DEPARTMENT OF THE NAVY
INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
101 STRAUSS AVE
INDIAN HEAD MD 20640-5035

5090
Ser 046/67
22 May 00

Mr. Elmer Biles
6315 Indian Head Highway
Indian Head, MD 20640

Dear Mr. Biles:

We are writing in response to your letter of April 23, 1999, concerning the Installation Restoration (IR) Program Remedial Investigation (RI) Report for Sites 12, 41, and 42 dated March 1999. We appreciate you taking the time to review this document and provide your comments to us. We sincerely apologize for not responding in a timely manner. Please note, however, that your comments were incorporated into the document, where appropriate.

Enclosure (1) contains your comments, as taken from your letter of April 23, 1999, and our responses. One of your comments refers to employee notification of potential human health risks related to IR sites. We take the protection of human health and the environment very seriously and have been researching Navy guidance and current practices at other Activities concerning this issue. Unfortunately, we have been unsuccessful in obtaining any information on this matter to date.

The human health risk assessment contained in the RI Report is conducted to determine if a site poses a potential human health risk, i.e., if remediation is necessary. If a potential risk exists and remediation is necessary, then the cleanup levels, which are determined from the risk assessment, are presented in the Feasibility Study (FS). The ultimate management of risk from a site is addressed during the final remediation of the site. However, in the interim, we still need to be protective of human health. Therefore, as stated in our responses, we have been working with our Occupational Safety and Health personnel to initiate a formal process to notify employees of potential human health risks at IR sites, as they are identified through the RI Reports.

Also, in your cover letter, you requested information on peer professional or technical review of the document. Specifically, you were interested in whether the Maryland Department of Health and Mental Hygiene and the Center for Disease Control in Atlanta received copies of the document. A copy of the RI Report was given to RAB members, which includes community members, the

Maryland Department of the Environment, the EPA, the Charles County Health Department, and the U.S. Fish and Wildlife Service. The report was not specifically sent to the Center for Disease Control or the Agency for Toxic Substances and Disease Registry (ATSDR) in Atlanta. Unfortunately, our contact with the ATSDR, Ms. Julie Corkran, no longer works with the ATSDR and we were only recently able to get in touch with her replacement. Therefore, we will begin sending all information relating to human health risk assessments to the ATSDR.

However, it is important to note that contractor personnel, who are professional risk assessors, prepare human health risk assessments for our sites following strict EPA guidance. In addition, toxicologists at the Navy Environmental Health Center (NEHC) in Norfolk, Virginia, and the EPA in Philadelphia, Pennsylvania, review these risk assessments to ensure that they are prepared properly.

We hope that our responses adequately address your concerns. If you have any additional comments or questions, please contact Mr. Shawn Jorgensen of my staff on (301) 743-2263.

Sincerely,

CHERYL L. DESKINS
Director, Waste Management
and Prevention Division
By direction of the Commander

Encl:
(1) Comments and Responses on the RI Report
for IR Sites 12, 41, and 42 of Mar 99

Copy to:
RAB Members
Interested Parties
TetraTech NUS (G. Latulippe)
ATSDR (D. Jackson)

COMMENTS AND RESPONSES ON REMEDIAL INVESTIGATION REPORT FOR INSTALLATION RESTORATION SITES 12, 41, AND 42

Executive Summary – General Comments

Comment 1:
What is implied in the opening paragraph as well as in the statements under each site is an implication that the RI is being addressed under varying potential uses of the general facility. Is this correct? The reference to exposure to adolescents and children suggests such alternative uses. Is it feasible to consider that we should evaluate in more depth alternative uses of the base itself? For example the authors discuss that recommendations are conditioned on a continuation of the site's current use. The evaluation could be affected by either a change in the level of operation of the facility, a change in the mission of the facility or a totally new use of the facility other than for military support.

Response:
The Remedial Investigation first determines how the site is currently being used and evaluates the risk based on that current use, which can either be residential or industrial. For example, if the site is currently under an industrial setting, the risk assessment will evaluate potential receptors, such as a full-time worker, as a reasonable maximum exposed individual at the site. Please note that the industrial use scenario is independent of level of operation and mission.

However, the reasonable maximum exposure (RME) provides a conservative estimate of exposure for each type of individual, such as full-time worker, construction worker, etc. We say this is a conservative estimate, because, in the case of the full-time worker, the time that a full-time worker is on-site using the RME is 8 hours per day, 40 hours per week, 50 weeks out of the year. This means that a worker is located on this site 8 hours per day, 5 days a week.

The RI then further evaluates future potential receptors at the site such as a hypothetical child resident under a residential scenario to provide a gradient of risk under even more conservative assumptions. In this way, sites can be eliminated from further consideration if they pose no risk to humans in the industrial and residential settings. Those sites that pose a risk in the residential setting, but not in the industrial setting, are examined more closely to determine if it is reasonably feasible and cost effective to make the site acceptable for residential use.

