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RESPONSE TO COMMENTS FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY ON THE DRAFT LONG-TERM MONITORING PLAN FOR BUILDING 95, NAVAL AIR STATION, BRUNSWICK, MAINE

COMMENTOR: Michael Barry **DATED: 18 May 1999**

Thank you for the opportunity to review and comment to the Building 95 draft Long-Term Monitoring Plan (LTMP). Since the Maine Department of Environmental Protection (MEDEP) is the lead regulatory agency for Building 95, our comments address strictly the Long-Term Monitoring Program and are independent of resolution of the site.

The LTMP seems the same as is currently being performed. If it's the Navy's intent to formalize the LTMP, the EPA will not object to formalizing the draft LTMP as written. However, we believe that it may be possible to address concerns regarding the ground water immediately downgradient of the historical source areas and reduce the long-term monitoring effort with the revised LTMP. This can also be independent of formal resolution of the site with MEDEP. With that aim, we have the following comments.

GENERAL RESPONSE TO COMMENTS

Following the receipt of the Response to Comments from MEDEP and EPA, it was determined that there were many issues which needed to be resolved. The major issues for the Building 95 Long-Term Monitoring Plan were discussed with the Navy, MEDEP, EPA, and the Citizen's Group at technical meetings and on conference calls. A memo was sent on 30 November 1999 to interested parties by the Navy presenting their position (Attachment A). MEDEP responded to that memo on 7 February 2000 and presented their position (Attachment B). Further discussions were held during the Technical Meetings on 8 and 9 March 2000. Based on these discussions and memos, the following decisions were made regarding the Long-Term Monitoring Program at this site:

- Two new wells are scheduled to be installed in March 2000 downgradient of the Building 95 site. The well depth and screen interval will be the same as MW-NASB-067, which is located in the central portion of the site (i.e., screened from 4 to 14 ft bgs).

- The two new wells will be sampled for two rounds during high and low water conditions (April and September 2000, respectively). If any compound is detected above the State Maximum Exposure Guideline or Federal Maximum Contaminant Level in either well during either sampling event, monitoring well MW-NASB-067 will be added to the sampling program in 2001.

- Monitoring wells will be sampled and analyzed for Target Compound List volatile organic compounds, Target Compound List semivolatile organic compounds, 2,4,5-T, 2,4-D, Target Analyte List metals, baygon, cyanide, DDT, diazinon, lindane, malathion, sevin, and simazine. After a review of the data for the April and September 2000 sampling events has been completed, results will be discussed with MEDEP and other

Restoration Advisory Board members, and it will be determined if it is necessary to add avitrol, maleic hydrazide, and/or rotenone to the sampling program.

- The LTMP is being issued in Draft Final form due to the significant revisions to the LTMP, as requested by MEDEP.

Consider Adding to LTMP:

1. ***Sampling Locations***—Concerns have been raised that ground water immediately downgradient of the major pesticide source areas is missed by the well network. The Harding Lawson direct-push locations appear to be immediately downgradient of the deepest excavations, around the former shed north of Building 95. These samples were higher than MW-067, but still below the Maximum Exposure Guideline for DDT. All this information could be put on one figure to verify and discuss between all parties. Another well may be required to characterize ground water to the satisfaction of all.

   Response—Please see the General Response to Comments. Two new monitoring wells will be installed downgradient of the Building 95 site.

Consider Removing from the LTMP:

2. ***Lab Analysis***—Our impression was that pesticides and pyrethrins/rotenone are the only remaining contaminants of concern at Building 95. Thus, it appears that VOCs, SVOCs, and inorganics are no longer necessary and could be eliminated from the LTMP.

   Response—See General Response to Comments. Monitoring wells will be sampled and analyzed for Target Compound List volatile organic compounds, Target Compound List semivolatile organic compounds, 2,4,5-T, 2,4-D, Target Analyte List metals, baygon, cyanide, DDT, diazinon, lindane, malathion, sevin, and simazine. After a review of the data for the April and September 2000 sampling events has been completed, it will be determined if it is necessary to add avitrol, maleic hydrazide, and/or rotenone to the sampling program.

3. ***Sampling Locations***—MW-065 and MW-066 seem to be either upgradient or crossgradient of the major source areas, don't provide any more information, and could be eliminated. MW-067 and MW-068 have had recent DDT detections and should be retained in the LTMP for now.

