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DEPARTMENT OF THE NAVY
PORTSMOUTH NAVAL SHIPYARD
PORTSMOUTH, N. H. 03804-5000

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NSY PORTSMOUTH
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IN REPLY REFER TO:

December 4, 2003

MEMORANDUM

FOR THE MEMBERS OF THE RESTORATION ADVISORY BOARD (RAB), INSTALLATION RESTORATION PROGRAM, PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE

RAB members are invited to participate in a technical meeting on Wednesday, January 7, 2004. The purpose of this technical meeting is to resolve comments on the draft Data Quality Objectives for the Remedial Action Operation and Maintenance and Monitoring Program for Operable Unit 3. The meeting will begin at 9 a.m.

If you plan to attend this meeting, please contact Ms. Marty Raymond no later than December 30, 2003 to make arrangements to attend. She may be reached by email at Raymondm@mail.ports.navy.mil or by phone at 207-438-2536.

Sincerely,

Ken
Ken Plaisted
Navy Co-Chairman
Restoration Advisory Board

Distribution:

Doug Bogen
Michele Dionne
Phil McCarthy
Alan Davis
Carolyn Lepage

Jeff Clifford
Mary Marshall
Jack McKenna
James Horrigan

Peter Britz
Diana McNabb
Onil Roy
Roger Wells

EPA Region I (M. Audet)
MEDEP (I. McLeod)
NOAA (K. Finkelstein)
MEDMR (D. Card)
NHFG (C. McBane)
USEFWS (K. Munney)
EFANE (F. Evans)
COMSUBGRU TWO (A. Stackpole)



DEPARTMENT OF THE NAVY

ENGINEERING FIELD ACTIVITY, NORTHEAST
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
MAIL STOP, #82
LESTER, PA 19113-2090

IN REPLY REFER TO

5090
Code EV23/FE
February 23, 2004

Mr. Matthew Audet
U.S. Environmental Protection Agency, Region I
1 Congress Street
Suite 1100
Mail Code HBT
Boston, MA 02114-2023

Mr. Iver McLeod
Maine Department of Environmental Protection
State House Station 17
Augusta, ME 04333-0017

Dear Mr. Audet/Mr. McLeod:

SUBJECT: OPERABLE UNIT 3 OPERATIONS, MAINTENANCE, AND
MONITORING PLAN; INSTALLATION RESTORATION PROGRAM FOR
PORTSMOUTH NAVAL SHIPYARD, KITTERY, ME

Enclosed are the Action Items from the January 7, 2004 on the Data Quality Objectives for the Operable Unit 3 Operations, Maintenance, and Monitoring Plan. The minutes will be received by USEPA and MEDEP via overnight mail on March 1, 2004. In order to keep with our current schedule, the Navy requests comments on the following items, which will be included with the minutes, on or before March 22, 2004:

- Determine standard detection limits for dioxins along with human health and ecological criteria decision process for dioxin, and
- Identify a more appropriate screening level for Barium (criteria or background number)

Also, we have included a 30 day time period for other items in the enclosed Action Item list.

5090
Code EV23/FE
February 23, 2004

If additional information is required please contact Mr.
Fred Evans at (610) 595-0567 extension 159.

Sincerely,



FREDERICK J. EVANS
Remedial Project Manager
By direction of the
Commanding Officer

Enclosure: 1. OU3 OM&M DQO Action Item List

Copy to:

Mr. Jeff Clifford
Mr. Jack McKenna
Ms. Carolyn Lepage
PNS (Code 106.3R)
TtNUS (D. Cohen)
NOAA (K. Finkelstein)
USFWS (K. Munney)
Mr. Onil Roy
Dr. Roger Wells
PNS Code 100PAO
COMSUBGRU TWO (A. Stackpole)
MEDMR (D. Card) (via email)
NHFG (Dr. C. McBane) (via email)
Mr. Doug Bogen(via email)
Mr. Peter Britz(via email)
Mr. Alan Davis(via email)
Ms. Michele Dionne(via email)
Mr. James Horrigan(via email)
Ms. Mary Marshall(via email)
Ms. Diana McNabb(via email)