Ideally, if it is practical, the Navy will closeout sites in a manner that reduces risks to the more conservative levels necessary for residential land use to avoid any future land use restrictions at the site. However, it is sometimes too costly or unfeasible, such as with large landfills, to close the site in a way that will allow residential use. As a result, the Record of Decision (ROD) process allows for the application of deed restrictions, which limit the type of activity that may be conducted on the piece of land. Deed restrictions are forever maintained with the property even as the property is sold or transferred. The deed restrictions can only be removed if further investigation demonstrates that contaminants have attenuated naturally in the environment to acceptable concentrations, or additional remedial action is taken to reduce the risk to the more conservative standards.

Comment 2:
The report addresses the risks associated with the four specific sites. Considering the many other sites to be investigated will there be potentially overlapping sites that would pose cumulative impacts or risks?

Response: It is possible that contamination present at any single location on the facility originated from multiple sources. However, all the detected contaminants are subjected to the risk assessment process. Therefore, risk determinations take into account the risk posed by all of the contaminant sources contributing to each location under study.

ENCLOSURE(/)

Comment 3:
Under summary of Risk Assessment point #1 for each site is a statement of what was considered and not a specific risk assessment as such. It is suggested that point #1 under each site be labeled as a "general statement".

Response: Point #1 under each site's Summary of Risk Assessment section describes the site-specific receptors that were evaluated for each site assessment. Since these receptors may differ for each site, they are not just "general statements."

Comment 4:
The listing of Acronyms and Definitions – page xiv should be expanded to include RME (reasonable maximum exposure) and CTE (central tendency exposure).

Response: RME and CTE will be added to the list of Acronyms and Definitions when the document is next published.

E.1 Site 12 – Town Gut Landfill

Comment 1: E.1.3.6

a. What constitutes a "lifelong resident"? Does this mean employees also?
b. What does the term "exposed to groundwater" mean? Be more specific.
c. What implementation steps, if any, should be considered in protecting any lifelong residents?

Response:

a. The "lifelong resident" refers to the on-site resident, which is one of the several scenarios for which the human health risk was determined for the site. Table 2-14 provides the details of the types of exposures that make up the on-site resident scenario. Employee related scenarios are described separately in Table 2-9 for maintenance workers, Table 2-10 for full-time employees, and Table 2-13 for construction workers.

   The following table illustrates some of the differences between scenarios.

	Adult Resident		Full Time Employee	
	RME	CTE	RME	CTE
Exposure Frequency (days/year)	350	234	250	219
Exposure Duration (years)	24	7	25	5
Fugitive Dust & Volatiles Inhalation Rate ($meter^3$/hour)	0.833	0.833	2.5	2.5
Fugitive Dust & Volatiles Exposure Time (hours/day)	24	24	8	4

   Please note that these values are very conservative. For example, the risk assessment model assumes that an adult resident would be on the Town Gut Landfill

24 hours per day, inhaling a large quantity of dust. For most people, staying at home 24 hours per day for 24 years is very unrealistic.

b. The term "exposure to groundwater" is a collective reference to the several ways in which an individual may encounter contamination in groundwater. For example, Table 2-14 for the on-site resident scenario considers ingestion of groundwater, dermal contact with groundwater and the inhalation of volatile contamination emitted from groundwater. As with all of the human health risk scenarios in the Remedial Investigation Report, most of the scenario parameters are taken from EPA guidance documents; others are based on the professional judgement of risk assessors.

c. A practical means for addressing the site of Town Gut Landfill will not likely be achieved for a residential scenario. Therefore, restrictions will be necessary to maintain the current land use, which will prohibit future residential use. If, for some reason, the land were to be transferred for use in a residential setting, then further work would need to be performed to reduce risk to acceptable levels for the residential setting.

Comment 2: E.1.3.7

What is the time interval being suggested – or does this imply any exposure?

Response:

The IUEBK model assumes that a child's exposure occurs each day, 365 days per year, for the first 6 years of a child's life. The assumed groundwater ingestion rate varies from 0.2 liters per day to 0.59 liters per day over the 6-year period. Again, these values are obtained from EPA guidance.

Comment 3: E.1.5

a. The report needs to define what is meant by "current use".
b. Using this report the RAB needs to discuss a plan of action for implementing the recommendations. Who will schedule and cost out the proposed feasibility study suggested?