   Response—See General Response to Comments. MW-NASB-065, MW-NASB-066, and NASB-068 will no longer be sampled. MW-NASB-067 will be sampled if concentrations of analytes listed in Table 3-1 are detected above Maximum Exposure Guidelines or Maximum Contaminant Levels. Two new wells (MW-NASB-230 and MW-NASB-231) will be added downgradient of the Building 95 site.

Attachment A

Discussion on Pesticides to Monitor for in Proposed Wells at Building 95 Memorandum from J. Speicher to E. Klawitter Dated 30 November 1999

MEMORANDUM

TO: Emil Klawitter

FROM: Jason Speicher

DATE: November 30, 1999

RE: Discussion on Pesticides to Monitor for in Proposed Wells at Building 95

The purpose of this memo is to provide a brief discussion on which pesticides to monitor for in groundwater at the two proposed wells that will be downgradient of Building 95. The discussion here in includes most of the pesticides as discussed at the November 3, 1999 meeting in Augusta, Maine. This discussion does not include DDT, which was listed as one of the two (the other being pyrethrins) COCs, 2,4,5-T, 2,4-D, Lindane, and cyndgas. The last four pesticides listed are chemicals that have the potential to migrate to groundwater, but for which no documentation is present to prove a release has occurred.

AVITROL

4-Aminopyridine, the active ingredient in Avitrol, is an extremely effective bird poison. Avitrol repels birds by poisoning a few members of a flock, causing them to become hyperactive. Their distress calls signal other birds to leave the site. After one alarming exposure, birds will usually not return to treated areas. Avitrol is available as grain baits or as a powder concentrate.

According to the Extension Toxicology Network (EXTOXNET), a database of pesticide profiles maintained by numerous universities and funded by the USDA, studies indicate that 4-aminopyridine is relatively immobile in soils and therefore is not expected to be present in groundwater as a result of its use on land. Furthermore, the MSDS for Avitrol, provided by Avitrol Corporation of Tulsa, OK, cites that only the inerts (which consist of natural human food) in the concentrate are soluble in water and not 4-aminopyridine. Of note, this finding contradicts information as provided by MEDEP in the November 3, 1999 meeting, which stated that Avitrol was soluble in water.

Another important issue to consider, is that Avitrol is only used in relatively small quantities (in powder or food form) and was most likely used solely in bird control at the runways at NAS Brunswick. Therefore, it is unlikely that Avitrol was used around the Building 95 proximity or was released because no mixing needed to occur before application.

Recommendation: Given the basis that Avitrol's active ingredient, 4-aminopyridine, is relatively immobile in soils and the limited nature of its use, it is not recommended to be sampled for.

BAYGON

Propoxur, the primary ingredient in Baygon, is a non-systematic insecticide which was introduced in 1959. It is used on a variety of insect pests such as chewing and sucking insects, ants, cockroaches, crickets, flies, and mosquitos.

According to EXTOXNET, propoxur is of moderate to low persistence in the soil environment, with reported field half-lives of 14 to 50 days. However, propoxur does have a low affinity for soil binding, and so may be mobile in soils. Since proxpor is soluble in water, it does have the potential to migrate to groundwater.

Although propoxur readily degrades in soil and the pesticide was noted to be stored at Building 95 with no recorded release, if a release did occur there was potential for soil to groundwater transport.

Recommendation: Although any release of propoxur would most likely have been degraded in soil, the potential for migration from soil to groundwater could have existed at one time and therefore should be considered for monitoring.

Method Proposed to be used: Method 632

DIAZINON

Diazinon is a nonsystemic organophosphate insecticide used to control cockroaches, silverfish, ant, and fleas in residential, non-food buildings. It is also used on home gardens and farms to control a wide variety of sucking and leaf eating insects.

According to EXTOXNET, Diazinon has a low persistence in soil. The half-life is 2 to 4 weeks, primarily being broken down by bacterial enzymes. Diazinon seldom migrates below the top half inch in soil (when applied legally), but in some instances it may infiltrate groundwater. However, depending on the type of formulation used, Diazinon either is virtually insoluble or is emulsifiable (diazinon mixed with oil) in water. For instance, a granular formulation produced by United Horticultural Supply of Fremont, NE, is noted to be virtually insoluble in water, while a liquid formulation produced by Wilbur-Ellis Company of Fresno, CA, is noted to be emulsifiable.

It can be concluded by the above information, that if a release of Diazinon did occur (has not been documented), residuals would have degraded quickly. Furthermore, depending on the formulation stored, any perceived residuals would be virtually insoluble or would be bound to soil particles in the case of oil based carriers.