OU3 OM&M DQO ACTION ITEM LIST

Discussion Item	Action Item	Agency Responsible	Due Date
Frequency of Groundwater Monitoring	Review proposed sampling program in DQOs and determine if additional data/information will be required to evaluate modification of the sampling program after 2 years of semi-annual monitoring.	All participants	During review of draft final DQOs
Target Parameter List, including Dioxin Analysis	Obtain discharge permits paper mills/other facilities in Maine to determine detection limits/analytical methods for dioxin analysis.	MEDEP	Within 30 days of receipt of action items
	Determine in-house experience with groundwater analysis for dioxins and issues with requirements for low detection limits	USEPA	Within 30 days of receipt of action items
	Determine standard detection limits for dioxins along with human health and ecological criteria decision process for dioxin	Navy	Include in meeting minutes March 1, 2004
	Compile available data for chemical nature of dioxins in groundwater (i.e., what may affect presence/migration in groundwater) and any data on surface water sampling and/or dioxin concentrations in groundwater/surface water	All (discuss with colleagues)	Within 30 days of receipt of action items
Barium	Determine the appropriateness for the Oak Ridge National Laboratory surface water benchmark for barium since it is based on freshwater data and is lower than water quality criteria for chemicals typically considered to be more toxic in saltwater (i.e., arsenic, chromium, copper, lead, ...).	MEDEP (Iver McLeod/Deborah Rice)	Iver to indicate by 1/9/04 when can provide the information.
	Identify a more appropriate screening level (criteria or background number)	Navy	Include in meeting minutes March 1, 2004



TETRA TECH NUS, INC.

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PITT-02-4-046

February 27, 2004

Project Number 2833

Mr. Matthew Audet
Environmental Protection Agency
Region I (Mail Code: HBT)
1 Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

Mr. Iver McLeod
Maine Department of Environmental Protection
State House Station 17
Augusta, Maine 04333-0017

Reference: Contract No. N62467-94-D-0888 (CLEAN)
Contract Task Order No. 815

Subject: Meeting Minutes from the January 7, 2004 Operable Unit 3 (OU3) Monitoring, Operations,
and Maintenance Data Quality Objectives (DQOs) Technical Meeting
Portsmouth Naval Shipyard (PNS), Kittery, Maine

Dear Mr. Audet/Mr. McLeod:

On behalf of the U.S. Navy, Tetra Tech NUS, Inc. is pleased to provide to the U.S. Environmental Protection Agency Region I (USEPA) and to the Maine Department of Environmental Protection (MEDEP) 4 and 3 copies, respectively, of the meeting minutes from the January 7, 2004 OU3 Monitoring, Operations, and Maintenance DQOs technical meeting.

Please provide comments on the detection limits and screening levels for dioxins (provided in Table 1 of the meeting minutes) and the screening level for barium (provided within the meeting minutes) by **March 22, 2004**. Also, action items to be completed by USEPA and MEDEP are scheduled to be completed by **March 22, 2004**.

For the Community Restoration Advisory Board (RAB) members; if you have any comments or questions on these issues, they can be provided to the Navy at a RAB meeting, by calling the Public Affairs office at (207) 438-1140 or by writing to:

Portsmouth Naval Shipyard
Code 106.3R Bldg. 44
Attn: Marty Raymond
Portsmouth, NH 03804-5000

If you have any comments or questions, or if additional information is required, please contact Mr. Fred Evans at 610-595-0567 x 159.

Sincerely,

Aaron Bernhardt
Project Manager

AMB/kf
Enclosure



TETRA TECH NUS, INC.