Response:

a. As defined in EPA guidance, the term "current use" refers to how the site is presently being used. Current use can either be industrial or residential. For risk determination purposes, the guidance does not distinguish between laboratory use, testing, manufacturing, or any other use in the industrial scenario. They are all considered industrial use. The determination of risk under the current use is based on an evaluation of the reasonable maximum exposed individual under the present land use.

b. Recommendations from the RI report come down to two items. The first is to determine what actions are necessary to reduce risks, both human health and ecological, at the sites to acceptable levels. This is accomplished through the preparation of a feasibility study, which will result in various remedial alternatives that will accomplish this goal. The other item is to identify contaminants present in Mattawoman Creek and determine if they pose an unacceptable risk. This is being accomplished through an ecological risk assessment of Mattawoman Creek. The Site Management Plan contains the schedule for all IR Site activities, such as performing studies, preparing reports and conducting remedial activities. A copy of

the SMP is located in the Information Repositories and a copy was sent to all RAB members. The SMP is currently being updated, and a copy will be distributed to each of the RAB members by July 2000.

Also, it is important to note that input and recommendations from the RAB on the Feasibility Studies will be very useful to ensure that community concerns are being properly addressed. The project to conduct Feasibility Studies for Sites 12, 41 and 42, as recommended in the RI, was awarded at a cost of $234,146. The draft Feasibility Study report, which outlines potential alternatives for remediation of the sites, was completed in February 2000. The report was distributed to the RAB and will be finalized after review of public comments.

E.2 Site 39/41 - Organics Plant/Scrap Yard

Comment 1: E.2.3.6

a. This assessment item indicates that "adverse effects are anticipated for fetuses of pregnant workers exposed to lead in soil in the Scrap Yard." Yet we find no recommendations in E.2.5 that addresses this concern.

Response:

a. The second sentence of the first bullet in section E.2.5 states that the current land use (of the Scrap Yard) does not include true full-time workers. The only time Activity personnel enter the Scrap Yard is when scrap is being brought to or removed from the Scrap Yard. In addition, the Activity personnel in charge of the Scrap Yard, who would have the most exposure to contaminants in the Scrap Yard, have many other duties other than the Scrap Yard. In fact, the two Activity personnel in charge of the Scrap Yard are both males.

   Although we have unofficially been notifying employees that work in areas were contamination exists, such as the Scrap Yard, we are currently working with our Occupational Safety and Health (OSH) personnel to set up official channels to inform these employees of the potential human health risks that we have found through the IR Program. This notification will include preparing and providing the employees with a fact sheet that describes the site, the chemicals of concern, and the personnel, such as full-time workers, construction workers, etc., that may be affected and the potential risk.

Comment 2: E.2.5

a. The recommendation that a feasibility study be undertaken to examine options for reducing full-time worker exposure to contamination to acceptable levels is a commendable recommendation. It is suggested that the recommendation be expanded to include methods to alert employees to potential health hazards from contamination.
b. It is recommended the Safety Officer develop an agenda item for one of the RAB meetings to address ways in which management disseminates or plans to disseminate information to employees regarding potential risks not just to this site but to any and all risks the employees may be subject to at the installation. Do we have sections in any employee manual or handbook addressing this issue? Will this report when finalized be available to employees? What steps will be taken to make sure employees are aware of its availability? How will existing employees who work in site specific areas that have some potential health risks be informed of the risk?

Are these employees provided with periodic health examinations? Will the site be specifically identified or posted as to the type and level of risk involved? How?

c. Include a specific recommendation regarding means to exclude pregnant woman from the site and possible health risk exposure.
d. The author should be specific as to the extent and type of "more complete ecological assessment of Mattawoman Creek be considered."

Response:

a. Recommendations on methods to inform employees of potential risk from a site are beyond the scope of the Remedial Investigation. The RI is conducted to determine the nature and extent of contamination. Also, please see the response in Section E.2 Site 39/41 - Organics Plant/Scrap Yard Comment 1 E.2.3.6, second paragraph.
b. As in the previous response, this is beyond the scope of the IR Program. It is the responsibility of the IR Program to identify potential health risks to employees and ensure, through remedial actions, that these risks are at acceptable levels using EPA guidance. For occupational issues, we are required to follow Occupation Safety and Health Act requirements. These requirements are contained in our Activity's Safety Manual. The manual includes requirements for reviewing Standard Operating Procedures, providing Hazard Control Briefings and yearly Safety Standdowns, as well as requirements for Personal Protective Equipment (PPE). Anyone working with hazardous chemicals is required to be trained to use PPE, if PPE is required to do their job, and they are enrolled in the medical surveillance program, which specifically monitors the chemicals that they use in their daily job.
c. Again, the recommendation is beyond the scope of the RI. However, as stated in our response in Section E.2 Site 39/41 - Organics Plant/Scrap Yard Comment 1 E.2.3.6, second paragraph, we are working with our OSH personnel in developing an official method to ensure that those employees that may be directly affected from a site do not enter the site.
d. This statement refers to a Mattawoman Creek study that is currently in the planning stages. As with any ecological study, a conceptual site model must be prepared, which shows receptors and pathways, and a work plan must be completed to ensure that all pathways and receptors are addressed. When the work plan for this study is complete, the RAB will have an opportunity to comment on it.