Recommendation: Based on its low persistence in soil and its low solubility rate it is not recommended to monitor for Diazinon. However, because the method (Method 8141) used to

analyze for Diazinon is the same used for Malathion (potentially could be found in groundwater), results would be provided.

MALATHION

Malathion is a nonsystemic, wide-spectrum organophosphate insecticide. It is suited for the control of sucking and chewing insects on fruits and vegetables, and is also used to control mosquitoes, flies, household insects, animal parasites, and head and body lice.

According to EXTOXNET, Malathion is of low persistence in soil with reported field half-lives of 1 to 25 days. Degradation in soil is rapid and related to the degree of soil binding. It is moderately bound to soils, and is soluble in water, so it may pose a risk of transport to groundwater. Looking at several MSDSs, solubility of Malathion in water varies from low to moderate primarily depending on the formulation (emulsifiable concentrate, powder, liquid, etc.).

Recommendation: Although any release of Malathion would most likely have been degraded readily in soil, the potential for migration from soil to groundwater could have existed at one time and therefore may be considered for monitoring to prove presence or absence.

Method Proposed to be Used: 8141

MALEIC HYDRAZIDE

Maleic Hydrazide is primarily uses include sucker control on tobacco, sprout inhibition in stored onions and potatoes, frost protection in citrus and turf and roadside maintenance. Maleic Hydrazide has herbicidal activity on quackgrass, wild onions, and wild garlic. Maleic Hydrozide is recommended for the temporary growth inhibition of various trees, shrubs and grasses.

Maleic Hydrazide formulations can be an emulsifiable concentrate, liguid, and powder form. Solubility in water varies depending on these formulations. According to the MSDS as provided by MDL Information Systems, Inc. of Nashville, TN, Maleic Hydrazide is slightly soluble in water in crystallized form. However, some another MSDS examined does indicate that the pure powder form is soluble at 6,000 mg/L @ 25°C (77°F) It must be noted that another MSDS, states that the solubility degreases to <0.1 mg/mL @ 20°C (68°F), which illustrates a temperature much closer to what actual temperatures of groundwater or rainfall might be.

According to the Herbicide Handbook of the Weed Science Society of America, Maleic Hydrazide in soil is rapidly broken down by soil microganisms, and thus will exist only for short periods of time.

Recommendation: Any release of Maleic Hydrazide would likely have been degraded readily at the time Bldg. 95 was still in use, thus no current presence would be likely. While there is potential for solubility in water to occur, solubility at temperatures indicative of groundwater temperatures is very low. Therefore it is not recommended to monitoring for Maleic Hydrazide.

ROTENONE

Rotenone is a selective, non-specific botanical insecticide. Rotenone is used in home gardens, for lice and tick control on pets, and for fish eradications as part of water body management. Rotenone is a rotenoid plant extract obtained from such species as barbasco, cub, haiari, nekoe, and timbo. Formulations include crystalline preparations, emulsified solutions, and dusts.

According to EXTOXNET, Rotenone is rapidly broken down in soil and in water. The half-life in both of these environments is between 1 and 3 days. It does not readily leach from soil, and it is not expected to be a groundwater pollutant. Also, as provided by the MSDSs for Rotenone produced by Bonide Products, Inc. of Yorkville, NY and ICN Biochemicals of Aurora,OH, Rotenone is insoluble in water.

Recommendation: Any release of Rotenone would likely have been degraded readily at the time Building 95 was still in use, thus no current presence would be likely. According to MSDSs and the EXTOXNET profile, Rotenone does not readily leach from soil and is relatively insoluble in water. Therefore based on this information and data from the four existing wells, it is not recommended to monitor for Rotenone.

SEVIN

Carbaryl, the primary ingredient in Sevin, is a wide-spectrum carbamate insecticide, which controls over 100 species of insects on citrus, fruit, cotton, forests, lawn, nuts, shade trees, etc. It Is available as bait, dusts wettable powders, granules, dispersions and suspensions.

According to EXTOXNET, Carbaryl has a low persistence in soil. Degradation of Carbaryl in the soil is mostly due to sunlight and/or bacterial action. Also, Carbaryl binds readily to organic matter. Carbaryl has a half-life of 7 to 14 days in sandy loam soil and 14 to 28 days in clay loam soil. According to MSDSs provided by Solaris Group of Monsanto Company in San Ramon, CA and John Taylor Fertilizers of Sacramento, CA, Carbaryl is insoluble in water.