Mr. Matthew Audet
Environmental Protection Agency
Mr. Iver McLeod
Maine Department of Environmental Protection
February 27, 2004 – Page 2

Electronic Copy via E-mail

ME Dept. of Marine Resources (D. Card)
Mr. Doug Bogen
Ms. Michele Dionne
Ms. Mary Marshall
Mr. Peter Britz
Ms. Diane McNabb
Mr. Alan Davis
NH Fish & Game (C. McBane)
Mr. James Horrigan (SAPL)

Hard Copy

EFANE, (Code 1823/FE, F. Evans) (4 copies)
PNS (Code 106.3R, M. Raymond) (4 copies)
NOAA (K. Finkelstein)
US Fish & Wildlife Service (K. Munney)
Mr. Jack McKenna
Mr. Jeff Clifford
Ms. Carolyn Lepage
D. Cohen, TtNUS, Pittsburgh

Without Enclosure

Dr. Roger Wells
Mr. Onil Roy
PNS Code 100PAO
A. Lunsford, NEHC
COMSUBGRU TWO (A. Stackpole)

**Operable Unit 3 (OU3) Monitoring, Operations, and Maintenance
Data Quality Objectives (DQOs) Technical Meeting
Comfort Inn, Portsmouth, New Hampshire
January 7, 2004**

Meeting Attendees:

Matt Audet (USEPA)	Jason Speicher (EFANE, via speaker phone)
Ken Munney (USFWS)	Marty Raymond (PNS Environmental)
Iver McLeod (MEDEP)	Aaron Bernhardt (TtNUS)
Larry Dearborn (MEDEP)	Tom Johnston (TtNUS)
Carolyn Lepage (TAG – via speaker phone)	Debbie Cohen (TtNUS)
Fred Evans (EFANE)	

After introductions, the meeting participants were asked whether they had other issues to add to the agenda. The MEDEP indicated that they wanted to discuss MEDEP Comment No. 15 (related to down gradient chemical concentrations versus upgradient) and the Navy response. The Navy's response to SAPL Comment No. 10 requested SAPL to indicate whether there were any specific concerns that should be discussed during the meeting regarding the PNS specific human health intertidal recreational screening levels. Ms. Lepage indicated that there was nothing to discuss at the meeting; however, SAPL may still have some concerns. The Navy requested that if SAPL does have further concerns, to provide specific information so that the Navy can adequately address the concerns.

The meeting participants discussed the issues that were on the agenda. The following provides a brief summary of the issue, general discussion, and resolution and/or action items identified.

Frequency of Groundwater Monitoring

Issue Summary

The comments on the draft DQOs indicated concern with automatically decreasing the frequency of monitoring from two rounds per year to one round per year after the first two years of groundwater monitoring. The Navy's responses to the comments indicated that the Navy will not automatically decrease to annual monitoring. The Navy will evaluate the data and then propose modifications to the monitoring program. All decisions will be made after consultation with the regulators. At a minimum the Navy will evaluate frequency after the first two years, and then every 5 years from the start of monitoring.

Discussion Summary

- The USEPA indicated satisfaction with the Navy's response to their comment.
- The MEDEP also indicated overall comfort with looking at the data and then deciding whether the frequency can be decreased. The MEDEP asked why the response indicated "approximately" 5 years. The Navy explained that as part of the normal 5-year review process, the frequency will be evaluated.
- MEDEP's general concern with reducing the frequency of monitoring (from semi-annual to annual) is related to a concern that if there is a release from a source in the landfill, monitoring groundwater once a year would likely not detect this. This concern may affect MEDEP's decision to modify the monitoring frequency.

- Carolyn Lepage explained SAPL also does not want the frequency to be automatically reduced. However, SAPL said that some of the concerns indicated in their comments may still not be addressed and therefore, these will come up again at the time of the evaluation. SAPL is concerned with the size of the data set and Carolyn Lepage indicated that she will provide an example that may show what they are looking for.
- Approval for changes to the monitoring program is not required; however, the Navy tries to resolve issues with the regulators before moving forward. The splitting of OU3 and OU6 was an example of how the MEDEP and USEPA work with the Navy to resolve issues before moving forward with the OU3 ROD. Another example was related to resolution of issues raised regarding the low permeability layer of the OU3 cap.
- It was agreed that specific performance criteria (such as numbers of chemical exceedances of criteria) for reducing frequency of monitoring would not be included as part of the monitoring plan. However, the Navy will provide the rationale for proposed modifications to the monitoring plan after reviewing the data.

