of		24	too unlike our shallow saltwater surrounding	
25	vaporization, adding to the updraft, until the		25	islands. It was reported by observers in the	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0011 COMMENT NUMBER			P-T-0012 COMMENT NUMBER
1	launch area, that the launch hazard area was	11	1	launches from the Keys are not currently the	02
2	toxicologically damaged, as indicated by a change		2	preferred alternative. I'm happy about this, but	
3	in the water color, absence of fish, and loss of		3	still, I find the documentation of the risk of	
4	plant life.		4	this alternative, preferred or not, to our	
5	Solid rocket propellant is more than 80		5	environment to be woefully inadequate. I believe	
6	percent ammonium perchlorate, a very powerful		6	it is important that the final EIS either rule out	
7	oxidizer, bound in a contiguous coating of a		7	this alternative completely, or else provide	
8	polymeric binder. This is not a continuous		8	accurate and comprehensive information on its	
9	encapsulating coating as the report implies, but a		9	effects on our environment.	
10	contiguous coating, which means lots of gaps		10	I will confine my remarks today to the	
11	surrounding the oxidizer.		11	potential effects of proposed missile launches on	
12	MR. MICHAELSON: Sol, if you looked, I had	P-T-0012	12	the natural biota of the Keys. My general message	03
13	my one minute finger indicator up for about a		13	is the draft EIS consistently underestimates the	
14	minute. Sol, your time is up now.		14	damage to the wildlife and plants of the Keys	
15	(Hand clapping.)		15	likely to result from this proposed project. And	
16	MR. MICHAELSON: Mr. Rosenblatt, any		16	I have a series of specifics. First, on page	
17	remarks you had that you weren't able to finish,		17	3-260 tables 3.2.3-1, 3.2.3-2 are so inadequate	
18	please hand those in and they will be entered into		18	that their inclusion in the document is puzzling.	
19	the record. Thank you. Wayne Hoffman.		19	In the text they are referred to, and I quote	
20	WAYNE HOFFMAN: Thank you. Thank you.		20	"Other fish present in the Gulf of Mexico are	
21	I'm Wayne Hoffman, research scientist with the		21	listed in the tables as listed." These tables	
22	National Audubon Society, based in Tavernier.		22	list ten species and nine species of fish species,	
23	I've been a resident of the Florida Keys for over	23	respectively. In fact, the northern Gulf of		
24	11 years, and have undertaken a variety of studies	24	Mexico has over 400 resident fish species, and we		
25	of Keys animals and plants. I understand that	01	25	have numerous additional one's here in the Keys	

		P-T-0012 COMMENT NUMBER			P-T-0012 COMMENT NUMBER
1	that don't occur in the northern Gulf of Mexico.	04	1	of Florida has added numerous Keys species to its	07
2	So I don't really understand the point in putting		2	endangered and threatened plant species list. It	
3	tables of listing ten and nine species in there.		3	appears these new listing were not considered in	
4	Number two. On pages 372 and 373, the		4	developing the table which is 3.3.3-1 on page	
5	description of the vegetation of the Cudjoe region		5	3-375.	
6	of influence is inadequate. In particular, the		6	Five. The birds listed in the text on	
7	statements about the pinelands fail to recognize		7	pages 3-373 and 3-375 are grossly inadequate in	
8	that these tropical pinelands are significant		8	describing the importance of the region of	
9	threatened habitats, very different from the		9	influence to migratory birds and wildlife. This	
10	pinelands that dominate much of the temperate		10	is for Cudjoe. Numerous additional species use	
11	southeast. About the only thing these pinelands		11	the area. In fact, the small keys just north of	
12	have in common with the pinelands on Eglin Air		12	the Aerostat base, within about one kilometer of	
13	Force Base is the presence of a pine dominated		13	ground zero, host an important nesting	
14	canopy. I find it puzzling that palms are not		14	concentration of Reddish Egrets, as well as Great	
15	mentioned as understory components, and the nature		15	White Herons and several other waterbird species.	
16	of the herbaceous understory is not even hinted		16	Whitecrowned pigeon also nests commonly in the	
17	at.		17	region of influence including areas quite close to	
18	Three. Several of the sites proposed for	05	18	the proposed launch sites.	08
19	facilities are described as "already disturbed"		19	MR. MICHAELSON: You have 20 seconds.	
20	with no further description of their vegetation.		20	WAYNE HOFFMAN: I will then skip to a	
21	This dismissal ignores the fact that several of		21	final comment that in addition to these problems	
22	the endangered plants of the Keys are inhabitants		22	that I'm -- or inadequacies I will send to you, a	
23	of open sites, including fire maintained habitats,		23	different sort of subject is that the described	
24	salt barren habitats, and disturbed sites.		24	effects on biota deal almost exclusively with	
25	Four. Over the last two years the state		25	normal launch activity. We also need an analysis	
		06			

		P-T-0013 COMMENT NUMBER			P-T-0013 COMMENT NUMBER
1	of the effects of any and all possible accidents.	01	1	seems to us to highlight the document's lack of	05
2	(Hand clapping.)		2	objectivity. Also, more detail is needed on the	
3	MR. MICHAELSON: Alexander Hadden.		3	timing of the trigger mechanism in the event of an	
4	ALEXANDER HADDEN: My name is Alexander		4	accidental firing in the direction of a populated	
5	Hadden. I'm a retired attorney. My comments this	02	5	area.	06
6	evening are intended as a summary of the views		6	The SEIS likewise fails to explain why the	
7	presented by this task force. The focus of the		7	launch site here should be so much closer to	
8	task force has been to assess how well the draft		8	populated areas than it is at other sites. There	
9	SEIS portrays the impact on the Keys of launching	03	9	is no other US missile test site that is nearly so	07
10	target missiles here. We find the document as it		10	close. The launch sites in northern Florida, for	
11	stands to be incomplete, superficial and in some		11	example, will be from platforms 5 to 13 miles	
12	respects distorted.		12	offshore of Eglin Air Force Base. Are there	
13	Our first concern is human health and	04	13	special circumstances that might justify a	08
14	safety. Nowhere in this SEIS is there any focus		14	departure in the Keys from the safety precautions	
15	on the possibility of serious accident. It		15	proposed there? If so, the SEIS fails to mention	
16	neither quantifies or mentions the possibility		16	them.	
17	that human error, or a combination of such factors	05	17	The second concern is the environment.	09
18	might result in a destructive distribution of		18	The analysis understates the potential impact of	
19	debris or toxic emissions beyond the launch hazard		19	introducing large quantities and of hydrochloric	
20	area.		20	acid into this region of high humidity and shallow	
21	Of particular concern is the extremely	06	21	sea water, and it fails to focus at all on the	10
22	short distance from the launch site to the edge of		22	consequences of such imposition on the fragile	
23	the LHA on its populated side. The fashion in		23	alkaline environment of the Keys.	
24	which the LHA has been magically shrunk when it		24	The third concern is transportation. The	
25	was discovered that it included settled areas		25	Overseas Highway is the sole conduit for	

		P-T-0013			P-T-0013
		COMMENT			COMMENT
		NUMBER			NUMBER
1	automobile traffic, drinking water, electric		1	harder and deeper into these real risks and find	
2	power, hospital, medical services, food and every		2	ways to treat them that would be both more	
3	other vital service required by our entire		3	detailed and a lot more convincing. Thank you.	
4	population. The impact of the missile proposal on		4	(Hand clapping.)	
5	this lifeline corridor is not addressed at all in	11	5	MAJOR KENNEDY: I'd like to make a	
6	the draft SEIS. What would be the effect of this		6	clarification, please. I would like to remind	
7	heavy new traffic burden on normal and essential	12	7	people that the offshore platforms that are	
8	traffic patterns? And God forbid there should be	13	8	proposed are also in the other alternatives	
9	an accident that takes out a bridge, for example,		9	considered category very similar to the Keys	
10	but should there not be some contingency planning		10	launch sites. They are not proposed to be the	
11	that would take such possibilities into account?		11	preferred alternative that the Director of	
12	In conclusion, there is a very real	14	12	Ballistic Missile Defense Organization is looking	
13	possibility of the failure of a missile launch.		13	at. The preferred alternative, as far as the	
14	We can conceive of no other rural location in the		14	northern target launch sites go, are land based	
15	United States where the consequences of such an		15	target launch sites and on Cudjoe Key -- not on	
16	accident could be more devastating. Such a		16	Cudjoe Key, on Santa Rosa Island and Cape San Blas	
17	failure could result in the dispersal of flammable	15	17	and the launch site at Santa Rosa Island is	
18	and toxic materials and chunks of missile hardware		18	actually 7,000 feet from the nearest home.	
19	into areas where people live, or involve the		19	MR. MICHAELSON: Next speaker is R. L.	
20	accidental explosion of a missile being		20	Blazevic.	
21	transported on US 1. It is not enough to say that		21	R. L. BLAZEVIC: The missile testing has	P-T-0014
22	the chances of such events happening in the Keys		22	caused me to consider the safety of my family, the	
23	are minimal. Disasters of this sort have happened		23	residents, their children, and damage to our	
24	and they could happen here.	16	24	environment. Even with the aircraft launching	
25	We hope that the final SEIS will look much	17	25	there has been much exaggerated propaganda about	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0014 COMMENT NUMBER			P-T-0014 COMMENT NUMBER
1	possible danger in the necessary testing. I have	01	1	accidents occur on take-offs and landings. The	05
2	lived in the Keys for 40 years and have three		2	high school was built at the end of the runway 25	
3	daughter's and four grandson's who live here. The		3	years after the airport was built. With the	
4	county and city leaders are responsible for		4	extreme everyday danger, why hasn't the public	
5	dealing with facts rather than emotional comments	02	5	insisted that a deteriorating high school be moved	06
6	of those who twist and exaggerate the risks		6	to a safer area. This is far more dangerous than	
7	involved.		7	the Sugarloaf school location. The long term	
8	The two volumes of the 800 page		8	exposure of the toxic dump that the Poinciana	
9	environmental study indicates extreme attention to	03	9	School and Kennedy Drive Sports Complex are built	07
10	detail and extraordinary effort to consider every		10	on has been ignored.	
11	possible factor to insure safety. It contains		11	Constant vigilance makes it imperative	
12	many important facts about the Florida Keys. Many		12	that we continually test all new weapons as they	
13	residents are not considering the extreme danger	04	13	are developed to protect the men and women who	08
14	that we are exposed to everyday that's much more		14	have no control of where they are sent to protect	
15	hazardous than an occasional missile launch. The		15	our interest.	
16	constant exposure to injury and death on Highway		16	I was in high school in World War II and	09
17	One from speeders, illegal passing, careless	04	17	was drafted into naval aviation. The continual	
18	driver's and the huge explosive gasoline trucks		18	testing insured my survival in the Korean and Viet	
19	which continues 24 hours a day, seven days a week.		19	Nam wars. Having survived an aircraft explosion	
20	This is not 100 times, 1,000 times, but 10,000	04	20	from an aircraft fire, small arms sniping, being	10
21	times more dangerous than periodic launches.		21	strafed and bombed gives me a much better	
22	More than 50 passenger aircraft that are		22	perspective than those that have never been there.	
23	fuel laden, potential bombs over crowded		23	Our greatest and continual national danger	
24	classrooms occur each day as aircraft pass low		24	and tragedy is that we have lost more young people	
25	over the high school. Ninety percent of aircraft		25	to drugs than to wars. The exaggerated	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0014 COMMENT NUMBER			P-T-0014 COMMENT NUMBER
1	environmental damage is nothing compared to what	11	1	Mention has been made of noise impacts,	18
2	residents and tourists have done everyday to the		2	but I have 65 decibels from aircraft through the	
3	Keys. The reef is much destroyed. Sears and		3	front and back windows 18 hours a day and seven	
4	Overseas Market were saltwater ponds with fish and	12	4	days a week, but they are not going to close the	19
5	mangrove shorelines, which are now toxic parking	13	5	airport.	
6	lots. Big Pine Key had four buildings on the		6	MR. MICHAELSON: Mr. Blazevic, your time	
7	highway, less than 50 residents, no stores. Where		7	is up.	20
8	were all the objections while all the	14	8	R. L. BLAZEVIC: One last sentence. I	
9	environmental destruction was going on with the		9	well understand the unjustified fears of those who	
10	bulldozing of entire areas and the thousands of		10	oppose the missile testing. I do not resent the	20
11	contaminated cesspits were being installed. The	15	11	newcomer's or tourists who have helped to	
12	residents avoid the responsibility waiting for		12	deteriorate the quality of life in the Keys.	
13	federal grants to replace the cesspits because		13	Essential testing has to be in someone's immediate	20
14	they want a newer car and boat. Residents fail to	16	14	area and to accept this responsibility is a mature	
15	protest the two yacht club septic tanks at		15	response to a national need.	
16	Garrison Bight. The cesspits on Hilton Haven and		16	MR. MICHAELSON: As I requested people, if	20
17	the sewage injection well at the Garrison Bight	17	17	you wouldn't mind turning in your written comments	
18	entrance. The city dumps ten million gallons of		18	for anything you weren't able to get on record.	
19	sewage everyday into the channel and the tide		19	Thank you very much.	20
20	brings it back twice a day for us to swim in. The	17	20	(Hand clapping.)	
21	sewage plant on Stock Island dumps their sewage		21	MR. MICHAELSON: Next speaker -- we	
22	into the freshwater ponds on the city golf course.		22	generally try to take a break about every 90	20
23	I live on a canal in Key West that is	17	23	minutes for the court reporter. She says she is	
24	sewage polluted and is used for stormwater runoff,		24	doing fine, so let's try and get some more. The	
25	despite the enforceable clean water act of 1995.		25	next names I have up here are Bill Seese, David	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0015 COMMENT NUMBER			P-T-0015 COMMENT NUMBER
1	Musselman, Lizzy Poole, R. C. Smith and Vicki	01	1	rice rat, lower Keys marsh rabbit, transient Key	04
2	Weeks. Bill Seese.		2	deer, bald eagles, eastern indigo snake, and all	
3	BILL SEESE: I'm Bill Seese. I'm a Refuge		3	of which exists within the launch hazard area on	
4	Operations Specialist with the Florida Keys		4	both Cudjoe and Sugarloaf.	
5	National Wildlife Refuges and I'm here to		5	Number two, a thorough evaluation of the	
6	introduce into the record written comments from		6	effects of prelaunch and launch activities on	
7	the U.S. Fish and Wildlife Service, including the		7	shore bird and wading bird rookeries the LHA will	
8	Florida Key Refuge Office, the South Florida Field		8	have when nesting birds take flight in response to	
9	Office in Vero Beach and the Panama City Field		9	prelaunch activities they leave their nest exposed	
10	Office.		10	to predators and the elements. Flushing birds	
11	Tonight I only want to touch on a few of	02	11	unnecessarily also expands valuable energy that	05
12	the more pertinent points from this record		12	may otherwise be used for hunting, foraging or	
13	concerning the Florida Keys proposed alternative.		13	maintenance.	
14	However, it is the final recommendation the		14	Number three, the proposed actions are	
15	Florida Keys be eliminated from consideration as		15	inconsistent with the Congressional delegation of	
16	an alternative launch site for target missiles in		16	the wilderness areas for about 2200 acres in Great	
17	the Eglin Gulf Test Range.		17	White Heron National Wildlife Refuge and about	
18	With respect to the draft proposal, there		18	1900 acres in the National Key Deer Refuge,	
19	are a number of deficiencies regarding the		19	respectively. By definition to the Wilderness Act	
20	potential effects to federal trust resources, land		20	of 1964, wilderness areas are federal lands	06
21	management responsibilities and human health and	03	21	retaining its peripheral character and influence	
22	the environment.		22	which is protected and managed so as to preserve	
23	Some of these include: Number one, a		23	its natural conditions such that if one generally	
24	thorough evaluation of the effects of prelaunch		24	appears to have been affected by the force of	
25	and launch activities on populations of the silver		25	nature with the imprint of man's work	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0015 COMMENT NUMBER			P-T-0016 COMMENT NUMBER
1	substantially unnoticeable.	07	1	I will submit our draft in writing.	01
2	Two, has outstanding opportunity for		2	(Hand clapping.)	
3	solitude or primitive or unconfined type of		3	MR. MICHAELSON: David Musselman.	
4	recreation.		4	DAVID MUSSELMAN: My name is David	
5	Number four, there needs to be a fair	08	5	Musselman. I'll try to continue with Sol	02
6	evaluation of the proposed action with respect to		6	Rosenblatt's environmental discussion since he ran	
7	visual pollution of the wilderness areas, the		7	out of time. I think we almost all run out of	
8	impact on wilderness solitude and recreational		8	time. We can't possibly comment on a book that	
9	economic impact of highly desired wilderness	09	9	big in four minutes, and I'm just going to briefly	03
10	experience.		10	summarize what Sol was trying to say. He was	
11	In conclusion, after reviewing the draft		11	going to tell you about the chemical ammonium	
12	documents, we remain concerned with potential		12	prochlorate in the waters is like a time released	
13	adverse effects of the proposed action. As a	10	13	capsule of poison. It is a toxin and the binder	
14	cooperating federal agency and a need for process,		14	that holds it does not completely cover it and so	
15	we have attempted to identify gaps in the		15	even your own studies show it does leach out. To	
16	information provided, as well as note any		16	counter that danger you've cited a quotation from	
17	inaccuracies. As such, the preliminary draft is		17	the Department of Sanitation in Russia and Sol	
18	incomplete in its current form. At the same time,		18	says the Russians maintain and tolerate the most	
19	we do not believe that the adverse effects of		19	toxic chemical and nuclear dumps in the world. I	
20	launching target missiles from Florida Keys such		20	don't think they should be trusted.	
21	as noise impacts to nesting baby fauna can be the		21	The next point was the Air Force only	
22	reduced.		22	considered mechanical energy of impacts of the	
23	Finally, it is the recommendation of the		23	fragments and accompanying shock waves of a	
24	Fish and Wildlife Service to completely remove		24	destroyed rocket on the fish and mammals in the	
25	from consideration the Florida Keys alternative.		25	vicinity and not the toxic impact of these	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0016 COMMENT NUMBER
1	chemicals which would be a continuation of what he	04
2	just said there. And sorry, I'm really having to	
3	skim over what Sol had. He also mentioned that	
4	you've never measured the flow in our back water	
5	lagoons, cul de sacs and shallow grass banks and	05
6	I'm going to get into that in my own statement	
7	which I'll start now.	
8	But so that I don't run out of time, I'm	
9	going to start at the back and basically what I	06
10	did was I went through the document probably too	
11	many times. But in your own words you had	
12	summaries and these are quotes taken out of the	
13	document. Says normal target launch operations	07
14	may result in the release of airborne exhaust	
15	products which may adversely effect the health of	
16	persons in the immediate vicinity of a launch	
17	site. Also, during target launch operations there	08
18	is a potential for a launch mishap which results	
19	in explosion or a whole body impact or debris	
20	impact. Launch operations present non	
21	occupational safety and health issues. Another	09
22	quote, potential safety impacts for all	
23	environmental resources were evaluated for both	
24	normal inceptor and target test flights for a	
25	various of mishaps where normal test flight	10

		P-T-0016 COMMENT NUMBER
1	activity would also be impacted would be	08
2	negligible with no visual, ecological or human	
3	health risk. The increased risk to the general	
4	public due to mishaps would be negligible.	
5	Another quote, it's possible that some of	09
6	the natural resources required for and this is	
7	kind of important, this is real important, it's	
8	possible some of the natural resources required	
9	for the operation of the program may be restored	10
10	to their preprogrammed condition. The program	
11	would not generate -- excuse me, would not	
12	generally involve the use of resources to such an	
13	extent they would become fully consumed or	11
14	destroyed. As a result of potential irreversible	
15	and irretrievable commitments of resources would	
16	be very limited. And I'm going to emphasize this	
17	point, would occur only for certain biological and	12
18	cultural resources.	
19	Let's see if I can just hit a couple other	
20	things. Hydrogen chloride will dissolve in water	
21	to form hydrochloric acid. It is a strong acid.	13
22	It is not uncommon for neighborhoods or even	
23	entire towns to require evacuation during a spill.	
24	The concentration levels below the threshold for	
25	smelling hydrochloric acid can cause sneezing,	14

1 laryngitis. Hydrochloric acid is toxic to plants 2 causing internal damage, as well as leaf damage. 3 And I'll just close with the tests that 4 were done that talked about the -- Sol mentioned 5 the 80 percent of hydrogen chloride that 6 supposedly wasn't converted to hydrochloric acid. 7 And basically, the reason or the tests that were 8 done, all the empirical data that was gathered was 9 done in a desert, in two different deserts; one in 10 Utah and I can't remember where the other one is. 11 Thank you very much. 12 (Hand clapping.) 13 MR. MICHAELSON: Lizzy Poole, please. 14 LIZZY POOLE: My name is Lizzy Poole. I 15 live on Cudjoe Key. I represent the Womens 16 International League for Peace and Freedom. Our 17 organization has had both men and women members 18 for many years. We're one of the oldest peace 19 organizations in the world. I spent quite a bit 20 of time, at least two weeks or more looking for 21 something intelligent to say about this foolish 22 idea and I didn't find anything really intelligent 23 to say about this foolish idea that hasn't already 24 been said to you before this EIS statement was 25 prepared, but was left out of it.	P-T-0016 COMMENT NUMBER

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0018 COMMENT NUMBER			P-T-0019 COMMENT NUMBER
1	is to be seriously questioned, seriously.	03	1	MR. MICHAELSON: We have to be consistent,	01
2	This idea is inherently wrong.		2	you have four minutes as an individual.	
3	MR. MICHAELSON: Excuse me. If you would		3	VICKI WEEKS: Then I will begin with mine.	
4	hold your comments, I want the court reporter to		4	MR. MICHAELSON: Again, if they are	
5	be able to hear what you are saying.		5	written comments, they will be entered into the	
6	R. C. SMITH: This is inherently wrong.		6	record.	
7	Who in the world ever put somebody up in front of		7	VICKI WEEKS: I sort of wanted to address	02
8	us to decide that they were going to launch		8	the letter that was written by Lieutenant General	
9	missiles out of our Keys. I don't understand it.		9	Lester Lyles to Peter Deutch on November 24th,	
10	Where did they get the right? Who gave it to		10	1998. And in it, General Lyles wrote, "The Keys	
11	them? How did this come about? I don't know. I		11	target launch sites are a technically viable	
12	will tell you one thing that you're not taking		12	alternative and will still be under consideration	
13	into account in this environmental impact study		13	in the Supplemental EIS. However, Keys target	
14	and that is the fact that we are going to put a		14	launch sites are no longer part of the proposed	
15	big hurt on you guys if you try to do this.		15	action. The Keys and sea launch target launch	
16	That's one thing you're not considering. If you		16	alternatives are unlikely to be approved in my	
17	think the 60's were bad, wait and just see what		17	final decision, emphasis, unless operational and	
18	happens here. That's all I got to say.		18	testing requirements change." He also wrote,	
19	(Hand clapping.)	19	"only in an emergency threatening our national		
20	MR. MICHAELSON: Vicki Weeks.	20	security would I consider changing the proposed		
21	VICKI WEEKS: When I registered I had been	21	action", referencing his decision to establish a		
22	asked by two organizations to read something into	22	new proposed action stating that the launching		
23	the record for them, as well as I registered for	23	targets from the southern Gulf would be from		
24	myself. I timed it and it was about five and a	24	aircraft.		
25	half minutes.	25	It is not that I doubt Lieutenant General	04	
		P-T-0019			

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0019 COMMENT NUMBER			P-T-0019 COMMENT NUMBER
1	Lyles sincerity, but it is precisely this type of	05	1	on the federal threatened or endangered list, all	07
2	statement which I have heard expressed in a number		2	within a five mile radius of the proposed missile	
3	of forums, from a number of personnel involved in		3	site. In an area whose economy is directly based	
4	this process that I find unsettling. Perhaps we		4	on natural resource based tourism, the loss of	08
5	can call it the Watergate syndrome, or maybe the		5	even one of these species would be unfortunate in	
6	Ollie North Iran Contra syndrome, or maybe just a		6	deed.	
7	little healthy skepticism that has derived from		7	Even if there is never an accident or	09
8	any one of a number of other questionable		8	misfiring, the toxic by-products released into the	
9	government actions that occurred under the aegis		9	air and waters surrounding the proposed sites,	
10	of national security concerns.		10	have absolutely no potential upside with regard to	10
11	As we evolve away from a cold war	06	11	the health of our fragile environment. They may	
12	mentality and economy, perhaps it's time we begin		12	cumulatively act to push one or more species over	
13	working on a definition of national security that		13	the brink of extinction. Neither our environment	11
14	lends more weight to the stability and economic		14	nor our economy can afford a further loss of	
15	impact generated by long term sustainable resource		15	diversity and a resulting ecological imbalance.	
16	utilization than to the theatrics of the latest,		16	I would ask that you move to permanently	12
17	formerly in favor, currently out of favor, arms		17	remove the Florida Keys from any future proposed	
18	industry customer.		18	action regarding the establishment of missile test	
19	According to the data compiled by the		19	sites. That was my comment.	
20	Natural Heritage Data Base for the Nature		20	The other comment is from the National	
21	Conservancy, there are 13 animals listed as of		21	Marine Sanctuary Advisory Council on which I sit	
22	state special state concern, 11 animals and 1		22	as the representative of the dive industry. And	
23	plant on the state threatened species list, 7		23	their resolution was passed March 12th, 1998, and	
24	animals and 27 plants on the state endangered		24	they have sent a formal request asking the	
25	species list, as well as 11 animals and one plant		25	sanctuary managers to request that the United	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0019			P-T-0020
		COMMENT			COMMENT
		NUMBER			NUMBER
1	States Department of Defense to abandon all	13	1	reporter's fingers don't go that fast. Tina	01
2	proposed or contemplated plans for future		2	Henize is next.	
3	launching of test missiles from land sites in the		3	TINA HENIZE: My name is Tina Henize and I	
4	Florida Keys or waters within the boundaries of		4	live on Cudjoe Acres subdivision just outside the	
5	the Florida Keys National Marine Sanctuary.		5	magic shrinking launch hazard area. The magic	02
6	This action must take place prior to the		6	shrinking launch hazard area that is pretty	
7	April 3rd, 1998, when the comment period for the		7	significant. It would be very easy and quite a	
8	impact statement closes.		8	bit of fun if we weren't already tired of the	
9	The final comment was from PADI Worldwide,		9	subject of missiles to take pot shots at this	03
10	which is the largest agency certifying divers in		10	draft EIS. We could point out its brilliant	
11	the world. On behalf of the Florida based		11	finding such as on page 3-424, which says the	
12	recreational diving community of dive centers and		12	mainland portion of Monroe County includes the	
13	instructor members of the Professional Association		13	Everglades National Park, Big Cypress National	04
14	of Dive Instructors, I wish to express our		14	Preserve, and the City of Miami. We could make a	
15	official opposition to the proposed Hera class		15	lengthy list of other sloppy typos and other	
16	ballistic missile launch sites on Saddlebunch and		16	sloppy rubber stamp errors and geographical slips.	
17	Cudjoe Keys, which are on the edge of the Great		17	But the scariest part of this draft EIS is the	
18	White Heron National Wildlife Refuge and pose a		18	conclusions that it draws. That all the	
19	negative environmental impact to the area. We		19	environmental impact statements from air quality,	
20	request the project be re-examined in this context		20	to noise, to human safety, to visual aesthetics,	
21	and find an alternate solution.		21	to emission effects on wetlands, to harassing and	
22	(Hand clapping.)		22	killing wildlife, to denying citizens access to	
23	MR. MICHAELSON: That was Vicki Weeks that		23	public lands and water, that all these impacts are	
24	spoke. At some point you have to resist some of		24	negligible. These conclusions are based on very	
25	the temptation to speak so fast because the court		25	faulty and pathetically incomplete study.	

		P-T-0020 COMMENT NUMBER			P-T-0020 COMMENT NUMBER
1	There are numerous references to effects	05	1	animals known to be in the vicinity and then	10
2	being temporary and of short duration, as if that		2	essentially say, we're going to kill some of the	
3	makes them okay. Gun fire is of short duration		3	plants and animals and we don't really know how	
4	too, but we go out of our way to prevent it.		4	many, but it doesn't matter because it's	
5	Accidental explosions and other mishaps are of		5	infrequent and of short duration.	
6	short duration. No matter how small, the	06	6	One last point the EIS states about	11
7	probability of a catastrophic accident, basic		7	ambient noise on Cudjoe being affected by aircraft	
8	precautions such as very conservative distances		8	from NAS and Key West Airport. It fails to	
9	between the people and missile launches, basic		9	recognize that north Cudjoe rarely has aircraft	
10	cautions need to consider improbable accidents.		10	because of the restricted air space of the	
11	Catastrophic failures of missiles do happen from	07	11	Aerostat station.	12
12	time to time and chopping off pieces of the LHA		12	We certainly appreciate the consideration	
13	because there are families living there does not		13	General Lyles gave to the issue of launching	
14	make the improbable impossible.		14	missiles from the Keys and we are grateful to his	
15	Biological concerns across the board are		15	decision to set aside the Keys option as	
16	dismissed here as negligible. Without adequate	08	16	preferred. However, the draft EIS reports to have	13
17	study of the Keys ecosystems, endangered species		17	satisfactorily answered all environmental and	
18	are endangered for a reason. They are rare. They		18	safety concerns, which it definitely does not.	
19	are already stressed for various reasons, and as		19	The draft EIS, with respect to many issues of	
20	an endangered species, they are sensitive to small		20	safety and environment is obviously inadequate.	
21	environmental changes.	09	21	It contains erroneous and incomplete information	14
22	The draft EIS does not show that any		22	and barely scratches the surface on issues related	
23	detailed study was done of any Keys ecosystem.		23	to ecosystems in the Keys.	
24	With the help of cooperating agencies and other		24	We strongly recommend the portions of	
25	sources the EIS authors list species of plants and		25	theater missile defense draft EIS which applies to	

		P-T-0020			P-T-0021	
		COMMENT			COMMENT	
		NUMBER			NUMBER	
1	land launches from the Florida Keys be deleted	15		1	05	
2	entirely. The problem of potential launch sites			2		missile but dismissed it as some typical jargon.
3	in the Keys being too close to human population			3		Also in this study you say that the
4	can never be overcome and nothing could mitigate			4		potential for beneficial impacts that may occur as
5	environmental damage from routine missile			5		a result of a reduction of fishing activity and
6	launches, much less potential severe damage from			6		harvest associated with fishing area closures
7	mishaps.			7		during missile testing. Basically, you're doing
8	(Hand clapping.)		8	us a favor.		
9	MR. MICHAELSON: Dale Zachariah.	P-T-0021		9	06	
10	DALE ZACHARIAH: Hello. Dale Zachariah.		10	problem with the Scud missile attacks in the Gulf		
11	I read your impact study. There seems to have	01	11	War is we didn't know where they were coming from,		
12	been some misrepresentations. I read 12 launches		12	we didn't know where they were going, and we		
13	a year, one a month, but the study says at least		13	didn't know when. These missiles launches do not		
14	24 a year, two a month. Chapter 261, your map of	02	14	answer those questions. Hitting Scud missiles is		
15	south Florida showing environmental concerns. The		15	not the problem. President Bush said we hit 40,		
16	Keys show none. No sea turtle nests, no salt		16	43 Scuds with a 93 percent kill ratio, but this		
17	water marshes, no sea grass beds, no eagle nests,		17	arms industry encourages a magnified view of the		
18	no mangroves, no aquatic preserves, and a black		18	threat in order to justify its record climbing		
19	string bean for coral reef from Big Pine to Key		19	defense. It receives the support of the military	08	
20	West and no more. I don't believe that's		20	bureaucracy in relationship of mutual support		
21	accurate. Also the land missile seems to get	03	21	between government and industry with serious		
22	equal billing as your target of choice for the		22	distortions and shared deception of our need for		
23	land missile with its liquid propellant and		23	these missiles.		
24	diametrical (phonetic) hydrazine and inhibited		24	(Hand clapping.)		
25	nitric acid. The study briefly said what would	04	25	MAJOR KENNEDY: I'd like to make one		

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0021			P-T-0022
		COMMENT NUMBER			COMMENT NUMBER
1	clarification. The Lance missile is not proposed		1	MARK SIMMS: My name is Mark Simms. I'm	01
2	for launch from the Keys.		2	here as a concerned citizen. My wife Amy Simms is	
3	MR. MICHAELSON: It is right up at nine		3	also here because she is concerned as well. I am	
4	o'clock and we have to take an occasional break		4	here as a democrat, small D, Shirley, small D and	
5	for the court reporter. We are approximately		5	I regard myself as a patriot. My wife and I are	
6	halfway through the list of speakers, so we're		6	year round Monroe County residents. We are	
7	going to take a ten minute break and we will		7	homeowners in this community and I'm particularly	
8	return and take the rest of your comments.		8	proud to say that I served on active duty in the	
9	(Recess.)		9	United States Air Force as a captain from 1988	
10	MR. MICHAELSON: Please take your seats.		10	till 1996. I had the pleasure of serving as a	
11	We will try and get the second section started		11	judge advocate. Among my duty assignments at	
12	here. Our speaker is ready, we're ready. If you		12	Patrick Air Force Base, which served as a support	
13	want to continue your conversations, if you would		13	facility for the Kennedy Space Center, I had	
14	please take them out of this room. Thank you very		14	exposure to missile issues there.	
15	much. Actually, it was coming through, it's just		15	I would also say that when I was serving	02
16	a lot of background noise. We're ready. I'm		16	at Travis Air Force Base, California, I was sent	
17	going to again read a list of speakers, the next		17	by the Air Force to a course on how to write EIS	
18	four or five, so you can be ready to come up and		18	and other documents in order to comply with the	
19	know where you are in the order. First person up		19	NEBA (phonetic) and I hope that my comments are	
20	is Mark Simms. He will be followed by Joel		20	taken in the spirit in which I intend them.	
21	Biddle, then Shelley Francis, then Malcolm Pike,		21	I intend to speak plainly this evening. I	
22	Ralph Gouldy and that will be the first five.		22	love my country, I enjoyed my experience in the	
23	Mr. Simms, again, if you would just remember to		23	Air Force, but I will say, with all due respect,	
24	state your name at the beginning, I would		24	that launching missiles from these Keys is a bad	
25	appreciate it.		25	and stupid idea. You don't need a million dollar	03

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0022 COMMENT NUMBER			P-T-0022 COMMENT NUMBER
1	study, an EIS analysis or scientific testimony to	04	1	I would remind the people here that we are	07
2	know that this is a bad and stupid idea. Look at		2	the government in this great democracy. I have no	
3	two simple facts. This is one of the most	05	3	and I would not impune these fine gentlemen who	
4	environmentally sensitive areas in the United		4	are here this evening, but I would also wish to	
5	States. Number two, there is a public school not	06	5	remind the people assembled here this evening that	
6	more than five miles from the launch area. My		6	DOD and the Ballistic Missile Organization are not	
7	home is within five miles from the launch area and	06	7	democratic institutions. If you wish your voice	
8	I say, as a individual and as a citizen of this		8	to be heard, do not only leave here this evening,	
9	country, that it is disingenuous and untruthful to		9	write your Congressman, write our senators, write	
10	state in an EIS that launching missiles does not		10	Secretary Cohen, write President Clinton and tell	
11	pose a safety threat to the members of this		11	them that you will not accept the launch of	
12	community. That is either a lie or a terrible		12	missiles from the Florida Keys. Thank you.	
13	misperception. I don't think that anyone could		13	(Hand clapping.)	01
14	make that statement in good faith.		14	MR. MICHAELSON: Joel Biddle.	
15	Anyone who watched the Challenger explode,		15	JOEL BIDDLE: Hi, I'm Joel Biddle. I'm	
16	anyone who remembers Gus Grissom's Apollo capsule		16	the educational coordinator for Reef Relief and I	
17	burning him up on the launch pad knows that it is		17	represent Reef Relief and the board of directors	
18	a certainty that if X number of missiles are		18	and I think the vast majority of the Florida Keys	
19	launched from this launch site, something is going		19	citizenry. The recent proposal of the federal	
20	to go wrong. A missile will explode upon launch,		20	military to test missiles in the Florida Keys is a	
21	will go off course, and it is merely a matter of		21	bad idea for a number of very good reasons. We	
22	how long before that happens. And for our		22	encourage the citizens of the Keys to strongly	
23	government to come in and tell the residents of		23	voice their opposition to such folly and likewise,	
24	this community that this poses no safety threat to		24	encourage the proponents of this idea to abandon	
25	us is, frankly, offensive and insulting.		25	it for a more appropriate site elsewhere.	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0023 COMMENT NUMBER			P-T-0023 COMMENT NUMBER
1	The first is a lack of infrastructure and	02	1	dumping ground for debris and a test site that	05
2	despite what has been said here by the military,		2	could be dangerous to both man and beast.	
3	we submit that it will be difficult, if not		3	Three, the quality of life. The noise and	
4	impossible, for the Florida Keys to accommodate		4	the closing, not only of US 1 but also the airport	
5	the use of US 1 for traffic generated by six to		5	and the local boating activity 12 times a year for	
6	seven large tractor trailers 12 times a year, the		6	a period of up to 20 years and the very real	
7	need for housing for over 100 personnel, and the		7	danger to residents in the area is an unnecessary	
8	ancillary infrastructure needs that will be		8	imposition on both the residents and visitors to	
9	generated by the construction activities proposed		9	the Florida Keys who constitute our main economic	
10	for this project.		10	activity. More appropriate sites exist elsewhere	
11	Two, are the environmental impacts. The	03	11	in the world. This community has already	06
12	coral reef ecosystem and its resident endangered		12	sacrificed Peary Court, the Naval Air Station and	
13	species should be adversely effected by the fuel		13	the Coast Guard Base to the federal military.	
14	dispersal, the booster stage debris and the loss		14	We at Reef Relief strongly recommend that	
15	of wetland habitat, by the fill and construction		15	you explore more appropriate sites elsewhere. We	
16	you propose at the launch sites. The proposed		16	communicated this in clear, uncertain terms last	
17	mitigation is a concept that has failed when		17	year when meeting with you. We also did that the	
18	applied to coral reef ecosystems. We do not		18	year before. We fought offshore oil for eight	
19	believe you can fill wetlands and mitigate		19	years before President Bush signed a ten year ban.	
20	elsewhere to make up for that loss in this already		20	We will fight this as well. Please recognize our	
21	highly stressed area.	04	21	concerns and save us all a lot of time by	
22	We find it absolutely ludicrous that as		22	listening to us. Thank you.	
23	one arm of our government strives to establish a		23	(Hand clapping.)	
24	protected area under the National Marine Sanctuary		24	MAJOR KENNEDY: I have to make one	
25	designation, the military seeks to use it as a		25	clarification. There is no proposal to close US 1	