Recommendation: Based on low persistence in soil and being insoluble in water, it is recommended not to monitor for Sevin. However, since Propoxur (Baygon) also uses Standard Method 632 results for Sevin would be recorded.

SIMAZINE

Simazine is a selective triazine herbicide. It is used to control broad-leaved weeds, annual grasses, vegetable and ornamental crops, turfgrass, etc. Simazine is available in wettable powder, granular, and liquid formulations.

According to EXTOXNET, Simazine is moderately persistant with an average field half-life of 60 days. Soil half-lives of 28-149 days have been reported. Simazine is moderately to poorly bound to soils. Its low water solubilty, however, makes it less mobile, limiting its leaching potential. Simazine has little, if any, lateral movement in soil, but can be washed along with soil particles in runoff. In soils microbial activity or hydrolysis account for decomposition depending on the pH in soil. According to MSDSs provided by the Drexel Chemical Company of Memphis, TN, solubility of Simazine in water for liquid and powder formulations ranged from 6.2 mg/L @ 22°C to 8 mg/L @20°C respectively.

Recommendation: Based on its low solubility in water Simazine is not recommended to be monitored for. However, because the method (Method 8141) used to analyze for Simazine is the same used for Malathion (potentially could be found in groundwater), results would be provided.

Summary Table for All Analytes

Analyte	Analyze For (Yes or No)	Method to be Used	MDL	MCL	MEG (1992)	MEG (1997)
2,4,5-T	Yes	8150	0.2 ug/L	None	70 ug/L	70 ug/L
2,4-D	Yes	8150	1.2ug/L	70 ug/L	70 ug/L	None
Avitrol	No	NA	NA	None	None	None
Baygon	Yes	632	1.9 ug/L	None	3 ug/L	None
Cyndgas	Yes	335.4	20 ug/L	200 ug/L	154 ug/L	154 ug/L
DDT	Yes	8081	0.011 ug/L	None	0.83 ug/L	0.8 ug/L
Diazinon	Yes[1]	8141	0.20 ug/L	None	0.63 ug/L	None
Lindane	Yes	8081	0.004 ug/L	0.2 ug/L	0.2 ug/L	0.2 ug/L
Malathion	Yes	8141	0.11 ug/L	None	40 ug/L	40 ug/L
Maleic Hydrazide	No	NA	NA	None	3500 ug/L	3500 ug/L
Rotenone	No	NA	NA	None	4 ug/L	4 ug/L
Sevin	Yes[1]	632	0.02 ug/L	None	164 ug/L	None
Simazine	Yes[1]	8141	0.8 ug/L	None	4 ug/L	4 ug/L

[1] These analytes are not recommended to be monitored for, but by default will be analyzed for since they are included in the methods for analytes that are recommended to be monitored for.

Any references mentioned in this memorandum can be provided upon request. If you have any questions please call me at (610) 595-0567 x-188.

Attachment B

Target Analytes Ground-Water Sampling
Naval Air Station, Brunswick, Maine
Letter from C. Sait (MEDEP)
to A. Coccoli (NAVFAC)
Dated 7 February 2000

February 7, 2000

Mr. Arthur Coccoli
Code 1821 AC
Department of the Navy, Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, PA 19113-2090

Re: Building 95
Target Analytes-Groundwater Sampling
Naval Air Station, Brunswick, Maine

Dear Mr. Coccoli:

To follow up on numerous meetings, conference calls, and emails regarding the groundwater sampling at the former Pesticide Shop-Building 95, the Department has reviewed all the information provided by the Navy and has come to the following conclusions.

Regarding the November 30, 1999, memorandum from Jason Speicher presents arguments for excluding Avitrol® (4-Aminopyridine), maleic hydrazide, and Rotenone from the list of target analytes for groundwater monitoring near Building 95. Initially, 18 substances that were reportedly handled at Building 95 were considered as potential analytes. Of the 18, four compounds (pyrethrin, Monuron TCA, resmethrin, and arsenic lead) were removed from the list of target analytes, as agreed at a November 3, 1999 meeting with Naval staff. The criteria, considered for this determination, included relative toxicity for humans, solubility in water, potential mobility in soil, and persistence.