Resolution and Action Items

- Modification of the monitoring program will be evaluated after the first 2 years (4 rounds); the sampling frequency will not automatically be reduced. The Navy needs to provide a technical basis for reducing the monitoring frequency at the time of the evaluation.
- An action item was identified for the meeting participants to review the proposed sampling program in the DQOs and determine if additional data/information will be required to evaluate modification of the sampling program after 2 years of semi-annual monitoring. It is important to provide the technical basis for the information need so that the appropriate data can be obtained as part of the monitoring program.

Incorporation of OU6 into the OU3 Monitoring Plan

Issue Summary

JILF source control operable unit (OU3) and JILF management of migration operable unit (OU6) were separated during the preparation of the OU3 ROD. The issue relates to incorporating OU6 into the OU3 monitoring program to the extent practicable.

Discussion [Carolyn Lepage was not available during the discussion of this issue]

- The OU3 DQOs address monitoring for OU3, which is the source control operable unit. However, the Navy would like to develop a monitoring program that could be used to evaluate Site 8 as a whole, by including OU3, OU4, and OU6 components. The OU3 monitoring program considers potential impacts to the offshore through the comparison of OU3 groundwater concentrations to human health intertidal recreational numbers and ecological offshore ecological criteria as indicators for the need for additional evaluation/action (currently as part of the appropriate OU). Figures 2-1 and 2-2 in the DQOs show the proposed decision-flow process for determining the need for additional evaluation/action [For example, if the OU3 groundwater concentrations exceeded an action level based on potential exposure to seeps (surface water in the intertidal area), then seeps would be evaluated further]. When evaluating the data, all the available data for the onshore/offshore area should be considered to better understand potential risks.

- The OU4 interim offshore monitoring decision process considers when additional scrutiny, including looking at onshore source areas, may be necessary. Therefore, OU3 could be evaluated further based on the results of evaluation of OU4 data. Currently these decisions will be handled separately.
- The Navy's goal is to determine how to combine the programs, such that OU3, OU4, and OU6 data can be viewed holistically to determine potential risks/impacts related to the JILF. Although at the current time the monitoring of the OU4 stations located by OU3 would continue under OU4, information on these OU4 stations could be included in an appendix to the OU3 monitoring plan (e.g., map with sample locations, information on the locations) so that the information is readily available.

Resolution and Action Items

- Based on discussion and Navy's response to comment, MEDEP and USEPA agree with the Navy's proposed way to handle incorporation of the OUs at this time. Discussion among the Navy, USEPA, and MEDEP is needed to determine the best way to handle combining the operable units, especially considering that they are in different stages in the remedial process.
- The Navy, USEPA, and MEDEP RPMs need to discuss incorporation of the OUs.

Downgradient vs Upgradient Comparisons (MEDEP Comment No. 15)

Issue Summary

The MEDEP is concerned with comparison of downgradient groundwater concentrations to upgradient groundwater concentrations. Regardless of the upgradient groundwater concentration, the MEDEP indicated that if the downgradient groundwater concentration exceeds the identified screening level, then the Navy should investigate it further.

Discussion [Carolyn not on line for the discussion of this issue]

- Based on the size of the landfill, the MEDEP is not confident it really is just an upgradient issue if the downgradient concentration is greater than the criteria.
- If the downgradient concentration does not exceed the upgradient concentration regardless of surface water quality exceedance, the Navy does not want to evaluate it further as part of OU3. If the Navy detects a chemical in upgradient groundwater that suggests a site may be present that needs to be addressed, the Navy will address the site as part of a different program, not as part of the OU3 program.
- Some naturally occurring chemicals may be present in groundwater at PNS at concentrations greater than screening levels/action levels. Barium is one chemical that was discussed. The surface water screening level for barium (4 ug/L) was developed by Oak Ridge National Laboratory for fresh waters; no marine screening levels were available. The screening level is very low; less than the concentration observed in upgradient groundwater and surface water around PNS. The Pennsylvania screening level for barium (fresh water) is several orders magnitude greater than the Oak Ridge number.
- The USEPA barium water fact sheet (<http://www.epa.gov/safewater/dwh/t-ioc/barium.html>) showed that surface water studied had barium concentrations ranging from 2 to 340 ug/l, with an average concentration of 43 ug/l. The average concentration of barium in drinking water was reported as 28.6 ug/l, typically with concentrations less than 100 ug/l. The 1996/1997 groundwater data for the shoreline

wells showed barium concentrations within the range mentioned in the USEPA fact sheet. A more appropriate screening level for barium is needed (see Resolution and Action Items).