		P-T-0023						P-T-0025
		COMMENT NUMBER						COMMENT NUMBER
1	or the airport.					1	RALPH GOULDY: Good evening. My name is	
2	MR. MICHAELSON: Shelley Francis is next.					2	Ralph Gouldy. I'm the Monroe County Senior	
3	She appears to not be here. Malcolm Pike.					3	Environmental Planner. I'm here representing the	
4	MALCOLM PIKE: Good evening ladies and	P-T-0024				4	Growth Management Division of Monroe County. I	
5	gentlemen. I will make it very brief.					5	might say at the outset that while it is quite	
6	MR. MICHAELSON: Would you state your					6	disturbing to think that Miami may be part of	
7	name, please.					7	Monroe County, I'll restrict my comments to the	
8	MALCOLM PIKE: This is Malcolm Pike					8	Growth Management Division's concern regarding the	
9	speaking and I think most of the words I'm going					9	SEIS in regard to the Monroe County year 2010	
10	to express have been superseded by the previous					10	comprehensive plan.	
11	speakers. But being an engineer myself and					11	Table ES1 of that plan, which is also part	01
12	studying weaponry when I was younger, having had					12	of tonight's handout states that the launch plan	
13	them drop on us during the war from Germany, I					13	is compatible with Monroe County Comp Plan for	
14	know what can be involved. And I think that	01				14	both Cudjoe Key and Saddlebunch Key. The basis	
15	scientists would agree with me, the impact of the					15	for this statement must be the realization that	02
16	explosion, you know, on the targets being hit, the					16	the federal government has the authority to exempt	
17	gases -- on the subject of the gases, they					17	itself from local jurisdictional regulations, as	
18	certainly will drift over the lower Keys when the					18	far as specific policies of the comp plan which	
19	wind is blowing from that direction. And	02				19	are in conflict with this SEIS. Policies 102.1.1,	03
20	personally, I think it's a ridiculous idea and					20	204.2.1, 207.1.4 all require 100 percent open	
21	they should look for somewhere else. Thank you.					21	space for wetlands, which would preclude any type	
22	(Hand clapping.)					22	of development in these areas.	
23	MR. MICHAELSON: Ralph Gouldy is next,					23	Policy 204.2.2 states that no fill or	04
24	followed by Barbara Ehrenreiter, Blue Lunden, John					24	structures are permitted in submerged lands or	
25	Leslie and Archer Miller.					25	mangroves. Also, policy 102.9.2 prohibits	05

		P-T-0025			P-T-0025
		COMMENT			COMMENT
		NUMBER			NUMBER
1	activities which would be in conflict with the	06	1	continuous for ten years.	11
2	intent of properties designated conservation lands		2	As far as the Monroe County Land	
3	on the future land use maps. This policy reads in		3	Development Regulations are concerned, several	
4	part that Monroe County, in cooperation with		4	regulations if a permit were applied for, would	
5	appropriate state and federal agencies, shall		5	preclude issuance, including section 95-286 which	
6	initiate conservation land protection area	07	6	requires a 50 foot setback from wetlands. Section	12
7	planning efforts for each of the conservation		7	95-343 which requires 100 percent open space for	
8	lands in Monroe County.		8	wetlands. And section 953.5 which allows only	
9	The purpose of these planning efforts will		9	docks, walkways and utility pilings on submerged	
10	be to identify current and future land use		10	lands and mangroves.	
11	activities which are causing or have the potential	08	11	In summary, I think we can only conclude	14
12	for causing adverse impacts on sensitive natural		12	that the authors of the report failed to read	
13	features and natural resources within state and		13	Monroe County's Comprehensive Plan or realize that	
14	federal conservation lands.		14	there was no chance of achieving realistic	
15	Policy 103.2.14 prohibits the destruction		15	compliance with a clear intent of our regulations.	
16	of endangered species habitats. The silver rice	09	16	Thank you.	P-T-0026
17	rat and marsh rabbit habitats are part of and		17	(Hand clapping.)	
18	contiguous to the launch sites.		18	MR. MICHAELSON: Barbara Ehrenreiter.	
19	With regard to disturbance due to human		19	BARBARA EHRENREITER: My name is Barbara	
20	activity of endangered species, it's stated that		20	Ehrenreiter. I'm a writer and I live three miles	
21	the window of disturbance will be 30 days prior to	10	21	away from the proposed launch site in Cudjoe Key.	01
22	the launch and up to five days after the launch,		22	About a year ago precisely to today I interviewed	
23	with the acknowledgment that there are as many as		23	Lieutenant Colonel Richard Lehner, which is you,	
24	12 launches per year. Therefore, one must		24	sir, on the phone in preparation for writing an	
25	conclude the disturbance could potentially be		25	essay for Time magazine about this issue. And	
					02

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0026 COMMENT NUMBER			P-T-0026 COMMENT NUMBER
1	when I asked him the rare philosophical question,	03	1	you say you are here to defend your country, I	01
2	what are the missiles for; what do we need these		2	think you need to understand, so are we. We are	
3	for; will they be used to defend the United		3	here to defend the beauty, the wildlife, the	
4	States. His answer was and I'm sorry, I can only		4	tranquility, the precious ecosystem of our region,	
5	paraphrase. I don't have the exact quotes with		5	including, I would add, the Gulf of Mexico itself.	
6	me. Was no, these were not defenses. They were		6	And I think it's particularly tragic that we have	
7	not to be used to defend the perimeter of the		7	to defend this precious region of our country	
8	United States, but these were for use in theaters.		8	against the plans of our own military.	
9	That is, in the course of interventions in other		9	(Hand clapping.)	
10	countries.		10	MR. MICHAELSON: Blue Lunden.	
11	When I asked further questions and	04	11	BLUE LUNDEN: My name is Blue Lunden. I'm	
12	suggested that that wasn't the most persuasive		12	a member of the Unitarian Universal Fellowship of	
13	argument I had ever heard, he allowed that we		13	Key West. I would like to read a resolution that	
14	could always sell the missiles to other countries.		14	was passed unanimously by our fellowship this	
15	So what that suggests to me is that we are risking		15	year. Whereas the Department of Defense is	
16	our safety and our environment for what is		16	planning to establish a missile testing range in	
17	essentially product testing, which will eventually		17	the Florida Keys; and whereas this testing range	
18	rebound to the profits of Lockheed and other		18	is located within the Great White Heron National	
19	companies.		19	Wildlife Refuge, and these waters are contiguous	
20	But I just want to end by saying, let's		20	with the Florida Keys National Marine Sanctuary;	
21	talk about defense then. The argument that the	21	whereas this site is within one mile of		
22	Air Force has used at various times and certainly	22	residential property and within four miles of an		
23	used in a letter in response to my article in Time	23	elementary school; and whereas the Unitarian		
24	was that the priority of the defense of our nation	24	Universal Scholarship of Key West covenants to		
25	came above all. So let me just say to you, sir,	25	affirm and promote the goal of the world community		

		P-T-0027 COMMENT NUMBER
1	with peace, liberty, and justice for all and	02
2	respect for the inter dependent web of all	
3	existence of which we are a part. Therefore, be	
4	it resolved that the Unitarian Universal	
5	Fellowship of Key West stand united in opposition	
6	to the establishment of a testing range.	
7	On a personal note, I live on upper	
8	Sugarloaf, very near the school and I was	
9	horrified at the thought that there could be an	
10	accident with 800 children in the school. I	
11	couldn't believe that a plan like this could be	
12	hatched if there were anyone aware of a school so	
13	close. I would just say, that you say you will	
14	protect us and yet I feel that we have never been	
15	so endangered. This is a bad idea. Please don't	
16	do it.	
17	(Hand clapping.)	01
18	MR. MICHAELSON: John Leslie is next.	
19	JOHN LESLIE: John Leslie, Sugarloaf Key.	
20	For the record, I would like to read into the	
21	record the Air Force's safety record from 1996 to	
22	1998, a sample of evidence. April the 3rd, 1996,	
23	an Air Force plane crashes outside of Debrov in	
24	Croatia, killing Commerce Secretary Ron Brown and	
25	34 others. Families of victims are suing the Air	
		P-T-0028 COMMENT NUMBER

		P-T-0028 COMMENT NUMBER
1	Force for gross negligence in regard to civilian	
2	lives. The Air Force's own investigation blamed	
3	the pilots, a poorly equipped plane and Air Force	
4	commander's violations of landing regulations.	
5	Among other problems, the plane carried an	
6	inaccurate chart, which showed the mountain the	
7	plane crashed into with an altitude approximately	
8	2,000 meters less than its actual height, and	
9	navigation equipment that was over 60 years out of	
10	date.	
11	June 25, 1996, a terrorist truck bomb	
12	kills 19 and wounds 500 airmen at the Cobar Towers	
13	military apartment complex in Dahrn, Saudi	
14	Arabia. The Pentagon has blamed Air Force	
15	Brigadier General Tirrell Sharway (phonetic) for	
16	recklessly exposing his troops to danger by	
17	ignoring repeated Pentagon instructions to beef up	
18	security at the complex, develop evacuation plans,	
19	widen the security perimeter around the building,	
20	or place plastic film over windows to prevent	
21	glass from shattering. Sharway was denied the	
22	motion over the "vehement objections of Air Force	
23	brass." Thus ending his military career.	
24	November 22, 1996, an Air Force C-130	
25	cargo plane crashes into the Pacific off the coast	

		P-T-0028
		COMMENT
		NUMBER
1	of California, killing ten Air Force reservists.	
2	In January 1998 the Air Force admits its	
3	investigation into the crash was "flawed" and	
4	decides to investigate further.	
5	February the 5th, 1997, an Air Force F-16	
6	fighter jet locks onto and chases a commercial	
7	plane carrying 80 passengers. The Air Force plane	
8	came within 400 feet of the commercial plane at	
9	one point, setting off an anti collision system in	
10	the commercial plane and throwing three passengers	
11	to the floor. This was one of four incidents in	
12	early 1997, in which F-16's came close enough to	
13	commercial jets to pose a "real threat of midair	
14	collision."	
15	April 2nd, 1997, on a training flight, Air	
16	Force Captain Craig Button wonders off course and	
17	plows his A-10 attack jet into Gold Dust Peak in	
18	Colorado. The plane contained live bombs.	
19	October 22nd, 1997, the wing tip of an Air	
20	Force F-16 fighter plane slices into an Air Force	
21	T-38 cockpit, killing two. This is only a small	
22	sample of Air Force involved crashes in the last	
23	few years and all of the above incidents occurred	
24	in peacetime. Thank you.	
25	(Hand clapping.)	

		P-T-0029
		COMMENT
		NUMBER
1	MR. MICHAELSON: Next speaker is Archer	
2	Miller, followed by Mari Hanley, Muriel Hendrick,	
3	Crysten Brigham and Annie Robinson.	
4	ARCHER MILLER: I'm Archer Miller. I live	01
5	right across the street from the Saddlebunch site	
6	and that water in there is so shallow, you only	
7	get about one or two inches of tide change per	
8	tide change. At the most, three or four inches a	
9	day. There is no way that water can flush out	
10	fast enough that all that acid wouldn't kill	
11	everything in there. The wind, most of the time	02
12	comes right across the highway from where your	
13	launch site is going to be over into the	
14	neighborhood where I live in or in the Sugarloaf	
15	neighborhood. That's going to be another flaw.	
16	And I think you did say something about there	
17	would have to be a four hour time period when	03
18	everything would be closed. We're so close to the	
19	highway, I'm sure the highway would have to be	
20	shut down for four hours also. I bet a lot of	
21	people would love that. Alright. Thank you.	
22	(Hand clapping.)	
23	MR. MICHAELSON: Mari Hanley. Muriel	
24	Hendrick.	
25	MURIEL HENDRICK: Good evening. My name	

		P-T-0030	P-T-0031	
		COMMENT	COMMENT	
		NUMBER	NUMBER	
1	is Muriel Hendrick and I live here in Key West. I	01	1	let me do otherwise. You see, I made my husband
2	can't add a great deal to what has already been		2	promise me, when we were married, that if ever
3	said other than there is obviously only one safe		3	some mad person or group of people ever decided to
4	way to deal with missile launching and that is not		4	destroy our home as we know it and love it, that
5	to have any of it, land, sea or air, not in the		5	we would leave. No, I don't know who needs to
6	Keys, not anywhere. It isn't just that I don't		6	hear my words tonight, although I heard that it
7	want it in my neighborhood, I don't want any		7	really doesn't matter what we feel, that this is
8	missiles launched in anybody's neighborhood. I		8	just a formality, like that ridiculous
9	see no reason for missile testing. Thank you.		9	environmental impact statement. Please do not
10	Goodnight.		10	insult our intelligence. Maybe we can end this
11	(Hand clapping.)		11	lunacy and I think tonight would be a perfect time
12	MR. MICHAELSON: Crysten Brigham, not		12	with a full moon.
13	here. Annie Robinson. Are you Annie Robinson?		13	Please listen well to my heart and soul
14	ANNIE ROBINSON: That's me.	P-T-0031	14	and realize that these missiles are a bad thing
15	MR. MICHAELSON: Annie Robinson will be		15	for the people of the Florida Keys and a bad thing
16	followed by Robin Orlandi, Joe Allen and George		16	for the people of America. The Keys back country
17	Halloran.		17	is the world class fishing, diving and
18	ANNIE ROBINSON: My name is Annie Robinson		18	recreational area, visited by presidents,
19	and I live on Cudjoe Key with my husband of six	01	19	celebrities and Americans from all walks of life.
20	months. We both work in the restaurant business		20	We the people of the Florida Keys chose to live
21	here in Key West. This is prime dining time for		21	here for this pristine beauty and our livelihood
22	Key West. I'm also here to represent many of my		22	depends upon it. You might look at me say, she's
23	friends who work in the restaurant business that		23	just a waitress, what does she know about any of
24	couldn't be here themselves. I have taken the		24	this. I was also a marine biology major at the
25	night off to be here, since my conscience wouldn't		25	University of Hawaii. Remember what you did to

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0031 COMMENT NUMBER
1	that island, I don't think you want to discuss.	
2	It would be redundant for me to tell you the true	
3	environmental impact because you already know how	
4	catastrophic it would be. So I'm going to talk to	
5	you from the standpoint of a passionate newlywed	
6	waitress with great hopes and dreams for the	
7	future. I'll begin with the most important thing	
8	in life, which is love, and the most important	
9	love is family.	
10	My husband and I have decided to start a	
11	family of our own and raise it in our home on	
12	Cudjoe Key where they can learn all about the	
13	breathtaking beautiful back country. They will	
14	learn about this magical land from their father,	
15	who knows it like the wizard knows Oz. He has	
16	been fishing these waters for 25 years, both	
17	personally, as a back country fishing guide. We	
18	call the back country our sanity. It's where we	
19	live, love and laugh. Not only is it our passion,	
20	it's also to be our new career. A very	
21	frightening step for both of us. You see, we just	
22	invested a lot of money in a brand new flats	
23	fishing boat. Not at the time it wasn't a lot	
24	when we thought we could live the American dream,	
25	it was still obtainable, and we could have our own	

		P-T-0031 COMMENT NUMBER
1	business, our own happy and healthy lives in a	
2	clean environment to raise our children.	
3	I'm begging you not to make this an	
4	American nightmare. Loud noise and poisonous	
5	fallout in one of the cleanest and quietest places	
6	left on earth. I'm begging you not to make this	
7	an American nightmare of a missile launch site	
8	near where our children will play and go to	
9	school. Please don't shatter this dream and the	
10	dream of so many people like me who call this our	
11	home.	
12	Please use your heads and don't turn the	
13	phrase, military intelligence, into a joke. This	
14	is a huge mistake. And don't mistake my emotional	
15	tone and my short size for weakness because I'll	
16	be the first one to lie down on Blimp Road or	
17	anywhere else near my home to protect us from this	
18	unwelcome intruder. Somehow I don't think I'll be	
19	the only one. Thank you.	
20	(Hand clapping.)	
21	MR. MICHAELSON: Some of the people that	
22	are going to speak now may not have been here at	
23	the very beginning when I gave my instructions.	
24	When I put up one finger, that means you have one	
25	minute left and then I'll put up a hand like this	

		P-T-0032			P-T-0032
		COMMENT			COMMENT
		NUMBER			NUMBER
1	indicating that your time is up. Okay. Robin		1	place and it's difficult to think of an	
2	Orlandi.		2	environment more unlike the Keys in terms of	
3	ROBIN ORLANDI: Yes, I'm Robin Orlandi and		3	moisture, which is a determining factor in	
4	I represent the Board of Directors for Reef		4	calculating how much hydrochloric acid will rain	
5	Relief. Reading this into the record. The SEIS	01	5	out from launch exhaust. How accurately this	
6	is entirely inadequate to address the specialized		6	scenario models launches that will be 100 percent	
7	environmental concerns of the Florida Keys. It		7	surrounded by marine waters and conducted in a	
8	fails to establish background ecological		8	humid environment isn't examined.	05
9	parameters based on local studies or to		9	The document describes the launching as a	
10	realistically represent the overall impacts of TMD		10	discreet air emissions event. Yet each generates	
11	testing in the Keys.		11	13,800 pounds of total exhaust including 221	
12	It concludes that missile launches will be		12	pounds of hydrochloric acid. Multiplied by 12	06
13	isolated events with temporary impacts, at the		13	monthly launches, at least 2,650 pounds of	
14	same time stating that each launch requires a 30	02	14	corrosive acid would be entering our fragile	
15	day preparation period followed by two to five day		15	environment each year. This is characterized as a	07
16	cleanup. With as many as 24 launches proposed		16	temporary, short term increase in water acidity.	
17	annually, it doesn't take a rocket scientist to		17	It is also noted that acidification of water	08
18	figure out that this amounts to a continuous		18	generally results in lower oxygen levels. Yet, no	
19	occupation and disturbance of launch support		19	data is provided to evaluate the oxygen	
20	sites.		20	requirements of sea grass beds, mangrove	
21	The majority of SEIS's conclusions are		21	nurseries, or other potential aquatic receptors.	
22	based on data from previous studies done outside	03	22	This is a glaring oversight in light of the	09
23	of the Florida Keys. Air quality findings derived		23	eutrophication problems that have been experienced	
24	from OBOD model was conducted in the Utah desert.		24	in Florida Bay and nearshore waters and the	
25	This methodology has no EPA approval in the first	04	25	tremendous efforts and expenditures that are being	

P-T-0032
COMMENT
NUMBER

		P-T-0032 COMMENT NUMBER			P-T-0032 COMMENT NUMBER
1	made to understand and correct these problems.	10	1	ecosystem deserves the highest level of	
2	Furthermore, the SEIS states that because		2	protection, we ask you to once and for all remove	
3	the Keys major coral reef tracts are located on		3	the Keys from any potential or alternative missile	
4	the Atlantic side, they fall outside of the region		4	launch sites lists. The SEIS doesn't begin to	
5	of influence affected by launches. This does not		5	adequately research or address the complex needs	
6	take the well documented tidal flushing of bay	11	6	of our ecosystem. Missile testing produces no	
7	waters out across the reef tract into account.		7	benefits and many deficits for the ecological,	
8	Any degradation of bay water quality has the		8	economical and cultural resources of the Keys.	
9	potential to impact sensitive reef ecosystems.		9	This is a sanctuary, not a test range and	
10	The general conclusion of the SEIS		10	we ask you that you respect the reality of that	
11	regarding acidification and other environmental	12	11	fact and the fact that many people have worked for	
12	impacts can be summed up as dilution is the		12	years to preserve and protect these islands and	
13	solution to pollution. In a fragile ecosystem		13	their surrounding waters. We will never give up	
14	such as the Keys that is already coping with the		14	the fight against missile testing in the Keys.	
15	impacts of coastal development and agricultural		15	Thank you.	
16	runoff, any dilution potential has been exhausted.	13	16	(Hand clapping.)	
17	Impacts from missile testing such as the reduction		17	MR. MICHAELSON: And again, from any of	
18	in dissolved oxygen will only serve to accelerate		18	you who may not have been here at the beginning,	
19	the cascade of coastal eutrophication and other		19	we strongly encourage anyone who has prepared	
20	risks to this ecosystem. This is not an		20	written comments to please hand in a copy to us.	
21	acceptable alternative.		21	Joe Allen.	
22	Speaking on behalf of Reef Relief and		22	JOE ALLEN: Yes, I'm Joe Allen. I'm here	P-T-0033
23	thousands of our local and national members who		23	to represent all the people of Monroe County and	
24	deeply value the unique and irreplaceable natural		24	especially the kids who can't be here to speak for	
25	resources of the Keys, and who believe that this		25	themselves. I'm a candidate for state senate,	
					01

		P-T-0033 COMMENT NUMBER
1	district 40, which is all of Monroe County and a	01(cont)
2	portion of Dade County. I was a recent candidate	
3	for Key West City Commission and a member of the	
4	board of directors of Big Brothers and Sisters.	
5	My concern has always been and will be the health,	
6	welfare and safety of the people.	
7	There is only one road. You've heard this	02
8	many times tonight. I will not go over all my	
9	points, but there is only one road. Evacuation	
10	now is almost impossible. In the case of an	
11	accident it will become totally impossible as	
12	everyone tries to run for their lives at the very	
13	same time. It will put thousands of us in harms	03
14	way and it will still be unacceptable.	
15	I will make this the cornerstone of my	
16	campaign and whether or not I am elected as state	
17	senator, I will always oppose it. Thank you.	
18	(Hand clapping.)	
19	MR. MICHAELSON: George Halloran, Sesse	P-T-0034
20	Brown. Can't read this. Looks like Pike, Malcolm	
21	and Carol Colburn.	
22	GEORGE HALLORAN: I'm George Halloran from	
23	Key West and I'm opposed to missile testing in the	
24	Keys and many of the people here have left	
25	already, but I would like to ask those that are	

		P-T-0034 COMMENT NUMBER
1	still here, anyone in this room is in favor of the	
2	missile testing here; show of hands?	
3	UNIDENTIFIED SPEAKER: I'm not against it.	
4	GEORGE HALLORAN: Let the record show that	
5	out of the 120 or 30 people that were here, two	
6	people, one has said he is in favor of it and one	
7	has said he is not opposed. I didn't see any	01
8	hands go up on this side of the microphone either.	
9	I assume you folks -- any opinions? Even the	
10	military apparently here is not sure that they are	
11	interested. I know no one else other than these	
12	two people in the room here in Key West or the	
13	Florida Keys over the last year that I've spoken	02
14	to that is in favor of this. Everyone who has	
15	spoken at all the hearings have been opposed, with	
16	one or two exceptions. The percentage of people	
17	who want this to happen here is minuscule and I	
18	think that should have some bearing in your EIS.	
19	The people themselves are a part of the	
20	environment and your pretty much dismissal of the	
21	negative comments in the EIS is to me, quite	
22	surprising. The thousands of signatures you	
23	received and petitions don't seem to have affected	
24	the EIS and that is a very important part of it.	
25	The environment, that is the humanity of	

		P-T-0034 COMMENT NUMBER			P-T-0034 COMMENT NUMBER
1	it, has been pretty much pushed aside. I read	03	1	all of those species overlaps so that the entire	07
2	through the EIS and a number of items in there, I		2	year is taken up. The little black boxes all	
3	thought were handled inadequately and I'll just		3	across the various species encompass the entire	
4	give one example which Robin has already	04	4	year in all three locations. And while we	08
5	mentioned.		5	certainly don't want this in the Keys, I	
6	You talked about the temporary acidic		6	personally and I'm sure many others would not like	
7	increase in the water, but the purpose of an	05	7	to see this pushed off even to the islands of the	01
8	environmental study is to tell us what goes beyond		8	north.	
9	that. The acid will rise. What will the		9	Finally, I would like to ask someone, I	
10	increased acid do? There is no mention of the	06	10	don't think you can probably give me an answer	P-T-0035 01
11	effect it will have on the flora and the fauna,		11	tonight, what this study costs. The expertise	
12	the benthic community, the birds. There should be		12	that was in this room tonight puts the people who	
13	one further step taken, but many of the items in	06	13	did this study to shame. And if this study cost	
14	this study, a disaster could easily occur. There		14	any more than 50 bucks, I think our taxpayer's	
15	is no body count. There is no suggestion of what		15	dollars have been wasted. Thank you.	
16	actually could occur, how many people could die,	06	16	(Hand clapping.)	
17	what would happen if the missile veered off to a		17	MR. MICHAELSON: Sesse Brown. No	
18	heavily populated area like the school. There is		18	response. Carol Colburn.	
19	no real examination of the final effect on the	06	19	CAROL COLBURN: My name is Carol Colburn.	
20	environment. Again, the people.		20	I'm a resident and property owner in Key West.	
21	I would like to put in a word for the		21	This is the third time I've come before you folks	
22	environment elsewhere also. We listed in the EIS	06	22	to voice my concern. It's incredulous to me that	
23	the various endangered and threatened species.		23	this is still continuing, that my tax dollars paid	
24	Those same species are existing in Santa Rosa		24	for this document, which is either the most	
25	Island and Cape San Blas. The nesting times of	06	25	incompetent document ever written or the most	

		P-T-0035 COMMENT NUMBER			P-T-0035 COMMENT NUMBER
1	deceptful one, I don't know which. But either	02	1	Mrs. Malcolm Pike, I'm not sure. Or maybe just	
2	way, the military should be embarrassed.		2	filled out the card twice. There is no one else	
3	Shirley Freeman and her group that came in		3	here. That exhausts the list of speakers who	
4	here tonight should be hired by you folks to do		4	signed up to speak this evening. We greatly	
5	this environmental impact study. They at least		5	appreciate your time and effort in coming down to	
6	understand what is going on down here. If General		6	be at this meeting. Is there anyone who hasn't	
7	Lyle wants to cut his losses now, it would be		7	already spoken -- I'm sorry, sir, you already had	
8	very, very wise and smart of him to take the Keys		8	your chance.	
9	off the list completely before this gets any more		9	UNIDENTIFIED SPEAKER: I just wanted to	
10	embarrassing because I as a tax paying citizen		10	ask one other question.	
11	find this document a waste of my taxpayer's		11	MR. MICHAELSON: You already had you	
12	dollars and everybody's elses time that we have to		12	chance to speak.	
13	come up here, spend our time, your time, to fight		13	UNIDENTIFIED SPEAKER: Yeah, but I was	
14	something, as somebody said, I protested the war		14	very short. I didn't take two or three minutes.	
15	back in the 60's, I didn't think I would be		15	MR. MICHAELSON: Well, I need to first	
16	protesting a war in my back yard when I retired.		16	find out if there is anybody else who wanted to	
17	So please, take the Keys off the list, go find		17	speak. Is there anybody else that didn't sign up	
18	somewhere else to do it and hopefully, it won't		18	that would like to take this opportunity? Sir, if	
19	impact anybody else's back yard either. Thank		19	you would approach and state your name for the	
20	you.		20	record, please.	
21	(Hands clapping.)		21	ROBERT ELIOT: My name is Robert Eliot.	P-T-0036
22	MR. MICHAELSON: I'm a bit confused by		22	I'm retired Navy admiral. I was in the dental	01
23	this one entry here. Perhaps it is the same		23	corp. I was a little shocked this evening to hear	
24	address as Malcolm Pike, but perhaps it's another		24	all the negative comments that were made about the	
25	resident at that address. Perhaps it's		25	Air Force. Having served 33 years in the Navy, I	

		P-T-0036 COMMENT NUMBER
1	know that we all have served this country, do the	
2	very best we can. We are sworn to do that and I'm	
3	disappointed to hear some of the personal comments	
4	that were made to these officers.	
5	Now, whether or not we should have missile	
6	testing in the Keys, I'm not against it if it's	
7	something that we need. We do know that a lot of	
8	the missiles are used in the Gulf war and they	
9	were used to the disadvantage of our country and	
10	had we had a system that could have eliminated	
11	them, we would have protected some of our men who	
12	were over there. We don't know when there is	
13	going to be another war or whether there is going	
14	to be just an incident. What I feel that anything	
15	we can do in our country to protect our service	
16	people, we should.	
17	You know, Roger Kipling wrote a poem and	
18	I paraphrase it and it's Johnny this and Johnny	
19	that and Johnny blast your soul, but they calls	
20	him Mr. Atkins when the drums begin to roll. It's	
21	alright that we can malign our service people when	
22	things are at peace, but when war comes, they are	
23	put in front of all the lines. I know that there	
24	is a lot of emotion related to this issue and	
25	there are you people that come out here tonight, I	

		P-T-0036 COMMENT NUMBER
1	guess I'm one of two that are ambivalent about the	
2	whole issue. But if things come to a point where	
3	we need to have something to protect our own	
4	people, I am willing to sacrifice that.	
5	Now I realize I don't live out on Cudjoe	
6	Key and I realize too that it's not a popular	
7	statement to make, saying you're not opposed to	
8	it, so I presume that's why there are not more	
9	people here who feel as I do, because it's an	
10	unpopular position. But my own feeling is, if	
11	it's necessary to protect our country and protect	
12	particularly the boys who fight for our country	
13	and the women, well I'm not against it.	
14	MR. MICHAELSON: I wrote down your name	
15	here. If you would fill out the rest of it for	
16	us, I would appreciate it. Anyone else who has	
17	not spoken this evening that would like to take	
18	the opportunity? If you would come up to the	
19	microphone. State your name for us and fill out a	
20	card afterwards, I would appreciate it.	
21	HARRIET NELSON: My name is Harriet Marks	
22	Nelson. I'm a resident of Key West and I think	
23	everybody who are sharing their views, I want to	
24	share mine. I stand here as a 64 year old woman,	
25	a daughter of a 92 year old father, a mother of 3	
		P-T-0037 01

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1 kids, and a grandmother of 11. And I have served
2 the United States Navy, Department of Defense as a
3 teacher, as a nurse overseas. I have seen World
4 War II. I have seen the Korean War, the
5 Vietnamese War, the Gulf War. I live here in the
6 Keys and I only pray that my 11 grand kids get to
7 partake of some of our environment before it is
8 totally destroyed.

9 Do I want to malign the service people who
10 protect our country? No, sir, not at all. The
11 methods, perhaps, we have become so technically
12 involved that we lose sight of what the sun is
13 like when it rises in the morning and sets at
14 night, what our waters -- I have learned to fish
15 when I was four years old. The difference in the
16 quality of the water and the environment from then
17 in the 60 years is tremendous. It's tremendous
18 because of missiles, of bombs, of atomic energy,
19 of nuclear energy that proliferates.

20 When we grew we didn't see the sickness in
21 kids that we see today. How many people have
22 asthma and suffer from cancer. I'm retired as a
23 research nurse on the Albert Einstein College of
24 Medicine in New York and I'm overwhelmed at the
25 impact of technology on the health of our people.

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1 And there has to be another way and there has to
2 be another place to test the missiles that you
3 feel necessary to protect our lives.
4 Please don't destroy yet another
5 beautiful, free land that we live in down here. I
6 thank you.

7 (Hand clapping.)

8 MR. MICHAELSON: Anyone else who hasn't
9 spoken tonight? If there is a question you want
10 to put to one of these gentlemen, I think we're
11 going to adjourn first and if there is no one new
12 to speak, the gentlemen will stand around, if you
13 have a particular question. We're going to go
14 ahead and adjourn at 9:59.

15 Excuse me, we have to do this, out of
16 fairness to everyone, we haven't given anyone else
17 a second chance at any of these hearings. We're
18 going to go ahead and adjourn this meeting at 9:59
19 p.m. Thank you.

20 (Whereupon meeting adjourned at 9:59 p.m.)
21
22
23
24
25

02

1 CERTIFICATE

2 State of Florida,)

3) SS:

4 County of Monroe.)

7 I, Jill Middlemiss, do hereby certify that

8 the foregoing pages 1 to and including 120, is a true

9 and correct transcription of my stenographic notes of

10 the Theater Missile Defense Extended Test Range, Public

11 Hearing, taken on March 12, 1998, commencing at or

12 about 6:00 p.m., in Key West, County of Monroe, State

13 of Florida.

14 IN WITNESS WHEREOF, I have hereunto

15 affixed my hand this 23rd day of March, 1998.

17
18 
Jill Middlemiss

P-E-0007
COMMENT
NUMBER

4 THEATER MISSILE DEFENSE EXTENDED TEST RANGE
5 SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
6 EGLIN GULF TEST RANGE
7
8
9

10 PUBLIC_MEETING
11
12
13
14

15 March 13, 1998

16 6:00 p.m.

17 Marathon Government Center, Marathon, FL
18
19
20
21

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P-E-0007
COMMENT
NUMBER

1 MR. MICHAELSON: Good evening and
2 welcome to tonight's public hearing on the
3 Eglin Gulf Test Range Supplemental and
4 Environmental Impact Statement. My name is
5 Lewis Michaelson. I have been asked by the
6 Ballistic Missile Defense Organization and the
7 Air Force to moderate tonight's meeting.
8 Before I go over tonight's agenda and ground
9 rules, I would like to take this opportunity
10 to introduce you to the Government
11 representatives who are here with us tonight.
12 Representing the Air Force Development Test
13 Center at Eglin Air Force Base is Major Tom
14 Kennedy. Major Kennedy, as a Theater Missile
15 Defense Test Manager, has a responsibility for
16 preparing the Supplemental Environmental
17 Impact Statement. Seated to his right is
18 Lieutenant Colonel Rick Leonard, who is from
19 the Ballistic Missile Defense Organization.
20 Also in the audience we have Colonel Jim
21 Heald, commander of the 46th Test Wing
22 Operations Group at Eglin.
23 To start the meeting, I would like to
24 take a minute to briefly outline the purpose
25 of tonight's hearing and to go over the

1 agenda, so that you will know what to expect
2 as we proceed. Just over a year ago the
3 Ballistic Missile Defense Organization and the
4 Air Force held scoping meetings here in the
5 Keys and in northern Florida, on the Theater
6 Missile Defense Extended Test Range Proposal.
7 The purpose of those scoping meetings was to
8 obtain your comments on the environmental
9 issues that you believe they should examine in
10 the Supplemental Environmental Impact
11 Statement. Scoping comments from the public
12 as well as agencies were then used in the
13 preparation of the draft Supplemental
14 Environmental Impact Statement which is the
15 subject of this public hearing tonight.
16 Tonight's public hearing then has
17 three essential purposes. The first is to
18 describe to you the nature of the program that
19 is being examined in the Environmental Impact
20 Statement. The second is to briefly describe
21 the EIS process and the findings in the draft
22 Supplemental Environmental Impact Statement or
23 SEIS, as it is known by its initials. The
24 third and primary purpose is to listen to your
25 concerns and comments on the draft SEIS. Your

1 oral comments will then be used in the
2 preparation of the final SEIS.
3 I would like to go over the agenda
4 now. From 6:00 to 7:00 the Ballistic Missile
5 Defense Organization Air Force representatives
6 were available to answer your questions on the
7 proposed action in the Environmental Impact
8 Statement. Hopefully, I know many of you did
9 take advantage of that opportunity. The
10 remainder of the hearing is as follows: After
11 I finish my introductory remarks, we will have
12 a presentation by Major Tom Kennedy, who will
13 provide a brief description of the Theater
14 Missile Defense Extended Range Test followed
15 by an overview of the environmental impacts
16 that are identified and assessed in the SEIS.
17 The last item on the agenda, public
18 comments, is really the most important.
19 Remember that the draft SEIS is just that, a
20 draft. This is your opportunity to tell the
21 Ballistic Missile Defense Organization and the
22 Air Force how they can improve their analysis
23 of potential environmental impacts before the
24 document is finalized and before a decision on
25 whether or not to proceed with the proposed

1 action is made. There are a few points I will
2 make on comments tonight. If you have already
3 signed up to speak, and there are quite a
4 number, that is great. If not and you would
5 like to, if you would please go to the
6 registration table, pick up one of these white
7 cards and fill it out. It just makes the
8 process easier for us to call someone as a
9 speaker.

10 Everyone will have four minutes to
11 speak. The Air Force also has a court
12 reporter here tonight seated to my left. She
13 is here to make a verbatim transcript of this
14 hearing, so that your oral comments will be
15 recorded accurately. And it is important that
16 when commenters are speaking, to please
17 refrain from any comments from the audience,
18 so the court reporter can hear and record that
19 speaker's comments. As a part of preparing
20 the transcript, an audio recording of
21 tonight's hearing is being made as well.

22 You may also make your comments in
23 writing. And there are four ways to do that.
24 You may hand in written comments that you
25 brought with you tonight to me or the person

1 at the registration table. There are also
2 written comment sheets, which you can take
3 advantage of, fill those out and turn those in
4 tonight. And they will also be entered into
5 the record as written comments. You may also
6 mail in your written comments to the name and
7 address which appear on the back of this fact
8 sheet. And finally you will also find this
9 e-mail address on there, TMD@EGLIN.AF.MIL. So
10 you can also e-mail your comments in if that
11 is more convenient for you. Which ever option
12 you choose for sending in written comments, it
13 will be entered into the formal record of
14 public comments on the draft SEIS. And they
15 will be given the same consideration as oral
16 comments received tonight. If you choose to
17 mail them in, please be sure to send them by
18 April 3, 1998, which is the closing date for
19 the comment period.

20 To receive the final SEIS, there are
21 three ways to do that. First of all, if you
22 received the draft in the mail, you are
23 already on the list. And you will
24 automatically receive the final SEIS. If you
25 comment tonight and provide your name and

1 address or provide a written comment and your
2 name and address, we add commenters to the
3 list to receive the final document as well.
4 If you don't meet either one of those
5 conditions, then if you will pick up one of
6 these yellow cards at the registration table
7 and fill it out, you will be added to the list
8 to receive the final document. Also if you
9 prefer, there is an executive summary that is
10 prepared, so if you don't want to read or have
11 the very large volume of documents that are
12 associated, you can get the executive summary
13 and check that box as well. In addition,
14 there are copies of the draft and some copies
15 of the final SEIS in the information
16 repository, and those are listed on the back
17 of this as well.