In his November 30 memorandum, Mr. Speicher reviewed characteristics of eight of the potential target analytes and concluded that Avitrol, maleic hydrazide and Rotenone are not expected to migrate into the groundwater, therefore should be eliminated from the list. Some of the substances with similar characteristics will be retained as target analytes because they can be detected as part of analyses for other target compounds.

Following are DEP's observations and comments on arguments presented in the subject memorandum. Arguments presented by the Navy are shown in italics.

1. General

- *It is stated that DDT and pyrethrins were listed as contaminants of concern (COCs).*

  The DDT and pyrethrins were COCs for the removal action. For the Department to find that this site is safe for unrestricted use the list of COCs will have to include more chemicals. It is appears from the information on file and the fact that Building 95 was to be included in the Five Year Reviews indicates that some type of institutional control was intended for this site.

  The list of potential COCs for soils should initially be all of the chemicals handled and stored at Building 95. The list of COCs for groundwater may be limited somewhat to mobile compounds. Depending on results of the analyses that are currently proposed, it may be necessary to analyze groundwater for all of the compounds that were handled/stored at Building 95.

- Arsenic lead" (lead arsenate?) was excluded as a potential target analyte during the November 03, 1999 meeting, however the groundwater must still be monitored for inorganics, which include lead and arsenic.

- At this time, it is acceptable to select target analytes based on characteristics that dictate their potential for migration to groundwater. However, the validity of such arguments will have to be re-evaluated if it is determined that potential solvents, such as fuels are present.

2. Avitrol

- *Avitrol is described in the Extension Toxicology Network (EXTOXNET) database as relatively immobile in soil and, according to the Materials Safety Data Sheet (MSDS) only the inerts in Avitrol formulations are soluble in water.*

  According to studies referenced in the Toxicology Data Network (TOXNET), Avitrol is described as moderately soluble in water (8 grams/liter), and has a low sorption partition coefficient ($K_{oc} = 33$). The K_{oc} indicates that Avitrol may be highly mobile in soil. Given the uncertainty about the characteristics, it must be assumed that Avitrol has the potential to migrate into groundwater.

- *The Navy recommends that Avitrol be struck from the list of groundwater target analytes.*

  Given the uncertainty about Avitrol's mobility, and the potential for it to be present at all, the compound must be considered a target analyte. It is understood that the analysis for this compound may be difficult. Consequently, Avitrol must be retained as a potential second-round analyte, to be targeted if the first round of samples indicates that other substances with similar characteristics are present in the groundwater.

3. Baygon

- *Propoxur, the primary ingredient in Baygon is short-lived, water soluble, and may be mobile in soils. Because of the potential for propoxur to migrate into groundwater, it is recommended that this substance be retained as a target analyte.*

  Concur. According to Mackay et al. 1997[1], the solubility of propoxur in water is approximately 2.0 grams/liter, the K_{oc} is 33, and the half-life in soil is up to 26 days. It is agreed that although propoxur is short-lived, the potential for migration to groundwater is such that the substance should be retained as a target analyte.

4. Diazinon

- *Diazinon has low solubility, high K_{oc} and short half-life, therefore is not expected to have migrated into the groundwater. Diazinon can be considered a low priority target analyte for groundwater monitoring. However, because the method used to analyze for some of the other target analytes will detect Diazinon, the substances is retained as a target analyte.*

  Concur, based on features listed in Mackay et al (1997) (solubility approximately 0.04 grams/liter, K_{oc} = 1,000 and half-life in soil up to 12 weeks).

5. Malathion

- *Malathion may be moderately soluble in water (depending on the formulation), but has such a short half-life that it is not likely to be found in groundwater.*

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[1] Mackay, D., W-Y Shiu and K-C Ma. 1997. Illustrated handbook of physical-chemical properties and environmental fate of organic chemicals. Vol V. Pesticide chemicals. Lewis Publishers, Boca Raton, Florida.

However, because the method used to analyze for some of the other target analytes will detect Malathion, the substance is retained as a target analyte.

Concur, based on features listed in Mackay et al (1997) (solubility approximately 0.15 grams/liter, K_{oc} = 590, and half-life in soil less than 20 days).

6. Maleic hydrazide

- *According to two MSDSs, maleic hydrazide has a short half-life and solubility in water may be insignificant at 20 °C to moderate at 25 °C. It is argued that, due to the short half-life and potentially low solubility at temperatures typical of Maine, maleic hydrazide is not likely to occur in groundwater and should be removed from the list of target analytes.*

While temperature is important, the range of values for water solubility may reflect differences in the design of the separate studies. The solubility may be anywhere between <0.0001 gram and 6.0 gram / liter, and K_{oc} values from TOXNET indicate high to moderate mobility (K_{oc} = 40 to 342, depending on the clay content of the soils).