- There are other chemicals that may reflect natural conditions but are greater than available screening levels (e.g., arsenic and manganese). Some field parameters that could be used to give an indication of potential natural conditions are redox potential and dissolved oxygen. These field parameters will be obtained as part of groundwater well sampling and they can give an indication of whether there may be any changes in groundwater conditions that could suggest a change related to metals and volatile organics.
- The MEDEP generally is more comfortable with how the chemical concentrations in the upgradient wells compare with regional levels when the upgradient concentrations exceed screening levels. When the upgradient concentrations are similar to regional values then the MEDEP will not be concerned. For chemicals that are higher in upgradient locations and higher than regional concentrations, the MEDEP may not be comfortable saying that the chemicals are not associated with the landfill.
- The MEDEP accepts the site model that chemicals in groundwater upgradient of the landfill migrate through the landfill and accumulates any chemicals being released from the landfill. Therefore, if the landfill is contributing significantly to the concentrations, the groundwater at the shoreline wells should show higher concentrations of a chemical than the upgradient wells. The Navy does not plan to do additional evaluation under OU3 if the landfill is not contributing significantly to the groundwater concentrations. The Navy always looks at the data that are collected to see whether the results “make sense.” If the results need to be evaluated further, the Navy will do so, as appropriate.
- Comparison of the downgradient concentrations to upgradient concentrations will be conducted after the comparison to criteria (to better meet Navy policy). This will also address MEDEP concern so that all criteria exceedances in downgradient groundwater are identified (although further evaluation will be determined based on the comparison to upgradient concentrations).

Resolution and Action Items

- The MEDEP agreed with the decision process regarding upgradient groundwater concentrations as it relates to OU3 decisions. The MEDEP will take into consideration regional concentrations in determining whether there may be other concerns regarding the upgradient concentrations.
- The DQO text will be revised to clarify in the problem definition/site model, that the monitoring program is for monitoring of the effectiveness of the OU3 remedy and the focus is on the contribution of the landfill to groundwater concentrations. If the downgradient concentration is greater than screening levels and greater than upgradient concentrations, then this is considered an actionable condition as part of the OU3 monitoring program.
- The Navy needs to determine a more appropriate barium screening number¹.

¹ Post meeting note: As presented in the 1986 Quality Criteria for Water (Gold Book) (USEPA, 1986), experimental data indicates that the soluble barium concentration in fresh and marine waters generally would have to exceed 50 mg/L before toxicity to aquatic life would be expected. The document also indicates that because the physical and chemical properties of barium will generally preclude the existence of the toxic soluble form under usual marine and fresh water conditions, a restrictive criterion for aquatic life appears unwarranted (USEPA, 1986). Therefore, the Navy proposes using 50 mg/L as the aquatic life screening level for barium.

Target Parameters, including Dioxin Analysis

Issue Summary

The target parameter list includes TCL organics (VOCs, SVOCs, pesticides, and PCBs) and TAL metals (total and filtered) for the first two rounds. The program would reduce to PAHs, metals, and other parameters that exceed the screening level in the first two rounds. Based on the 1996-1997 groundwater data for OU3, only metals should be a potential concern (based on screening level exceedances); PAHs were included based on potential concerns in the offshore data. The MEDEP concern was that analysis of chemicals that approach or exceed the screening level should be included. The Navy response said that the screening levels are conservative so chemicals whose concentrations do not exceed those levels should not be included in the analysis for future rounds. The Navy will retain chemicals for analysis whose concentrations are greater than their respective screening levels; however, professional judgment would be used to identify and propose additional chemicals to continue in future rounds, if any. In addition, comments were received regarding the need to analyze groundwater samples for dioxin/furans.