18 Finally, it is important for you to
19 understand that the Ballistic Missile Defense
20 Organization and the Air Force representatives
21 who are here today are not here to make any
22 decisions tonight. Their role is to take the
23 results of the public comment process,
24 including the comments received at this
25 hearing, and to make sure that they are

1 considered in the preparation of the final
2 SEIS. Their main purpose in being here
3 tonight is to listen to your suggestions and
4 concerns first hand. We will now begin
5 tonight's meeting with Major Kennedy's
6 presentation.
7 MAJOR KENNEDY: Thank you, Lewis.
8 Good evening, I am Major Tom Kennedy. I work
9 for Colonel Heald in the 46th Test Wing. We
10 are representing Major General Michael
11 Kostelnik, Commander of the Air Force
12 Development Test Center at Eglin Air Force
13 Base. My job is to determine if it is
14 feasible to test Theater Missile Defense
15 Systems within the Eglin Gulf Test Range. The
16 National Environmental Policy Act of 1969
17 requires Federal decision makers consider the
18 impact on the environment along with the
19 safety, cost, schedule, and technical
20 requirements. One of the first steps in doing
21 this is the preparation of an Environmental
22 Impact Statement. The purpose of this
23 statement is to describe the supplemental --
24 excuse me. The purpose of this presentation
25 is to describe the Supplemental Environmental

1 Impact Statement. For simplicity, I will
2 refer to this document as the SEIS.
3 First, I will describe the proposed
4 action our team evaluated in the SEIS. Then I
5 will describe the findings in the SEIS. The
6 proposed action is to enhance the Eglin Gulf
7 Test Range to test Theater Missile Defense
8 Systems against target missiles with ranges up
9 to 1100 kilometers or approximately 685 miles.
10 There are two primary organizations
11 involved with the SEIS. The Ballistic Missile
12 Defense Organization is a Department of
13 Defense level organization that is established
14 by congress. They are responsible for
15 developing and managing the development and
16 acquisition of missile defense systems for all
17 services. As such, they are the proponent for
18 this action. This means the director of the
19 Ballistic Missile Defense Organization will
20 make the decision on whether or not to select
21 any of the alternatives in the Eglin Gulf Test
22 Range. The Ballistic Missile Defense
23 Organization asked the Air Force Development
24 Test Center to lead the steps required to
25 develop test capabilities here. That is why

1 we are writing the SEIS for them. This SEIS
2 supplements two earlier Environmental Impact
3 Statements.
4 In 1993, the Ballistic Missile
5 Defense Organization completed Theater Missile
6 Defense Programmatic Environmental Impact
7 Statements. This is a broad EIS that
8 considered the general environmental impacts
9 of dropping Theater Missile Defense Systems.
10 It is a baseline for location specific EIS's.
11 The Theater Missile Defense Extended Test
12 Range EIS completed in 1994 considered the
13 impacts of Theater Missile Defense testing at
14 four ranges, White Sands Missile Range in New
15 Mexico, the Western Test Range off California,
16 the Eglin Gulf Test Range and Kwajalein
17 Missile Range in the Western Pacific. At that
18 time, White Sands and Kwajalein were selected
19 as Theater Missile Defense Extended Test
20 Ranges. The Eglin Gulf Test Range was not
21 selected because of the difficulty and cost of
22 providing a sea launched target, the only
23 option considered at that time. This SEIS
24 supplements the 1994 Extended Test Range EIS.
25 Eglin Air Force Base, Key West Naval

1 Air Station, and Pensacola Naval Air Station
2 regularly use vast amounts of airspace over
3 the eastern Gulf of Mexico. This blue line
4 defines the area -- the airspace that Eglin
5 Air Force Base has scheduling responsibility
6 for, while this is the area scheduled by Naval
7 Air Station, Key West. There is no other
8 location within the continental United States
9 that combines so much available military
10 airspace with low population density. The
11 large size of the Eglin Gulf Test Range makes
12 it ideal for performing tests that cover long
13 distances, such as Theater Missile Defense
14 Testing. Also the missile flights can be done
15 over the broad open water of the gulf which
16 greatly enhances safety.

17 Eglin Air Force Base has existing
18 radar, optical, and other sensor systems to
19 conduct its current missions. These types of
20 instrumentation systems are expensive to
21 develop from the ground up. By enhancing an
22 existing range like Eglin, we can save the tax
23 payers millions of dollars.

24 To determine if an interceptor works,
25 you have to test it against a target. Some

1 interceptors are ground based and some are sea
2 based. The Eglin Gulf Test Range will provide
3 the flexibility to test either type of system.

4 I will describe the preferred
5 alternatives first. For the Eglin Gulf Test
6 Range to be enhanced for use as a Theater
7 Missile Defense Test and Training Range,
8 launching options for both interceptor
9 missiles and target missiles would have to be
10 selected. Although no final decisions will be
11 made until the Record of Decisions is reached,
12 the director of the Ballistic Missile Defense
13 Organization indicated last November that
14 these are the alternatives he would prefer to
15 use over the other alternatives considered.
16 After I describe that, I will describe the
17 other alternatives consider.

18 These alternatives are shown in the
19 hand out you should have received when you
20 arrived. Since the interceptors are the
21 actual things being tested, I will start with
22 them. Interceptors could be ground-based here
23 on Eglin Air Force Base properties on Santa
24 Rosa Island and Cape San Blas. Interceptors
25 can also be ship-based in the open gulf within

1 the military airspace.

2 I will now discuss the method of

3 delivering target missiles. The primary

4 proposed method of delivering target missiles

5 is the air-drop system currently in

6 development. Air-drop is a term that the

7 Ballistic Defense Missile Organization uses

8 for short range air launch targets.

9 Certainly, the only air launch targets that

10 are certified as final are limited to flights

11 less than 600 kilometers, which is about 375

12 miles. They would be launched over the open

13 Gulf. Air launch targets provide a lot of

14 flexibility because of the potential location

15 and the distances that could be used. We are

16 also considering the potential to launch

17 target missiles from ground-based locations on

18 Santa Rosa Island and Cape San Blas.

19 Finally, all intercepts would take

20 place over the Gulf of Mexico. This ensures

21 the debris can be contained over the water,

22 which is one of our safety criteria. This is

23 a diagram of how the proposed air-drop target

24 would work. The missile is pulled out of the

25 back of an airplane on a sled by a parachute.

1 After it clears the airplane, the missile and

2 the sled separate. There is another parachute

3 attached to the missile. After the missile

4 rights itself, the parachute is released, the

5 missile is ignited and flies to its prescribed

6 landing

7 area.

8 Even though the director of the

9 Ballistic Missile Defense Organization defined

10 his preferred alternative, we are required by

11 the National Environmental Policy Act of 1969,

12 to consider all reasonable alternatives to

13 this preferred alternative. These are

14 considered in the Supplemental Environmental

15 Impact Statement in the category, other

16 alternatives considered. These other

17 alternatives could be selected if there were a

18 great national need to provide a specific test

19 capability. This national need could be due

20 to technical, environmental, or other national

21 policy considerations. The director of the

22 Ballistic Missile Defense Organization would

23 make the decision on whether or not to use

24 these alternatives.

25 Again, starting with the interceptor

1 alternative, we are considering launching
2 interceptor missiles off a platform off Santa
3 Rosa Island near Cape San Blas. These
4 platforms would allow intercepts closer to the
5 launching point of the interceptor missile.

6 This would still keep the missile and the
7 intercept debris off-shore and provide the
8 required safety margins for personnel and
9 equipment directly involved in the test.

10 There are treaty restrictions against
11 launching ballistic missiles from sea-based
12 platforms that are tethered to the sea floor.

13 This prevents us from considering launching
14 target missiles from platforms. Also in the
15 other alternatives considered category are
16 land-launched targets from the Florida Keys.

17 There are two Keys under consideration, Cudjoe
18 Key and Saddlebunch Key, only one of which
19 would be chosen if this alternative were to
20 become necessary.

21 Although, the sea-based target launch
22 option was the reason the Eglin Gulf Test
23 Range was not selected in the earlier EIS, the
24 Army is now developing the capability to
25 launch target missiles from a ship. This

1 alternative is limited to less than 375 miles,
2 just like the air-launch capability. The
3 director of the Ballistic Missile Defense
4 Organization also has the option of selecting
5 a No-action alternative. In fact, the
6 National Environmental Policy Act of 1969
7 requires the decision maker to consider the
8 impacts if the proposed action should not take
9 place. For the Eglin Gulf Test Range, the
10 No-action alternative describes the
11 environmental impacts if the proposed action
12 to enhance the Eglin Gulf Test Range for
13 Theater Missile Defense Testing is not
14 implemented.

15 Our baseline was selected to analyze
16 the maximum impacts possible. In developing
17 the baseline for the SEIS, we used the PATRIOT
18 as a baseline interceptor. In all cases, the
19 analysts used the best available data for the
20 analysis. The team used the Hera target
21 missile as a typical target missile. This is
22 because the Hera is the biggest target missile
23 considered. Although we assumed the highest
24 number of launches proposed at each site, the
25 actual number of launches will be considerably

1 less. The combined potential impacts from the
2 Hera are greater than those of the proposed
3 interceptors. At Santa Rosa Island and Cape
4 San Blas where both interceptors and targets
5 are proposed, we used the Hera as a baseline.

6 These are the 14 resource areas the
7 team evaluated for each alternative.
8 Potential impacts are outlined in your
9 handout. Many of the potential impacts are
10 similar at each site. First, I will discuss
11 the impacts that are common to each site.
12 Then I will describe those that are unique to
13 each proposed location.

14 However, before I can discuss any
15 potential impacts, I need to show you the
16 launch hazard area that would be established
17 for each alternative location. These launch
18 hazard areas define the regions of influence
19 the team analyzed at each site. The purpose
20 of the launch area is to ensure that nobody is
21 inside the area that could be affected should
22 the missile self-destruct or the range safety
23 officer need to terminate the missile flight.
24 When the range safety officer develops a
25 launch hazard area, he uses a computer model.

1 This model predicts where the debris from an
2 errant missile would go should it be
3 destroyed. He also considers the effects of
4 wind.

5 Finally, the range safety officer
6 determines if there are protected areas such
7 as private property within the launch hazard
8 area. If so, he establishes wind restrictions
9 to prevent this debris from falling on those
10 protected areas. This is why the launch
11 hazard areas are different shapes and sizes at
12 each location. The launch hazard area for
13 Hera target missiles is 6500 feet without any
14 wind effects. Once the effects of wind are
15 considered, the launch hazard area expands to
16 incorporate any additional safety area. Here
17 at Santa Rosa Island the launch hazard area
18 would extend to Santa Rosa Sound and encompass
19 this portion of the Island. At Cape San Blas,
20 the launch hazard area would go back into St.
21 Joseph Bay. It extends over State Road 30E.

22 At Cudjoe Key, it encompasses the
23 north west section of the Key. It is
24 primarily over the waters of the National
25 Marine Sanctuary and the Great White Heron

1 National Wildlife Refuge. This extends out to
2 the airspace scheduled by Naval Air Station,
3 Key West. The launch hazard area crosses
4 Blimp Road. The launch hazard area of
5 Saddlebunch Key is similar to that of Cudjoe
6 Key. It is primarily over the waters of the
7 National Marine Sanctuary and the Great White
8 Heron National Wildlife Refuge. Since the Key
9 is primarily military property north of
10 Highway 1, the launch hazard area would
11 include that entire area.

12 Now, I will discuss the common
13 potential impacts. The first resource area I
14 will discuss is air quality. Air Quality
15 impacts would be similar at all proposed
16 locations. The primary emissions from the
17 missile launch are shown here. The primary
18 emissions of concern are aluminum oxide,
19 carbon monoxide, and hydrogen chloride. All
20 of these emissions are within the standards
21 established by the National Ambient Air
22 Quality Standards and the Environmental
23 Protection Agency.

24 We have just discussed air quality.
25 For airspace use, we are not proposing

1 additional airspace restrictions, so there are
2 no impacts for this resource area. Biological
3 Resources, the noise of a launch could startle
4 birds and other wildlife. However, experience
5 at Cape Canaveral shows that after an initial
6 flushing, where the birds fly around, they
7 return to their nest within a few minutes.
8 There are also location specific biological
9 resource potential impacts which I will
10 discuss in a few minutes.
11 Potential impacts of cultural
12 resources are site specific. Geology and
13 soils, in the area nearest the launch
14 facility, any hydrogen chloride that settles
15 to the ground may result in an increase in
16 surface soil acidity. Increases in soil
17 acidity would be temporary and would be
18 diluted and buffered by rainfall. The amount
19 of aluminum oxide settling on the ground would
20 not result in a substantial change in soil
21 fertility or be in concentrations toxic to the
22 growth of existing plants and microorganisms.
23 The hazardous waste that would be produced by
24 this program consists primarily of solvent
25 soaked cleaning rags. The amount generated

1 easily fits within the current capability of
2 Eglin Air Force Base and the Naval Air
3 Station, Key West.
4 For land and water use, the launch
5 hazard area would be cleared of people and
6 private vehicles up to four hours on launch
7 day. This would restrict access to the land
8 and water areas within the launch hazard area.
9 This includes the waters off-shore which would
10 also be cleared of boats for up to four hours.
11 The peak noise at the edge of the
12 launch hazard area is predicted to be 98 dBA.
13 This is similar to a jackhammer. This would
14 only be a momentary sound. The continuous
15 sound level is to be 80 dBA for forty-five
16 seconds. This is similar to a portable hair
17 dryer at one foot away. Both of these are
18 within the Occupational Safety and Health
19 Administration exposure limits of 115 dBA for
20 15 minutes. So there would be no health
21 related sound exposure outside the launch
22 hazard area. Should launches occur before
23 7:00 a.m., it is anticipated that some people
24 may be awakened by launch noise. Safety is
25 primarily defined by the launch hazard area.

1 The policy of the Air Force
2 Development Test Center is that the general
3 public will not have any additional risk due
4 to test activities than they would experience
5 in everyday life. The potential impacts of
6 socio-economics are similar to those for land
7 and water use, as the launch hazard area would
8 also have to be cleared of commercial
9 activities. This clearance would occur up to
10 four hours on launch day. Each Hera target
11 missile launch could result in over
12 \$100,000.00 in personnel per diem. Each
13 interceptor missile launch could result in
14 nearly \$150,000.00 in per diem expenditures.
15 The potential impacts of
16 transportation are location specific. The
17 utilities currently available at each location
18 are sufficient to handle the requirements of
19 the proposed program. However, bottled water
20 and portable toilets may be used to reduce any
21 impacts on these resources. Visual
22 aesthetics, each of the proposed sites has
23 historically been used for military purposes.
24 The visual aesthetics of the proposed
25 facilities would be consistent with the

1 existing facilities.
2 Water resources, temporary small
3 increases of surface water acidity may occur.
4 The amount of time for these to dilute depends
5 on water movement and activity. The amount of
6 acid created is not expected to be harmful to
7 wildlife. I will now discuss potential
8 impacts for each proposed site.

9 On Santa Rosa Island, these are the
10 potential impacts to cultural resources. The
11 facilities at Santa Rosa Island site A-15 are
12 potentially eligible for listing on the
13 National Register of Historic Places. This is
14 due to the BOMARC missile testing that
15 occurred there from 1959 to 1985. These are
16 considered cold war era facilities. The
17 potential impacts would be the modification of
18 these facilities from their original intent.

19 For transportation, the Florida
20 Department of Transportation estimates U.S. 98
21 will be over capacity by the year 2005. These
22 are current, average, daily, traffic counts.
23 This is the current capacity of the U.S. 98.
24 As you can see, some of the sections are
25 already over capacity. This is the estimated

1 traffic in the year 2005. The additional
2 amount of traffic due to the proposed testing
3 adds very little traffic to this total. The
4 project traffic is primarily rental vehicles
5 used by the engineers and technicians
6 preparing the missiles for launch. This
7 maximum traffic would only be for a couple of
8 days for each launch.

9 At Cape San Blas the potential
10 impacts to biological resources are a
11 line-of-sight corridor 5500 feet long and 40
12 feet wide which is needed for the range safety
13 instrumentation currently planned for Hera
14 target launches. This would pass within 75
15 feet of a Bald Eagle's nest. This violates
16 the U.S. Fish and Wildlife Service Primary
17 Protection Zone of 450 meters, which is
18 approximately 1475 feet.

19 Cape San Blas has the highest sea
20 turtle nesting density in northwest Florida,
21 approximately 15.3 nests per mile. Since a
22 lot of launch preparations would occur during
23 the night prior to the launch, sea turtles
24 would be adversely affected during nesting and
25 hatching seasons. The launch facilities to

1 support a Hera target launch site would cause
2 a permanent loss of 1.62 acres of wetland
3 habitat that is used by a variety of birds.

4 For cultural resources, Hera target
5 missile launches could cause short-term noise
6 levels of 124 dBA in the area of the
7 Lighthouse and Keeper's Quarters. These
8 historic facilities are inside the launch
9 hazard area. This has a potential to damage
10 the Lighthouse lens and the Keeper's Quarters.
11 Potential impacts to transportation are that
12 State Road 30E would have to be closed on each
13 side of the launch hazard area approximately
14 one hour prior to the missile launch. This is
15 a standard practice that we have used for
16 other missile launches from Cape San Blas.
17 Emergency vehicles would be allowed access.
18 Traffic would be increased by 40 percent on
19 State Road 30E during the last couple of weeks
20 leading up to a launch. This represents a
21 total of less than 2000 vehicles projected for
22 the year 2005. This is well within the total
23 capacity of State Road 30E of 9200 daily
24 vehicles.

25 In the Keys, the potential impact to

1 biological resources are that the proposed
2 launch site on Saddlebunch Key would disturb
3 up to 2.23 acres of wetland. There would be
4 no additional wetlands disturbed at Cudjoe
5 Key. There is a potential that vegetation
6 near the launch site would be singed.

7 However, at the Hera launch from Fort Wingate
8 last November, snow 20 feet from the launch
9 site was not melted. The Florida Game and
10 Fresh Water Fish Commission performed a survey
11 at Cudjoe Key last spring to try to determine
12 the Silver Rice Rat population. The Silver
13 Rice Rat is on the Federal listing as an
14 endangered species. No Silver Rice Rats were
15 captured after one week of trapping.

16 The potential impacts to cultural
17 resources, are at Cudjoe Key, the Cudjoe Key
18 aerostat facilities are potentially eligible
19 for listing on the National Register of
20 Historic Places. These facilities may be
21 eligible because they are considered cold war
22 era facilities. The potential impact would be
23 the modification of these facilities from
24 their original intent.

25 Potential transportation impacts, if

1 the Cudjoe Key alternative were to be
2 selected, Blimp Road would be closed at
3 Asturius Road. This closure would last up to
4 four hours on launch day. This would not
5 restrict access to or from Cudjoe Acres. The
6 Florida Department of Transportation estimates
7 that Highway 1 will be over capacity by the
8 year 2005. These are the current, average,
9 daily, traffic counts. This is the current
10 capacity of Highway 1. This is the estimated
11 traffic in the year 2005. The additional
12 amount of traffic due to proposed testing adds
13 very little traffic to this total. This
14 project traffic is primarily rental vehicles
15 used by the engineers and technicians
16 preparing the missile for launch. This
17 maximum traffic would only be for a couple of
18 days before each launch.

19 Some of the launches, all of the
20 missile flights, and the intercepts would
21 occur over the Gulf of Mexico. These are some
22 of the potential impacts for the Gulf. In
23 airspace, the existing airspace warning areas
24 would be closed to aircraft for a period of up
25 to four hours. This would result in rerouting

1 commercial aircraft around these warning
2 areas, a standard procedure used today.
3 For biological resources, the effects
4 of sonic booms on marine mammals is not very
5 well understood. There may be sonic booms
6 penetrating the water surface. We are
7 investigating the impact to marine mammals
8 with the National Marine Fisheries Service.

9 Potential transportation impacts, in
10 addition to the airspace, portions of some of
11 the shipping lanes in the Gulf and intracostal
12 waterway would be cleared for short periods.

13 The Federal agencies listed here have
14 reviewed earlier drafts of the SEIS. They
15 have provided comments to us to aid in our
16 preparation of the draft SEIS. This draft was
17 mailed to the public in February. We will
18 continue to consult with the Federal agencies
19 as well as the state agencies listed here.
20 Should any regulatory permits be required,
21 these are the agencies that will issue those
22 permits.

23 The next steps for the SEIS are shown
24 here. First, and most important, we need your
25 comments on the SEIS. To ensure your comments

1 are incorporated in the final SEIS, we need to
2 receive them by 3, April. These comments will
3 be addressed in the final SEIS. The final
4 SEIS should be completed sometime this fall.
5 We are hoping to complete it by September.
6 The director of the Ballistic Missile Defense
7 Organization would make a Record of Decision
8 no earlier than thirty days after the final
9 SEIS is completed.

10 That is all I have tonight. Thank
11 you for your interest and concern with this
12 important National Defense Project.

13 MR. MICHAELSON: Thank you, Major
14 Kennedy. We are now going to take a five
15 minute break to set up the podium and collect
16 any other speaker sign up cards. If you would
17 like to speak and have not already done so,
18 again, if you will go to the registration
19 table and fill one of those out, uh, if you
20 will just stay put for five minutes, we will
21 be right back with you. Thank you.
22 (Whereupon, there was a brief recess.)

23 MR. MICHAELSON: Okay. We are ready
24 to start calling names of those of you who
25 have planned to speak tonight. I have a list

1 of people that have signed up so far. And I
2 will be calling you in the order in which you
3 signed up. I will start out by calling the
4 first several names, so you can get ready to
5 come up here to the front to use the podium.
6 Because we want to record your comments fully
7 and accurately, we ask that you speak clearly
8 into the microphone and also that you would
9 please start your comments by stating your
10 name for the court reporter.

11 Finally, we would kindly request that
12 you observe the four minute time limit. We
13 have used the four minute time limit at all of
14 the hearings to give everyone a fair and equal
15 chance to participate. To aid you in knowing
16 when your four minutes are up, I have a simple
17 method for indicating time. After three
18 minutes I will put up my index finger, like
19 this, indicating that you have one minute
20 left. This should help you find a comfortable
21 place to wrap up your comments. At the end of
22 four minutes, I will put up a closed hand,
23 like this, indicating it's time for you to
24 finish your comments. We greatly appreciate
25 your cooperation in observing this limit.

		P-T-0038 COMMENT NUMBER
1	Also keep in mind again that oral	
2	comments are only one way to share your	
3	thoughts and concerns with the Air Force	
4	regarding the SEIS. You can also hand in	
5	written comments or send them in by April 3,	
6	1998. And as I mentioned earlier, written	
7	comments are given the same consideration as	
8	oral comments offered here tonight. With	
9	that, the first people I have on my list are	
10	Loraine Casella, Tina Henize, and then a	
11	series of presentations starting with Shirley	
12	Freeman. And they know who they are and in	
13	what order they are coming up. Loraine, you	
14	will be first.	
15	LORAIN CASELLA: Good evening, I	01
16	have spoken to several of you before. My name	
17	is Loraine Casella. And I live on Duck Key.	
18	I am far enough away from Cudjoe Key and	
19	Saddlebunch, uh, residing on Duck Key, but my	
20	concern is that here in Monroe County, we have	
21	a myriad of rules that we have to follow. One	
22	of which is that we are not even allowed to	
23	cut a Mangrove tree down. And here you are	
24	going to come and try to convince me how safe	
25	it's going to be. I don't think we can afford	

		P-T-0038 COMMENT NUMBER
1	to take any more chances than we already have	02
2	in our environmentally sensitive home, homes.	
3	We have moved down to the Keys for a peaceful	
4	environment and a safe place in which to live.	
5	The gentleman who spoke went from	03
6	hair dryers to sonic booms. And that doesn't	
7	sound very good. Please, consider where we	
8	are living. We like our fish in one piece.	
9	We don't want them filleted by the Air Force.	
10	We want to be left to be in a quite peaceful	
11	safe environment. Remember Murphy's Law. We	
12	know you are trying to do everything very	
13	safely. Do it out over the water, far away	P-T-0039
14	from here please. Thank you.	
15	MR. MICHAELSON: Okay. Tina Henize.	01
16	TINA HENIZE: Some of you have heard	
17	most of this before. My name is Tina Henize.	
18	I live in Cudjoe Acres just outside of the	
19	testing launch hazard area. It would be very	
20	easy and quite a bit of fun, if we weren't	
21	already tired of the subject of missiles, to	
22	take lighthearted pot shots at the draft SEIS.	
23	We could point out it's real findings such as	
24	on page 3-424, which says the mainland portion	
25	of Monroe County includes the Everglades	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0039 COMMENT NUMBER			P-T-0039 COMMENT NUMBER
1	National Park, the Big Cypress National	02	1	accidents. Catastrophic failures of missiles	04
2	Preserve, and the City of Miami. We could		2	do happen from time to time. And chopping off	
3	make a lengthy list of typos, sloppy rubber		3	pieces of the LHA because there are hundreds	
4	stamp errors and cut and paste errors, and		4	of families living there, does not make the	05
5	even geography slip ups. But the scariest		5	improbable impossible.	
6	part of this draft SEIS is the conclusions		6	Biological concerns across the board	
7	that it draws. That all environmental impacts		7	are dismissed in this document as negligible	
8	from air quality to noise to human safety to		8	without adequate studies of the ecosystems.	
9	visual aesthetics to toxic conditions effects		9	Endangered species are endangered for a	
10	on fresh and salt water wetlands to harassing		10	reason. They are rare. They are already	
11	and killing wildlife to denying citizens		11	stressed for various reasons. And as	
12	access to public land and water that all these		12	endangered species, they are sensitive to	
13	impacts are negligible. These conclusions are		13	small environmental changes. The draft SEIS	
14	based on very faulty and pitifully incomplete		14	does not show that a detailed study in C2 or	
15	studies.		15	otherwise was done on any Keys ecosystem.	
16	There are numerous references to	03	16	With the help of cooperating agencies and	06
17	affects being temporary and of short duration,		17	other sources, the SEIS authors list species,	
18	as if that makes them okay. Gun fire is of		18	plants, and animals known to be in the	
19	short duration too, but we go out of our way		19	vicinity. Then essentially say, and we are	
20	to prevent it. Accidental explosions and		20	going to kill some of these plants and	
21	other missile mishaps are of short duration as		21	animals. We don't really know how many. But	
22	well. But no matter how small the probability		22	it doesn't matter, because it's infrequent and	
23	of catastrophic accident, the SEIS should		23	of short duration. Such careless disregard of	
24	consider distances between people and missile		24	our sanctuary and of the health and safety of	
25	launches and needs to consider improbable		25	our citizens is unacceptable.	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0039 COMMENT NUMBER			P-T-0039 COMMENT NUMBER
1	One last point, regarding the subject	07	1	sites being used and being too close to human	
2	of toxic emissions, especially long term		2	population can never be overcome. And nothing	
3	cumulative effects, not only is there -- there		3	can mitigate environmental damage from routine	
4	is mention of ten years of repeated discharges		4	missile launches much less potential damage of	
5	on Florida's salt water system, but there is		5	missile mishaps. Thank you.	
6	never a hint of awareness that there are a	08	6	MR. MICHAELSON: I would like to note	
7	number of families near the LHA dependent for		7	that I was watching the stenographer's	
8	their primary water source. We certainly		8	fingers, and that was about as fast as she can	
9	appreciate the consideration General Lyles		9	go. There is a tendency I have noticed that	
10	gave to the issue of launching missiles from		10	if someone is reading comments to kind of get	
11	the Keys, and we are grateful to his decision	09	11	going fast. So if you could keep it at that	
12	to set aside the Keys option as preferred.		12	or slightly less, I think we can keep up with	
13	However, the draft SEIS purports to have		13	you. The next set of speakers will be	
14	satisfactorily answered all environmental and		14	introduced by Shirley Freeman, Monroe County	
15	safety concerns which it definitely does not.		15	Commissioner.	
16	The draft SEIS with respect to many issues of		16	SHIRLEY FREEMAN: Hello, my name is	P-T-0040
17	safety and environment is obviously		17	Shirley Freeman. I am a Monroe County	
18	inadequate. It contains erroneous and		18	Commissioner and welcome to our commission	
19	incomplete information. It barely scratches		19	chambers here in the Marathon Government	
20	the surface on issues pertaining to the		20	Center. Two years ago as Mayor of Monroe	
21	ecosystems of the Keys. We strongly recommend		21	County on behalf of the County Commission, I	
22	that the portions of the Theater Missile		22	wrote to the Secretary of Defense asking that	
23	Defense Draft SEIS as it is applied to land		23	the land launch option be rejected and that	
24	launches from the Florida Keys be deleted		24	the air launch target be considered. Today	
25	entirely. The problem of potential launch		25	air launch is the preferred alternative. And	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0040 COMMENT NUMBER			P-T-0040 COMMENT NUMBER
1	we are grateful and relieved. However, we	01	1	their area of expertise. As I call your name,	
2	still have to finish off this SEIS. To assist		2	would you please stand up, so everyone will	
3	me in analyzing this document, I have been		3	know who you are? First, is Gerry Girard, a	
4	fortunate enough to be able to call on a team		4	retired airline captain. He is a board member	
5	of scientists and others, all Florida Keys		5	of the telecommunications company and is an	
6	residents, who have volunteered their time and		6	avid sportsman. He will give general	
7	expertise to examine the draft SEIS with a		7	introductory comments. Then there is	
8	fine toothed comb. Their findings of this		8	Elizabeth Cofer, a graduate of Duke University	
9	document are that it does have many fine		9	with a B.A. in Zoology and a Master's in	
10	attributes. But it is woefully lacking in		10	Education. And she is a twenty year career	
11	evidence which leads to some of the bizarre		11	chemistry teacher. She will speak on traffic	
12	conclusions concerning the ecological treasure		12	and transportation.	
13	we call the Florida Keys. It falls short, for		13	Then we will have Dennis Henize, a	
14	example, in providing any raw data or a		14	meteorologist and former U.S. Air Force	
15	description of experiments which led to the		15	weather auxiliary. He spent twenty years as a	
16	bizarre conclusions. There is no reported		16	National Weather Service meteorologist and was	
17	experiment to determine the impact of chemical		17	awarded the NOAA citation for performance	
18	discharge in this tropical environment.		18	during Hurricane Andrew. He will speak on the	
19	Conclusions were apparently reached from		19	launch hazard area. Sol Rosenblatt has	
20	observations of testing in the dry dessert air		20	degrees in both chemistry and chemical	
21	off White Sand or the very deep water in the		21	engineering, has worked on rocket development	
22	Mississippi. We have wet air and shallow		22	programs and advanced aircraft power systems	
23	water.		23	for organizations such as Pratt and Whitney	
24	Now, I would like to introduce the		24	and NASA. His findings on the nature and	
25	people who are going to speak after me in		25	distribution of toxic emissions will be	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0040			P-T-0041
		COMMENT			COMMENT
		NUMBER			NUMBER
1	recorded by David Musselman, the president of		1	Anti-Air force. I know there were some kind	01
2	the Cudjoe Garden's Property Association and a		2	of touchy things said last night, but most of	
3	retired pilot.		3	the men and women I have studied with are	
4	Wayne Hoffman has a Master's Degree		4	veterans. My father is buried at Arlington.	
5	in Zoology and a Ph.D. in Biology. He is a		5	Both he and I wore the uniform you have on	
6	research scientist for the National Audubon		6	now, proudly.	
7	Society and specializes in the ecology of the		7	Now, the draft of the Supplemental	
8	Everglades and the Florida Keys and their		8	Environmental Impact Statement is a misleading	
9	unique tropical habitats. He will he speak on		9	study of a unique environment. It is not	
10	biological effects. The conclusion will be		10	applicable to the Florida Keys. Monroe County	
11	given by Alexander Hadden, who is a retired		11	has the only easily accessible shallow water	
12	attorney and Yale graduate, who is interested		12	living coral reef in the United States. There	
13	in the long-term survival of the fragile Keys.		13	are thousands of acres of shallow water	
14	We have graphics which were made by		14	Mangrove islands providing life sustaining	
15	Mr. Moody, who has also done graphic		15	nursery for marine and bird life surrounding	
16	presentations for congress. And the team was		16	the proposed site. The area from the	
17	coordinated by Gordon West, a senior		17	Everglades from Florida Bay to the Coral Reef	
18	consultant in environmental health and safety		18	is already under intense scrutiny by Federal	
19	systems. And now the members of the team will		19	and state pollution control experts. And it	
20	make their presentation.		20	will only suffer more damage from highly toxic	
21	MR. MICHAELSON: Gerry Girard.	P-T-0041	21	chemicals during normal launches.	03
22	GERRY GIRARD: My name is Geraldo		22	The ecological environment here is so	
23	Girard. I just want to preface one thing		23	fragile that the State of Florida has declared	
24	before I get started here. This group that I		24	Monroe County an area of critical state	
25	represented is not now and has never been		25	concern. The water quality, population	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0041 COMMENT NUMBER			P-T-0041 COMMENT NUMBER
1	density, traffic density, land use, marine	04	1	zone with consistently high humidity. Missile	09
2	resources, even the rate of growth is strictly		2	exhaust would spew out hydrogen chloride that	
3	regulated here. The proposed land and water		3	would quickly combine with water in the	
4	use is not compatible with the Monroe County		4	atmosphere to make about 10,000 pounds of	
5	comprehensive land use plan. This is the only	05	5	concentrated hydrochloric acid.	10
6	County in America primarily made up of islands		6	Wind effects have not been properly	
7	strung together by 41 bridges for 120 miles		7	considered in the chemical cloud disbursement	
8	with one road. That one road carries all the		8	scenario. On land surrounding the proposed	
9	traffic necessary for our daily living, food,	06	9	site, the endangered Silver Rice Rat's habitat	11
10	supplies, emergency and medical		10	extends from Cudjoe to the Saddlebunches and	
11	transportation, school buses and all of our		11	nowhere else. The endangered Florida Marsh	
12	water and electricity.		12	Rat's habitat extends from Big Torch to the	
13	Recognizing this unique environment	07	13	Saddlebunches and is the rarest mammal in the	12
14	the Federal Government as far back as 1908		14	Keys. The last remaining stand of tropical	
15	began designating specific wildlife areas in		15	hardwood hammocks are on Cudjoe and Sugarloaf	
16	Monroe County. Today there are four large		16	Key. Pine Rockland is unique in the world, a	
17	refuges and two contain the only Key Deer and	08	17	globally endangered ecosystem lying alongside	13
18	American Crocodile in the United States.		18	the boundary of launch hazard area on	
19	Superimposed over all of this is the Federally		19	Sugarloaf Key. Wetlands surround both	
20	Mandated Florida Key National Marine		20	proposed sites, so that any mishap will spill	
21	Sanctuary. Established in 1990, it covers	09	21	directly into the marine environment affecting	14
22	2,800 square miles. And it expressly forbids		22	fish, invertebrates, bird life, and	
23	the type of activity contemplated in your		23	defoliating native flora. The Ballistic	
24	draft. This is the only county in the		24	Missile Defense Organization continues to	
25	Continental United States in the subtropical		25	regard this area as a viable alternative. We	15

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0042 COMMENT NUMBER			P-T-0042 COMMENT NUMBER
1	scenario, as well as our food supply.	05	1	everybody to go home and read the editorial in	P-T-0043
2	The EIS has a description of a fire		2	the Miami Herald today.	
3	fighting plan, but it appears to be one of		3	MR. MICHAELSON: Dennis Henize.	
4	Eglin Air force Base's plans. Another concern		4	DENNIS HENIZE: My name is Dennis	
5	is the absence of a current traffic study in	06	5	Henize. At last night's hearing in Key West,	01
6	the EIS. Extrapolations are made from older	07	6	I said that the 6500 foot long hazard area for	
7	studies that may well have been extrapolations		7	Hera launches in the Keys is not large enough.	
8	themselves. For example, it predicts that		8	I cited a recent study prepared by a senior	
9	traffic in the year 2005 will be up 18 percent		9	staff scientist at the Union of Concerned	
10	on Cudjoe Key, down 9 percent on Summerland	08	10	Scientists and Securities Studies Program,	
11	and down 11 percent on Big Pine Key.		11	MIT, which concluded that in some plausible	
12	Impossible. The same traffic uses this entire		12	mishaps debris could travel two or more miles	
13	stretch. And if the traffic ever goes down on		13	from the launch site, well outside the LHA.	
14	Big Pine, it will be amazing as well as a	09	14	The red shaded area at the bottom of the	
15	miracle. Our traffic is heavy now and getting		15	Cudjoe LHA is the area which was carved out of	02
16	worse year by year. Over half our population		16	the LHA because my wife and I and 22 other	
17	excluding U.S. 1 -- uh, excluding Key West		17	families live there.	
18	centers on U.S. 1. Other questions not		18	And I stated that the LHA should take	
19	answered are: How fast will the convoy be	09	19	into account, but does not, at least two other	03
20	traveling? What time of day or night will		20	launch hazards that are identified in the EIS,	
21	this travel take place? Has thought been		21	compression waves from potential explosions	
22	given on how to handle civil disobedience		22	and chemical clouds from potential combustion	
23	should it occur? It seems obvious to me that		23	accidents. The draft SEIS acknowledges that	
24	the EIS is seriously flawed, inadequate and		24	launch pad explosions could cause over	
25	incomplete. And in closing, I would like		25	pressures of two pounds per square foot at a	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0043 COMMENT NUMBER			P-T-0043 COMMENT NUMBER	
1	distance of 1.9 miles, enough to cause minor	04	1	hazards which are identified in the SEIS which	05	
2	structural damage according to the EIS. At		2	it definitely does not. 6500 feet is not		
3	least 23 homes are closer than that.		3	sufficient, much less conservative.		
4	With respect to chemical clouds		4	The draft LHA cites plenty of		
5	resulting from potential combustion accidents,		5	technical information about noise but obscures		
6	the draft SEIS acknowledges that the highest		6	the issue by using methodology that looks at		
7	concentrations of hydrogen chloride would fall		7	the impacts of missile launch noise averaged		
8	outside the launch hazard area. In fact,		8	over long periods. The SEIS also considers		
9	results of the EPA approved model used to		9	what are called sensitive noise receptors,		
10	estimate the HCL concentration showed levels		10	i.e., the Sugarloaf School and a day care		
11	in excess of the short-term public emergency		11	center on Cudjoe, three or more miles away and		
12	guidance levels at distances of two and three		12	ignores that hundreds of homes are closer than		
13	miles from the launch site. Then a more		13	that, some as near as a mile and a half. And		
14	refined model was used, one that is not yet		14	using very bizarre methods, it concludes that		
15	approved by EPA or the State of Florida. And		15	the percentage of Cudjoe residents who would		
16	wouldn't you know it, it shows the HCL level		16	be highly annoyed by noise from missile		
17	somewhat below the guidance level. But very		17	launches are already highly annoyed by		
18	significantly even the more refined model		18	everyday sound. That is total nonsense. The		
19	still shows that the highest concentrations		19	SEIS also says that ambient noise on Cudjoe		
20	fall outside the LHA. Given that fact and		20	Key is from aircraft while, in fact, very few		06
21	that there is not agreement on the exact		21	aircraft fly over Cudjoe, especially northern		
22	amount, it's obvious that the LHA is		22	Cudjoe because of restricted airspace		07
23	insufficient to encompass this hazard. The		23	surrounding the aerostat.		
24	LHA should be sufficiently large enough to		24	On the subject of visual aesthetics,		
25	encompass the full extent of all the launch		25	what can be said about something so subjective		