E.3 Site 42 – Olsen Road Landfill

Comment 1: E.3.2.6

a. In the discussion of wells and groundwater contamination, it is assumed that the groundwater is from unconfined aquifers and does not include any evaluation of any potential contamination of water from confined aquifers. I have recently noted that the clay layers that protect the confined aquifers vary in thickness from area to area. For example the Arundel Clay that separates the Patapsco from the Patuxent aquifer is relatively thin in areas near the Mattawoman Creek. Was any evaluation done to determine any variation in the thickness of the clay barriers in different areas of the installation? If the confined aquifer is protected by only a relatively thin clay barrier (less than 50 feet) the aquifer may be susceptible to inflow migration which could result in aquifer contamination.

b. It is suggested that any references to groundwater samples should be preceded by "shallow" so as not to confuse the reader thinking it may be groundwater from confined aquifers.

Response:

a. No field investigation was performed specifically to determine the thickness of the Arundel Formation that separates the Patapsco Aquifer from the Patuxent Aquifer. In the Maryland Geologic Survey Open Report No. 98-02-9, the Arundel Formation is described as being 100 feet thick under Indian Head. The report does mention a well where the Arundel Formation is 55 feet thick, but that location is approximately 4 miles east of the facility (Mattawoman Waste Water Treatment Plant).

   The same report does identify the possibility of a hydraulic interconnection between the Patapsco and Patuxent Aquifers. The report describes a 5-day pumping test intended to address that issue. The test involved pumping from the Patuxent Aquifer and utilizing observation wells screened in the Patapsco and Patuxent Aquifers. As concluded in the report, the test results indicate that "the Arundel clay is, at least in the short term, an effective confining bed."

b. The Executive Summary as it appears in the draft final Remedial Investigation Report will be edited to reflect "shallow" groundwater when the document is next published.

Section 2.0 – Field Investigation Activities

Comment 1: 2.5.3.1

a. There is a minor error in paragraph three under Exposure Setting. The statement is made that the Arundel Formation effectively isolates the lower (Patuxent) formation is not totally true. A recent study by the Maryland Geological Survey notes that there is an 8% inflow migration into the Patuxent aquifer in the Bryans Road/Indian Head area. This is apparently due to a thinning of the Arundel Clay in certain sections of the area.

Response:

a. The 8% inflow migration into the Patuxent Aquifer discussed in the Maryland Geological Survey Report No. 98-02-9 was determined via a computer model of the hydrogeologic conditions in the study area. The modeled scenario consists largely of a set of assumed future conditions. In particular, the scenario included consideration of 10 wells screened in the Patuxent Aquifer. However, only 3 of those wells are existing. Seven of the wells were assumed to be installed at some unspecified future date. While the modeled scenario may be useful as a predictive tool, it is not representative of current conditions.

Comment 2; 2.6.1

a. It is unclear from the discussion on ecological methodology as to what if any samples were taken in the measurement of aquatic and terrestrial wildlife species used in the

foodchain. We understand the uncertainty in the exposure assessment as to the problem in identifying the source of any contamination but I could find no reference in the appendices regarding the results from any samples that may have been analyzed. I believe this should be addressed in the executive summary.

Response:

a. The collection of biological data (e.g., fish tissue chemical concentrations) was beyond the scope of the ecological portion of the investigation at this stage of the work while following standard EPA guidance. However, it should be noted that the collection of biological data was part of previous biomonitoring activities for the pond adjacent to Site 12. That work is discussed in section 4.7.7, Site 8 Biomonitoring.

Concluding Comments

Comment 1:
I would like to recommend a table be developed for inclusion in the report that summarizes the variation in human risk for the four sites depending upon changing land use of the installation from current use to mission change to change in use to either recreational, residential or other non-defense industrial or non-industrial (business or commercial) activity.

Response: A table has been prepared.

Comment 2:
It is possibly not within the scope of this study but we need to ask—how does the base or RAB use this report to implement necessary changes in current procedures? In particular I would like to see a time line for scheduling the implementation of the proposed recommendations.

Response: Please see response to E.1 Site 12 - Town Gut Landfill, Comment 3 E.1.5, Part b.

Comment 3:

The base command should direct the Safety and Employee Relations units to propose ways of addressing the employee health risks that are identified including specific ways of communicating these effectively to current and future employees.

Response: Please see the response in Section E.2 Site 39/41 - Organics Plant/Scrap Yard Comment 1 E.2.3.6, second paragraph.