Discussion on Target Analytes [Carolyn Lepage not on line for the beginning of discussion, see note below when she joined the conversation]

- It may be better to have the target parameter list (see above) for the first two years (four rounds) before evaluating or proposing modifications of the program (frequency or analyte list). Although this may be more reasonable for volatile organics, which have been detected in groundwater, it may not be necessary for pesticides and PCBs, which have not been detected in groundwater at OU3.
- The 1996-1997 groundwater data for OU3 represents the landfill before the remedy was put in place. Also, some of the wells proposed for the OU3 monitoring program are new and therefore do not have previous data. Two years of seasonal data (semi-annual) would give better confidence, especially for chemicals that are detected in groundwater. However, for chemicals that have not been detected previously and are not detected in the first two rounds, the additional two rounds of data may not be necessary.
- The USEPA indicated that for PA/SI, there is not a general rule about when you get non-detects whether you need to go back and sample again; it is site-specific.
- No changes to the site have been made that an increase in groundwater concentrations would be expected.

Resolution and Action Item for target analytes [Carolyn Lepage joined conversation as we identified the resolution regarding parameter list, just before beginning the discussion on dioxin analysis]

- There is added benefit to evaluate the data after the first two years (four rounds) and then determine whether to reduce both frequency and parameters. This would be the most efficient method. This does not rule out the Navy proposing reduction of parameters that are all non-detects for a chemical class that have not been detected in

USEPA (U.S. Environmental Protection Agency), 1986. Quality Criteria for Water, 1986. Office of Water Regulations and Standards. Washington, D.C. EPA/440/5-86-001. May.

groundwater in 1996-1997. Particularly for chemicals that are detected (e.g., whether or not the concentrations exceed screening levels), having four rounds of data for the new wells would provide a better data set for decision making.

- The DQOs will be revised to note that the action level is the higher of the upgradient concentration and screening level.

Discussion on dioxin analysis

- Aaron Bernhardt talked about Navy rationale that was presented in the DQOs; dioxins are not very mobile in water, similar characteristics as PCBs (e.g., water insoluble) which were not detected in groundwater, sediments offshore of OU3 are analyzed for dioxins under the OU4 interim offshore monitoring program. In addition, very low detection limits are necessary to meet the available criteria and background/reference surface water data would be necessary to ensure that dioxins are not present in ambient water that may affect the site downgradient concentrations.
- MEDEP and SAPL were requested to explain their technical position regarding dioxin analysis. MEDEP said basically they are requesting dioxin analysis because dioxin analysis for groundwater has not been conducted for OU3.
- Carolyn Lepage indicated that as provided in MEDEP Comment No. 24, the differences in metals concentrations between unfiltered and filtered groundwater samples from the landfill suggests soil particulates in the groundwater, which could be migrating in groundwater. Therefore, if dioxins are attached to the soil particulates, then dioxins could be migrating in groundwater.
- The Navy indicated that the difference between unfiltered and filtered concentrations is an artifact of the sampling method and not an indicator that soil particulates are migrating in groundwater. Larry Dearborn agreed that often particulates are a result of sampling method. In sand and gravel type aquifers, particulate movement in groundwater is not expected. However, in areas with high transmissivity, such as a tidal area, velocity could be high enough to move fine sediment. Carolyn Lepage indicated that she cannot say that these conditions do not exist at OU3.
- The Navy indicated if particulates are migrating in groundwater then the particulates would accumulate in the sediment and there are dioxins data for offshore sediment (currently 7 rounds of sediment data are available). Therefore, dioxin data are available to understand whether dioxins are a potential concern for OU3.
- The Navy indicated that chemicals with similar characteristics to dioxins (such as PCBs) could be used as surrogates for understanding potential for dioxin migration in groundwater. If the surrogate chemicals were not detected in groundwater, then it is expected that dioxins would not be found in groundwater. The OU3 monitoring program is to monitor the effectiveness of the remedy. If the remedy is effective for surrogate chemicals (PCBs, PAHs, and/or pesticides), then the Navy expects that the remedy would also be effective for other similar types of chemicals (such as dioxins). Carolyn Lepage indicated that she is not comfortable using pesticides or PCB data as a surrogate for dioxin analysis without having tested for dioxins.
- The MEDEP does not have any particular regulatory drivers for analyzing dioxins. The MEDEP is concerned with not having data for a chemical that is a concern to the public.
- The Navy's major concerns with analyzing for dioxins in groundwater are that it is difficult to get the detection limits below the criteria, there needs to be agreement on how to handle non-detects and background, and the analysis is very expensive. A particular concern is that if the detection limits cannot meet criteria, when the TEQ takes into account non-detections using one half of the detection limit, then it can raise the TEQ