		P-T-0043			P-T-0044
		COMMENT			COMMENT
		NUMBER			NUMBER
1	except to say that the SEIS rates the view of	08	1	it. If any of you would like to stay after	01
2	the back country from the Blimp Road boat ramp		2	school tonight, I have a handout. And I will	
3	as minimal as it is now. This artist's		3	explain Sol Rosenblatt's remarks. I also have	
4	rendition does not show the aerostat because		4	some remarks of my own. I am David Musselman.	
5	it is usually flying. Rating this view as		5	I am president of the Cudjoe Garden's	
6	minimal underscores just how little		6	Association. I will start with Sol's remarks.	
7	appreciation for the Keys the preparers of		7	He said, thank you for giving me the	
8	this document have. The draft SEIS then		8	opportunity to present some solid rocket	
9	concludes that this view from the Cudjoe Boat		9	emissions observations during my three and a	
10	Ramp, having sprouted a missile facility, will		10	half years as a solid rocket development	
11	retain moderate visual integrity. I don't		11	chemist with the Polaris Missile Program.	
12	think so.		12	With the Hera, one and half tons of	
13	This is not an impact statement at		13	hydrochloric acid -- excuse me, hydrogen	
14	all. It under estimates impacts on human		14	chloride gas emitted per launch combined in a	
15	safety, and it doesn't even attempt to		15	humid or an excess water environment, with	
16	seriously examine long-term effects on the		16	three tons of water which brings down the HCL	
17	ecosystem. The final SEIS should eliminate		17	in the form of four and one half tons of	
18	the Keys as even an alternative as the draft		18	hydrochloric acid rain. A few drops of this	02
19	SEIS does not support its findings of		19	acid will reduce the PH of a gallon of water	
20	negligible impacts.		20	to below seven, which is neutral by the way,	
21	MR. MICHAELSON: David Musselman.	21	instantaneously.		
22	DAVID MUSSELMAN: Folks, I feel like	22	MR. MICHAELSON: Mr. Musselman, I am		
23	I should be facing this way. They have	23	sorry. You are not speaking into the		
24	already heard what we have to say last night.	24	microphone. The court reporter is having a		
25	And four minutes is really not enough to say	25	hard time hearing you.		
		P-T-0044			

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0044 COMMENT NUMBER			P-T-0044 COMMENT NUMBER
1	MR. MUSSELMAN: I am just going to	03	1	He also mentions, Sol does, that	05
2	summarize this for you folks. It's easier for		2	since the rocket accelerates more slowly at	
3	me, and it's difficult for me to read his		3	the beginning most of the by products of the	
4	writing. I speak differently than he writes.		4	rocket would be close to the Earth. He then	
5	Basically, he is saying here that the four and		5	gets into the fact that the water is shallow.	06
6	a half tons of hydrochloric acid is way too		6	And the French had an accident in Guyana	
7	much. And that our reef is mysteriously dying		7	launching their Oriana 5, which flashed down	
8	at a rate of between four and ten percent per		8	into a lagoon, an area much like the waters	
9	year, and nobody knows why. He does not think		9	that we have. And basically it killed off	07
10	that this is a hot idea. There is a claim		10	everything that lived. It changed the color	
11	that only 20 percent, this is a claim in the	04	11	of the water and everything. The problem is	
12	SEIS, only 20 percent of the HCL that comes		12	the fuel is ammonium perchlorate. And it's	
13	out of the rockets would combine to form		13	toxic to plants and animals.	08
14	hydrochloric. And he wants to know what		14	The only thing that the study -- that	
15	happens to the balance? I agree. And he		15	the SEIS uses to say that that isn't so is a	
16	basically doesn't believe that that is true.		16	study done by the Russians. And Sol says,	
17	He says, and I found later even within your		17	essentially it's the Russians who have the	09
18	document, that hydrogen chloride readily		18	most toxic chemical nuclear dump in the world,	
19	gathers water from the environment. As was		19	and they shouldn't be the ones that set that	
20	stated before by other speakers and you will		20	criteria. I will get into the rest of it	
21	probably hear again, the testing that was done		21	later on. And rather than give you my speech	
22	in this regard was done in two dessert areas,		22	that I made last night, I will give you the	
23	the western dessert test range in Utah and the		23	last paragraph that is contained in the SEIS.	
24	one somewhere in New Mexico, Fort Wingate,		24	This program would not generally involve the	
25	excuse me.		25	use of resources to such extent that they	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

1	would become fully consumed or destroyed. As	P-T-0044 COMMENT NUMBER	1	that the writers may not be aware of a revised	P-T-0045 COMMENT NUMBER
	2 a result, potential irreversible or			2 edition of a series on rare and endangered	
	3 irretrievable commitment of resources would be			3 biota of Florida that have appeared over the	
	4 very limited and would occur only for certain			4 last several years. In addition to the	
	5 biological and cultural resources. My comment			5 species in this table, Magnificent	
	6 to that is: Which ones are you talking about			6 Frigatebird, Great White Heron, Great Egret,	
	7 that we would never have again?			7 Yellow-Crown Night-Heron, Wilson Plover, Royal	
	8 MR. MICHAELSON: Wayne Hoffman.			8 Tern, Sandwich Tern, and Black Skimmer are	
9	WAYNE HOFFMAN: Thank you. I am	P-T-0045	9	potentially at enough risk to be included. In	04
10	Wayne Hoffman. I spoke to you last night.		10	addition, at least 20 species of terrestrial	
11	And I got about half of what I had prepared on		11	invertebrates listed as threatened or species	
12	the record. And I will put the rest on		12	of special concern appear to live in the	
13	tonight. The basic point I was making is that		13	region of influence. These include three	
14	I find the documentation of risk in this		14	species of tree snails, a crab, a spider, a	
15	alternative to our flora and fauna to be		15	whip scorpion, two crickets, a beetle, and	
16	woefully inadequate. It's important that the		16	eleven species of butterflies all listed as	
17	final EIS either rule out this alternative	01 02 03	17	threatened or endangered or species of special	
18	completely or else provide accurate and		18	concern by the State of Florida. In addition	
19	comprehensive information on the effects on		19	numerous coral species are listed as	
20	our environment.		20	endangered or threatened. I don't know which	
21	My point six, table 3.3.3-2 on page		21	of the corals occur in the region of	
22	3-376, purports to list the wildlife with		22	influence, but their status certainly needs to	
23	Federal or State status that occur or		23	be addressed in the EIS.	
24	potentially occur near the Florida Keys site.		24	On page 3-386, it's stated, "if the	
25	This table is very incomplete. It appears		25	activities take place during the months of	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0045 COMMENT NUMBER			P-T-0045 COMMENT NUMBER
1	February through October..." it goes on to say	05	1	documented at about one kilometer from the	06
2	that this will have some disturbance effects		2	aerostat facility on Cudjoe.	
3	on a series of bird -- a category of bird		3	And number ten, the draft EIS	
4	species. In fact, disturbance can occur any		4	completely ignored potential direct effects of	
5	month of the year in our tropical climate. We		5	hydrochloric acid disposition on wildlife. I	
6	have birds here all year long. We have some		6	do not think we should assume that a mist of	
7	nesting every month of the year. Similarly on		7	highly acidic hydrochloric acid rain would be	
8	page 3-390, is a statement about the month of		8	harmless to the eyes of a Bald Eagle or a	
9	risk to nesting Eagles. Our Bald Eagles nest		9	Reddish Egret. That is a subject that is just	
10	in the winter into early spring, not spring		10	completely ignored in the EIS.	
11	summer. In fact, currently our Bald Eagle		11	And the final comment I want to make	
12	nesting are fledging their young as we speak.		12	is that most of the comments about potential	
13	The eggs were laid in December.		13	effects on the biota are related to normal	
14	Page 3-389 it is stated the		14	operation, normal launches. The EIS needs to	
15	construction activities are unlikely to affect	07	15	address and needs to address in detail the	07
16	sea turtles. Lighting after dark can		16	effects on the biota of all of the plausible	
17	disorient hatchling sea turtles, and some		17	accidents that could occur from explosion of a	
18	nesting does occur within range of these		18	missile on the pad to destruction at low	
19	sites. Any new lighting of all of the sites		19	altitude above the pad, to destruction a short	
20	where construction is going on needs to be		20	distance down the range. The effects of those	
21	described and the potential effects on turtles		21	on our biota are a subject that is really	
22	assessed. Number nine, page 3-390, the		22	necessary to be covered under NAPA. Thank	
23	nearest rookeries for wading birds is stated		23	you.	
24	to be 5.5 to 7 kilometers away. This is		24	MR. MICHAELSON: Alexander Hadden is	
25	incorrect. Some wading bird nesting has been		25	next. He will be followed by Barry Steiglitz,	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0046 COMMENT NUMBER			P-T-0046 COMMENT NUMBER
1	Charles Kanter, Diane Linn, and Nick Putnam.		1	which the LHA was magically shrunk when it was	04(cont)
2	ALEXANDER HADDEN: My name is		2	discovered that it did include settled areas,	
3	Alexander Hadden. I am a retired attorney.		3	seems to us to highlight the documents lack of	05
4	My comments this evening are intended as a		4	objectivity. Also more detail is needed on	
5	summary of the views presented by the task		5	the timing of the trigger mechanism or the FTS	
6	force organized by Commissioner Shirley		6	in the event of an accidental firing in the	
7	Freeman. The focus of the task force has been		7	direction of a populated area.	
8	to assess how well the draft SEIS portrays the		8	Secondly, we are concerned about the	06
9	impact on the Keys of launching target		9	environment. The analysis understates the	
10	missiles here.		10	potential impact of introducing large	
11	We find the document as it stands to	01	11	quantities of hydrogen chloride and thus	
12	be incomplete and superficial and in some		12	hydrochloric acid into a region of high	
13	respects distorted. Our first concern is		13	humidity and shallow sea water. And it fails	07
14	human health and safety. Nowhere in the SEIS	02	14	to focus at all on the consequences of such	
15	is there any focus on the possibility of		15	imposition on the fragile alkaline environment	
16	serious accidents. It neither quantifies nor		16	and on the many -- on the effect on many of	
17	even mentions the possibilities of human		17	the birds, animals, and native organisms that	
18	error, equipment or system failure, sudden		18	are dependent on a continuation of that	
19	wind or meteorological change or a combination		19	alkalinity and of their own tranquil	
20	of such factors which might result in the		20	condition. We are also concerned with the	08
21	destructive distribution of debris or toxic		21	concerns raised by the Marine Sanctuary and	
22	emission beyond the launch hazard area. And	03	22	the Wildlife Service. We urge that these	
23	of particular concern is the extremely short		23	issues be addressed by the final SEIS.	
24	distance from the launch sites to the edge of		24	Finally, we are concerned about	09
25	the LHA on populated sides. The fashion in	04	25	transportation. The Overseas Highway is the	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0046 COMMENT NUMBER			P-T-0046 COMMENT NUMBER
1	sole conduit for automobile traffic, drinking	10	1	that in the Keys are minimal. Disasters of	15
2	water, electric power, hospital and medical		2	this sort have occurred, and they could happen	
3	services, food and every other vital service		3	here. We hope that the final SEIS will look	
4	required by our entire population. The impact		4	much harder and deeper into these real risks	
5	of the missile proposal on this life line		5	and find ways to treat them that would be both	
6	corridor is not addressed at all in the draft		6	more detailed and much more convincing. We	16
7	SEIS. What would be the effect of this		7	also hope that it will eliminate any further	
8	heavier traffic burden on normal essential		8	consideration whatsoever of the Keys as even a	
9	traffic patterns. And God forbid that there		9	low probability launch site. Thank you.	
10	should be an accident that takes out a bridge,	11	10	MR. MICHAELSON: Barry Steiglitz.	
11	for example. Should there not be some rather		11	BARRY STEIGLITZ: Good evening, I am	01
12	specific -- some specific rather than generic		12	Barry Steiglitz. I am the project leader for	
13	contingency planning that would take such		13	the Florida Keys National Wildlife Refuge.	
14	possibilities into account.		14	And I am here to introduce into the public	
15	In conclusion, there is a real		15	record written comments from the U.S. Fish and	
16	possibility of the failure of a missile		16	Wildlife Service regarding -- whatever we are	
17	launch. We can conceive of no other rural		17	here tonight. The Florida Keys Refuge is	
18	location in the U.S. where the consequences of	12	18	the --	
19	such an accident would be more devastating.		19	MR. MICHAELSON: Can you speak into	P-T-0047
20	Such a failure could result in the dispersal		20	the microphone?	
21	of flammable and toxic materials and chunks of		21	BARRY STEIGLITZ: Sure. Tonight I	
22	missile hardware in areas where people live or		22	want to start with a few of the more pertinent	
23	involve accidental explosions of a missile		23	points for this record concerning the Florida	
24	being transported on U.S. 1. It is not enough		24	Keys proposal alternative. I would like to	
25	to say the chances of events happening like		25	point out that this is a preliminary position	
		13			
		14			

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0047 COMMENT NUMBER			P-T-0047 COMMENT NUMBER
1	of the Service based on preliminary	02	1	area, the 2,270 acres and 1,900 acres within	07
2	information. With respect to the draft		2	the Great White Heron National Key Deer	
3	proposal, there are a number of deficiencies		3	Refuge. By definition of the wilderness act	
4	regarding potential effects to Federal Trust		4	of 1964, wilderness areas are -- and I am	
5	Resources, plan management responsibility, and		5	paraphrasing -- Federal land retaining their	
6	human health and safety. Some of these		6	primeval character and influence, which are	
7	include a thorough evaluation of the effects		7	protected and managed to preserve natural	
8	of prelaunch and launch activity on the		8	conditions such that it generally appears to	
9	populations of the Silver Rice Rat, the lower		9	be affected by the forces of nature, with the	
10	Keys Marsh Rabbit, Key Deer, Bald Eagle and		10	imprint of man's work substantially	
11	Eastern Indigo Snake, all of which exist		11	unnoticeable and has outstanding opportunities	
12	within the launch hazard area in both Cudjoe		12	for solitude or primitive and unconfined type	
13	and Sugarloaf Keys.		13	of recreation. Furthermore, wilderness areas	
14	There needs to be a thorough	03	14	shall be administered in such a manner as will	08
15	evaluation of the effects of prelaunch and		15	leave them unimpaired for future use and	
16	launch activities on shore bird and wading	04	16	enjoyment as wilderness.	09
17	bird rookeries within the launch hazard area.		17	There needs to be a thorough	
18	As nesting birds take flight in response to	05	18	evaluation of the proposed action with respect	
19	prelaunch and launch activities, they leave		19	to visual pollution of wilderness areas, the	
20	the nest exposed to both predators and the	06	20	impact on wilderness solitude, and	
21	elements. Flushing birds makes it necessary		21	recreational and economic impact to the highly	
22	to expend energy that may be otherwise used		22	desired wilderness experience and its impact	
23	for foraging, nesting, and or mating. The		23	to wildlife and human use. The U.S. Forrest	
24	proposed action is inconsistent with the		24	Service as a visual resource management system	
25	congressional designation of the wilderness		25	as we saw is not a very appropriate tool to	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0047 COMMENT NUMBER			P-T-0048 COMMENT NUMBER
1	rate the scenic attractiveness of the Florida	10	1	consideration the Florida Keys alternative.	01
2	Keys back country and Mangrove habitat.		2	Thank you.	
3	Information on nesting, foraging, wading, and		3	MR. MICHAELSON: Charles Kanter.	
4	colonizing bird is incomplete. The flats of		4	CHARLES KANTER: Good evening, my	
5	Mangrove Island are used extensively by birds.		5	name is Charles Kanter, K-A-N-T-E-R, for the	
6	Rookery data is incomplete for instance. Just		6	record. I am a Korean War veteran. I am	
7	north of Cudjoe Key is the fifth most		7	proud of my Air Force. I am proud to see you	
8	important nesting site for Great White Herons.		8	all here. I want to see you have the best Air	
9	The primary species for which the Great White		9	Force that money can buy. I am not afraid to	
10	Heron National Wildlife Refuge was scheduled	11	10	give you my tax money to make the best Air	02
11	in 1938.		11	Force that money can buy. But I am very much	
12	I conclude, after reviewing the draft		12	afraid that you are not doing it. I am afraid	
13	comments, we remain concerned with the		13	you are taking my tax money and wasting it. I	
14	potential adverse effects of the proposed		14	think that this is the most bizarre scheme	
15	action. As a cooperating Federal agency in		15	that I have ever seen. I think that if you	
16	the draft SEIS process, we have attempted to		16	folks were working in private industry, you	
17	identify gaps in the information provided as		17	would get fired for a scheme of this nature.	
18	well as no hidden inaccuracies. As such, the		18	You realize all of these other people	
19	preliminary draft is incomplete in its current	12	19	before me were talking about the impacts on us	
20	form. At the same time, we do not believe		20	mammals and birds and things like that. And I	
21	that the adverse impacts of launching target		21	noticed that nobody was really too interested.	
22	missiles from the Keys, such as noise impacts		22	I would like to talk to you about the impact	
23	to nesting birds, can be reduced. It is the		23	on people, people like myself, on people that	
24	recommendation of the Fish and Wildlife		24	go out there and make their living out there	
25	Service to completely remove from		25	on the Gulf of Mexico. They make their living	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0048 COMMENT NUMBER			P-T-0048 COMMENT NUMBER
1	out here in the Florida Bay. There are people	03	1	out all the fast speed boats you want and tell	04
2	out there in canoes. There are people out		2	them to move. But they can't move. A	
3	there on jet skis. There are people out there		3	sailboat maybe goes six knots. That is it.	
4	on sailboats. There are people out there		4	How do you expect them to get out of the way?	
5	fishing. There are people out there running		5	So what are you going to do, postpone the	
6	crab traps and crab lines.		6	launch?	
7	I have heard some absolutely		7	Now, when you postpone the launch,	
8	ludicrous idea that you are going to send fast		8	because there are people in the way there,	
9	boats out there and clear the area or get them		9	what happens back here on our fabulous Florida	
10	on VHF radio. I mean these things are		10	Keys? We have four million people back here	
11	ridiculous. I would like to ask you, all of		11	that you are inconveniencing. They are not	
12	you up front, how many of you have ever been		12	all here at one time, thank God. But	
13	out on a boat? How many of you have ever been		13	nevertheless, that is what we are dealing with	
14	on a sailboat? How many of you know what the		14	here. You just simply -- what you are	
15	options are when somebody is sailing? Do you		15	proposing is preposterous. And what I am	
16	understand that Marathon and Key West are		16	proposing right now here tonight is that we	
17	cross roads for the sailing and the cruising		17	form a citizen's, all the folks here, that we	
18	world, that hundreds and hundreds of boats		18	form a citizen's committee to find out whose	
19	transpire our area every year on their way		19	idea this is and propose that he be fired.	
20	through the Caribbean, on their way to New		20	There is no reason for our taxpayer money to	
21	Orleans or up the west coast of Florida, or		21	go to such a silly scheme.	
22	Tampa, St. Petersburg? There are dozens --		22	As a matter of fact, when watching	
23	hundreds of sailboats out there all the time.		23	your presentation tonight, Major Kennedy, it	
24	There is not a possibility in the world of		24	brought down to me that it's not just here in	
25	anybody clearing them out there. You can send		25	the Keys. You guys should not be in the Gulf	
					05
					06
					07

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0048	P-T-0049		
		COMMENT	COMMENT		
		NUMBER	NUMBER		
1	of Mexico all together. There is just simply	08	1	notes. Because there are so many who are	
2	too much traffic, too many people, times have		2	unable to speak for themselves. I think it	
3	changed. This is not 1941 at the beginning of		3	would improve your analysis to realize that as	
4	the Second World War when there was an		4	a very concerned homeowner on Cudjoe Key, I	
5	emergency and the west coast of Florida was		5	know without a doubt that my home, loved ones,	
6	nothing but alligators. And there was nobody		6	and myself are in harms way. If I were your	
7	here in the Keys. We now have some major		7	mother or anyone else's mother on your staff,	
8	cities on the west coast of Florida. The Keys		8	would you want me to live in this area? I or	
9	have 80,000 permanent residents, and as I said		9	she am an endangered species. You can not	
10	before, some four million visitors a year that		10	replace a mother.	
11	you are going to inconvenience and endanger	09	11	Furthermore, my property will become	02
12	and create economic hardship for people that		12	valueless. As after only one is fired, would	03
13	are out there trying to make a living. That		13	any of you care to buy it? It will be	
14	is not the purpose of our Air Force. Our Air		14	worthless and cheap. In reference to the	
15	Force is to seek out and destroy the enemy		15	air-drop method, I think I understood you to	
16	which means to mess up his neighborhood not		16	say it's still only in development. That	
17	ours. Thank you.		17	seems very asinine to me. You don't even have	
18	MR. MICHAELSON: Diane Linn.		18	it developed? How can you say we will be	
19	DIANE LINN: Hello, I am Diane Linn,		19	safe? It sounds like building a home without	
20	and I live on Cudjoe Key. I will try to speak		20	house plans.	
21	very slowly. But I am most distraught over	01	21	In reference to the four hours to	
22	this situation. I came with no written		22	evacuate, why should I have to evacuate if	
23	speech, as I was afraid I would be too nervous		23	this is considered not to be dangerous? And	
24	to speak. But after listening to all the		24	how will I go on crowded highways? As in past	
25	lies, I feel I must as I went back through my		25	reference on my own, the government already	
		P-T-0049			

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0049			P-T-0050
		COMMENT NUMBER			COMMENT NUMBER
1	made big mistakes about the Snail Darter in	05	1	concerned with the local environment, our	02
2	the TVA area. What mistakes will you regret		2	environment is extremely fragile. It is	
3	later? I know you mentioned about sea	06	3	already over stressed. We are desperately	
4	turtles, birds, snails, and marine animals.		4	trying to find ways to reduce that stress.	
5	Such as Mr. Kanter said, I agree, but what		5	And any increment in stress on that is simply	
6	about people? How about the schools or the		6	non productive. I certainly agree with	
7	nearby day care center that is in the target		7	Mayor -- I should say, Mayor Freeman and her	
8	range area that has over 800 human lives in		8	team and their excellent analysis of the SEIS.	
9	there. I thank you for listening with your		9	Finally, I would like to make a	
10	ears. But now how about please listening with		10	comment as an individual, which does not	
11	your hearts for your mother and I are	P-T-0050	11	necessarily reflect the views of the Key Deer	
12	concerned.		12	Protection Alliance. There is a larger issue	
13	MAJOR KENNEDY: I would like to make	01	13	that goes beyond what we are discussing here	
14	a clarification. Nobody in this proposal is		14	tonight. But I don't think we can ignore it.	
15	expected to evacuate their homes or their		15	And, that is, given our limited resources in a	
16	property anywhere else in the Keys.		16	post cold war era, is further development of	
17	MR. MICHAELSON: Nick Putnam is next.		17	missiles really the most effective public	
18	NICK PUTNAM: My name is Nick Putnam		18	policy? I wish we would have more debate on	
19	a resident of No Name Key. As a person with		19	that issue. I am speaking now as an	
20	60 years of experience operating boats, I		20	individual. Thank you for the opportunity to	
21	would like to express my agreement with Mr.		21	speak.	
22	Kanter. I am here tonight as the president of		22	MR. MICHAELSON: That exhausted the	
23	the Key Deer Protection Alliance, an		23	list of speakers that have been handed to me	
24	organization dedicated to our most famous		24	so far. I think what we will do is take a	
25	endangered species. We are critically		25	five minute break and see if there is any	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0051 COMMENT NUMBER			P-T-0051 COMMENT NUMBER
1	other speaker cards that we have. And we will		1	presentation, and I would like to reiterate	01
2	reconvene if so. Again, you have five minutes		2	some of the ones that were already given. I	
3	to fill out a speaker registration card and		3	consider myself a patriot. I realize the	
4	turn those in to me. We will now recess at		4	necessity for preparedness and the realities	02
5	8:34. Thank you.		5	of what it takes to be prepared and the	
6	(Whereupon, there was a brief recess.)		6	sacrifices we all have to make. I no longer	
7	MR. MICHAELSON: I have another		7	feel as people did in the past the distrust of	
8	speaker registration card. So if I could ask		8	the military. But the legacy of the past is	
9	you to please take your seats again, we are		9	vigilance. We can forgive atrocities and the	
10	going to read the name. Okay. We are going		10	chaos of war, but we must guard against the	
11	back on the record at 8:39. We have one more		11	zeal of preparedness so that what we do while	
12	individual who gave me a card and would like		12	doing so has been given proper thought. One	03
13	to speak tonight. His name is Albert		13	can't help but wonder if the type of testing	
14	Tanzonieri. Would you come up and please		14	and the location itself isn't a bit of a	
15	state your name? Were you here when I gave		15	coincidence, given some of our unfriendly	
16	the instructions about how I indicate the		16	neighbors to the south in the Caribbean and	
17	times and everything?		17	Central America.	
18	ALBERT TANZONIERI: Yes, sir.		18	One wonders what this would prove or	04
19	MR. MICHAELSON: Okay. Great.		19	appear to those who were watching these tests.	
20	ALBERT TANZONIERI: Thank you.		20	Perhaps it is to show that our missiles are	
21	Albert Tanzonieri, T-A-N-Z-O-N-I-E-R-I. I am		21	hard to shoot down and perhaps that the Hera	
22	just now familiarizing myself with a lot of		22	missile is somehow similar to those in, for	
23	this entire situation. I wasn't exactly sure		23	example, Cuba. And that it would be to show	
24	whether I wanted to speak. But there are a		24	how easily they are taken down. But in any	
25	few things that I thought of in watching your		25	case, there is the danger of legitimizing the	

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

		P-T-0051 COMMENT NUMBER			P-T-0051 COMMENT NUMBER
1	Keys as a military target.	05	1	that the missile would decide to have a mishap	09(cont)
2	Now, you mentioned that these bases		2	in that direction. I believe that a more	
3	have been there for a long time, and they		3	accurate representation of that map would be	
4	already probably are targets. But to give any		4	circular. Because if this missile has a	
5	foreign power the idea that the Keys are more	06	5	potential for danger, it is going to do it in	10
6	legitimate targets or that each island is a		6	whatever direction it might be. And I think a	
7	potential for a site or that the		7	circular pattern on that map would post a lot	
8	transportation network as a whole is a target		8	more concern.	
9	is unacceptable. As a contractor, I am aware	07	9	During times of war, populations	11
10	of the penalties for cutting down the		10	learned to expect loss. Those who were in the	
11	Mangrove, disturbing the Mangrove, cutting		11	military noted it as part of the job. But in	
12	down non exotics, the handling of solvents and		12	peace times, even one person injured should be	
13	such. All the boaters around here know the	08	13	unacceptable. If any victims of a tragedy ask	
14	trouble you get into for running aground or		14	how and why that a piece of their lives has	
15	having oily bilge. There can be no minimum		15	been shattered, let it not be said that there	
16	safe impact to the environment that is already		16	were missiles launched on the Florida Keys.	
17	stressed. So once again we ask nature to bend	09	17	Thank you.	
18	a little bit more for us.		18	MR. MICHAELSON: That concludes the	
19	Nor do I feel that the west coast of		19	speakers we have for tonight. Thank you very	
20	Florida, the waters along the west coast, are		20	much for coming. We will adjourn at 8:45.	
21	appropriate for the debris for this exercise.		21	(Whereupon, these proceedings were concluded.)	
22	Indeed the west coast and the panhandle share		22		
23	a certain percentage of potential for danger.		23		
24	I noticed that your hazard area map, although		24		
25	it reached greatly into the Gulf, was assuming		25		

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

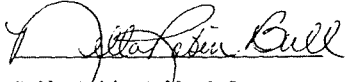
		P-T-0051
		COMMENT
		NUMBER
1	CERTIFICATE	
2		
3		
4		
5	STATE OF FLORIDA	
6	COUNTY OF MONROE	
7		
8		
9		
10	I, Nella Robin Bull, Notary Public at Large,	
11	certify that I was authorized to and did	
12	stenographically report the foregoing proceedings and	
13	that the transcript is a true and complete record of my	
14	stenographic notes.	
15		
16		
17	Dated this 26th day of March, 1998.	
18		
19		
20		
21		
22		
23	Nella Robin Bull, A.S.	
24		
25		

Exhibit 5.3-1: Reproductions of Transcript Comments (Continued)

Table 5.3-2: Responses to Transcript Comments

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
Traczyk, Tom	P-T-0001.01	Draft SEIS		Comment noted.
Harvey, Anne Park Manager, St. Joseph Peninsula State Park	P-T-0002.01	Transportation-Cape San Blas	3.1.11.4.2	If Cape San Blas is selected for Theater Missile Defense testing, appropriate mitigations including road design modifications could be implemented to accommodate turn arounds during road closure.
	P-T-0002.02	Transportation-Cape San Blas	3.1.11.4.2	Comment noted.
	P-T-0002.03	Transportation-Cape San Blas	3.1.11.4.2	If Cape San Blas is selected for Theater Missile Defense testing, appropriate mitigations including road design modifications could be implemented to accommodate turn arounds during road closure.
	P-T-0002.04	Transportation-Cape San Blas	3.1.11.4.2	Public notification of planned road closures would reduce road delays during test activities.
	P-T-0002.05	Transportation-Cape San Blas	3.1.11.4.2	If Cape San Blas is selected for Theater Missile Defense testing, appropriate mitigations including road design modifications could be implemented to accommodate turn arounds during road closure.
	P-T-0002.06	Geology and Soils	3.1.5.3	This information has been included in section 3.1.5 of the Final SEIS.
	P-T-0002.06	Geology and Soils	3.1.5.3	This information has been included in section 3.1.5 of the Final SEIS.
	P-T-0002.07	Land Use-Cape San Blas	3.1.7.3	This information has been included in section 3.1.7.3 of the Final SEIS.
Rebosio, Gianna Todisco	P-T-0003.01	Socioeconomics	3.3.10.4	The most recent and reliable data concerning tourism in the Keys was compiled by a consortium that comprised National Oceanic and Atmospheric Administration, the Monroe County Tourist Development Council, the Nature Conservancy, the U.S. Forest Service, the Bicentennial Volunteers and the University of Georgia. The study, titled Linking the Economy and Environment of Florida Keys/Florida Bay, estimated that there were 2.54 million tourist visits made to the Keys between June 1995 and May 1996 (Visitor Profiles: Florida Keys/Key West, November 1996, Leeworthy and Wiley, National Oceanic and Atmospheric Administration).
	P-T-0003.02	Water Quality-Gulf	3.2.14.4 3.3.14.4	Increased acidity (decreased pH) in bodies of water has various effects upon the plant life, invertebrates, and fish in that water depending upon degree and duration of the increased acidity. The shallow waters of ponds on the Keys are predicted to have a pH drop of as much as 0 to 0.1 units. This decreased pH could persist for as long as 72 hours considering the low rate of dilution and slow currents in these ponds. The back country shallow waters are predicted to have a pH drop of 0 units. This is due to the natural buffering effect of salt sea water on acids. This pH drop is anticipated to be of short duration due to the mixing and dilution of the currents. The hydrogen chloride and hydrochloric acid in the exhaust cloud would dissipate or deposit within minutes of a launch, and meters of the launch site (the near field). The hydrochloric acid in the exhaust cloud could damage the eyes of bird exposed to the cloud. The concentration of hydrogen chloride and the density of hydrochloric acid in the near field exhaust cloud would be negligible compared to the greater effects of heat and noise that close to a launch event.
	P-T-0003.03	launch emissions	3.2.14.4 3.3.14.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly with no long-term elevation.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0003.04	Launch emissions	3.2.14.4 3.3.14.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1,399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions). Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels.
	P-T-0003.05	Water Quality - Keys	3.3.14.4	The Theater Missile Defense test program would not introduce any contamination into drinking water supplies. The residual levels of test by-products in surface waters would not affect water quality sufficiently to cause skin or other reaction from contact or exposure. It is possible, however, that some individuals could experience a reaction.
	P-T-0003.06	Socioeconomics	3.3.10.4	Comment noted.
	P-T-0003.07	Safety	3.1.9.4	Comment noted.
	P-T-0003.08	Biology-Keys	3.3.8.4 3.3.14.4	Potential impacts of Theater Missile Defense testing on noise and water quality were evaluated in the Draft SEIS and have been clarified in the Final SEIS (sections
Rebosio, Alberto	P-T-0004.01	General		Comment noted.
Lehman, Christopher Monroe County	P-T-0005.01	TMD SEIS		Comment noted.
	P-T-0005.02	Alternatives-Keys	3.3.7.4	Comment noted.
	P-T-0005.03	Safety	3.1.9.4	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would ensure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.5 in the SEIS.
	P-T-0005.04	launch effects		Comment noted.
	P-T-0005.05	Alternatives-Keys		Comment noted.
	P-T-0005.06	DOPAA		Comment noted.
	P-T-0005.07	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0005.08	Draft SEIS		Comment noted.
	P-T-0005.09	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0005.10	Biology-Keys	3.3.3.4	See previous response.
	P-T-0005.11	Safety	3.1.9.4	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would ensure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.5 in the SEIS.
	P-T-0005.12	Safety	3.1.9.4	The Launch Hazard Area is drawn to protect community resources. The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area.
	P-T-0005.13	Safety	3.1.9.4	See responses above.
Freeman, Shirley County Commissioner, Monroe County	P-T-0006.01	Alternatives		The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. The Program Overview in section 1 explains the factors that will be considered in making the final decision following the completion of the Final SEIS. In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and, to assist in the decision making process.
	P-T-0006.02	Alternatives	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0006.03	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0006.04	launch emissions	3.3.1.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1,399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions). Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels.
	P-T-0006.05	Draft SEIS		Comment noted.
Girard, Gerry	P-T-0007.01	Environment-Keys		Comment noted.
	P-T-0007.02	Biology-Keys	3.3.3.4	Comment noted.
	P-T-0007.03	Water Quality-Gulf	3.3.14.4	Comment noted.
	P-T-0007.04	Environment-Keys		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0007.05	Transportation-Keys	3.3.11.4	Scheduling of missile transport and other Theater Missile Defense test-related traffic would be coordinated with local agencies to avoid peak traffic hours and minimize potential effects on local traffic movement.
	P-T-0007.06	Utilities-Keys	3.3.12.4	Comment noted. The Theater Missile Defense test program would not affect existing or future utility corridors.
	P-T-0007.07	Land Use-Keys	3.3.7.4	The conservation land uses including the refuges that you mention are a critical part of the resource management program for the Florida Keys. The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and is designated for military use. The Launch Hazard Area for these alternative sites does, however, overlap several wildlife refuges (see section 3.3.7 in the Final SEIS). New military uses in these areas are permitted but would require specific consultation and permission from respective Federal and state resource agencies. This consultation would require that any proposed action be designed and implemented so that potential impacts to any habitat or species be 1) avoided to the extent possible, 2) minimized when avoidance is not possible, and 3) mitigated to compensate for potential long-term adverse effects.
	P-T-0007.08	Land Use-Keys	3.3.7.4	The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. The Launch Hazard Area for these alternative sites does, however, overlap the National Marine Sanctuary and several wildlife refuges (see section 3.3.7 in the Final SEIS). New military uses in these areas are permitted but would require specific consultation with appropriate Federal and state resource agencies. See sections 3.1.3.4 and 3.3.3.3 in the Final SEIS for proposed mitigations. Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. This mitigation plan, which would avoid or minimize potential adverse impacts on protected areas, would be developed and implemented prior to initiating site preparation and test activities.
	P-T-0007.09	Air Quality-Keys	3.3.1.4	Comment noted.
	P-T-0007.10	Biology-Keys	3.3.3.3	The presence of the Silver Rice Rat at alternative sites in the Keys is discussed in section 3.3.3.3 of the Final SEIS.
	P-T-0007.11	Biology-Keys	3.3.3.3	The habitat of the Lower Keys Marsh Rabbit is discussed in section 3.3.3.3 of the Draft and Final SEIS.
	P-T-0007.12	Biology-Keys	3.3.3.3	The environmental setting of the Florida Keys, including hardwood hammocks and pine rocklands, is described in section 3.3.3.3 of the Final SEIS.
	P-T-0007.13	Biology-Keys	3.3.3.4	The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process.
	P-T-0007.14	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Cofer, Elizabeth	P-T-0008.01	Alternatives	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0008.02	Florida Keys	1.0	See response above.
	P-T-0008.03	Transportation-Keys	3.3.11.4	The importance of Highway 1 to the Florida Keys has been recognized. An early alternative site was eliminated because it would have required closing Highway 1. The evaluation of potential traffic impacts on Highway 1 in the Draft SEIS forecast an increase in traffic volume by 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation.
	P-T-0008.04	Transportation-Keys	3.3.11.4	Missile components would normally be shipped by standard freight transport vehicles and would not involve a convoy. Special safety and security precautions would be employed where necessary to assure that movement of emergency vehicles is not hindered.
	P-T-0008.05	Transportation-Keys	3.3.11.4	Scheduling of missile transport and other Theater Missile Defense test-related traffic would be coordinated with local agencies to avoid peak traffic hours and minimize potential effects on local traffic movement. Emergency vehicles would not be affected by Theater Missile Defense test activities, since they will not close the highway.
	P-T-0008.06	Safety-Keys	3.3.11.4	The ability to control the movement of missile components is important to the overall safety of the proposed Theater Missile Defense testing system. A specific evacuation plan for the missile and other test-related components and non-critical personnel would be implemented at the first notice of potential hurricane activity, before official hurricane watch and warning announcements. This would ensure that Theater Missile Defense-related evacuation movements would precede standard public evacuation plans and would not interfere with the planned process.
	P-T-0008.07	Transportation	3.3.11.4	Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0008.08	Transportation-Keys	3.3.11.4	Transportation of the missile components would involve standard freight transports and would not require a convoy. Emergency procedures for all contingencies would be established through cooperative agreements with local public safety agencies. No specific fire fighting vehicles would accompany the shipment, although all vehicles would be equipped with standard fire suppression equipment.
	P-T-0008.09	Transportation-Keys	3.3.11.4	The most recent and available data was used to characterize the existing traffic volumes and capacities in the Florida Keys. The traffic data and projections that were used for the analysis are the current estimates used by the Florida Department of Transportation.
	P-T-0008.10	Transportation-Keys	3.3.11.4	Traffic flows over multiple segments of a highway can differ considerably on the basis of the origin and destination of vehicles entering and exiting the highway. Section 3.3.11 of the Draft and Final SEIS notes that traffic volumes on U.S. 1 are currently at or near its design capacity.
	P-T-0008.11	Transportation-Keys	3.3.11.4	Comment noted.
	P-T-0008.12	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
Lowe, Donald S.	P-T-0009.01	Alternatives	2.0	Comment noted.
	P-T-0009.02	Visual Aesthetics-Keys	3.1.13.4 3.3.13.4	The facilities and operations that would be required for Theater Missile Defense activities in the Keys would not be greatly different from the existing facilities and operations on these sites. The perceived degree of change is subjective. To assist in the comparison of vistas, visual simulations have been provided in sections 3.1.13.4 and 3.3.13.4 of the Final SEIS to illustrate potential visual impacts of Theater Missile Defense facilities.
	P-T-0009.03	Visual Aesthetics-Keys	3.1.13.4 3.3.13.4	The building height restriction is a county zoning restriction, not applicable to Federal facilities.
	P-T-0009.04	Noise-general	3.1.8.1 3.3.8.1 3.1.9.4	The SEIS provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible. See section 3.1.9.4 of the Final SEIS for additional discussion of potential noise impacts.
	P-T-0009.05	Noise-general	3.1.8.1 3.3.8.1	See response above..
	P-T-0009.06	Noise-general	3.3.3.4	Potential impacts on shorebird and wading bird rookeries are presented in section 3.3.3.4 of the Final SEIS.
	P-T-0009.07	Program	3.3.8.1	An evaluation of psychological effects are outside the scope of this analysis.
	P-T-0009.08	Noise	3.1.3.4 3.3.3.4	Studies of launch effects at Cape Canaveral have shown that birds disturbed by launch noise normally return to their nest soon after the launch event.
	P-T-0009.09	Noise-general	3.3.3.4 3.3.8.4	The various noise models and measures that were used to evaluate potential noise impacts of Theater Missile Defense testing provide a reasonable characterization of noise effects on humans. Potential effects on wildlife were evaluated based on species-specific information from recent studies.
	P-T-0009.10	Visual Aesthetics-Keys	3.1.13.4 3.3.13.4	To better assess the visual impact of constructing a missile assembly building or erecting a 50 foot tall missile on a site, a visual simulations for each vantage point photograph used in the Draft SEIS has been prepared (sections 3.1.13.1 and 3.2.13.1.) These visual simulations use computer graphics programs to ensure that the apparent visibility of the building or missile in the photograph is what would actually be seen from each respective vantage point. Specifically, a known dimension in each photograph was determined from sources at the respective sites. This known dimension was projected into the photograph via planographic projection to provide a perspective scale of the distance between two objects. In this case, the two objects were the tower or known object, and the Hera missile, which would be 50 feet tall on its launch stool. The site mapping indicated the horizontal distance between the known object and the Hera missile launch site. The resultant photographic visual simulations are published in the Final SEIS section 3.1.13.4 (pages 3- 223 and 226) for the Panhandle sites and section 3.2.13.4 (pages 3-518 and 3-521) for the Keys sites. It is apparent, reviewing these photographs, that neither the building nor the missile are visible from most accessible vantage points. The view from those closer vantage points will include the existing military buildings as well as the new Missile Assembly Building and missile. The new buildings will be seen in the context of the existing military facilities.
	P-T-0009.11	Socioeconomic	3.1.10.4	An evaluation of quality of life is outside the scope of this document.
	P-T-0009.12	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
Henize, Dennis	P-T-0010.01	Safety-Keys	3.1.9.4	Appendix G of the Draft SEIS described the method of establishing a Launch Hazard Area. Each Launch Hazard Area is different, depending on the available land launch trajectory type of missiles and distance to populated areas or structures. Less operational constraints, such as permissible wind conditions at the time of launch and the reaction time of the range safety officer are required when more land is available for a Launch Hazard Area. Conversely, more operational constraints are required when less land is available. The geographic extent of the Launch Hazard Area and the operational constraints associated with it are established for each site to ensure that the launch can be safely conducted. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. An Launch Hazard Area of 4.5 miles was never proposed for the Hera launch sites at Santa Rosa, Cape San Blas or Cudjoe or Saddlebunch Keys. The 4.5 mile figure was originally associated with the Fort Wingate launch site. However, even at Fort Wingate, the eventual Launch Hazard Area was significantly less than 4.5 miles Northeast of the launch site due to the existence of a school or residence.
	P-T-0010.02	Safety-Keys	3.1.9.4	The Launch Hazard Area is drawn to protect community resources. The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area.
	P-T-0010.03	Safety	3.1.9.4	An inquiry is held following any launch mishap to fully document and understand all system anomalies. No launch will be scheduled until all issues raised during the inquiry are resolved.
	P-T-0010.04	Safety-Keys	3.1.9.4	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would assure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.5 in the SEIS.
	P-T-0010.05	Safety-Keys	3.1.9.4	We acknowledge but do not agree with Dr. David Wright's conclusions.
	P-T-0010.06	Noise/Air Quality	3.1.9.4	The Launch Hazard Area is defined as an area within which all missile debris would be confined. The areas affected by various levels of launch emissions and noise are determined through separate and independent analyses. Each of these analyses is used to determine the overall safety of the program.
	P-T-0010.07	Noise-Keys	3.1.9.4 3.3.8.4	The 2.0 pounds per square foot explosion is due to a complete Hera stage 2 impacting the ground or the water. In the case of a mishap, the Range Safety Officer may prescribe destroying the second stage prior to impact to prevent this explosion.
	P-T-0010.08	Air Quality-Keys	3.3.1.4	The TSCREEN PUFF model predicts concentrations at various distances from the launch point. For a normal launch, there were no exceedances. For a launch mishap scenario, TSCREEN PUFF indicated potential exceedance beyond the Launch Hazard Area. In that case, per Environmental Protection Agency guidance, the more refined model, Open-Burn Open-Detonation Dispersion Model, indicated that there would not be exceedance beyond the Launch Hazard Area.
Rosenblatt, Sol	P-T-0011.01	Launch emissions	3.1.1.4 3.3.1.4	The total exhaust from a Hera launch is 13,820 pounds, 3,078 pounds of which is hydrogen chloride, with 221 pounds of hydrochloric acid deposited in the vicinity of the launch pad. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² .

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0011.02	Launch emissions	3.1.1.4 3.3.1.4	The volume of hydrogen chloride emitted by the target missile in the volume of air it transits is negligible; not enough to contribute to acid rain. The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels.
	P-T-0011.03	Biology-Keys	3.1.3.4 3.3.3.4	Comment noted.
	P-T-0011.04	Launch emissions	3.1.1.4 3.3.1.4	Hydrogen chloride is one of the primary exhaust products from solid rocket motor combustion. At ambient temperatures and pressure, hydrogen chloride is very soluble in water. It readily dissolves in water to form hydrochloric acid. This reaction is exothermic, that is it generates heat. However, under the conditions which are present in the rocket's exhaust plume, less than 20 percent of the hydrogen chloride reacts with water to form hydrochloric acid in sufficient size to fall to earth. The remainder of the hydrogen chloride (in excess of 80 percent) will either not combine with water, or will combine with water and form microdroplets which are too small to fall out of the cloud. Therefore the maximum amount of acid which can rain out of any portion of the exhaust cloud is less than 20 percent of that portion. This maximum amount occurs under conditions of excess water, such as occurs during Space Shuttle launches. The proposed action does not include use of water during launches. As such, the proportion of hydrogen chloride in the exhaust which would form hydrochloric acid would be expected to be less than the proportion of the Space Shuttle's SRBM's that undergo a similar reaction.
	P-T-0011.05	Launch emissions	3.1.1.4 3.3.1.4	There are no "readings" in the predictions of hydrogen chloride deposition. These predictions are the product of predictive mathematical modeling.
	P-T-0011.06	Launch emissions	3.1.1.4 3.3.1.4	Hydrogen chloride is one of the primary exhaust products from solid rocket motor combustion. At ambient temperatures and pressure, hydrogen chloride is very soluble in water. It readily dissolves in water to form hydrochloric acid. This reaction is exothermic, that is it generates heat. However, under the conditions which are present in the rocket's exhaust plume, less than 20 percent of the hydrogen chloride reacts with water to form hydrochloric acid in sufficient size to fall to earth. The remainder of the hydrogen chloride (in excess of 80 percent) will either not combine with water, or will combine with water and form microdroplets which are too small to fall out of the cloud. Therefore the maximum amount of acid which can rain out of any portion of the exhaust cloud is less than 20 percent of that portion. This maximum amount occurs under conditions of excess water, such as occurs during Space Shuttle launches. The proposed action does not include use of water during launches. As such, the proportion of hydrogen chloride in the exhaust which would form hydrochloric acid would be expected to be less than the proportion of the Space Shuttle's SRBM's that undergo a similar reaction.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0011.07	Launch emissions	3.1.1.4 3.3.1.3.	If it were to rain shortly after a missile launch the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Depending on the buffering capacity of the receiving water, rainfall may result in an increase in surface water acidity. Surface water acidity ranging from approximately pH 4.0 to 6.0 is generally believed to result in stress to marine life and possibly death (National Aeronautics and Space Administration, 1990). The degree and duration of any increased acidity in surface waters would depend on several variables, including surface water volume and alkalinity, as well as the amount and pH level of rainfall. The pH of shallow marine waters near Santa Rosa Island is approximately 8.0. Marine waters in the vicinity of Santa Rosa Island range from a low of 7.2 in eastern Pensacola Bay to a high of 8.2 in central Pensacola Bay. Average alkalinity measurements range from a low of 93 mg/L calcium carbonate in the central Pensacola Bay to a high of 97 mg/L calcium carbonate near the mouth of Pensacola Bay (Florida Department of Environmental Protection, 1994). Project-related changes in pH of shallow marine waters near Santa Rosa Island were estimated for the purposes of impact analysis. Calculations were conservative in that 100 percent of the hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions). Existing surface water pH and alkalinity levels were assumed to be 7.2 and 93 mg/L calcium carbonate, respectively. Under these circumstances, rainwater falling on nearby surface waters would result in a slight decrease in pH from 7.2 to approximately 7.1 within the upper six inches of the water surface and would quickly dissipate with additional rainfall and mixing of the surface waters.
	P-T-0011.08	Launch emissions	3.3.1.4	Models use mathematical formulas to calculate the probable result of a series of factors that may affect emissions dispersion. These include such things as: wind speed, humidity, release height of the emissions, atmospheric stability, and mixing layer altitude, among others. For the purposes of this analysis we varied each model parameter to produce the most conservative (worst) result for each step in the model. The result was the highest possible predicted concentration and the greatest distance that could result from the launch of a Hera missile at any location. The results did not reflect the climate of Utah, the Keys, or any other specific location, but the worst possible combination of climatic conditions. Though the results are greater emission concentrations than would be realistically
	P-T-0011.09	Launch mishap	3.1.9.4	During normal launch events, there would be no unburned solid rocket propellant. If a mishap were to occur, any unburned propellant that was considered toxic to habitats or wildlife would be recovered and disposed according to Department of Defense regulations. See section 1.1.9 (Safety), of the Final SEIS for a further discussion of potential toxicological effects.
	P-T-0011.10	Launch mishap	3.1.9.4	If a launch mishap did occur, it is possible that unburned propellant and debris could enter coastal waters. Although this material would not be considered measurably toxic to the environment, consultation with resource agencies would determine if removal and clean-up of debris would be necessary or beneficial.
	P-T-0011.11	Launch mishap--Keys	3.1.9.4	Ammonium perchlorate would only be introduced into the Gulf of Mexico in the unlikely event of a launch mishap. The slow process of hydration would continue until the material was completely saturated. These quantities of ammonium perchlorate distributed over a wide area of the Gulf would not be considered toxic to the environment.
Hoffman, Wayne National Audubon Society	P-T-0012.01	Draft SEIS	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed. In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0012.02	Biology-Keys	3.3.3.3	The most recent and available data was used to characterize the existing environments of potential sites in the Florida Keys. Primary field investigations were to verify and supplement existing data. At each juncture of the logic chain between proposal and impact assessment, where assumptions have been used, the most conservative, professionally feasible values was used to assess the location, intensity, or duration of the impact. If anything, the analysis consistently over estimates potential impacts of the proposed action.
	P-T-0012.03	Biology-Keys	3.3.3.3	The listed species presented in the SEIS were obtained from the Florida Game and Fresh Water Fish Department and the U.S. Fish and Wildlife Service and are specific to the Region of Influence for each alternative site.
	P-T-0012.04	Biology-Keys	3.3.3.3	This information has been included in section 3.3.3.3 of the Final SEIS.
	P-T-0012.05	Biology-Keys	3.3.3.4	Potential impacts to endangered plants at alternative sites in the Florida Keys sites are discussed in section 3.3.3.4 of the Final SEIS.
	P-T-0012.06	Biology-Keys	3.3.3.3	The listed species presented in the SEIS were obtained from the Florida Game and Fresh Water Fish Department and the U.S. Fish and Wildlife Service and are specific to the Region of Influence for each alternative site.
	P-T-0012.07	Biology-Keys	3.3.3.3	See previous response
	P-T-0012.08	Launch mishap	3.3.3.4	Potential impacts to biological resources result from a launch mishap are addressed in section 3.1.9 of the Final SEIS. The variables of a launch mishap preclude a specific determination of biotic impacts. Small scale habitat destruction, individual displacement, and incidental mortality are acknowledged in the near-field launch area.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
Hadden, Alexander	P-T-0013.01	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites. The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and Department of Defense safety policies.
	P-T-0013.02	Safety	3.1.9.4	The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and Department of Defense safety policies.
	P-T-0013.03	Safety-Keys	3.1.9.4	The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. The Launch Hazard Area has not been shrunk. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. As stated previously, the more constrained a Launch Hazard Area, the more restrained the Range Safety Officer.
	P-T-0013.04	Safety-Keys	3.1.9.4	The Launch Hazard Area is drawn to protect community resources. The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area.
	P-T-0013.05	Safety	3.1.9.4	The Flight Termination System is a linear shaped charge. The Flight Termination System is initiated by a radio command from the Range Safety Officer using doubly redundant systems. Stage 2 of the Hera missile is shipped with the Flight Termination System attached to the motor casing. The Flight Termination System is not shipped with initiators attached. Without initiators, the Flight Termination System would not detonate.
	P-T-0013.06	Land use-Keys	3.1.9.4	Current test areas on Cape San Blas are similar distances to inhabited areas and test launches have been performed safely with no effects on residents.
	P-T-0013.07	Alternatives		Platform launch is an alternative being considered in the SEIS.
	P-T-0013.08	Safety		This proposal is not a departure from safety precautions.
	P-T-0013.09	Water Quality-Keys	3.3.14.4	The total exhaust from a Hera launch is 13,820 pounds, 3,078 pounds of which is hydrogen chloride, with 221 pounds of hydrochloric acid deposited in the vicinity of the launch pad. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² .
	P-T-0013.10	Transportation-Keys	3.3.11.4	The evaluation of potential traffic impacts on U.S. 1 forecast an increase in traffic volume in 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation. If program activities were planned for this alternative, vehicle movement would be scheduled to avoid peak hours.
	P-T-0013.11	Transportation-Keys	3.3.11.4	The evaluation of potential traffic impacts on U.S. 1 forecast an increase in traffic volume in 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation. If program activities were planned for this alternative, vehicle movement would be scheduled to avoid peak hours.
	P-T-0013.12	Transportation-Keys	3.3.11.4	The target missiles proposed for Theater Missile Defense testing are Minuteman stages I and II. Over a 30 year operational period, frequent transport of Minuteman missile components to and from 1,000 sites never resulted in an explosion. Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.
	P-T-0013.13	Safety	3.1.9.4	Should one of the sites in the Keys be selected for Theater Missile Defense testing, a specific emergency response plan (similar to the example in Appendix J) would be prepared and implemented.
	P-T-0013.14	Launch mishap	3.1.9.4	The potential environmental impacts of a launch mishap are addressed in section 3.1.9 of the Draft and Final SEIS. Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would assure that population centers, schools, and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.5 in the SEIS.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0013.15	Transportation-Keys	3.3.11.4	Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.
	P-T-0013.16	Transportation	3.3.11.4	The target missiles proposed for Theater Missile Defense testing are Minuteman stages I and II. Over a 30-year operational period, frequent transport of Minuteman missile components to and from 1,000 sites never resulted in an explosion.
	P-T-0013.17	Safety	3.3.11.4	The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. The system failure mode analysis and attendant risk probability calculations for each failure mode are calculated. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and Department of Defense safety policies.
Blazevic, R. L.	P-T-0014.01	General		Comment noted.
	P-T-0014.02	Draft SEIS		Comment noted.
	P-T-0014.03	Transportation-Keys	3.3.11.4	The evaluation of potential traffic impacts on U.S. 1 forecast an increase in traffic volume in 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation. If program activities were planned for this alternative, vehicle movement would be scheduled to avoid peak hours.
	P-T-0014.04	Airspace-Keys	3.3.2.3	Section 3.3.2.3 describes the airspace use affected environment in the Florida Keys. The high school is outside the Region of Influence and beyond the scope of this analysis.
	P-T-0014.05	Land use-Keys	3.3.7.4	This issue is beyond the scope of this analysis.
	P-T-0014.06	Hazardous wastes	3.3.6.4	The toxic dump that you mention is not part of the proposed action or alternatives for this program.
	P-T-0014.07	Draft SEIS		Comment noted.
	P-T-0014.08	Draft SEIS		Comment noted.
	P-T-0014.09	General		Comment noted.
	P-T-0014.10	Draft SEIS		Comment noted.
	P-T-0014.11	Biology-Keys	3.3.3.4	Comment noted.
	P-T-0014.12	Land Use-Keys	3.3.7.4	Comment noted.
	P-T-0014.13	Draft SEIS		Comment noted.
	P-T-0014.14	Draft SEIS		Comment noted.
	P-T-0014.15	Water Quality-Keys	3.3.14.4	Comment noted.
	P-T-0014.16	Water Quality-Keys	3.3.6.4 3.3.14.4	The Theater Missile Defense program would not discharge any pollutants into the Gulf of Mexico.
	P-T-0014.17	Water Quality-Keys	3.3.14.4	Comment noted.
	P-T-0014.18	Noise-general	3.1.8.1 3.3.8.1	The noise analysis methodology considers ambient noise levels in the analysis of impact. A given, short duration noise event will be less perceptible in a high-noise area than a low-noise area.
	P-T-0014.19	Draft SEIS		Comment noted.
	P-T-0014.20	Draft SEIS		Comment noted.
Seese, Bill Florida Keys National Wildlife Refuges	P-T-0015.01	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0015.02	Environmental Impacts		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. As you are aware, the Florida Keys sites are no longer under consideration as part of the preferred alternative. If future requirements indicate a need to further address potential use of either Cudjoe or Saddlebunch Keys, additional Federal and state agency consultation will be accomplished for those specific areas.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0015.03	Launch activities-Keys	3.3.3.4	Potential impacts to listed species at alternative sites in the Florida Keys are discussed in section 3.3.3.4 of the Final SEIS. In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0015.04	Launch activities-Keys	3.3.3.4	Potential impacts on shorebird and wading bird rookeries are presented in section 3.3.3.4 of the Final SEIS.
	P-T-0015.05	Land Use-Keys	3.3.7.4	Military activities associated with Theater Missile Defense site preparation and test preparation on military land would have minimal effect on the wilderness area. The missile launch would be intrusive, but of short duration, no more than once a month.
	P-T-0015.06	Land Use-Keys	3.3.7.4	Military activities associated with Theater Missile Defense site preparation and test preparation on military land would have minimal effect on the wilderness area. The missile launch would be intrusive, but of short duration, no more than once a month.
	P-T-0015.07	Visual Aesthetics-Keys	3.3.13.4	Military activities associated with Theater Missile Defense site preparation and test preparation on military land would have minimal effect on the wilderness area. The missile launch would be intrusive, but of short duration, no more than once a month.
	P-T-0015.08	Environmental Impacts		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0015.09	Noise	3.3.3.4	Studies of launch effects at Cape Canaveral have shown that birds disturbed by launch noise normally return to their nest soon after the launch event.
	P-T-0015.10	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Musselman, David	P-T-0016.01	Launch mishap--Keys	3.2.14.4 3.3.14.4	Ammonium perchlorate would only be introduced into the Gulf of Mexico in the unlikely event of a launch mishap. The slow process of hydration would continue until the material was completely saturated. These quantities of ammonium perchlorate distributed over a wide area of the Gulf would not be considered toxic to the environment.
	P-T-0016.02	Hazardous wastes	3.1.6.4 3.3.6.4	There is little literature extant because ammonium perchlorate is not disposed of in the marine environment in the United States. The Soviet literature was a source, not necessarily an endorsement.
	P-T-0016.03	Water Quality-Gulf	3.3.14.4	Aluminum oxide and hydrogen chloride are bound in the solid rocket motor binder matrix, polybutadiene rubber. This material has the consistency of rubber, and will not spill on site. Aluminum oxide and hydrogen chloride are combustion products and will be deposited on the ground and water in low rates after a launch. This is addressed in the air quality section, the geology and soils section and the water section of the Draft SEIS. Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly with no long-term elevation.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0016.04	Water Quality-Keys	3.3.14.4	On-site flow measurement has not been performed as part of this analysis. The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels.
	P-T-0014.05	Launch emissions	3.1.14.4 3.2.14.4	The total exhaust from a Hera launch is 13,820 pounds, 3,078 pounds of which is hydrogen chloride, with 221 pounds of hydrochloric acid deposited in the vicinity of the launch pad.. The Hera near field deposition rates do not exceed 1.64g/m ² . Deposition of 1.64.g/m ² on brackish or sea water will not decrease the pH level.
	P-T-0016.06	Launch mishap	3.1.9.4	A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.5 in the SEIS.
	P-T-0016.07	Safety	3.1.9.4	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would assure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9.4 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.5 in the SEIS.
	P-T-0016.08	Natural Resources	3.3.3.4	Should an alternative be selected, the specific mitigations to avoid or minimize potential environmental impacts will be identified in the Record of Decision. A mitigation plan, prepared in consultation with Federal and state resource agencies, will be developed and implemented prior to initial site preparation and test activities. Additional mitigations for wetlands have been included in section 3.3.3.4 of the Final SEIS.
	P-T-0016.09	Irreversible	3.1._4 3.2._4 3.3._4	Cumulative impacts for each project alternative and environmental resource are presented at the end of the Environmental Impacts and Mitigations section for each resource in chapter 3 of the Draft and Final SEIS. Depending on the specific resource, cumulative impacts may or may not be additive in nature. For example, the utilities used by program activities would be fully additive, deposition of launch emissions on nearby soil would be somewhat additive, and noise events separated by a one month period would not be additive. Small scale habitat destruction, individual displacement, and incidental mortality are acknowledged in the near-field launch area. See sections 3.1.3.4, 3.2.3.4, and 3.3.3.4 of the Final SEIS.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0016.10	launch emissions	3.1.1.4 3.3.1.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to a maximum of 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels. Deposition of hydrogen chloride at a rate of no more than 1.64g/m ² over the area of this water body would not decrease the pH more than 0.1 unit.
	P-T-006.11	launch emissions	3.1.1.4 3.3.1.4	See previous response.
	P-T-0016.12	Launch emissions	3.1.1.4 3.3.1.4	Hydrogen chloride is one of the primary exhaust products from solid rocket motor combustion. At ambient temperatures and pressure, hydrogen chloride is very soluble in water. It readily dissolves in water to form hydrochloric acid. This reaction is exothermic; that is, it generates heat. However, under the conditions which are present in the rocket's exhaust plume, less than 20 percent of the hydrogen chloride reacts with water to form hydrochloric acid in sufficient size to fall to earth. The remainder of the hydrogen chloride (in excess of 80 percent) will either not combine with water, or will combine with water and form microdroplets that are too small to fall out of the cloud. Therefore, the maximum amount of acid which can rain out of any portion of the exhaust cloud is less than 20 percent of that portion.
Poole, Lizzy Women's International League for Peace and Freedom	P-T-0017.01	Draft SEIS		Comment noted.
	P-T-0017.02	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0017.03	Draft SEIS		Comment noted.
	P-T-0017.04	Safety-Keys		Cruise missiles are not a part of the Theater Missile Defense test program.
Smith, R.C.	P-T-0018.01	Safety	3.1.9.4	Comment noted.
	P-T-0018.02	Safety		Comment noted.
	P-T-0018.03	Alternatives	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Weeks, Vicki	P-T-0019.01	DOPAA	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0019.02	DOPAA	1.0	See previous response.
	P-T-0019.03	DOPAA	1.0	See previous response.
	P-T-0019.04	Program		Comment noted.
	P-T-0019.05	Program		Comment noted.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0019.06	Biology-Keys	3.3.3.3	The listed species presented in the SEIS were obtained from the Florida Game and Fresh Water Fish Department and the U.S. Fish and Wildlife Service and are specific to the Region of Influence for each alternative site.
	P-T-0019.07	Biology-Keys	3.3.3.4	Based on an evaluation of Theater Missile Defense test activities on biological resources at each site for the proposed and alternative actions, the existence of extant plant and wildlife species would not be jeopardized.
	P-T-0019.08	Launch emissions	3.3.1.4	Potential impacts of launch emissions on the environment are addressed in several sections of the Draft and Final SEIS. Potential biological impacts are presented in sections 3.1.3.4, 3.1.2.4, and 3.3.3.4.
	P-T-0019.09	Biology-Keys	3.3.3.4	Based on an evaluation of Theater Missile Defense test activities on biological resources at each site for the proposed and alternative actions, the existence of extant plant and wildlife species would not be jeopardized.
	P-T-0019.10	Biology-Keys	3.3.3.4	Comment noted.
	P-T-0019.11	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0019.12	Alternatives-Keys	1.0	See previous response.
	P-T-0019.13	DOPAA		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
Henize, Tina	P-T-0020.01	Safety-Keys	3.1.9.4	The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area. The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. The Launch Hazard Area has not been shrunk. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. As stated previously, the more constrained a Launch Hazard Area, the more restrained the Range Safety Officer. The larger the Launch Hazard Area, the longer he or she has to react; but react they will for the Launch Hazard Area being used. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude). If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community.
	P-T-0020.02	Land Use-Keys	3.3.7.3	The Final SEIS incorporates technical amendments, editorial revisions and typographical corrections.
	P-T-0020.03	Draft SEIS	3.3.7.3	See previous response.
	P-T-0020.04	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0020.05	Safety	3.1.9.4	The Safety sections (3.1.9.4 and 3.3.9.4) of the SEIS provide a discussion of the human and ecological risks of the proposed test program under normal and mishap conditions. Potential impacts of a catastrophic failure under a full range of mishap scenarios is presented for each environmental resource.
	P-T-0020.06	Safety	2.1.3.2.3	The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. As stated previously, the more constrained a Launch Hazard Area, the more restrained the Range Safety Officer. Should the Keys be selected, an emergency response plan would be developed in cooperation with local emergency response authorities for the Florida Keys prior to any launches.
	P-T-0020.07	Biology-Keys	3.3.3.4	Small scale habitat destruction, individual displacement, and incidental mortality are acknowledged in the near-field launch area. See sections 3.1.3.4, 3.2.3.4, and 3.3.3.4 of the Final SEIS.
	P-T-0020.08	Draft SEIS	3.3.3.4	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0020.09	Biology-Keys	3.3.3.4	The listed species presented in the SEIS were obtained from the Florida Game and Fresh Water Fish Department and the U.S. Fish and Wildlife Service and are specific to the Region of Influence for each alternative site.
	P-T-0020.10	Airspace	3.3.2.3	Restricted area R.2916 is located above Cudjoe Key and extends from the surface to 14,000 ft. See section 3.3.2 Final SEIS.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0020.11	DOPAA	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0020.12	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0020.13	Draft SEIS		See response above.
	P-T-0020.14	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0020.15	Safety	2.1.3.2.3 3.1.9.4.	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would assure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9.4 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.3.2.3 in the SEIS. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude). If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community.
Zachariah, Dale	P-T-0021.01	DOPAA	1.4	For alternative target launch sites in the Florida Keys, a maximum of twelve launches per year could be scheduled.
	P-T-0021.02	Biology-Keys	3.2.3.3	This map, figure 3.2.3-1 displays a general view of some of the sensitive species and habitats in the Gulf to assist in the understanding of potential impacts of launch and intercept testing relative to identified Launch Hazard Areas. Maps showing the specific location of sensitive species and habitats in the Keys are found in section 3.3.3.3 of the Final SEIS.
	P-T-0021.03	DOPAA	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0019.04	Safety	3.1.9.4	Section 3.1.9.4 of the Draft SEIS addresses this scenario. Safety distances established by the Explosive Safety Quantity-Distance ensure that the public would be protected if there is lightning strike.
	P-T-0021.05	Socioeconomics	2.1.1.2.2	Platform piers frequently provide a beneficial habitat for fish.
	P-T-0021.06	Program	1.0	Section 1 of the Final SEIS provides the overall Purpose and Need for the Theater Missile Defense test program.
	P-T-0021.07	Program		Comment noted.
	P-T-0021.08	Program		Comment noted.
Simms, Mark & Amy	P-T-0022.01	General-Keys		Comment noted.
	P-T-0022.02	Alternatives-Keys		Comment noted.
	P-T-0022.03	Alternatives-Keys		Comment noted.
	P-T-0022.04	Environment-Keys	1.0	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0022.05	Safety	3.1.9.4	The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and Department of Defense safety policies. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude). If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community.
	P-T-0022.06	Launch mishap	3.1.9.4	See previous response.
	P-T-0022.07	General		Comment noted.
Biddle, Joel Reef Relief	P-T-0023.01	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0023.02	Transportation-Keys	3.3.11.4 3.3.10.4 3.3.12.4	An evaluation of the potential impacts of the Theater Missile Defense test program alternatives on highway traffic, housing and utilities is presented in the Draft and Final SEIS (sections 3.3.11, 3.3.10, and 3.3.12 respectively). Although impacts were identified, the program requirements for these resources could be accommodated by the capacity of existing resource systems (highway capacity, permanent and temporary housing stock, utility systems) without affecting their performance or system integrity.
	P-T-0023.03	Biology-Keys	3.3.3.4	Normal launch activities would not affect the reef ecosystem. In the unlikely case of a launch mishap, no debris would fall on reef tracts which are outside the Launch Hazard Area. The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process. Should an alternative be selected, the specific mitigations to avoid or minimize potential environmental impacts will be identified in the Record of Decision. A mitigation plan, prepared in consultation with Federal and state resource agencies, will be developed and implemented prior to initial site preparation and test activities. Additional mitigations for wetlands have been included in section 3.3.3.4 of the Final SEIS.
	P-T-0023.04	Land use-Keys		Comment noted.
	P-T-0023.05	Draft SEIS	3.3.10.4	The potential impacts of noise, airspace and water clearance, public safety and economic activities are all issues that have been evaluated and presented in the Draft and Final SEIS. An evaluation of quality of life is beyond the scope of this analysis.
	P-T-0023.06	DOPAA	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Pike, Malcolm	P-T-0024.01	Intercept debris		Intercepts are proposed to occur over the waters of the Gulf of Mexico. No intercepts are proposed to occur over land or in the vicinity of the Florida Keys. The debris, and any gas possibly resulting from a successful intercept, would fall into predetermined areas of the Gulf of Mexico.
	P-T-0024.02	Alternatives-Keys		Comment noted.
Gouldy, Ralph Monroe County Growth Management Division	P-T-0025.01	Land Use-Keys	3.3.7.4	The planning and siting process for the proposed Theater Missile Defense test program in the Eglin Gulf Test Range considered many factors in identifying alternative sites including mission requirements, environmental conservation, human and ecological health and land use compatibility. The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. New military uses in these areas are permitted. Should either of these sites be selected, consultation with Federal and state resource agencies would establish specific mitigations to avoid or minimize the disturbance of protected areas. State and local regulatory requirements, many of which are derivative of Federal statutes, are recognized in the planning process. Military projects on military land comply with applicable Federal regulations.
	P-T-0025.02	Land Use-Keys	3.3.7.4	The alternative actions proposed in the Florida Key have not been planned and would not be further considered without close consultation and coordination with state and local resource agencies.
	P-T-0025.03	Land Use-Keys	3.3.7.4	State and local regulatory requirements, many of which are derivative of Federal statutes, are recognized in the planning process. Military projects on military land comply with Federal regulation.
	P-T-0025.04	Land Use-Keys	3.3.7.4	See previous response.
	P-T-0025.05	Land Use-Keys	3.3.7.4	See previous response.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0025.06	Land Use-Keys	3.3.7.4	See previous response.
	P-T-0025.07	Land Use-Keys	3.3.7.4	See previous response.
	P-T-0025.08	Biology-Keys	3.3.3.4	The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. The Launch Hazard Area for these alternative sites does, however, overlap the National Marine Sanctuary and several wildlife refuges (see section 3.3.7 in the Final SEIS). New military uses in these areas are permitted but would require specific consultation with Federal and state resource agencies.
	P-T-0025.09	Launch activity		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0025.10	Launch activity		Should one of the sites in the Florida Keys be selected for Theater Missile Defense testing, no more than 12 launch events would occur in any year. There is no plan to establish a permanent presence should the Florida Keys be selected. Cumulative impacts for each project alternative and environmental resource are presented at the end of the Environmental Impacts and Mitigations section for each resource in chapter 3 of the Draft and Final SEIS. Depending on the specific resource, cumulative impacts may or may not be additive in nature. For example, the utilities used by program activities would be fully additive, deposition of launch emissions on nearby soil would be somewhat additive, and noise events separated by a one month period would not be additive.
	P-T-0025.11	Land Use-Keys	3.3.7.4	State and local regulatory requirements, many of which are derivative of Federal statutes, are recognized in the planning process. Military projects on military land comply with Federal regulation.
	P-T-0025.12	Land Use-Keys	3.3.7.4	The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process.
	P-T-0025.13	Land Use-Keys	3.3.7.4	State and local regulatory requirements, many of which are derivative of Federal statutes, are recognized in the planning process. Military projects on military land comply with Federal regulation.
	P-T-0025.14	Land Use-Keys	v	See response above.
Ehrenreiter, Barbara	P-T-0026.01	Draft SEIS		Comment noted.
	P-T-0026.02	Program	1.0	The Purpose and Need section of the Final SEIS presents the overall justification for the Theater Missile Defense program.
	P-T-0026.03	Program		Comment noted.
	P-T-0026.04	Program		Comment noted.
Lunden, Blue Unitarian Universal Fellowship	P-T-0027.01	Draft SEIS		Comment noted.
	P-T-0027.02	Safety	2.1.3.2.3. 3.1.9.4	If the Florida Keys alternative is selected, Sugarloaf Key is proposed as an instrumentation site. Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would assure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.3..2.3 in the SEIS. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude). If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community.
Leslie, John	P-T-0028.01	Safety	3.1.9.4	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would assure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
Miller, Archer	P-T-0029.01	Water Quality-Keys	3.2.14.4 3.3.14.4	The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no appreciable decrease in the pH levels. There would be no appreciable decrease in pH levels hence no stress on the marine life in the vicinity.
	P-T-0029.02	Launch emissions	3.3.1.3 3.1.1.4.1 3.1.9.4	The prevailing winds have historically averaged 2 meters per second (7 feet per second) in a southeasterly direction in the summer and 4 meters per second (12 feet per second) in a northeasterly direction in the winter in the Florida Keys. These conditions were used in the calculations of exhaust depositions. The TSCREEN PUFF model predicts concentrations at various distances from the launch point. For a normal launch, there were no exceedances. For a launch mishap scenario, TSCREEN PUFF indicated potential exceedance beyond the Launch Hazard Area. In that case, per Environmental Protection Agency guidance, the more refined model, Open-Burn Open-Open-Detonation Dispersion Model, indicated that there would not be exceedance beyond the Launch Hazard Area.
	P-T-0029.03	Transportation-Keys	3.3.11.4	The Launch Hazard Area does not require closing of Highway 1. If the Cudjoe Key alternative were to be selected, Blimp Road north of Asturias would be closed no longer than four hours per launch event..
Hendrick, Muriel	P-T-0030.01	Alternatives-Keys	1.0	Comment noted.
Robinson, Annie	P-T-0031.01	Draft SEIS		Comment noted.
Orlandi, Robin Reef Relief	P-T-0032.01	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. Primary field investigations were to verify and supplement existing data.
	P-T-0032.02	Launch activity		Should one of the sites in the Florida Keys be selected for Theater Missile Defense testing, no more than 12 launch events would occur in any year. There is no plan to establish a permanent presence should the Florida Keys be selected. Cumulative impacts for each project alternative and environmental resource are presented at the end of the Environmental Impacts and Mitigations section for each resource in chapter 3 of the Draft and Final SEIS. Depending on the specific resource, cumulative impacts may or may not be additive in nature. For example, the utilities used by program activities would be fully additive, deposition of launch emissions on nearby soil would be somewhat additive, and noise events separated by a one month period would not be additive.
	P-T-0032.03	Air quality	3.3.1.4	The most recent and available data was used to characterize the existing environments of potential sites in the Florida Keys. Primary field investigations were to verify and supplement existing data. The Open-Burn Open-Open-Detonation Dispersion Model is a model that calculates predicted depositions using worst case climatological parameters such as wind speed, humidity and temperature. The results of the model represent the greatest concentrations of emissions that could occur under any conditions.
	P-T-0032.04	Air quality	3.3.1.4	Models use mathematical formulas to calculate the probable result of a series of factors that may affect emissions dispersion. These include such things as: wind speed, humidity, release height of the emissions, atmospheric stability, and mixing layer altitude, among others. For the purposes of this analysis we varied each model parameter to produce the most conservative (worst) result for each step in the model. The result was the highest possible predicted concentration and the greatest distance that could result from the launch of a Hera missile at any location. The results did not reflect the climate of New Mexico, the Keys, or any other specific location, but the worst possible combination of climatic conditions. The calculated results yield greater emission concentrations than would be realistically be expected.
	P-T-0032.05	Air Quality	3.3.1.4	For the purpose of air quality analysis, a missile launch is considered a single emission source and event. The period between launches is long enough to fully disperse emissions within the region with no cumulative effects.
	P-T-0032.06	Launch emissions	3.3.1.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly with no long-term elevation.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0032.07	Water Quality-Keys launch emissions	3.3.1.4	Environmental monitoring at Kennedy Space Center has shown that following Shuttle launches the pH levels in nearby water bodies returned to normal within 24 to 72 hours. The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly with no long-term elevation.
	P-T-0032.08	Water Quality-Keys launch emissions	3.3.14.4	Oxygen capacity of waters surrounding the Keys would not be measurably affected by Theater Missile Defense test launch activities.
	P-T-0032.09	Water Quality-Keys	3.3.14.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. This is one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The Hera hydrogen chloride deposition rates and areas are so much smaller than those of the Shuttle that there is a qualitative difference between the environmental impacts of the two. The predicted far-field deposition rates are low enough to warrant the conclusion that dilution is the solution.
	P-T-0032.10	Biology-Keys	3.3.14.4	Normal launch activities would not affect the reef ecosystem. In the unlikely case of a launch mishap, no debris would fall on reef tracts which are outside the Launch Hazard Area.
	P-T-0032.11	Water Quality keys	3.3.14.4	The National Aeronautics and Space Administration has prepared numerous environmental impact assessments and conducted long term environmental monitoring to support the decisions to conduct rocket launches from the Kennedy Space Center, FL. These launch activities occur in a physical environment similar to that of the Florida Keys. The Space Shuttle launches cause local environmental impacts primarily through formation of a launch cloud that produces acidic deposition. This launch cloud results from the interaction of exhaust of the solid rocket boosters and deluge water. Primary constituents include aluminum oxide and hydrochloric acid. The deposition resulting from a Shuttle launch and from a Hera launch differ primarily in scale. The total exhaust from a Shuttle is 2,427,000 pounds, 460,000 of which is hydrogen chloride. The total exhaust from a Hera is 13,820 pounds, 3,078 pounds of which is hydrogen chloride. This is one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² . This is 1.3 percent of the deposition rate of the Shuttle. The near field for the Shuttle is considered 1.5 kilometers from the launch pad. The near field from the Hera launch would be 60 meters from the launch pad. The Hera hydrogen chloride deposition rates and areas are so much smaller than those of the Shuttle that there is a qualitative difference between the environmental impacts of the two. The predicted far-field deposition rates are low enough to warrant the conclusion that dilution is the solution.
	P-T-0032.12	Water Quality-Keys	3.3.14.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. This small quantity of deposition for a brief period of time would not contribute to eutrophication.
	P-T-0032.13	Alternatives		No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed. In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. Missile testing in the Eglin Gulf Test Range is being considered because of the potential benefits of such testing to the development of the Theater Missile Defense programs, not necessarily for the benefit of the Keys. There may, however, be some coincidental economic benefit to segments of the Keys economy