value unreasonably. The Navy has data for the other similar type of chemicals (PAH, pesticide, PCBs) for soil and groundwater and although these chemicals were detected in soil, they were not detected in groundwater. The Navy does not expect dioxins to behave differently.

- Regional surface water and groundwater data are not available for dioxins. Also, the State of Maine surface water program uses tissue data and does not require surface water data. It is possible that more dioxin data may become available as the analysis is required more often. Cost and availability of analysis has also previously limited analysis of dioxins. The detection limit issue has been a problem for the MEDEP program. Matt Audet indicated that in his experience typically dioxins have been a sediment issue, because of the nature of the chemical (e.g., it partitions strongly to particulates) groundwater has not been evaluated for dioxins.

Resolution and Action Items for Dioxin Analysis

- Further discussion will be necessary after the action items are completed to resolve the need for dioxin analysis.
- There was agreement that the main reason for considering dioxin analysis is related to public perception. Dioxins are a particular concern to the public and having the dioxin data rather than relying on surrogates is generally a better way to address public concern. The problem with collecting dioxin data is that it is difficult to evaluate and determine whether a problem related to dioxins truly exists.
- MEDEP will look into permits for paper mills and other facilities to see whether the analytical and evaluation requirements are provided in the permits for dioxins.
- USEPA will look into in-house experience with groundwater analysis for dioxin and how to handle low detection limit requirements.
- The Navy will compile a list of standard detection limits and screening levels that could be used for a decision process regarding dioxin analysis².
- Everyone agreed to look for data on dioxins in groundwater and surface water. All were requested to ask colleagues about their experience with dioxins and whether the data are not available simply because they don't expect to find dioxins in groundwater and therefore do not look for dioxins.
- SAPL will check with others for groundwater dioxin analysis.

² Post meeting note: Attachment 1 presents the dioxin detection limits and human health and ecological screening levels.

OU3 OM&M DQO ACTION ITEM LIST

Discussion Item	Action Item	Agency Responsible	Due Date
Frequency of Groundwater Monitoring	Review proposed sampling program in DQOs and determine if additional data/information will be required to evaluate modification of the sampling program after 2 years of semi-annual monitoring.	All participants	During review of draft final DQOs
Target Parameter List, including Dioxin Analysis	Obtain discharge permits paper mills/other facilities in Maine to determine detection limits/analytical methods for dioxin analysis.	MEDEP	Within 30 days of receipt of action items
	Determine in-house experience with groundwater analysis for dioxins and issues with requirements for low detection limits	USEPA	Within 30 days of receipt of action items
	Determine standard detection limits for dioxins along with human health and ecological criteria decision process for dioxin	Navy	Include in meeting minutes March 1, 2004
	Compile available data for chemical nature of dioxins in groundwater (i.e., what may affect presence/migration in groundwater) and any data on surface water sampling and/or dioxin concentrations in groundwater/surface water	All (discuss with colleagues)	Within 30 days of receipt of action items
Barium	Determine the appropriateness for the Oak Ridge National Laboratory surface water benchmark for barium since it is based on freshwater data and is lower than water quality criteria for chemicals typically considered to be more toxic in saltwater (i.e., arsenic, chromium, copper, lead, ...).	MEDEP (Iver McLeod/Deborah Rice)	Iver to indicate by 1/9/04 when can provide the information.
	Identify a more appropriate screening level (criteria or background number)	Navy	Include in meeting minutes March 1, 2004