Allen, Joe	P-T-0033.01	Draft SEIS		Comment noted.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0033.02	Transportation-Keys	3.1.11.4 3.3.11.4	The ability to control the movement of missile components is important to the overall safety of the proposed Theater Missile Defense testing system. A specific evacuation plan for the missile and other test-related components and non-critical personnel would be implemented at the first notice of potential hurricane activity,. This would assure that Theater Missile Defense-related evacuation movements would precede standard public evacuation plans and would not interfere with the planned process.
	P-T-0033.03	Alternatives-Keys		Comment noted.
Halloran, George	P-T-0034.01	Alternatives-Keys		Comment noted.
	P-T-0034.02	Draft SEIS		One of the purposes of the National Environmental Protection Agency process is to provide the public with an opportunity to identify potential issues and concerns that could result from a proposed project, and to review and comment on the subsequent evaluation of those issues. All comments and communications from the public are considered throughout the evaluation period.
	P-T-0034.03	Water Quality-Keys	3.3.14.4	The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels. There would be no decrease in pH levels hence no stress on the marine life in the vicinity.
	P-T-0034.04	Biology-Keys	3.3.3.4	Potential impacts to biological resources as a result of a launch mishap are addressed in section 3.1.9 of the Final SEIS.
	P-T-0034.05	Launch mishap	3.1.9.4	The object of the Air Force safety program is to minimize exposure to risk by service personnel and members of the public. The evacuation of a Launch Hazard Area insures that no non-mission essential personnel would be exposed to missile mishap debris. Active flight termination would ensure that no debris would land outside the Launch Hazard Area. Therefore, no people would be killed or injured due to missile testing.
	P-T-0034.06	Biology-General	3.1.3.3	This information has been included in section 3.1.3.3 of the Final SEIS.
	P-T-0034.07	Biology-General		Comment noted.
	P-T-0034.08	General		Comment noted.
Colburn, Carol	P-T-0035.01	Alternatives-Keys		Comment noted.
	P-T-0035.02	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Eliot, Robert	P-T-0036.01	Draft SEIS		Comment noted.
Nelson, Harriet	P-T-0037.01	Draft SEIS		Comment noted.
	P-T-0037.02	Draft SEIS		No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Casella, Loraine	P-T-0038.01	Land Use-Keys	3.3.7.3	State and local regulatory requirements, many of which are derivative of Federal statutes, are recognized in the planning process. Military projects on military land comply with Federal regulation.
	P-T-0038.02	Safety	2.1.3.2.3 3.1.9.4	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would ensure that population centers, schools, and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.3.2.3 in the SEIS. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude) . If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0038.03	Noise	3.3.8.4	The SEIS provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible. See section 3.1.9.4 of the Final SEIS for additional discussion of potential noise impacts
Henize, Tina	P-T-0039.01	Land Use-Keys	3.3.7.4	Comment Noted. The Final SEIS incorporates technical amendments, editorial revisions and typographical corrections.
	P-T-0039.02	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0039.03	Launch mishap	3.1.9.4	Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would assure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.3.2.3 in the SEIS. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude). If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community.
	P-T-0039.04	Safety-Keys	3.1.9.4	The Launch Hazard Area is drawn to protect community resources. The size of a Launch Hazard Area is a function of the flexibility the Range Safety Officer has. The larger the Launch Hazard Area, the more flexibility there is in terms of acceptable launch conditions and anomaly response time. The fixed variable is the commitment to conduct all test activities so that mishap debris does not exit the designated Launch Hazard Area.
	P-T-0039.05	Biology-Keys	3.3.3.4	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0039.06	Biology-Keys	3.1.3.4 3.2.3.4 3.3.3.4	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. Small scale habitat destruction, individual displacement, and incidental mortality are acknowledged in the near-field launch area. See sections 3.1.3.4, 3.2.3.4, and 3.3.3.4 of the Final SEIS. Far-field deposition is sufficiently dispersed and variable to launch that successive launches seldom affect the same areas. No changes in plant community or structure due to cumulative effects of far-field deposition have been seen.
	P-T-0039.07	Water Quality-Keys	3.2.14.4 3.3.14.4	Environmental monitoring at Kennedy Space Center has shown that during the period of reduced pH, metals became more soluble and their concentrations in the water column increased dramatically. As normal pH levels returned to the area (within 24 to 72 hours), metal concentrations returned to pre-launch levels. "To date no long-term elevations of metal concentrations on the water column have been observed." The predicted near-field deposition rates from Theater Missile Defense testing will be less than 1 percent of the deposition rates for the Space Shuttle. Deposition of hydrogen chloride from a Hera launch, at a rate of no more than 1.64g/m ² , would decrease pH by no more than 0.1 unit. At this rate, water pH levels would return to pre-launch levels very rapidly. Cumulative impacts resulting from launch tests are addressed in sections 3.1.3, 3.2.3, 3.3.3 of the Final SEIS. It is acknowledged that some small but permanent changes in plant diversity and vegetation cover could result from the test program.
	P-T-0039.08	DOPAA	1.0	No decision has yet been made about which alternative may be selected. The National Environmental Policy Act requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0039.09	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
Freeman, Shirley Commissioner of Monroe County	P-T-0040.01	Alternatives		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
Girard, Geraldo	P-T-0041.01	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0041.02	Biology-Keys	3.3.3.3	The environmental setting of the Florida Keys is described in section 3.3.3.3 of the Final SEIS.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0041.03	Water Quality-Keys	3.1.14.3 3.3.14.3	We recognize the area's designation as an "area of critical state concern" and have designed the proposal to avoid or minimize potential environmental impacts.
	P-T-0041.04	Land Use-Keys	3.3.7.4	State and local regulatory requirements, many of which are derivative of Federal statutes, are recognized in the planning process. Military projects on military land comply with Federal regulation. The planning and siting process for the proposed Theater Missile Defense test program in the Eglin Gulf Test Range considered many factors in identifying alternative sites including mission requirements, environmental conservation, human and ecological health and land use compatibility. The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. New military uses in these areas are permitted. Should either of these sites be selected, consultation with Federal and state resource agencies would establish specific mitigations to avoid or minimize the disturbance of protected areas.
	P-T-0041.05	Transportation-Keys	3.3.11.4	The importance of Highway 1 to the Florida Keys has been recognized. An early alternative site was eliminated because it would have required closing Highway 1.
	P-T-0041.06	Utilities-Keys	3.3.12.4	Comment noted. The Theater Missile Defense test program would not affect existing or future utility corridors.
	P-T-0041.07	Land Use-Keys	3.3.7.4	The Launch Hazard Area for the alternative target launch sites on the Keys does overlap the Florida Keys National Marine Sanctuary; about 4.3 percent of the Florida Keys National Marine Sanctuary is in the Cudjoe Key Launch Hazard Area and 1.6 percent of the Florida Keys National Marine Sanctuary is in the Launch Hazard Area for the Saddlebunch Keys (see section 3.3.7 in the Final SEIS). New military uses in the Florida Keys National Marine Sanctuary are permitted but would require specific consultation. Should either of these sites be selected, consultation with Federal and state resource agencies would establish specific mitigations to avoid or minimize the disturbance of protected areas. Consultation with the Director of the National Marine Sanctuary began early in the planning process for the Theater Missile Defense
	P-T-0041.08	Land Use-Keys	3.3.7.4	The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. The Launch Hazard Area for these alternative sites does, however, overlap the National Marine Sanctuary and several wildlife refuges (see section 3.3.7 in the Final SEIS). New military uses in these areas are permitted but would require specific consultation with appropriate Federal and state resource agencies. See sections 3.1.3.4 and 3.3.3.3 in the Final SEIS for proposed mitigations. Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. This mitigation plan, which would avoid or minimize potential adverse impacts on protected areas, would be developed and implemented prior to initiating site preparation and test activities.
	P-T-0041.09	Air Quality-Keys	3.3.1.3	The climate of the Keys is addressed in section 3.3.1.3 of the Final SEIS.
	P-T-0041.10	launch emissions	3.3.1.3	The prevailing winds have historically averaged 0.8 meters per second (3 feet per second) in a southerly direction in the summer and 0.7 meters per second (2 feet per second) in a northerly direction in the winter in the vicinity of Santa Rosa Island; 0.7 meters per second (2 feet per second) in a southerly direction in the summer and 0.8 meters per second (3 feet per second) in a southeasterly direction in the winter in the vicinity of Cape San Blas; and 2 meters per second (7 feet per second) in a southeasterly direction in the summer and 4 meters per second (12 feet per second) in a northeasterly direction in the winter in the Florida Keys. These conditions were used in the calculations of exhaust depositions.
	P-T-0041.11	Biology-Keys	3.3.3.3	The presence of the Silver Rice Rat at alternative sites in the Keys is discussed in section 3.3.3.3 of the Final SEIS.
	P-T-0041.12	Biology-Keys	3.3.3.3	The habitat of the Lower Keys Marsh Rabbit is discussed in section 3.3.3.3 of the Draft and Final SEIS.
	P-T-0041.13	Biology-Keys	3.3.3.3	The environmental setting of the Florida Keys, including hardwood hammocks and pine rocklands, is described in section 3.3.3.3 of the Final SEIS.
	P-T-0041.14	Biology-Keys	3.3.3.4	The 404 (b) (1) permit process would be used to evaluate and minimize any potential impacts on jurisdictional or non-jurisdictional wetlands affected by the proposed or alternative actions for Theater Missile Defense testing. This permit, issued by the U.S. Army Corps of Engineers in coordination with the State of Florida, would evaluate specific areas affected by the program once they are more precisely defined during the final planning and design process. Should an alternative be selected, the specific mitigations to avoid or minimize potential environmental impacts will be identified in the Record of Decision. A mitigation plan, prepared in consultation with Federal and state resource agencies, will be developed and implemented prior to initial site preparation and test activities. Additional mitigations for wetlands have been included in section 3.3.3.4 of the Final SEIS.
	P-T-0041.15	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Cofer, Elizabeth	P-T-0042.01	Transportation-Keys	3.3.11.4	The evaluation of potential traffic impacts on Highway 1 in the Draft SEIS forecast an increase in traffic volume by 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation. If program activities were planned for this alternative, vehicle movement would be scheduled to avoid peak hours.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0042.02	Transportation-Keys	3.3.11.4	Scheduling of missile transport and other Theater Missile Defense test-related traffic would be coordinated with local agencies to avoid peak traffic hours and minimize potential effects on local traffic movement. Emergency vehicles would not be affected by Theater Missile Defense test activities, since they will not close the highway.
	P-T-0042.03	Safety-Keys	3.3.11.4	The ability to control the movement of missile components is important to the overall safety of the proposed Theater Missile Defense testing system. A specific evacuation plan for the missile and other test-related components and non-critical personnel would be implemented at the first notice of potential hurricane activity, before official hurricane watch and warning announcements. This would ensure that Theater Missile Defense-related evacuation movements would precede standard public evacuation plans and would not interfere with the planned process.
	P-T-0042.04	Transportation-Keys	3.3.11.4	The target missiles proposed for Theater Missile Defense testing are Minuteman stages I and II. Over a 30-year operational period, frequent transport of Minuteman missile components to and from 1,000 sites never resulted in an explosion. Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.
	P-T-0042.05	Transportation-Keys	3.3.11.4	Should one of the sites in the Keys be selected for Theater Missile Defense testing, a site-specific emergency response plan (similar to the example in appendix J) would be prepared and implemented.
	P-T-0042.06	Transportation-Keys	3.3.11.4	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0042.07	Transportation-Keys	3.3.11.4	The evaluation of potential traffic impacts on Highway 1 in the Draft SEIS forecast an increase in traffic volume by 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation. Traffic forecasts for segments of U.S. 1 have been adjusted in the Final SEIS.
	P-T-0042.08	Transportation-Keys	3.3.11.4	The missile components would be shipped in standard freight transports (tractor-trailers) and would not require a convoy. Scheduling of missile transport and other Theater Missile Defense test-related traffic would be coordinated with local agencies to avoid peak traffic hours and minimize potential effects on local traffic movement. Local law enforcement personnel would be expected to maintain order for this program no less than any other activity.
	P-T-0042.09	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
Henize, Dennis	P-T-0043.01	Safety-Keys	3.1.9.4	The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. The Launch Hazard Area has not been shrunk. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. As stated previously, the more constrained a Launch Hazard Area, the more restrained the Range Safety Officer.
	P-T-0043.02	Noise/Air quality		The Launch Hazard Area is defined as an area within which all missile debris would be confined. The areas affected by various levels of launch emissions and noise are determined through separate and independent analyses. Each of these analyses is used to determine the overall safety of the program.
	P-T-0043.03	Noise	3.3.8.4	The 2.0 psf explosion is due to a complete Hera stage 2 impacting the ground or the water. In the case of a mishap, the Range Safety Officer may prescribe destroying the second stage prior to impact to prevent this explosion.
	P-T-0043.04	Air quality-Keys	3.3.8.4 3.1.9.4	As sections 3.1.1.4.1 and 3.1.9.4 of the Draft SEIS explain, the TSCREEN PUFF model predicts concentrations at various distances from the launch point. For a normal launch, there were no exceedances. For a launch mishap scenario, TSCREEN PUFF indicated potential exceedance beyond the Launch Hazard Area. In that case, per Environmental Protection Agency guidance, the more refined model, Open-Burn Open-Detonation Dispersion Model, indicated that there would not be exceedance beyond the Launch Hazard Area.
	P-T-0043.05	Noise-general	3.3.8.1 3.1.9.4	The SEIS provides both single event levels and weighted averages to provide as much information on noise occurrences and effects as possible. See section 3.1.9.4 of the Final SEIS for additional discussion of potential noise impacts. Noise contours included in the Draft and Final SEIS present potential noise impacts to a distance of 5.6 miles.
	P-T-0043.06	Noise-Keys	3.3.8.3	Restricted area R.2916 is located above Cudjoe Key and extends from the surface to 14,000 ft. See section 3.3.2 of the Final SEIS.
	P-T-0043.07	Visual Aesthetics-Keys	3.3.13.4	The Aerostat flies to transmit TV Marti in the early mornings, and then is lowered in the late morning. The balloon is down and visibly present as often as not. The perceived degree of change is subjective. To assist in the comparison of vistas, visual simulations have been provided in sections 3.1.1.3.4 and 3.3.13.4 of the Final SEIS to illustrate potential visual impacts of Theater Missile Defense facilities.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0043.08	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed. In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
Musselman, David	P-T-0044.01	Water Quality-Keys	3.3.1.4 3.3.14.4	The total exhaust from a Hera launch is 13,820 pounds, 3,078 pounds of which is hydrogen chloride, with 221 pounds of hydrochloric acid deposited in the vicinity of the launch pad. The Hera emits one half of one percent of the Shuttle exhaust. Hydrogen chloride near field deposition rates from the Shuttle range up to 125g/m ² , while those from the Hera do not exceed 1.64g/m ² .
	P-T-0044.02	Water Quality-Keys	3.3.14.4	Deposition of hydrogen chloride at a rate of no more than 1.64g/m ² over the area of this water body would not decrease the pH more than 0.1 unit. The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1,399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels. There would be no decrease in pH levels hence no stress on the marine life in the vicinity.
	P-T-0044.03	Launch emissions	3.3.1.4	Hydrogen chloride is one of the primary exhaust products from solid rocket motor combustion. At ambient temperatures and pressure, hydrogen chloride is very soluble in water. It readily dissolves in water to form hydrochloric acid. This reaction is exothermic, that is it generates heat. However, under the conditions which are present in the rocket's exhaust plume, less than 20 percent of the hydrogen chloride reacts with water to form hydrochloric acid in sufficient size to fall to earth. The remainder of the hydrogen chloride (in excess of 80 percent) will either not combine with water, or will combine with water and form microdroplets which are too small not to fall out of the cloud. Therefore the maximum amount of acid which can rain out of any portion of the exhaust cloud is less than 20 percent of that portion. This maximum amount occurs under conditions of excess water, such as occurs during Space Shuttle launches. The proposed action does not include use of water during launches. As such, the proportion of hydrogen chloride in the exhaust which would form hydrochloric acid would be expected to be less than the proportion of the Space Shuttle's SRBM's that undergo a similar reaction.
	P-T-0044.04	Launch emissions	3.1.1.1	The models used for the evaluation of air quality impacts use mathematical models to calculate the probable result of a series of factors that may affect emission dispersion. These include wind speed, humidity, release height of the emissions, atmospheric stability and mixing layer altitudes. For the purpose of this analysis we varied each model parameter to produce the most conservative (worst) result for each step in the model. The result was the highest possible predicted concentration and the greatest distance that could result from the launch of a Hera missile at any location. The results did not reflect the climate of Utah or the Keys, but the worst possible combination of climatic conditions. The results are greater emission concentrations than would be realistically anticipated and serve as a conservative representation of plume mechanics.
	P-T-0044.05	Launch emissions		The solid propellant in the first stage of the missile burns at a constant rate from initial launch through burn out. Since the missile is accelerating from the launch pad during its first few seconds of flight, a slightly greater level of emissions occur near the earth's surface.
	P-T-0044.06	Water Quality-Keys	3.3.13.4	The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels. There would be no decrease in pH levels hence no stress on the marine life in the vicinity.
	P-T-0044.07	Launch mishaps	3.2.13.4 3.1.9.4	Ammonium perchlorate would only be introduced into the Gulf of Mexico in the unlikely event of a launch mishap. The slow process of hydration would continue until the material was completely saturated. These quantities of ammonium perchlorate distributed over a wide area of the Gulf would not be considered toxic to the environment.
	P-T-0044.08	Hazardous wastes	3.2.13.4	Comment noted. There is little literature extant because ammonium perchlorate is not disposed of in the marine environment in the United States. The Soviet literature was a source, not necessarily an endorsement.
	P-T-0044.09	Irreversible	3.5	Section 3.5 of the Draft and Final SEIS addresses potential irreversible and irretrievable commitment of resources. Small scale habitat destruction, individual displacement, and incidental mortality are acknowledged in the near-field launch area. See sections 3.1.3.4, 3.2.3.4, and 3.3.3.4 of the Final SEIS.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
Hoffman, Wayne	P-T-0045.01	Biology-general	3.1.3.3 3.2.3.3 3.3.3.3	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. Potential impacts to biological resources as a result of a launch mishap are addressed in section 3.1.9 of the Draft and Final SEIS. Section 3.5 of the Draft and Final SEIS addresses potential irreversible and irretrievable commitment of resources. Small scale habitat destruction, individual displacement, and incidental mortality are acknowledged in the near-field launch area. See sections 3.1.3.4, 3.2.3.4, and 3.3.3.4 of the Final SEIS.
	P-T-0045.02	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
	P-T-0045.03	Biology-Keys	3.3.3.3	The listed species presented in the SEIS were obtained from the Florida Game and Fresh Water Fish Department and the U.S. Fish and Wildlife Service and are specific to the Region of Influence for each alternative site.
	P-T-0045.04	Biology-Keys	3.3.3.3	This information has been included in section 3.3.3.3 of the Draft and Final SEIS.
	P-T-0045.05	Biology-Keys	3.3.3.4	Low pressure sodium lighting away from the beach would be used to minimize potential impacts.
	P-T-0045.06	Biology-Keys	3.3.3.4	Wildlife that remained in the immediate launch area (near-field) during a test could be affected by launch emissions. Previous test programs have shown that most wildlife leave the launch area prior to a launch event due to human presence and activity, hence the potential for harm is extremely small. If a launch mishap did occur, it is possible that unburned propellant and debris could enter coastal waters. Although this material would not be considered measurably toxic to the environment, consultation with resource agencies would determine if removal and clean-up of debris would be necessary or beneficial.
	P-T-0045.07			In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
Hadden, Alexander	P-T-0046.01	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0046.02	Safety	3.1.9.4	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites. The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. The system failure mode analysis and attendant risk probability calculations for each failure mode are calculated. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and Department of Defense safety policies.
	P-T-0046.03	Safety-Keys	3.1.9.4	Appendix G of the Draft SEIS described the method of establishing a Launch Hazard Area. Each Launch Hazard Area is different, depending on the available land, launch trajectory, type of missiles, and distance to populated areas or structures. Fewer operational constraints, such as permissible wind conditions at the time of launch and the reaction time of the Range Safety Officer are required when more land is available for a Launch Hazard Area. Conversely, more operational constraints are required when less land is available. The geographic extent of the Launch Hazard Area and the operational constraints associated with it are established for each site to ensure the launch can safely conducted. An Launch Hazard Area of 4.5 miles was never proposed for the Hera launch sites at Santa Rosa, Cape San Blas or Cudjoe or Saddlebunch Keys. The 4.5 mile figure was originally associated with the Fort Wingate launch site. However, even at Fort Wingate, the eventual Launch Hazard Area was significantly less than 4.5 miles northeast of the launch site due to the existence of a school or residence.
	P-T-0046.04	Safety-Keys	3.1.9.4	The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. The Launch Hazard Area has not been shrunk. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. As stated previously, the more constrained a Launch Hazard Area, the more restrained the Range Safety Officer.
	P-T-0046.05	Safety	3.1.9.4	If the Flight Termination System did function, it would split the casing of the Stage 2 motor casing. This split may initiate a fire in the mass of the Stage 2 propellant. There would not be a detonation since the propellant is not configured in a pressure vessel; both ends of the motor are open in shipping. Stage 2 of the Hera missile is shipped with the Flight Termination System attached to the motor casing. The Flight Termination System is classified as Department of Defense Class 1.1 explosive. The Flight Termination System is not shipped with initiators attached. Without initiators, the Flight Termination System would not detonate.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0046.06	Water-Keys	3.3.14.4	The pH of shallow marine waters in the Florida Keys range from a low of 7.3 near Saddlebunch and Cudjoe Keys to a high of 8.2 near Plantation Key. Average alkalinity measurements range from a low of 119 mg/L calcium carbonate near Plantation Key to a high of 137 mg/L calcium carbonate near Harrison Canal (Florida Department of Environmental Protection, 1996). If it were to rain shortly after a missile launch, the hydrogen chloride present in the exhaust plume would be dissolved in the rain droplets, which would result in a temporary reduction in rainfall pH. Calculations were conservative in that 100 percent of the 1399 kilograms of hydrogen chloride present in the exhaust plume was assumed to be dissolved in rain droplets (as opposed to approximately 20 percent under normal conditions.) Due to the high buffering capacity of the shallow marine waters, rainwater falling on nearby surface waters would result in no decrease in the pH levels. There would be no decrease in pH levels hence no stress on the marine life in the vicinity.
	P-T-0046.07	Biology-Keys	3.3.3.4	Section 3.3.3.4 addresses potential impacts of hydrogen chloride and other launch emission components on biological resources in the Florida Keys.
	P-T-0046.08	Land use-Keys	3.3.7.4	The Launch Hazard Area for the alternative target launch sites on the Keys does overlap the Florida Keys National Marine Sanctuary; about 4.3 percent of the Florida Keys National Marine Sanctuary is in the Cudjoe Key Launch Hazard Area and 1.6 percent of the Florida Keys National Marine Sanctuary is in the Launch Hazard Area for the Saddlebunch Keys (see section 3.3.7 in the Final SEIS). New military uses in the Florida Keys National Marine Sanctuary are permitted but would require specific consultation. Should either of these sites be selected, consultation with Federal and state resource agencies would establish specific mitigations to avoid or minimize the disturbance of protected areas. Consultation with the Director of the National Marine Sanctuary began early in the planning process for the Theater Missile Defense
	P-T-0046.09	Transportation-Keys	3.3.11.4	The evaluation of potential traffic impacts on U.S. 1 forecast an increase in traffic volume in 2005 (including Theater Missile Defense-related vehicles) of 0.3 to 1.5 percent on a peak day of activity. Since baseline forecasts of traffic for the same year show that most of the segments of U.S. 1 would be operating at or above design capacity during peak times, project traffic would exacerbate this situation. If program activities were planned for this alternative, vehicle movement would be scheduled to avoid peak hours.
	P-T-0046.10	Transportation-Keys	3.3.11.4.	Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.
	P-T-0046.11	Transportation-Keys	3.3.11.4	Should one of the sites in the Keys be selected for Theater Missile Defense testing, a site-specific emergency response plan (similar to the example in appendix J) would be prepared and implemented.
	P-T-0046.12	Launch mishap	3.1.9.4	The Launch Hazard Area was designed to avoid requiring the evacuation of private property or occupied dwellings. The residences of Cudjoe Key have been recognized since the first site visit to the Keys. Each Launch Hazard Area is individually designed for the site, the missile, and the environs around the site. As stated previously, the more constrained a Launch Hazard Area, the more restrained the Range Safety Officer. Refer to section 3.1.9.2 in the SEIS. Should the Keys be selected a response plan would be developed for the Florida Keys prior to any launches.
	P-T-0046.13	Transportation-Keys	3.3.11.4	The target missiles proposed for Theater Missile Defense testing are Minuteman stages I and II. Over a 30 year operational period, frequent transport of Minuteman missile components to and from 1000 sites never resulted in an explosion. Estimates of the probability of an accident involving a truck carrying missile components on the Overseas Highway range from 2.63 to 6.89 per million vehicle-kilometers. Using the high value, there is a probability of 0.0012 of a truck accident per launch.
	P-T-0046.14	Safety	3.1.9.4	See response to comment 46.14 above.
	P-T-0046.15	Safety	3.1.9.4	The analysis of the risk probabilities of each missile flight test is conducted prior to acceptance of that flight test program by the range. The system failure mode analysis and attendant risk probability calculations for each failure mode are calculated. Each equipment failure or human error possibility is considered and incorporated into the risk assessment for each flight test. No test will be accepted by the Air Force Development Test Center commander until he is satisfied that the risk analysis complies with Air Force and Department of Defense safety policies. Comment noted.
	P-T-0046.16	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Steiglitz, Barry Florida Keys National Marine Sanctuary	P-T-0047.01	Draft SEIS		Comment noted.
	P-T-0047.02	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0047.03	Biology-Keys	3.3.3.4	Potential impacts of pre-launch and launch activities are addressed in section 3.3.3.4 of the Final SEIS.
	P-T-0047.04	Biology-Keys	3.3.3.4	Studies of launch effects at Cape Canaveral have shown that birds disturbed by launch noise normally return to their nest soon after the launch event.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0047.05	Biology-Keys		Comment noted.
	P-T-0047.06	Land Use-Keys	3.3.7.4	The alternative target launch sites on Cudjoe Key and Saddlebunch Keys are located on land owned by the Department of Defense and are designated for military use. The Launch Hazard Area for these alternative sites does, however, overlap the National Marine Sanctuary and several wildlife refuges (see section 3.3.7 in the Final SEIS). New military uses in these areas are permitted but would require specific consultation with appropriate Federal and state resource agencies. See sections 3.1.3.4 and 3.3.3.3 in the Final SEIS for proposed mitigations. Should an alternative be selected, the specific mitigations will be documented in the Record of Decision. This mitigation plan, which would avoid or minimize potential adverse impacts on protected areas, would be developed and implemented prior to initiating site preparation and test activities.
	P-T-0047.07	Land Use-Keys	3.3.7.4	Comment noted.
	P-T-0047.08	Biology-Keys	3.3.3.4	Military activities associated with Theater Missile Defense site preparation and test preparation on military land would have minimal effect on the wilderness area. The missile launch would be intrusive, but of short duration, no more than once a month.
	P-T-0047.09	Visual Aesthetics-Keys	3.3.13.4	To better assess the visual impact of constructing a missile assembly building or erecting a 50 foot tall missile on a site, a visual simulations for each vantage point photograph used in the Draft SEIS has been prepared (sections 3.1.13.1 and 3.2.13.1.) These visual simulations use computer graphics programs to ensure that the apparent visibility of the building or missile in the photograph is what would actually be seen from each respective vantage point. Specifically, a known dimension in each photograph was determined from sources at the respective sites. This known dimension was projected into the photograph via planographic projection to provide a perspective scale of the distance between two objects. In this case, the two objects were the tower or known object, and the Hera missile, which would be 50 feet tall on its launch stool. The site mapping indicated the horizontal distance between the known object and the Hera missile launch site. The resultant photographic visual simulations are published in the Final SEIS section 3.1.13.4 (pages 3- 223 and 226) for the Panhandle sites and section 3.2.13.4 (pages 3-518 and 3-521) for the Keys sites. It is apparent, reviewing these photographs, that neither the building nor the missile are visible from most accessible vantage points. The view from those closer vantage points will include the existing military buildings as well as the new Missile Assembly Building and missile. The new buildings will be seen in the context of the existing military facilities.
	P-T-0047.10	Biology-Keys	3.3.3.4	In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys. The listed species presented in the SEIS were obtained from the Florida Game and Fresh Water Fish Department and the U.S. Fish and Wildlife Service and are specific to the Region of Influence for each alternative site.
	P-T-0047.11	Biology-Keys	3.3.3.4	Should a Keys alternative be selected, the specific mitigations will be documented in the Record of Decision. This mitigation plan, which would avoid or minimize potential adverse impacts on protected areas, would be developed and implemented prior to initiating site preparation and test activities.
	P-T-0047.12	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
Kanter, Charles	P-T-0048.01	Draft SEIS		Comment noted.
	P-T-0048.02	Socioeconomics	3.3.10.4	Theater Missile Defense launch activities would not have an appreciable effect on the income and employment of industries operating in the Gulf of Mexico.
	P-T-0048.03	Launch Hazard Area clearance	3.2.10.4	The Theater Missile Defense test program will rely on the Florida Marine Patrol and the Coast Guard to ensure that the water portions of the Launch Hazard Area are clear. These agencies understand the marine operating procedures and constraints of the Florida Keys National Marine Sanctuary. Agreements will be reached with other Federal and state agencies to determine the appropriate policy most effective and ways to clear the Launch Hazard Area.
	P-T-0048.04	Launch Hazard Area clearance	2.1.3.2.3	Prior public notice of test event schedules would be publicized, posted in marinas, and noted in NOTMARS. Radar surveillance prior and during the test would enable the test officer to monitor the marine traffic in the area. It is believed that with the cooperation of the Florida Marine Patrol, the Coast Guard, and the boating public, the area can be cleared for the period to assure safe testing.
	P-T-0048.05	Launch delay	2.1.3.2.3	A launch event would last from 1 to 4 hours including time delays for clearance of the LHS. Beyond this time period, the flight test would be canceled.
	P-T-0048.06	Draft SEIS		Comment noted.
	P-T-0048.07	Program		Comment noted.
	P-T-0048.08	Socioeconomics-Keys	3.3.10.4	The Visitor Participation Survey, which is described as the most comprehensive ever conducted in the region, further emphasizes the relatively minor role that the Lower Keys plays in the Keys tourist economy. The top three activities in which visitors participated were sightseeing and attractions (55 percent participation rate), beach activities (34 percent), and visiting museums and historical sites (33 percent). The top rated activity in the Lower Keys was viewing wildlife/nature study in which 5.8 percent of all visitors to the Keys participated.
	P-T-0048.09	General	3.3.10.4	Comment noted.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
Linn, Diane	P-T-0049.01	Safety	2.1.3.2.3	No area, activity, or resident outside the Launch Hazard Area will be exposed to risks from Theater Missile Defense test activities greater than those encountered in normal daily life. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure.
	P-T-0049.02	Socioeconomics	3.3.10.4	The real estate values within an area are directly related to the levels of income and employment that occur within the area. Socioeconomic impact studies that have been prepared by the Air Force over the past decade have shown that housing values and military programs are generally positively related. The areas near Eglin AFB and Vandenberg AFB, which are both installations where missile testing occurs, have experienced generally stable and appreciating property values. The only negative changes in housing values that have been recorded resulted from mission reductions and base closures that have occurred. Since the proposed Theater Missile Defense test program would not have an appreciable effect on income or employment levels at any of the alternative test sites, no related changes in property or housing value would be expected.
	P-T-0049.03	Safety	3.1.9.4	A separate environmental assessment has been prepared for the Air Drop program. Air drop would occur far offshore that no populated areas is endangered by it.
	P-T-0049.04	Safety	3.1.9.4	Launch Hazard Area evacuation is for unoccupied lands. Residents will not be affected by the clearance of hazard areas. No residents will be evacuated because no exist in the Launch Hazard Area.
	P-T-0049.05	Draft SEIS		In accordance with Council on Environmental Quality guidelines, this SEIS includes sufficient analysis to inform the public and decision makers of potential environmental impacts resulting from the preferred action and alternatives and to assist in the decision making process. In preparing this analysis, the most recent and available data was used to characterize the existing environments of all potential sites including those in the Florida Keys.
	P-T-0049.06	Draft SEIS		Public safety is a primary concern for all range operations. The safety limits defined by the Launch Hazard Area would assure that population centers, schools and residential areas would not be at increased risk as a result of the proposed test program. A detailed discussion of the various risks associated with missile testing are described in section 3.1.9 for normal and mishap scenarios. The primary role of the range safety officer is to ensure the safety of the public. This is done in accordance with Air Force Development Test Center policies and procedures ensuring that the general public will be protected to an individual and collective risk significantly less than the average public exposure. Specifically, one of the safety mechanisms is to establish a Launch Hazard Area as described in section 2.1.5 in the SEIS. The Launch Hazard Area for each test event would be calculated prior to launch on the basis of system factors (propellant type and quantity, payload weight, etc.) and environmental factors (temperature, humidity, wind direction and magnitude). If this launch-specific Launch Hazard Area exceeded the maximum permitted Launch Hazard Area defined for any specific launch site or could result in adverse impacts to non-Federal land parcels other than those predicted and coordinated with Federal, state and local agencies, the launch would be delayed or canceled. No test event would proceed that would pose a safety threat to the local community. Potential impacts to human health and safety is addressed in section 3.1.9 of the Draft and Final SEIS.
Putnam, Nick Key Deer Protection Alliance	P-T-0050.01	Biology-Keys	3.3.3.4	Potential impacts to biological resources are addressed in section 3.3.3.4 of the Final SEIS.
	P-T-0050.02	Alternatives-Keys	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.
Tanzonieri, Albert	P-T-0051.01	Draft SEIS		Comment noted.
	P-T-0051.02	Draft SEIS		Geopolitical considerations were not factors in the selection of alternative test sites.
	P-T-0051.03	Draft SEIS		Comment noted.
	P-T-0051.04	Program		The Florida Keys have included some level of military activities for over 50 years.
	P-T-0051.05	Program		Comment noted.
	P-T-0051.06	Land use-Keys	3.3.7.4	State and local regulatory requirements, many of which are derivative of Federal statutes, are recognized in the planning process. Military projects on military land comply with Federal regulation.
	P-T-0051.07	Draft SEIS		Comment noted.
	P-T-0051.08	Water Quality-Gulf	3.2.14.4	Comment noted.
	P-T-0051.09	Safety	2.1.3.2.3	The non-circular shape of the Launch Hazard Area means that the Range Safety Officer has to react more quickly if an errant missile moves in the direction of the closer boundary.
	P-T-0051.10	Safety	3.1.9.4	Comment noted.

Table 5.3-2: Responses to Transcript Comments (Continued)

Commentor and Affiliation	Comment Number	Resource Area	Reference Section / Page	RESPONSE
	P-T-0051.11	Safety	1.0	No decision has yet been made about which alternative may be selected. National Environmental Protection Agency requires the analysis of all reasonable alternatives to the proposed action. Section 1.0, Program Overview, explains the factors that will be considered in making the final decision after the Final SEIS is completed.

6.0 References

6.0 REFERENCES

- Acentech-LA, 1993. TMD Noise Contours (C-weighted Maximum Sound Levels) for target launch (Hera (M56A-1), Green River to White Sands Missile Range trajectory) and defensive missile launch (ERINT, worst-case trajectory), 4 November.
- Ackerman, B., 1997. Personal communication between Bruce B. Ackerman, Research Scientist, Florida Department of Environmental Protection—St. Petersburg, and Ron Tressler, EDAW, Inc., regarding manatees, 3 June.
- Advanced Research Projects Agency, 1995. *Final Environmental Impact Statement, California Acoustic Thermometry of Ocean Climate Project*, April.
- Agri-aqua, 1998. *Taxonomy and Identification*, [Online]. Available: www.agri-aqua.ait.ac.th/groupers.
- Air Force Development Test Center, 1996. *Oil and Hazardous Substance Pollution Contingency Plan*, AFDTC Plan 32-6, January.
- Air Force Development Test Center, 1997a. *Hazardous Material Management Plan*, AFDTC Plan 32-9, January.
- Air Force Development Test Center, 1997b. *Hazardous Waste Management Plan*, AFDTC Plan 32-5, April.
- Air Force Development Test Center, 1997c. Information provided on the Air Force Special Operations Command test operations in the Eglin Gulf Test Range, September.
- Air Force Development Test Center, 1998. *Ambient Air Sampling, Hera Missile Launch, Fort Wingate, New Mexico*, U.S. Army Center for Health Promotion and Preventative Medicine, Ambient Air Assessment No. 43-EL-7249-97, June.
- Air Force Development Test Center, Eglin Air Force Base, Range Safety Section, 1995. *Hera Target Risk Assessment: Phase I - Launch Hazard Area*, Engineering Report ER-TC-SEV95-2, 30 November.
- Air Force Development Test Center, Environmental Management Directorate, 1997. *Eglin Gulf Test Range Air-to-Surface Gunnery Test Operations, DMS Bibliography Supplement to the Preliminary Biological Assessment*, May.
- Air Force Magazine, 1993. *Guide to Air Force Installations Worldwide*, Vol. 76, No. 5, May.
- Air Force Wright Aeronautical Laboratories, 1984. *Manufacturing Technology for Solid Propellant Ingredients/Preparation Reclamation*, October.

- American Institute of Aeronautics and Astronautics, 1993. *Environmental Monitoring of Space Shuttle Launches at Kennedy Space Center: The First Ten Years*.
- American National Standards Institute, 1986. ANSI S12.4-1986, *Method for Assessment of High-Energy Impulsive Sounds with Respect to Residential Communities*.
- Anderson, D.E., O.J. Rongstad, and W.R. Mutton, 1986. "The Behavioral Response of a Red-tailed Hawk to Military Training Activity," *Raptor Research*, Volume 20: 65-68.
- Anderson, D.E. and O.J. Rongstad, 1989. "Response of Nesting Red-tailed Hawks to Helicopter Overflights," *Condor*, Volume 91: 296-299.
- Armstrong, C.A., 1997. Personal communication between Clifford A. Armstrong, Air Traffic Manager, Jacksonville Center, and Don Setterberg, Airspace Manager, Airspace Management Branch (46OSS/OSCM), Eglin Air Force Base, regarding air traffic volumes and impact of Gulf route closure in the Gulf of Mexico, 28 April.
- Association of American Railroads, 1997. Bureau of Explosives (BOE) Tariff Number BOE 6000-Q (supersedes 6000-L).
- Atencio, D., 1993. Personal communication between Debby Atencio, Endangered Species Biologist, Natural Resources Branch (AFDTC/EMSN), Eglin Air Force Base, and Rachel Jordan, EDAW, Inc., regarding sensitive species at Santa Rosa Island and Cape San Blas, 30 September.
- Atencio, D., 1997. Memorandum from Debby Atencio, Endangered Species Biologist, Natural Resources Branch (AFDTC/EMSN), Eglin Air Force Base, to Linda Ninh, USASMDC, regarding green sea turtles: "On Formatting, TED's, Target Drone Missiles, and Ph.D. signatures," 4 August.
- Aviation Supplies and Academics, Inc., 1996. *Federal Aviation Regulations/Aeronautical Information Manual*, Newcastle, WA.
- Ballistic Missile Defense Organization, 1996. *Ballistic Missiles and the World Security Environment*, BMDO Fact Sheet 96-009, February.
- Bannerot, 1990. *Synthesis of Available Biological, Geological, Chemical, Socioeconomic and Cultural Resource Information for the South Atlantic Area*, Mineral Management Service Report Number 90-0019.
- Barrera, V., 1997. Personal communication between Valerie Barrera, Accounting Secretary II, Key West Transportation Department, and James E. Zielinski, EDAW, Inc., concerning totals for recent Key West cruise ship docking, August.
- Barrett Daffin and Carlan, Inc., 1982. *Regional Water Supply Development Plan for Coastal Areas of Northwest Florida*, Tallahassee, Florida.
- Biological and Environmental Consulting, 1994. *Threatened and Endangered Species Survey of Proposed Site for NEXRAD to Serve the Key West, Florida, Area*.

- Bjorklund, R., 1997. Personal communication between Robin M. Bjorklund, Project Manager, Environmental Restoration Branch (AFDTC/EMR), Eglin Air Force Base, and Ginger Liemohn, EDAW, Inc., regarding the battery storage building on A-15, 29 September.
- Black, B.B, M.W. Collopy, H.G. Percival, A.A. Tiller, and P.G. Bohall, 1984. *Effects of Low-level Military Training on Wading Bird Colonies in Florida*, University of Florida Cooperative Fish and Wildlife Research Unit, Technical Report No. 7, undated.
- Bledsoe, M., 1998. Personal communication between Mike Bledsoe, Simulations and Trajectory Analyst, Teledyne Brown Engineering, and Mark Bennett, EDAW, Inc., concerning Hera Trajectory files, undated.
- Blount, M., 1997. Personal communication between Mary Blount, Supervisor, Public Information Unit, Minerals Management Service, and Eric Zigas, EDAW, Inc., regarding oil- and gas-related surface structures in the Eastern Gulf of Mexico, 29 July.
- Boatsafe, 1998. *BoatSafe.com and Boat Safe Kids*, [Online]. Available: <http://www.boatsafe.com>, [9 June].
- Bohnsack, J. A., D.E. Harper, and D.B. McClellan, 1994. "Fisheries Trends in Monroe County," *Florida Bulletin of Marine Science*, Volume 54.
- Boyer, J.N., 1997. Personal communication between Joseph N. Boyer, Ph.D., Southeast Environmental Research Program, Florida International University, Miami, Florida, and Kurt Legleiter, EDAW, Inc., concerning marine water quality in the Gulf of Mexico, July.
- Bristol, K., 1997. Personal communication between Ken Bristol, Natural Resource Planner, Range Environmental Planning Office (46TW/XPE), Eglin Air Force Base, and Gary Cornell, EDAW, Inc., concerning distance from compounds to private residences, 12 May.
- Brogdon, J., 1997. Personal communication between James Brogdon, Electronics Engineer, Range Systems Flight (46TW/TSRST), Eglin Air Force Base, and Linda Ninh, USASSDC and Ginger Liemohn, EDAW, Inc., regarding hazardous materials and hazardous waste management at Cape San Blas, 29 September.
- Brown, A., 1997. Personal communication between Ann Brown, Chief, Real Estate Flight, Real Property Office (96 CEG/CERR), Eglin Air Force Base, and Rusty Anchors, EDAW, Inc., regarding building demolition at site A-15, 28 September.
- Brown, H., 1997. Personal communication between Holland Brown, Economic Analyst, Key West Chamber of Commerce, Key West, Florida, and Gary Cornell, EDAW, Inc., regarding unique visual features of the Florida Keys, 4 February.

- Burgess, George H., 1998. *Shark Conservation in the Western North Atlantic: A Perspective*, [Online]. Available: www.flmnh.ufl.edu/fish/research/IUCN/webcons.htm [undated].
- Butler, C.S., 1996. *Archaeological Survey of Key West Naval Air Station, Monroe County, Florida*, Brockington and Associates Inc., August.
- Carr, R.S. and P. Fay, 1990. *An Archaeological Survey of the Lower Keys Monroe County, Florida*, The Archaeological and Historical Conservancy, Technical Report #19, September.
- Carter, 1997. Personal communication between Bill Carter, Technical Director of Communications, NCTAMS LANT Detachment, and Rusty Anchors, EDAW, Inc., regarding the facilities located on Saddlebunch Key.
- Cates, J., 1997. Personal communication between Jolynn Cates, Administrator, Florida Keys Aqueduct Authority, and Ron Timblin, EDAW, Inc., regarding water supply for Saddlebunch Keys, 8 July.
- Cavanaugh, R., 1996. *Preliminary Estimates of Potential Effects on Marine Life of 105 mm Shell Detonations in the Eglin Gulf Test Range*, September.
- Chemical Propulsion Information Agency, 1994. *CPIA/M1 Rocket Motor Manual*, Vol. 1, July.
- City of Fort Walton Beach, 1990. *City of Fort Walton Beach Comprehensive Plan*.
- Coleman, M.L., 1997. Personal communication between M.L. Coleman, Chemical Propulsion Information Agency, and Kurt Legleiter, EDAW, Inc., regarding liquid-fueled missiles, 19 November.
- Collier, R.D., 1997. *Encyclopedia of Acoustics*, "Ship and Platform Noise, Propeller Noise," February.
- Columbia University Press, 1993. *The Columbia Encyclopedia*, "Intracoastal Waterway," Edition 5, undated.
- Cowan, J., 1994. *Handbook of Environmental Acoustics*, Van Nostrand Reinhold: New York.
- Craddick, J., 1997. Personal communication between June Craddick, Assistant Superintendent, Florida Keys National Marine Sanctuary, Marathon, Florida, and Gary Cornell, EDAW, Inc., concerning unique visual features of the Florida Keys, 4 February.
- Crusoe, E., 1995. Personal communication between Edwin E. Crusoe IV, Captain, Key West Bar Pilots Association, and James E. Zielinski, EDAW, Inc., concerning bar pilots and other shipping concerns in the Florida Keys, 9 November.

- Crusoe, E., 1997. Personal communication between Edwin E. Crusoe IV, Captain, Key West Bar Pilot's Association, and James E. Zielinski, EDAW, Inc., concerning Key West ferry statistics, 16 September.
- Defenbaugh, R., 1997. Personal communication between Richard Defenbaugh, Deputy Regional Supervisor for Leasing and Environment, U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico Outer Continental Shelf Region, and Kurt Legleiter, EDAW, Inc., concerning oil and gas extraction and exploration activities in the Gulf of Mexico, May.
- Department of the Navy, Naval Facilities Engineering Command, 1991. *Naval Air Station, Key West, Florida, Upgraded Physical Security, Cudjoe Key Air Force Station, Cudjoe Key, Florida, Drawing and Index of Maps*, 29 July.
- Department of the Navy, Naval Facilities Engineering Command, 1992. *Naval Air Station, Naval Communication Unit, Key West, Florida, General Development Map, Existing Conditions*, Southern Division, 8 December.
- Dorr R. and D. Donald, 1990. *Fighters of the United States Air Force*, Temple Press Aerospace.
- EDAW, Inc., 1997. Information generated by the Geographic Information System (GIS) Department of the EDAW Huntsville, Alabama office, undated.
- Eglin Air Force Base, 1992. *Eglin Air Force Base Historic Preservation Plan (Draft)*, Report of Investigations No. 192.
- Eglin Air Force Base, 1996. *Eglin Range General Plan, "A Framework for the Future."*
- Eglin Air Force Base, 1997. *Cultural Resources Management Plan*.
- Eglin Air Force Base, Natural Resources Branch, 1997. Map of Gulf of Mexico Commercial Fishing Zones provided by AFDTC/EMSN, Marine Fisheries Information System data.
- Ellis, D.H., C.H. Ellis, and D.P. Mindell, 1991. "Raptor Responses to Low-Level jet Aircraft and Sonic Booms," *Environmental Pollution*, Volume 74: 53-83.
- Environmental Systems Research Institute, Inc., 1992. Data extracted from 1990 U.S. Census.
- Environmental Systems Research Institute, Inc., 1993. *Digital Chart of the World* (1st Edition), [CD-ROM], Available: ESRI, Inc., April.
- Experian Information Solutions, Inc., 1997. Aerial and (Realty) Map Atlas, Monroe County, Florida, 32nd edition.
- Federal Aviation Administration, 1973. *Statistical Prediction Model for Glass Breakage from Nominal Sonic Boom Loads*, Report No. FAA-RD-73-79, January.

- Federal Aviation Administration, 1990. *Order 7610.4H, Special Military Operations*, 2 October.
- Federal Aviation Administration, 1991. *Order 7400.2C, Procedures for Handling Airspace Matters*, 5 December.
- Federal Emergency Management Agency, 1992. *Flood Insurance Rate Map, Gulf County, Florida*, Panel NO. 175, undated.
- Federal Emergency Management Agency, 1997. *Flood Insurance Rate Maps*. Panels 1485H, 1490H, 1706H, 1708H, 1727H, 1729H, 3 March.
- Federal Register, 1997. *Rules and Regulations*, Volume 62, No. 164, from the Federal Register Online via GPO Access, [Online]. Available: wais.access.gpo.gov [25 August].
- Finegold, L.S., C.S. Harris, H.E. VonGierke, 1992. "Applied Acoustical Report: Criteria for Assessment of Noise Impacts on People," *Journal of Acoustical Society of America*, June.
- Fish Guide, 1998. *Group 1 – Sharks and Rays*, [Online]. Available: www.skiio.peachnet.edu/noaa/fishguide [no date].
- Fisher, C., 1997. Personal communication between Carol A. Fisher, Chamber Manager, Lower Keys Chamber of Commerce, Key West, Florida, and Gary Cornell, EDAW, Inc., regarding unique visual features of the Florida Keys, 4 February.
- Flinn, G., 1997. Personal communication between SGT. Gary Flinn, Manager, Weapons Safety (AFDTC/SEOW), Eglin Air Force Base, Florida, and EDAW, Inc., regarding review of historic safety records.
- Florida Cooperative Fish and Wildlife Research Unit, 1994. *Impact of Vehicular Traffic on Beach Habitat and Wildlife at Cape San Blas, Florida*, Technical Report # 50, July.
- Florida Department of Business and Professional Regulation, 1996. Hotel/Motel, Condominium Licensing Records, Division of Hotel and Restaurant Office of Licensure and EDP.
- Florida Department of Environmental Protection, 1994. *Northwest Florida District Water Quality Assessment 1994, 305(b) Technical Appendix*.
- Florida Department of Environmental Protection, 1996a. Authorization letter for Eglin's RCRA Part B Subpart X permit, October.
- Florida Department of Environmental Protection. 1996b. *South Florida District Water Quality Assessment 1996, 305(b) Technical Appendix*.
- Florida Department of Environmental Protection, 1996c. "Reported Nesting Activity of the Loggerhead, *Caretta caretta*, in Florida, 1993-1995," Florida Marine Research Institute, 5 September.

- Florida Department of Environmental Protection, 1997. *Florida Department of Environmental Protection Home Page*, [Online]. Available: <http://www.dep.state.fl.us>.
- Florida Department of Environmental Protection, Bureau of Solid and Hazardous Waste, Division of Waste Management, 1995. *Solid Waste Management in Florida*, January.
- Florida Department of Environmental Protection, Division of Administrative and Technical Services, 1994. *Florida's Geological History and Geological Resources*, Florida Geological Survey, Tallahassee, Florida.
- Florida Department of Environmental Protection, Division of Air Resources Management, undated. Application for Air Permit—Long Form, DEP Form No. 62-210.900(1).
- Florida Department of Environmental Protection, Division of Air Resources Management, 1997. *Florida's Air/ALLSUM Web Site*, [Online]. <http://www.dep.state.fl.us/air/programs/allsum/index.htm>.
- Florida Department of Environmental Protection, Florida Marine Research Institute, 1995. *Sea Turtle Nesting Activity in the State of Florida, 1979-1992*, Florida Marine Research Publications No. 52.
- Florida Department of Natural Resources, 1986. *Geology of the State Parks in the Florida Keys*, Florida Geological Survey, Tallahassee.
- Florida Department of Natural Resources, 1992. *St. Joseph's Bay Aquatic Preserve Management Plan*, 22 January.
- Florida Department of Natural Resources, Division of Resource Management, 1992. *A Geological Overview of Florida, Open File Report No. 50*, Florida Geological Survey.
- Florida Department of State, 1995. *Florida Department of State Home Page, Division of Elections, Constitutional Amendments*, [Online]. Available: <http://election.dos.state.fl.us/1994elec/general/results/genrcoa.htm> [18 May].
- Florida Department of Transportation, 1995. Data provided on average annual daily traffic, undated.
- Florida Department of Transportation, 1996. *Annual Vehicle Classification Report*, District 3 Office, Chipley, Florida.
- Florida Department of Transportation, Office of Planning, 1996. *Traffic Counts, Station Average Annual Daily Traffic History Report*, District 6 Office, Miami, Florida.
- Florida Division of Forestry, 1997. *Recolonization and Reintroduction of "Cladonia perforata Evans," An Endangered Lichen at Eglin Air Force Base, Florida*, 1 September.

- Florida Game and Fresh Water Commission, 1996. *Recovery Actions for the Lower Keys Marsh Rabbit, Silver Rice Rat, and Stock Island Tree Snail: Final Report, Cooperative Agreement #1448-0004-94-9164.*
- Florida Geological Survey, 1992. *Florida's Ground Water Quality Monitoring Program Background Hydrogeochemistry*, Florida Geological Survey Special Publication No. 34.
- Florida Marine Research Institute, 1995. *Marine Resources Geographic Institute System.*
- Florida Marine Research Institute, undated. GIS data from the Marine Resources Geographic Institute System.
- Florida Natural Areas Inventory, 1994a. *Ecological Survey of U.S. Navy Property in the Lower Florida Keys*, Monroe County, Florida.
- Florida Natural Areas Inventory, 1994b. Maps that accompany the Ecological Survey.
- Florida Natural Areas Inventory, 1996. Memorandum regarding the effects of Hurricane Opal on populations of two endemic goldenasters, 30 December.
- Florida Natural Areas Inventory, 1997. "Natural Community Survey of Eglin Air Force Base, 1993-1996: Final Report," Kindell, C.E., B.J. Herring, C. Nordman, J. Jensen, A.R. Schotz, and L.G. Chafin, Tallahassee, Florida.
- Florida Natural Areas Inventory and The Nature Conservancy, 1994. *Ecological Survey of U.S. Navy Property in the Lower Florida Keys, Monroe County, Florida*, 10 February.
- Florida Spaceport Authority, undated. *Environmental Assessment of Cape San Blas Sounding Rocket Facility*, Cocoa Beach, Florida.
- Florida State University, Department of Urban and Regional Planning, 1996. *Florida State University - Eglin Air Force Base Strategic Partnering Initiative, Final Working Paper*, 31 July.
- Florida State University, Institute of Science and Public Affairs, 1996. *Atlas of Florida*, Revised Edition, University Press of Florida.
- Florida Tourism Industry Marketing Corporation, 1997. *Florida Visitor Profile Report, Quarters I and II.*
- Fort Walton Beach Metropolitan Planning Organization, 1996. *Roadway Level of Service Analysis for Okaloosa and Walton Counties*, May.
- Forys, E.A., 1995. "Metapopulations of Marsh Rabbits: A Population Viability Analysis of the Lower Keys Marsh Rabbit (*Sylvilagus palustris hefneri*)," Ph.D. Thesis, University of Florida, Gainesville.

- Foth, H.D., 1978. *Fundamentals of Soil Science, Sixth Edition*, John Wiley and Sons, Inc.: New York.
- Frank, P., 1997. Report on survey for silver rice rats on Cudjoe Key within the Eglin project areas, 17 September.
- Gallen, N., 1997. Personal communication between Nancy Gallen, Reservationist, The Yankee Fleet, and James E. Zielinski, EDAW, Inc., concerning ferry statistics for the Yankee Freedom, 22 September.
- Garrett, E., 1997. Personal communication between Ed Garrett, Professional Geologist, Florida Geological Survey, and Kurt Legleiter, EDAW, Inc., regarding oil and gas extraction and exploration activities in the State of Florida waters, May.
- General Accounting Office, 1992. *GAO/RCED Development in Coastal Barriers, 1992*.
- Glunn, J., 1998. Personal communication between John Glunn, Air Toxics Supervisor, Office of Policy Analysis and Program Management, Division of Air Resources Management, Florida Department of Environmental Protection, and Mike Carstensen, EDAW, Inc., regarding Florida Air Toxic Program and NESHAP and its potential applicability to proposed action, 7 June.
- Goggin, J.M., 1939. "A Ceramic Sequence in South Florida," *New Mexico Anthropologist*, Volume 3.
- Goldstein, J., and J. Lukas, 1980. "Noise and Sleep: Information Needs for Noise Control," *Proceedings of the Third International Congress on Noise as a Public Health Problem*, ASHA Report No. 10.
- Gulf County, 1990. *Gulf County Comprehensive Plan*.
- Gulf Fisheries Management Council, 1997. *Amendment 9 to Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, U.S. Waters Supplemental Environmental Impact Statement: Regulatory Impact Review, Initial Regulatory Flexibility Analysis, and Social Impact Analysis*: Gulf of Mexico Fishery Management Council, Tampa, Florida.
- Haber, J., D. Nakaki, 1989. *Noise and Sonic Boom Impact Technology, Sonic Boom Damage to Conventional Structures*, February.
- Hamlin, C., 1995. Personal communication between Chuck Hamlin, Assistant Director, Key West Transportation Department, and James E. Zielinski, EDAW, Inc., concerning Key West cruise ship levels, 6 November.
- Hanks, W., 1997. Personal communication between Willard Hanks, Applications Review Engineer IV, Florida Department of Environmental Protection, Department of Air Resources Management, Bureau of Air Regulation, and Mike Carstensen, EDAW, Inc., concerning District Offices of the DEP, 12 August.

- Hayes, H., 1994a. *Standard Operating Instruction 19-01: Hazardous Waste Management Cudjoe Key TARS Site*, 20 June.
- Hayes, H., 1994b. *Standard Operating Instruction 19-02: Hazardous Substance Pollution Contingency Plan*, 20 June.
- Hayes, H., 1994c. *Standard Operating Instruction 19-03: Hazardous Waste Minimization Plan*, 20 June.
- Hayes, H., 1995. *Standard Operating Instruction 19-04: Recoverable and Waste Petroleum Product Management Plan*, 19 December.
- Hayes, H., 1996. *Standard Operating Instruction 19-05: Spill Prevention Control and Countermeasure Plan for the Cudjoe Key Florida TARS Site*, 19 December.
- Heindsman, T.E.R., R.H. Smith and A.D. Ameson, 1995. "Effects of Rain Upon Underwater Noise Levels," *Journal of the Acoustic Society of America*, Volume 27:378.
- Hicks, J., 1995. Personal communication between Jim Hicks, Air Force Materiel Command, Don Setterberg, Airspace Manager, Airspace Management Branch (46 OSS/OSCSM), Eglin Air Force Base, and Quent Gillard, EARTH TECH, regarding the effects on NAFTA on Gulf of Mexico and Eglin EWTA airspace, 5 April.
- Hicks, J., 1997. Personal communication between Jim Hicks, Air Force Materiel Command, and Quent Gillard, EDAW, Inc., regarding new commercial aircraft routes across the northeastern Gulf of Mexico, undated.
- Howard, R., 1993. Personal communication between Russell Howard, Plans and Programs Engineer, 46 TW/XP, Eglin Air Force Base, and Matthew Estes, the Earth Technology Corporation, regarding sources of water on Santa Rosa Island, 7 December.
- Institute for Raptor Studies, 1981. *Responses of Raptorial Birds to Low-Level Military Jets and Sonic Booms*, U.S. Air Force and U.S. Fish and Wildlife Service.
- Institute of Transportation Engineers, 1991. *Trip Generation, Fifth Edition*, Washington, D.C.
- Insurance News Network, 1998. *Florida Home Insurance, State Info*, [Online]. Available: <http://www.insure.com/states/fl/home> [4 May].
- International Broadcasting Bureau, 1997. *International Broadcasting Bureau*, [Online]. Available: <http://www.voa.gov>, [16 December].
- International Civil Aviation Organization, 1985. *Procedures for Air Navigation Services: Rules of the Air and Air Traffic Services, Document No. 4444-RAC/501/12*, Montreal, Quebec, Canada.

International Civil Aviation Organization, 1994. *Amendment No. 5 to the Procedures for Air Navigation Services: Rules of the Air and Air Traffic Services, Document No. 4444-12, Amendment No. 5, Montreal, Quebec, Canada*, 11 October.

Jacksonville Air Traffic Control Center, 1991. Eglin Water Test Areas, Letter of Agreement between Eglin Air Force Base, the Jacksonville, Miami, and Houston Air Traffic Control Centers, and the Navy Training Wing 6, 2 May.

Jacobsen, T., 1983. "Crocodilians and Island: Status of the American Alligator and American Crocodile in the Lower Florida Keys," *Florida Field Naturalist*, Volume 11:1-24.

JANE's Strategic Weapons Systems, 1995. *USA: Offensive Weapons, Hermes*.

JANE's Strategic Weapons Systems, 1997. *USA: Offensive Weapons, MGM-140 ATACMS*, Issue 19, September.

JANE's Strategic Weapons Systems, 1998. *USA: Defensive Weapons, HAWK*, Issue 15, January.

Johnson R., 1994. *An Archaeological and Historical Survey of the Eglin, AFB Cape San Blas Tract, Gulf County, Florida*, August.

Jones, R., 1997. Personal communication between Rick Jones, Channel Marking Planner, Florida Marine Patrol, and James E. Zielinski, EDAW, Inc., regarding the Intracoastal Waterway in the Florida Keys area, 31 July.

Jones, V., 1997. Personal communication between Vicki Jones, Chief, Historic Office (AFDTC/HO), Eglin Air Force Base, and Rusty Anchors, EDAW, Inc., concerning BOMARC launches at Site A-15, 15 September.

Kale, W., and D. Maehr, 1990. *Florida's Birds, A Handbook and Reference*, Pineapple Press: Sarasota, Florida.

Kataoka, K., 1997. Personal communication between Keith Kataoka, Environmental Scientist, Aerojet General, Sacramento Environmental Operations, and Kurt Legleiter, EDAW, Inc., concerning the environmental data of missile fuels, emissions, and debris, June.

Kauffman, S., 1997a. Personal communication between Steve Kauffman, Environmental Protection Specialist, Waste Management Branch (AFDTC/EMCW), Eglin Air Force Base, and Ginger Liemohn, EDAW, Inc., regarding hazardous waste generation at Eglin AFB, 20 August.

Kauffman, S., 1997b. Personal communication between Steve Kauffman, Environmental Protection Specialist, Waste Management Branch (AFDTC/EMCW), Eglin Air Force Base, and Ginger Liemohn, EDAW, Inc., regarding hazardous waste generation at Eglin AFB and Cape San Blas, 21 August.

- Kempshall, S., 1997. Personal communication between Shawn Kempshall, Electronics Technician, NCTAMS LANT Detachment, Key West, Florida, and Ginger Liemohn, EDAW, Inc., regarding the ISA agreement between NASKW and Saddlebunch Key and the number of storage tanks on Saddlebunch Key, 8 October.
- Kilcollins, R., 1996. Personal communication between Rosalyn Killcollins, Federal Consistency, Florida Department of Community Affairs, Coastal Management Program, and Gary Cornell, EDAW, Inc., regarding Coastal Barrier Resource System in Florida, 31 October.
- Kitchner, R., 1997. Personal communication between Ray Kitchner, Executive Director, Marathon Chamber of Commerce, Marathon, Florida, and Gary Cornell, EDAW, Inc., regarding unique visual features of the Florida Keys, 4 February.
- Kochman, H.I., 1978. "Eastern Indigo Snake," *Rare and Endangered Biota of Florida, Volume III, Amphibians and Reptiles*, University Presses of Florida: Gainesville.
- Larkin, 1996. *Effects of Military Noise on Wildlife: A Literature Review*, Center for Wildlife Ecology, Illinois Natural History Survey, January.
- Lazell, J.D., 1989. *Wildlife of the Florida Keys: A Natural History*, Island Press: Washington, D.C.
- Little, E., 1997. Personal communication between Ed Little, Port Agent, National Marine Fisheries Service, and James E. Zielinski, EDAW, Inc., concerning Key West ferry statistics, 10 September.
- Lockheed Martin System Support and Technical Services, undated. Information regarding Cudjoe Key Aerostat Site History.
- Lower Keys Chamber of Commerce, undated. *Lower Keys Map and Guide*, Visitor's Information Center.
- Lukas, J., 1975. "Noise and Sleep: A Literature Review and a Proposed Criterion for Assessing Effect" *Journal of the American Acoustical Society*, Volume 58, No. 6.
- Manlove, E., 1997. Correspondence between Manlove, Chief, Tech Management Division, Corps Surface-to-Air Missile/Medium Extended Air Defense (CORPS SAM/MEADS) System National Product Office, and Colvin, NATO MEADS Management Agency, regarding missile characteristics data for the CORPS SAM/MEADS system, 8 July.
- Marmontel, M., 1992. "Age and Reproductive Parameter Estimates in Female Florida Manatees," *Interim Report for the Technical Workshop on Research*.
- Martin, S., 1997. Personal communication between Sandy Martin, Systems Analyst, Jacksonville Air Traffic Control Center, and Quent Gillard, EDAW, Inc., regarding en route aircraft traffic within the Gulf of Mexico region, undated.

- McClain, L., 1997a. Personal communication between Larry McClain, Environmental Manager, Lockheed-Martin Training and Technical Services, and Ginger Liemohn, EDAW, Inc., regarding hazardous materials/waste management at the Cudjoe Key Aerostat site, 31 July.
- McClain, L., 1997b. Personal communication between Larry McClain, Environmental Manager, Lockheed-Martin Training and Technical Services, and Ginger Liemohn, EDAW, Inc., regarding hazardous materials/waste management at the Cudjoe Key Aerostat site, 31 July.
- McCleave, R., 1997. Personal communication between Bob McCleave, Technical Director, PRC, Inc., and John Sollid, EDAW, Inc., regarding statistics for the STANDARD Missile-2 Block IV-A and STANDARD Missile-3 rockets, 7 October.
- McCune, B., 1997. Personal communication between Bob McCune, General Manager, Key West Excursions, and James E. Zielinski, EDAW, Inc., concerning schedules for Friendship 4 and Friendship 5 ferries, 17 September.
- McInerny, S. A., 1989. "Rocket Noise - Revisited," *Inter-Noise 89 Proceeding*, Vol. 1, 259-262, International Conference on Noise Control Engineering, Newport Beach, California, 4-6 December.
- McInerny, S. A., 1992. "Characteristics and Predictions of Far-Field Rocket Noise," *Noise Control Engineering Journal*, Vol. 38, January and February.
- McMinn, L., 1997. Personal communication between Linda McMinn, Director of Marketing, Monroe County Tourist Development Council, Key West, Florida, and Gary Cornell, EDAW, Inc., regarding unique visual features of the Florida Keys, 4 February.
- McNeill, P., 1997. Personal communication between Patsy McNeill, Hazardous Waste Facility Manager, Environmental Branch, Naval Air Station Key West, and Ginger Liemohn, EDAW, Inc., regarding hazardous materials/waste management at the Saddlebunch Keys site, 3 October.
- Medlate, R., 1997. Personal communication between Roy Medlate, Administrator, Florida Power Corporation, and Ron Timblin, EDAW, Inc., regarding Cape San Blas power line capacity and demand, 21 August.
- Merrill, C.I., U.S. Air Force Rocket Propulsion Laboratory, Edwards AFB, California, undated. *MX Propellant Fire at AEDC/Tullahoma Hazard Investigation*, Abstract presented in the 1983 Jannaf Propulsion Systems Hazards Subcommittee Meeting, Volume I.
- Meyer, J. and K. Hemphill, 1995. *Cultural Resources Survey of 100 Acres and Testing of Four Sites, Okaloosa and Walton Counties, Eglin Air Force Base, Florida*.
- Mickler, J.R., 1945. *Key West in World War II: A History of the Naval Air Station and Naval Operating Base*, United States Navy, Key West Naval Air Station.

- Mikell, G., 1992. *Cultural Resources Impact Assessment of the Santa Rosa Island Pipeline Project, Eglin Air Force Base, Florida.*
- Milanich, J. T., 1995. *Florida Indians and the Invasion from Europe*, The University Press of Florida.
- Minerals Management Service, 1998. Comments from the Minerals Management Service on the Coordinating Final Theater Missile Defense Extended Test Range Supplemental EIS Eglin Gulf Test Range, 8 June.
- Minogue, S., 1997. Personal communication between Sean Minogue, Owner-President, South Florida Sea Ventures, and James E. Zielinski, EDAW, Inc., concerning statistics for the Captain Red and Whale Watcher ferries, 16 September.
- Minski, M., 1997. Personal communication between LT. Michael D. Minski, Law Enforcement, Marathon Office, Florida Marine Patrol, and James E. Zielinski, EDAW, Inc., concerning shipping in the Atlantic Intracoastal Waterway, Florida Keys region, 22 July.
- Mitchell, K., 1997. Unpublished data provided by Karen Mitchell, National Oceanic and Atmospheric Administration/National Marine Fisheries Service, Pascagoula, Mississippi.
- Monroe County, 1993. *Monroe County Year 2010 Comprehensive Plan, Technical Document*, 15 April.
- Monroe County, 1994. *Monroe County Long Range Transportation Plan*, February.
- Monroe County Code, 1978. *Noise Control Ordinance of the County of Monroe*, Ordinance No. 11-1978, Art. I.
- Monroe County Emergency Management, 1997. *Monroe County Comprehensive Emergency Management Plan*.
- Monroe County Planning Department, 1996. *Monroe County Public Facilities Capacity, 1995 Assessment*.
- Monroe County Planning Department, 1996. *1996 U.S. 1 Arterial Travel Time and Delay Study*, July.
- Monroe County Property Appraiser's Office, 1997. Digital data on Lower Keys provided by Paul Sprague, GIS Cartographic Supervisor, Monroe County.
- Monteith, W.O., 1997a. Personal communication between Walter O. Monteith, Chief, Range Safety Operations Element (AFDTC/SEUO), Eglin Air Force Base, Florida, and EDAW, Inc., concerning destruct initiation capability, undated.
- Monteith, W.O., 1997b. Personal communication between Walter O. Monteith, Chief, Range Safety Operations Element (AFDTC/SEUO), Eglin Air Force Base, Florida, and

- Ginger Liemohn, EDAW, Inc., regarding coordinates for Launch Hazard Areas, 29 September.
- Morrow, R., 1997. Personal communication between Ryan Morrow, Site Manager, Lockheed-Martin, and Ron Timblin, EDAW, Inc., regarding septic tanks on Cudjoe Key, 9 July.
- Mulkey, D., S. Gran and C. Adams, 1995. *Monroe County: An Economic Overview—Staff Paper 95-3*, University of Florida, Institute of Food and Agricultural Services, Food and Resource Economics Department, Gainesville, Florida, March.
- Mullin, K.D., R.R. Lohofener, W. Hoggard, C.L. Roden, and C.M. Rogers, 1990. "Abundance of Bottlenose Dolphins, *Tursiops truncatus*, in the Coastal Gulf of Mexico," *Northeast Gulf Science*, Volume 11, No. 2:113-122.
- Mullin, K.D., R.R. W. Hoggard, C.L. Roden, R. Loehofener, and C.M., 1994. "Cetaceans on the Upper Continental Slope in the North-Central Gulf of Mexico," *Fishery Bulletin*, No. 92: 773-786.
- Myers, R. and J. Ewel, 1992. *Ecosystems of Florida*, University of Central Florida Press: Orlando.
- Naqvi, S., PhD. and A. Latif, PhD, 1974. *Biodegradation of Rocket Propellant Waste. Ammonium Perchlorate*, Participating Agency: Department of Biology Alcorn State University, Lorman, Mississippi, 1 June.
- Nasser, L.A., 1987. *The Handling of Damaged Solid Propellant*, AFAL TR-87-052, Prepared on behalf of the Air Force Astronautics Laboratory by Sverdrup Technology, Inc., October.
- National Academy of Sciences, 1981. *Assessment of Community Response to High-Energy Impulsive Sounds, Report of Working Group 84*, Committee on Hearing, Bioacoustics, and Biomechanics, National Research Council, Washington, D.C.
- National Academy of Sciences, National Research Council, 1977. *Guidelines for Preparing Environmental Impact Statements on Noise*, Assembly of Behavioral and Social Sciences, Committee on Hearing, Bioacoustics, and Biomechanics.
- National Academy Press, 1994. *Low-Frequency Sound and Marine Mammals: Current Knowledge and Research Needs*, Commission on Geosciences, Environment, and Resources, National Research Council, Committee on Low-Frequency Sound and Marine Mammal Ocean Studies Board.
- National Aeronautics and Space Administration, 1973. *Final Environmental Impact Statement for National Aeronautics and Space Administration Office of Space Science, Sounding Rocket Program*, July.
- National Aeronautics and Space Administration, 1985. *Effects of Space Shuttle Launches STS-1 through STS-9 on Terrestrial Vegetation of John F. Kennedy Space Center, Florida*, NASA Technical Memo.