Table 1

**Detection Limits and Screening Levels for Dioxins/Furans
Operable Unit 3 (OU3) Monitoring, Operations, and Maintenance Data Quality Objectives
Portsmouth Naval Shipyard, Kittery Maine**

Compound	MDL ⁽¹⁾ pg/L	PQL ⁽²⁾ pg/L	Human Health		Ecological		
			TEF ⁽³⁾	Screening Level ⁽⁴⁾ pg/L	TEF ⁽³⁾	Screening Level ⁽⁵⁾	
						Acute pg/L	Chronic pg/L
2,3,7,8-TCDD	3.3	10	1	53	1	10,000	10
2,3,7,8-TCDF	6.3	10	0.1	530	0.05	200,000	200
1,2,3,7,8-PECDD	7.8	50	1	53	1	10,000	10
1,2,3,7,8-PECDF	4.7	50	0.05	1,060	0.05	200,000	200
2,3,4,7,8-PECDF	5.8	50	0.5	106	0.5	20,000	20
1,2,3,4,7,8-HXCDD	6.9	50	0.1	530	0.5	20,000	20
1,2,3,6,7,8-HXCDD	8.6	50	0.1	530	0.01	1,000,000	1,000
1,2,3,7,8,9-HXCDD	15	50	0.1	530	0.01	1,000,000	1,000
1,2,3,4,7,8-HXCDF	18.2	50	0.1	530	0.1	100,000	100
1,2,3,6,7,8-HXCDF	9.3	50	0.1	530	0.1	100,000	100
1,2,3,7,8,9-HXCDF	31.9	50	0.1	530	0.1	100,000	100
2,3,4,6,7,8-HXCDF	21.8	50	0.1	530	0.1	100,000	100
1,2,3,4,6,7,8-HPCDD	8.2	50	0.01	5,300	0.001	10,000,000	10,000
1,2,3,4,6,7,8-HPCDF	18.6	50	0.01	5,300	0.01	1,000,000	1,000
1,2,3,4,7,8,9-HPCDF	13.2	50	0.01	5,300	0.01	1,000,000	1,000
OCDD	18.6	100	0.0001	530,000	0.0001	100,000,000	100,000
OCDF	18.1	100	0.0001	530,000	0.0001	100,000,000	100,000

- 1 - Method detection limit determined by Triangle Laboratories (February 2004).
- 2 - Practical quantitation limits for water per Methods 8290 and 1613.
- 3 - World Health Organization (WHO) Toxicity Equivalency Factors (Environmental Health Perspectives, December 1998).
for humans for the human health screening level and for fish for the ecological screening level.
- 4 - Screening Levels for Intertidal Sediments developed for a child recreational receptor (Human Health Screening Level Memo, TTNUS, December 2002). The value for 2,3,7,8-TCDD is divided by the TEF to produce the congener-specific screening levels.
- 5 - Maine Statewide Water Quality Criteria for 2,3,7,8-TCDD divided by the congener-specific TEF. The criteria are freshwater values because there is no saltwater criteria for dioxins. Also, the chronic screening levels will be adjusted once the dilution factor for OU3 is developed.

**OU3 DQOs Meeting
January 7, 2004
Proposed Meeting Agenda**

Location: Comfort Inn-Yokens
 Portsmouth, NH

9:00 - 9:10	Introductions
9:10 - 9:45	Frequency of Groundwater Monitoring
9:45 - 10:30	Target Parameters, including Dioxin Analysis
10:30 - 10:45	Break
10:45 - 11:15	Target Parameters, including Dioxin Analysis, cont'd
11:15 - 12:00	Incorporation of OU6 into the OU3 Monitoring Plan
12:00 - 12:45	Lunch
12:45 - 1:50	Incorporation of OU6, cont'd
1:50 - 2:00	Break
2:00 - 3:00	Other Issues