- National Aeronautics and Space Administration, 1986. *Far-Field Deposition from Space Shuttle Launches at John F. Kennedy Space Center, Florida*, NASA Technical Memorandum 83104, John F. Kennedy Space Center, July.
- National Aeronautics and Space Administration, 1990. *Supplemental Environmental Impact Statement, Space Shuttle Advanced Solid Rocket Motor Program*, **August**.
- National Aeronautics and Space Administration, Office of Space Science, 1995. *Final Environmental Impact Statement for the Cassini Mission*, Solar System Exploration Division, June.
- National Imagery and Mapping Agency, 1997a. *DOD Area Planning AP/1B Chart: Military Training Routes: Eastern US*, 22 May.
- National Imagery and Mapping Agency, 1997b. *DOD Flight Information Publication, Area Planning, Military Training Routes: North and South America*, 22 May.
- National Imagery and Mapping Agency, 1997c. *DOD Flight Information Publication, L-3 Enroute Low Altitude Caribbean and South America Aeronautical Chart*, 27 March.
- National Marine Fisheries Service, undated. Unpublished data provided by K. Mullin, Southeast Fisheries Center, Mississippi Laboratories, Pascagoula.
- National Marine Fisheries Service, 1996. *Sea Turtles Home Page*, [Online]. Available: <http://www.nmfs.gov/tmcintyr/turtles/turtle.html>.
- National Marine Fisheries Service, 1997. *National Marine Fisheries Service Home Page*, [Online]. Available: http://www.nmfs.gov/tmcintyr/prot_res.html.
- National Marine Fisheries Service and U.S. Fish and Wildlife Service, 1991. *Recovery Plan for U.S. Population of Loggerhead Turtle*.
- National Oceanic and Atmospheric Administration, 1982. *Gulf of Mexico Coastal and Ocean Zones Strategic Assessment: Data Atlas - Freshwater Withdrawals*, National Ocean Service and Southeast Fisheries Center.
- National Oceanic and Atmospheric Administration, National Ocean Service, 1982a. *Gulf of Mexico Coastal and Ocean Zones Strategic Assessment: Data Atlas - Shipping Routes to Points Outside the Gulf*, No. 4.27.
- National Oceanic and Atmospheric Administration, National Ocean Service, 1982b. *Gulf of Mexico Coastal and Ocean Zones Strategic Assessment: Data Atlas - Shipping Routes Within the Gulf*, No. 4.28.
- National Oceanic and Atmospheric Administration, 1996. *Florida Keys National Marine Sanctuary, Final Management Plan/Environmental Impact Statement, Vol. 1-3*.
- National Oceanic and Atmospheric Administration, National Ocean Service, 1995. U.S. Government Flight Information Publication, *H-5 IFR En-route High Altitude—U.S., Aeronautical Chart*, 9 November.

- National Oceanic and Atmospheric Administration, National Ocean Service, 1997a. *Miami Sectional Aeronautical Chart*, 60th Edition, 27 February.
- National Oceanic and Atmospheric Administration, National Ocean Service, 1997b. *New Orleans Sectional Aeronautical Chart*, 60th Edition, 27 February.
- National Oceanic and Atmospheric Administration, National Ocean Service, 1997c. *U.S. Government Flight Information Publication, H-5 South Central IFR En-route High Altitude Aeronautical Chart*, 27 March.
- National Oceanic and Atmospheric Administration, National Ocean Service, 1997d. *U.S. Government Flight Information Publication, L-8 IFR En-route Low Altitude Aeronautical Chart*, 27 March.
- National Oceanic and Atmospheric Administration, National Ocean Service, 1997e. *U.S. Government Flight Information Publication, L-18, IFR En-route Low Altitude—U.S., Aeronautical Chart*, 27 March.
- National Oceanic and Atmospheric Administration, National Ocean Service, 1997f. *U.S. Government Flight Information Publication, L-19 IFR En-route Low Altitude Aeronautical Chart*, 27 March.
- National Oceanic and Atmospheric Administration, National Ocean Service, 1997g. *U.S. Government Flight Information Publication, U.S. Terminal Procedures: Southeast (SE)*, 27 March.
- National Research Council, 1987. *Emergency and Continuous Exposure Guidance Levels for Selected Airborne Contaminants, Volume 7: Ammonia, Hydrogen Chloride, Lithium Bromide, and Toluene*, Department of the Army Committee on Toxicology.
- Naval Air Station, Key West, 1981. General Development Map of Existing Conditions, Naval Communications Unit.
- Naval Air Station, Key West, 1994. Interservice Support Agreement (ISSA)/Host Tenant Support Agreement (HTSA) with NASKW with Specific provisions #N00213-94182-106 outlining the agreement between the Cudjoe Key TARS site and NASKW, January.
- Naval Facilities Engineering Command, Commander, 1989. *Aircraft Noise Survey for Naval Air Station Key West, Florida*, HMMH Report No. 280400.2, December.
- Naval Ordnance Missile Test Station, 1990. *Environmental Assessment for the Standard Missile*.
- Naval Supply Systems Command, undated. *Hazardous Substances Management Systems: Executive Summary*.
- Nelson, D., 1997. Personal communication between Duane Nelson, General Engineer, Demonstration and Test Division, PEO Missile Defense, U.S. Army Space and

- Missile Defense Command, and John Sollid, EDAW, Inc., regarding the PAC-3 missile, 12 December.
- Nichols, S. 1989. *A Chronological History of Key West: A Tropical Island City*. Key West Images of the Past, Inc.: Key West.
- Noble, J.M., 1997. *Quick-Look at the October 9th HERA Launch, Summary Report*, January.
- Northwest Florida Water Management District, 1981. *Water Resources of Southern Okaloosa and Walton Counties, Northwest Florida*.
- Northwest Florida Water Management District, 1996. *The Choctawatchee River and Bay System Surface Water Improvement and Management Plan*, December.
- Odell, D.K., 1992. "Right whale (*Eubalaena glacialis*)," *Rare and Endangered Biota of Florida: Volume 1, Mammals*. University of Florida Press: Gainesville.
- Office of the Chief of Naval Operations, Office of Naval Intelligence, 1997. Digital data on Gulf of Mexico shipping traffic provided by Phyllis J. Owen, Senior SEA WATCH/Merchant Analyst, Merchant Operations Department, 8 September.
- O'Hop, J. 1997. Personal communication between Joe O'Hop, Director, Florida Marine Research Institute, and Paul Leonard, EDAW, Inc., regarding the interpretation of FMRI commercial fishing data, 1 July.
- Okaloosa County, 1993. *Okaloosa County Comprehensive Plan*.
- Owens, C., 1997. Personal communication between Claude Owens, Dock Master, Key West-Conch Harbor Marina, and James E. Zielinski, EDAW, Inc., concerning ferry statistics for Key West-Conch Harbor Marina, 16 September.
- Palmer, R. 1997. Personal communication between Robert Palmer, Staff Economist, Florida Marine Fisheries Commission, and Paul Leonard, EDAW, Inc., regarding commercial fishing exclusion analysis, 10 February.
- Pearsons, K., D. Barber, and B. Tabachnik, 1989. *Analysis of the Predictability of Noise-Induced Sleep Disturbance*. NSBIT Report No. HAD-TR-89-029. Brooks AFB, Texas: U.S. Air Force, Human Systems Division, Noise and Sonic Boom Impact Technology, Advanced Development Program Office (HQ HSD/YAH).
- Penico, V., 1997. Personal communication between Virginia Penico, Executive Vice President, Key West Chamber of Commerce, Key West, Florida, and Gary Cornell, EDAW, Inc., regarding unique visual features of the Florida Keys, 4 February.
- Pensacola Metropolitan Planning Organization, 1996. *Pensacola Urbanized Area Congestion Management System*, Pensacola, Florida, July.
- Pensacola Convention and Visitors Bureau, 1997. "Pride of Place," *Florida Trend*, April.

- Pitts, G.T., 1997. Personal communication between Gary Thomas Pitts, Vice-Chairman, Port Authority of Port Saint Joe, and James E. Zielinski, EDAW, Inc., concerning port commerce and upgrading, 29 July.
- Plotkin, K.J., 1996. *PCBOOM3 Sonic Boom Prediction Model: Version 1.0c*, Wyle Research Report 95-22C, May.
- Plotkin, K.J., 1997. Personal communication between Kenneth J. (Ken) Plotkin, Ph.D., Senior Scientist, Wyle Laboratories—Arlington, and Mark Bennett, EDAW, Inc., concerning Hera 1C and Hera 2C trajectories and noise contours, 10 December.
- Pratt, T., 1997. Personal communication between Tom Pratt, Bureau Chief, Groundwater Section, Northwest Florida Water Management District, and Kurt Legleiter, EDAW, Inc., regarding groundwater quality within northwest Florida, 19 August.
- Pratt, T., 1998. Personal communication between Tom Pratt, Bureau Chief, Groundwater Section, Northwest Florida Water Management District, and Kurt Legleiter, EDAW, Inc., 24 March.
- Ramsey, J., 1997a. Personal communication between Judy Ramsey, Chief, Waste Management Branch (AFDTC/EMCW), Eglin Air Force Base, and Ginger Liemohn, EDAW, Inc., regarding suggested revisions to the e-mailed text (dated 11 August) sent to her, 20 August.
- Ramsey, J., 1997b. Personal communication between Judy Ramsey, Chief, Waste Management Branch (AFDTC/EMCW), Eglin Air Force Base, and Ginger Liemohn, EDAW, Inc., regarding hazardous waste storage capacity, 9 October.
- Rand McNally and Company, 1997. *Rand McNally 1997 Road Atlas, United States, Canada, Mexico*.
- Raytheon Company, Missile Systems Division, 1990. *Patriot Air Defense System*, March.
- Richardson, W. J., C. R. Greene, Jr., C. I. Malme, and D. H. Thomson, 1995. *Marine Mammals and Noise*. Academic Press, Inc.: San Diego, California.
- Ridgway, S. H., D. A. Carter, R. R. Smith, T. Kamolnick, C. E. Schlundt, and W. R. Elsberry, 1997. *Temporary Threshold Shift and Behavioral Responses of Bottlenose Dolphins, Tursiops truncatus, to 1-second Tones of 141 to 201 dB re 1μPa*, Draft Technical Document, April.
- Roach, D., 1995. Personal communication between David Roach, Assistant Executive Director, East Coast Inland Navigation District, and James E. Zielinski, EDAW, Inc., concerning Intracoastal Waterway, 31 October.
- Robeen, D., 1997. Personal communication between Dan Robeen, Environmental Engineer, Water Quality Program (AFDTC/EMCE), Eglin Air Force Base, and Ron Timblin, EDAW, Inc., concerning Eglin Water Well A-15, #81, Use Log, 14 August.

- RUST Environment and Infrastructure, 1997. *Map of Eglin Air Force Base IRP Concerns on Santa Rosa Island, Florida*, September.
- Santa Rosa County Board of Commissioners, 1997. *County Comprehensive Plan 2000*, September.
- Schaeffner, M., 1997. Personal communication between LT. Michael Schaeffner, Air Traffic Control Officer, Naval Air Station, Key West, and Tina Lemmond, EDAW, Inc., regarding annual flight operations at NASKW, 11 November.
- Schmalzer, P.A., C.R. Hinkle, and T.W. Dreschel, 1986. *Effects of Space Shuttle Launches STS-1 through STS-9 on Terrestrial Vegetation of John F. Kennedy Space Center, Florida*, NASA Technical Memo No. 83103.
- Schultz, T.J., 1978. "Synthesis of Social Surveys on Noise Annoyance," *Journal of the Acoustical Society of America*, Volume 64, No. 2: 377-405.
- Schulze, R., 1993. *Practical Guide to Atmospheric Dispersion Model*, Trinity Consultants, Inc., Dallas, TX.
- Setterberg, D., 1996. Personal communication between Don Setterberg, Airspace Manager, Airspace Management Branch (46 OSS/OSCSM), Eglin Air Force Base, and Quent Gillard, EDAW, Inc., regarding controlled firing area (CFA) boundaries, 11 September.
- Setterberg, D., 1997. Personal communication between Don Setterberg, Airspace Manager, Airspace Management Branch (46 OSS/OSCSM), Eglin Air Force Base, and Quent Gillard, EDAW, Inc., regarding airspace issues, 18 April.
- Setterberg, D., Monteith, W., and Jordan, A., 1997. Personal communication between Don Setterberg, Airspace Manager, Airspace Management Branch (46 OSS/OSCSM), Eglin Air Force Base; Walt Monteith, Chief, Range Safety (AFDTC/SEUO), Eglin Air Force Base; and Al Jordan, 46th Munitions Test Division (46 OG/OGM), Eglin Air Force Base, regarding testing and training missions on Eglin's land and water test ranges.
- Shigan, S.A., 1994. *Substantiation of the Maximum Permissible Concentration of Ammonium Perchlorate in Water of Reservoirs*, Department of Public Sanitation of 1 Moscow Order, partially edited machine translation, 26 September.
- Silvy, N.J., 1975. "Population Density, Movements, and Habitat Utilization of Key Deer, (*Odocoileus virginianus clavium*)," Ph.D. Dissertation, Southern Illinois University, Carbondale.
- Skelly, A.R., 1996. Personal communication between Arthur R. Skelly, Manager, Key West International Airport, and Quent Gillard, EDAW, Inc., regarding Key West International Airport.
- Slutsky, S., 1975. *Survey of Sonic Boom Phenomena for the Non-Specialist*, Federal Aviation Administration Report No. FAA-RD-75-68, February.

- Sotgiu, G., 1997. Personal communication between Giovanni Sotgiu, Project Director, Mersea Ship, Inc., and James E. Zielinski, EDAW, Inc., concerning statistics and upcoming scheduling for two ferries of the SeaEscape Cruise line, 17 September.
- South Florida Water Management District, 1995. *District Water Management Plan*, April.
- Sparrow, V.J., 1997. Personal communication between Victor W. Sparrow, Ph.D., Graduate Program in Acoustics, The Pennsylvania State University, and Mark Bennett, EDAW, Inc., regarding the effects of sonic booms on underwater noise, 10 December.
- SSBN Security Program Office, 1995. *Environmental Assessment of the Use of Underwater Acoustic and Explosive Sources During Exercise: "Standard EIGER" (U)*, N00014-94-C-0061, 27 July.
- Steiner, T.M., O.L. Bass, Jr., and J.A. Kushlan, 1983. *Status of the Eastern Indigo Snake in Southern Florida National Parks and Vicinity*, South Florida. Center, Everglades National Park, Report #SFRC-83/01.
- Stippich, B., 1997. Personal communication between Bruce Stippich, Environmental Protection Specialist, Waste Management Branch (AFDTC/EMCW), Eglin Air Force Base, and Ginger Liemohn, EDAW, Inc., regarding AFDTC Plan 32-6 and its relevance to the 1996 Tier II Inventory, 30 September.
- Strategic Defense Initiative Organization, 1991. *Environmental Assessment for the Lightweight Exoatmospheric Projectile (LEAP) Test Program*, July.
- Summers, M., 1997. Personal communication between Mark Summers, Manager, Key West Bight, and James E. Zielinski, EDAW, Inc., concerning ferry statistics and data on the upcoming Buquebus (Florida, Inc.) ferry line, 17 September.
- Sutherland L. and R. Brown, 1990. *Evaluation of Potential Damage to Unconventional Structures by Sonic Booms*, Wyle Research, May.
- The Reader's Digest Association, Inc., 1987. *Reader's Digest Atlas of the World*.
- Thomas P. and J. Campbell, 1993. *Various Archaeological Investigations at Eglin Air Force Base - Okaloosa, Santa Rosa and Walton Counties, Florida*.
- Thomas, P. and J. Meyer, 1995. *Site Testing and Evaluation of Sites on Eglin Air Force Base, Florida*.
- U.S. Air Force, 1994. Air Force Manual (AFMAN) 91-201, *Explosive Safety Standards (supersedes AFR 127-100)*, Headquarters AFSA/SEVV.
- U.S. Air Force Operational Test and Evaluation Center, 1994. *Draft Environmental Assessment, Sensor Fuzed Weapon Initial Test and Evaluation, II at Test Range C-62*, Eglin Air Force Base, Walton County, Florida.

- U.S. Army Corps of Engineers, 1995. *An Architectural Inventory, Naval Air Station Key West, Key West, Florida*.
- U.S. Army Corps of Engineers, Galveston District, undated. *Your Gulf Intracoastal Waterway*, informational brochure.
- U.S. Army Corps of Engineers, Mobile District, 1992. *Environmental Assessment for Static Firing of the Lance Missile Propulsion System at Test Area 5, Redstone Arsenal, Alabama*, 30 January.
- U.S. Army Corps of Engineers, Navigation Data Center, 1996. *The U.S. Waterway System - FACTS*, December.
- U.S. Army Corps of Engineers, Water Resources Support Center, 1996. *Waterborne Commerce of the United States, Calendar Year 1995, Part 2, Waterways and Harbors - Gulf Coast, Mississippi River System and Antilles*.
- U.S. Army Corps of Engineers, Waterborne Commerce Statistics Center, 1997. Data provided by the Waterborne Commerce Statistics Center concerning gulf shipping, 8 July.
- U.S. Army Dugway Proving Ground, West Desert Test Center, 1996. *Open Burn/Open Detonation Dispersion Model (OBODM) User's Guide, Volume 1, User's Instructions, DPG Document No. DPG-TR-96-008a*, Meteorology and Modeling Division, January.
- U.S. Army Space and Missile Defense Command, 1997. Data provided by Gregory E. Walls, General Engineer, Test Resources Office (SMDC-TE-O).
- U.S. Army Space and Strategic Defense Command, 1991. *Extended Range Intercept Technology (ERINT) Environmental Assessment*, September.
- U.S. Army Space and Strategic Defense Command, 1993. *Programmatic Environmental Assessment, Theater Missile Defense Lethality Program*, August.
- U.S. Army Space and Strategic Defense Command, 1994a. *Draft Environmental Impact Statement, Theater Missile Defense Extended Test Range*, January.
- U.S. Army Space and Strategic Defense Command, 1994b. *Theater High Altitude Area Defense (THAAD) Initial Development Program*, March.
- U.S. Army Space and Strategic Defense Command, 1994c. *Theater Missile Defense Hera Target Systems Environmental Assessment*, January.
- U.S. Army Space and Strategic Defense Command, 1995. *Theater Missile Defense (TMD) Flight Test Environmental Assessment*, April.
- U.S. Army Space and Strategic Defense Command, 1996. *Patriot Advanced Capability-3 (PAC-3) Life Cycle Environmental Assessment*, April.

- U.S. Army Space and Strategic Defense Command, Environmental Office, 1996. *Theater Missile Defense Extended Test Range Supplemental Environmental Impact Statement - Eglin Gulf Test Range*, Revision 3, January.
- U.S. Army Space and Strategic Defense Command, Test and Evaluation Office, 1995. *Launch Vehicles Reference Guide*, 29 August.
- U.S. Department of Agriculture, Forest Service, 1995. *Landscape Aesthetics, A Handbook for Scenery Management*, Agricultural Handbook Number 701 (Draft). Washington DC: U.S. Government Printing Office, August.
- U.S. Department of Agriculture, Natural Resources Conservation Service, 1995a. *Soil Survey of Monroe County, Keys Area, Florida*, October.
- U.S. Department of Agriculture, Natural Resources Conservation Service, 1995b. *Soil Survey of Okaloosa County, Florida*, June.
- U.S. Department of Commerce, 1985. *Gulf of Mexico and Ocean Zones Strategic Assessment: Data Atlas*, National Oceanic and Atmospheric Administration, December.
- U.S. Department of Commerce, 1995. "Small Takes of Marine Mammals incidental to Specified Activities; Lockheed Launch Vehicles at Vandenberg Air Force Base, California," *Federal Register*, Volume 60, Number 143, 26 July.
- U.S. Department of Commerce and National Oceanic and Atmospheric Administration, 1989a. *A Socioeconomic Profile of Recreationists at Public Outdoor Recreation Sites in Coastal Areas: Volume 1*, August.
- U.S. Department of Commerce and National Oceanic and Atmospheric Administration, 1989b. *A Socioeconomic Profile of Recreationists at Public Outdoor Recreation Sites in Coastal Areas: Volume 3*, September.
- U.S. Department of Commerce and National Oceanic and Atmospheric Administration, 1996. *Site Characterization for the Florida Keys National Marine Sanctuary and Environs, Volumes 1-10*.
- U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, 1996. *1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey, Florida*, August.
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1995a. *Strategy for Stewardship: Florida Keys National Marine Sanctuary, Draft Management Plan/Environmental Impact Statement, Volumes I-III*, March.
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1995b. *Linking the Economy and Environment of the Florida Keys/Florida Bay*, March.

- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1996a. *Linking the Economy and the Environment of Florida Keys/Florida Bay, Visitor Profiles: Florida Keys/Key West*, November.
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1996b. *Linking the Economy and the Environment of Florida Keys/Florida Bay, Economic Contribution of Recreating Visitors to the Florida Keys/Key West*, November.
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1996c. *Linking the Economy and the Environment of Florida Keys/Florida Bay, Importance and Satisfaction Ratings by Recreating Visitors to the Florida Keys/Key West*, November.
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1997a. *Linking the Economy and the Environment of Florida Keys/Florida Bay, A Socioeconomic Analysis of the Recreation Activities of Monroe County Residents in the Florida Keys/Key West*, August.
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1997b. *Linking the Economy and the Environment of Florida Keys/Florida Bay, Nonmarket Economic User Values of the Florida Keys/Key West*, October.
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1997c. "Endangered and Threatened Species and Critical Habitats Under the Jurisdiction of the National Marine Fisheries Service," table from Charles A. Oravetz, Chief, Protected Species Management Branch, St. Petersburg, Florida.
- U.S. Department of Commerce, National Technical Information Service, Federal Interagency Committee on Urban Noise, 1980. *Guidelines for Considering Noise in Land Use Planning and Control*, June.
- U.S. Department of Defense, 1997. DoD Directive 6055.9, *DoD Explosives Safety Board (DDESB) and DoD Component Explosives Safety Responsibilities*, 29 July.
- U.S. Department of Defense, Ballistic Missile Defense Organization, 1995. *Coordinating Draft Siting Report for Theater Missile Defense Mid-Range Test Launch Complex at Florida Keys, FL*, February.
- U.S. Department of Defense, Department of the Air Force, undated. *International Station Meteorological Climatic Summary (ISMCS), Version 3.0*.
- U.S. Department of Energy, 1991. *Environmental Assessment for the Advanced Tactical Fighter, Full-Scale Development*, April.
- U.S. Department of Health and Human Services, 1994. *NIOSH Pocket Guide to Chemical Hazards*, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, June.
- U.S. Department of the Air Force, 1979. *Environmental Effects in the United States of Department of Defense Actions*.

- U.S. Department of the Air Force, 1990. *Wyle Research Report WR 89-14: Evaluation of Potential Damage to Unconventional Structures by Sonic Booms*, May.
- U.S. Department of the Air Force, 1992a. *Programmatic Environmental Assessment Hypervelocity Launches Research, Site A-15*, Air Force Development Center, Eglin Air Force Base, Florida, September.
- U.S. Department of the Air Force, 1992b. *Environmental Assessment for the Joint Logistics Over the Shore (JLOTS), Eastern Castle 1992 at Eglin Air Force Base, Florida*, Air Force Development Test Center, June.
- U.S. Department of the Air Force, 1994a. Digital data created from *Plot Plan, Outside Plant Cable Diagram, Cape San Blas II*, 30 August.
- U.S. Department of the Air Force, 1994b. Digital data created from *Plot Plan, Site D-3, D-3A, D-3B*, 30 August.
- U.S. Department of the Air Force, 1995. *Final Environmental Baseline Study Resource Appendices*, Air Force Development Test Center, Eglin Air Force Base, Florida, May.
- U.S. Department of the Air Force, 1996. *Eastern Gulf of Mexico Resource Summary Report Draft*, Air Force Development Test Center, Eglin Air Force Base, September.
- U.S. Department of the Air Force, 1997. *Final Theater Ballistic Missile Targets Programmatic Environmental Assessment, Vandenberg Air Force Base*, December.
- U.S. Department of the Air Force, Air Force Material Command, 1989. *Comprehensive Plan*, Santa Rosa Island Map, Eglin Air Force Base, Florida, 14 July.
- U.S. Department of the Air Force, Air Force Development Test Center, 1997. Information provided to EDAW, Inc., by AFDTC-EM on marine mammal densities in the Gulf of Mexico, August.
- U.S. Department of the Air Force, Eglin Air Force Base, 1997. *Draft Environmental Assessment, Santa Rosa Island Reconstitution Test Capabilities, ECN 96 –529*. Eglin Air Force Base, FL, July.
- U.S. Department of the Army, 1979. *Patriot Design Test Report (Unclassified), Acoustic Noise of the Patriot Firing Unit No. 4, DTR - 100003*, June.
- U.S. Department of the Army, 1990. *PATRIOT Life-Cycle Environmental Assessment*, 27 December.
- U.S. Department of the Interior, 1978. *National Register of Historic Places Inventory - Nomination Form, Cape San Blas Lighthouse and Keeper's Quarters*, 19 January.
- U.S. Department of the Interior, 1980. *Florida Key Deer Recovery Plan*, U.S. Fish and Wildlife Service.

- U.S. Department of the Interior, 1982a. *Eastern Indigo Snake Recovery Plan*, U.S. Fish and Wildlife Service.
- U.S. Department of the Interior, 1982b. *The Ecology of the Seagrasses of South Florida: A Community Profile*, FWS/OBS-82/25, September.
- U.S. Department of the Interior, 1984a. *Florida Ecological Atlas, "Map C7 Soils and Landforms,"* Port St. Joe, Florida.
- U.S. Department of the Interior, 1984b. *Map Narratives, Northwestern Florida Ecological Characterization: An Ecological Atlas*, U.S. Fish and Wildlife Service/Mineral Management Service, Washington D.C.
- U.S. Department of the Interior, 1985. *Revised Florida Key Deer Recovery Plan*, U.S. Fish and Wildlife Service.
- U.S. Department of the Interior, 1988. *Atlantic Coast Piping Plover Recovery Plan*, U.S. Fish and Wildlife Service.
- U.S. Department of the Interior, 1989a. Southeastern states bald eagle recovery plan. USFWS, Atlanta, GA. 160pp.
- U.S. Department of the Interior, 1989b. *Endangered and Threatened Wildlife and Plants: Proposed Endangered Status for the Lower Keys Marsh Rabbit and Threatened Status for the Squirrel Chimney Cave Shrimp*, FR 54 (167): 35905-35907.
- U.S. Department of the Interior, 1989c. *Florida Manatee (Trichechus manatus latirostris) Recovery Plan*, U.S. Fish and Wildlife Service.
- U.S. Department of the Interior, 1994. *Gulf of Mexico Sales 152 and 155: Central and Western Planning Areas Final Environmental Impact Statement, Mineral Management Service, Gulf of Mexico OCS Region*, December.
- U.S. Department of the Interior, 1997. "Species Accounts," Division of Endangered Species.
- U.S. Department of the Interior, Minerals Management Service, 1990. *Synthesis of Available Biological, Geological, Chemical, Socioeconomic, and Cultural Resource Information for the South Florida Area*, Atlantic Outer Continental Shelf Region, May.
- U.S. Department of the Interior, Minerals Management Service, 1994. *Distribution and Abundance of Marine Mammals in the North-Central and Western Gulf of Mexico, Interim Report, Volume I: Technical Report*, June.
- U.S. Department of the Interior, Minerals Management Service, 1996. *Final Environmental Impact Statement, Outer Continental Shelf Oil & Gas Leasing Program: 1997-2002, Volume I*, OCS EIS/EA, Report No. 96-0043.

- U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico Outer Continental Shelf Region, 1997a. *Gulf of Mexico Environmental Information*, [Online]. Available: <http://www.mms.gov/omm/gomr/homepg/regulate/environ>, [28 May].
- U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico Outer Continental Shelf Region, 1997b. *Gulf of Mexico Environmental Information*, [Online]. Available: <http://www.mms.gov/omm/gomr>, [25 June].
- U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico Outer Continental Shelf Region, 1997c. Map - *Gulf of Mexico Outer Continental Shelf, Northeastern Gulf of Mexico, 1:596,000*, January.
- U.S. Department of the Interior, U.S. Fish and Wildlife Service, 1984. *American Crocodile Recovery Plan*.
- U.S. Department of the Interior, U.S. Fish and Wildlife Service, 1997. Comments received from three USFWS field offices: Panama City Field Office, South Florida Field Office, and Florida Keys National Wildlife Refuge, on the *Coordinating Draft Theater Missile Defense Range Supplemental Environmental Impact Statement-Eglin Gulf Test Range*, 21 November.
- U.S. Department of the Interior, U.S. Geological Survey, 1997. *South Florida Ecosystem Program, Ground Water Flow From the Florida Keys*, [Online]. Available: <http://stimpj.er.usgs.gov>, [15 August].
- U.S. Department of the Navy, Naval Facilities Engineering Command, 1991. *Upgrading Physical Security, Cudjoe Key Air Force Station, Cudjoe Key, Florida*, Drawing and Index Maps, Naval Air Station, Key West, 29 July.
- U.S. Department of the Navy, Southern Division, Naval Facilities Engineering Command 1990. *Environmental Assessment of Underwater Explosion Testing Near Key West, Florida*, February.
- U.S. Department of Transportation, 1994. *A Report to Congress on the Status of the Public Ports of the United States, 1992-1993*, Maritime Administration Office of Ports and Domestic Shipping, Washington, D.C., December.
- U.S. Environmental Protection Agency, 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March.
- U.S. Environmental Protection Agency, 1982. *Guidelines for Noise Impact Analysis*, EPA/550/9-82-105.
- U.S. Environmental Protection Agency, 1985. *Compilation of Air Pollutant Emission Factors, Vol. 1: Stationary Point and Area Sources*, 4th Edition.

- U.S. Environmental Protection Agency, 1988. *A Workbook of Screening Techniques for Assessing the Impacts of Toxic Air Pollutants (Revised)*, EPA-454/R-92-024, Office of Air Quality Planning and Standards, Office of Air and Radiation, December.
- U.S. Environmental Protection Agency, 1992. *A Tiered Modeling Approach for Assessing the Risks Due to Sources of Hazardous Air Pollutants*, EPA-450/4-92-001, Office of Air Quality Planning and Standards, Technical Support Division, March.
- U.S. Environmental Protection Agency, 1997. *Florida Keys National Marine Sanctuary*, [Online]. Available: <http://www.epa.gov/ecoplaces/part2/region4/site15.html>, [7 August].
- U.S. Environmental Protection Agency, National Technical Information Service, 1972. *Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States*, January.
- U.S. Federal Highway Administration, 1978. *The Federal Highway Administration Highway Traffic Noise Prediction Model*, December.
- U.S. Fish and Wildlife Service, undated. Brochure - *St. Andrew Beach Mouse, Santa Rosa Beach Mouse*.
- U.S. Fish and Wildlife Service, 1982. *Effects of Petroleum on the Development and Survival of Marine Turtle Embryos*, USFWS Report FWS/OBS 82/37.
- U.S. Fish and Wildlife Service, 1994. *Recovery Plan for Four Plants of the Lower Apalachicola Region, Florida*, Southeast Region, 22 June.
- U.S. Fish and Wildlife Service, Office of Biological Sciences, 1981. *Marine Mammals of the Southeastern United States Coast and the Gulf of Mexico*, FWS/OBS-81/41.
- U.S. Fish and Wildlife Service, Office of Biological Sciences, 1982. *The Ecology of the Seagrasses of South Florida: A Community Profile*, FWS/OBS 82/25.
- U.S. Fish and Wildlife Service and Florida Department of Natural Resources, 1992. *Management Agreement for Submerged Lands within Boundaries of the Key West and Great White Heron National Wildlife Refuges*, September.
- U.S. Fish and Wildlife Service and Gulf States Marine Fisheries Commission, 1995. *Gulf Sturgeon Recovery Plan*.
- U.S. Forest Service, 1991. *Assessing Human Disturbance of Breeding Bald Eagles with Classification Tree Models*, Rocky Mountain Forest and Range Experiment Station.
- U.S. Geological Survey, 1973. Digital Line Graphics from the ARCUSA data set, Florida state boundaries and shoreline, 1:2,000,000 scale.
- U.S. Geological Survey, 1980. Digital Line Graphics from the ARCUSA data set, Florida roads, 1:2,000,000 scale.

- U.S. Geological Survey, Biological Resources Division, 1997. Arc/Info coverages, St. Joseph Peninsula, April.
- U.S. Geological Survey, Tallahassee, 1992. *Water Withdrawals, Use, and Trends in Florida, 1990*, Water-Resources Investigations Report 92-4140.
- U.S. Government, Department of the Air Force, 1995. Environmental Impact Analysis Process (EIAP): Final Rule, *Federal Register*, Vol. 60, No. 15, 24 January.
- U.S. Marine Corps, Headquarters, 1995. *United States Marine Corps FactFile - HAWK Surface-to-Air Missile System*, [Online]. Available: <http://www.usmc.mil/factfile/214a.htm>, [29 November].
- U.S. Readiness Command, 1984. *Bold Eagle '84 Environmental Assessment of Eglin Air Force Base*, U.S. Readiness Command, Fort MacDill Air Force Base, Florida.
- Universal Map, undated. Maps for the cities of Fort Walton Beach, Destin, Valparaiso, Niceville, Bluewater Bay, De Funiak Springs, and Crestview, Florida.
- University of Florida, 1997. *Helping Our Smallest Falcon: The Southeastern Kestrel*, [Online]. Available: <http://www.hammock.ifas.ufl.edu/txt/fairs/17134>.
- University of Florida, Bureau of Economic and Business Research, College of Business Administration, 1995. *1995 Florida Statistical Abstract*, 29th Edition.
- University of Florida, Bureau of Economic and Business Research, College of Business Administration, 1996. *1996 Florida Statistical Abstract, Thirtieth Edition*, University Press of Florida.
- University of Florida, Bureau of Economic and Business Research, 1996. *The Florida Long-Term Economic Forecast 1996, Volume 2: State and Counties*, June.
- University of Southern Mississippi, 1998. Gulf Coast Research Laboratory Home Page, [Online]. Available: www.ims.usm.edu/~musweb/endangered, [no date].
- Van Nocker, A., 1997. Personal communication between Ann Van Nocker, Secretary for Captain John Larson, and James E. Zielinski, EDAW, Inc., concerning statistics for the Miss Barnegat Light ferry, 16 September.
- Walters, 1997. Personal communication between Pam Walters, Foreign Trade Zone Coordinator, Port Panama City USA, and James Zielinski, EDAW, Inc., concerning ship delays and port closures, 4 August.
- West Coast Inland Navigation District, 1967. *West Coast Inland Navigation District, Intracoastal Waterway Completion Ceremonies, Commemorative Program*, 25 February.
- West Coast Inland Navigation District, 1997. Guide Map - *West Coast Intracoastal Waterway, Fort Myers to Tarpon Springs*.

- Wharton, 1997. Personal communication between Tom Wharton, Marketing Manager, Pensacola Port Authority, and James E. Zielinski, EDAW, Inc., concerning shipping issues at Pensacola, 1 August.
- White, N.M. and L. Hutchison, 1990. *Cultural Resource Assessment of the Proposed Gulf County Correctional Institution Gulf County, Florida*.
- White Sands Missile Range, 1988. *Life Cycle Environmental Assessment, Army Tactical Missile System Addendum 1; Full-Scale Development Site-Specific Environmental Assessment for White Sands Missile Range, New Mexico*.
- White Sands Missile Range, Environmental Services Division, 1995. *Environmental Assessment for the Patriot Missile System, White Sands Missile Range, New Mexico*, Report No. EA-010-94, June.
- Whitmer, H., 1997. Personal communication between Harry Whitmer, Coleman Research Corporation, and F. David Crawford, Mechanical Engineer, U.S. Army Space and Missile Defense Command, regarding Hera launch hazardous waste estimates, 23 September.
- Wibberg, D., 1997. Personal communication between Debbe Wibberg, Administrative Assistant, Gulf County Board of Commissioners, Office of the Chief Administrator, and Gary Cornell, EDAW, Inc., regarding Gulf County noise ordinances, 5 November.
- Williams, T., 1997. Personal communication between Tonya Williams, Student Intern, Northwest Florida Water Management District, and Ron Timblin, EDAW, Inc., regarding consumptive use permits for A-15, A-17A, A-18 and D-3A wells, 8 July.
- Witfield, B., 1997. Personal communication between Bobby Witfield, Mission Director, Vitro Services, and Ron Timblin, EDAW, Inc., concerning water use at Eglin Launch Site D-3 on Cape San Blas, 21 July.
- Witherington B. E. and Karen A. Bjorndal, 1991. *Influences of Artificial Lighting on the Seaward Orientation of Hatchling Loggerhead Turtles, Caretta caretta*.
- Witherington, B. E., 1992. *Behavioral Responses of Nesting Sea Turtles to Artificial Lighting*, Archie Carr Center for Sea Turtle Research and Department of Zoology, University of Florida, Gainesville.
- Wood, D., 1996. *Florida's Endangered Species, Threatened Species, and Species of Special Concern: Official Lists and the Primary Laws and Regulations Accommodating Their Welfare*, Florida Game and Fresh Water Fish Commission, 1 January.
- Wright, N.O., 1993. Personal communication between Dr. Newell O. Wright, Archaeologist, Historic Preservation Branch (AFDTC/EMSH), Eglin Air Force Base, and Pete Finney, the Earth Technology Corporation, regarding cultural resources near A-15 and Cape San Blas, 24 February.
- Wright, N.O., 1997. Personal communication between Dr. Newell O. Wright, Historic Preservation Officer, Historic Preservation Branch (AFDTC/EMSH), Eglin Air Force

Base, and Rusty Anchors, EDAW, Inc., concerning cultural resources at Site A-15, 18 September.

Wright, N.O., 1998. Comments received from Dr. Newell O. Wright, Historic Preservation Officer, Historic Preservation Branch (AFDTC/EMSH), Eglin Air Force Base, regarding the Eglin Gulf Test Range SEIS Cultural Resources Section, Record of Decision, and information for the State Historic Preservation Officer, 20 February.

REFERENCES—APPENDIX H

Arena, J., and R. Drew, eds., 1986. *Poisoning: Toxicology, Symptoms, Treatments*, Fifth Edition.

Clayton, G., and F. Clayton, eds., 1981. *Patty's Industrial Hygiene and Toxicology*, Vol. 2A, Third Revised Edition, John Wiley & Sons.

Eastman Kodak Company, 1986. *Material Safety Data Sheet for Triethyl Phosphate*, 15 July.

Environmental Technology Directorate, 1984. *Environmental Hazards of Chemical Agent Simulants*, U.S. Army Armament, Munitions and Chemical Command, Aberdeen Proving Ground, Maryland, August.

Hawley, G., 1981. *The Condensed Chemical Dictionary*, Tenth Edition, Van Nostrand Reinhold Company: New York.

Lewis, R., Sr., 1992. *Sax's Dangerous Properties of Industrial Materials*, Eighth Edition, Van Nostrand Reinhold Company: New York.

National Fire Protection Association, 1984. *Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids*, NEPA 325 M, Quincy, Massachusetts.

U.S. Army Space and Strategic Defense Command, 1993. *Theater Missile Defense Lethality Program Programmatic Environmental Assessment*, August.

U.S. Army Space and Strategic Defense Command, 1994. *Draft Environmental Impact Statement, Theater Missile Defense Extended Test Range*, January.

U.S. Army Strategic Defense Command, 1991. *Extended Range Intercept Technology (ERINT) Environmental Assessment*, September.

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