Given the uncertainty about solubility and mobility of maleic hydrazide, this substance must be retained on the list of target analytes. It is understood that the analysis for this compound may be difficult. Consequently, maleic hydrazide must be retained as a potential second-round analyte, to be targeted if the first round of samples indicates that other substances with similar characteristics are present in the groundwater.

7. Rotenone

- *Rotenone is short-lived and relatively insoluble in water, therefore does not need to be included among the target analytes for groundwater monitoring at Building 95.*

Concur. According to studies summarized in TOXNET, solubility is near 0.0002 grams / liter at 20°C, the K_{oc} is approximately 4,000 and the half-life in soil is less than one week. However, Rotenone may have to be considered in the future if monitoring results indicate that other compounds with similar characteristics are present.

8. Sevin

- *Carbaryl is the primary ingredient in Sevin. It is argued that Carbaryl has a short half-life in soil and, according to one MSDS is insoluble in water. It is*

recommended that Carbaryl be considered a target analyte, only because it will be detected by the method used for Propoxur.

Concur. According to Mackay et al (1997), the half-life for Carbaryl in soil is 20 to 100 days, the K_{oc} is approximately 630 and solubility is approximately 0.04 grams / liter. However, Carbaryl may have to be considered in the future if monitoring results indicate that other compounds with similar characteristics are present.

9. Simazine

- *Simazine is moderately persistent (28-149 day soil half-life), moderately to poorly bound to soils (K_{oc} = 32 to 1,000), and has a low water solubility (approximately 0.005 grams/liter). Because of its solubility, Simazine has a low potential for leaching into the groundwater and the Navy recommends that it not be considered a target analyte. However, because it will be detected as part of analyses for other substances, results for Simazine will be reported.*

  The reported characteristics are supported by data in Mackay et al. (1997). Because it may be only poorly bound to soil, Simazine should be considered more than an add-on. Simazine should be a target analyte, even if it were not part of a suite of substances covered by currently proposed analyses.

10. The table below summarizes what was initially considered, subsequently re-evaluated by the Navy (Nov 3, 1999 memorandum), and MEDEP' response. It is assumed that arsenic and lead are already target analytes, and if not, they should be. Avitrol and maleic hydrazide must be retained as target analytes. They may be retained as second-round analytes, to be targeted if other substances with similar migration-related features are detected.

Table 1. Target analytes selected from the list of pesticides used at Building 95.

Compound (original list)	Target Analyte	Recommended by Navy	Response to Navy
X 2,4,5-T	Yes		
2,4-D	Yes		
Arsenic lead	Yes[1]		
Avitrol	Yes (dispute)[2]	Delete	Retain[3]
Baygon	Yes (dispute)[2]	Keep	Keep
Cyndgas	Yes		
DDT	Yes		
Diazinon	Yes (dispute)[2]	Keep	Keep
(drexel)			
Resmethrin	No		
Lindane	Yes		
Malathion	Yes (dispute)[2]	Keep	Keep
Maleic hydrazide	Yes (dispute)[2]	Delete	Retain[3]
Monuron TCA	No		
Pyrethrin	No		
Rotenone	Yes (dispute)[2]	Delete	Delete[4]
Sevin	Yes (dispute)[2]	Keep	Keep
Simazine	Yes (dispute)[2]	Keep	Keep

1. Assumed to be retained as part of analyses for inorganics.
2. Dispute by Navy via November 30, 1999 memorandum
3. Substance should be retained, but as second-round analyte, depending on outcome of monitoring for other substances.
4. Substance does not need to be retained unless other less mobile substances are detected.

11. The question was raised as to which substances would have to be detected to trigger expanded analyses for maleic hydrazide and Avitrol. The trigger would be anything that is of comparable or less potential mobility. For maleic hydrazide that would be carbaryl or simazine. For Avitrol, it could be any of the analytes currently targeted. Although not discussed, if DDT is detected in groundwater, all potential analytes (including rotenone) will have to be addressed.

12. The Navy also asked, at what concentration would an analyte have to be to trigger the expanded analyses. If an analyte is detected, the Department will evaluate the need for further testing. To consider other (e.g., toxicological) benchmarks as triggers would be inappropriate at this time. It would be impudent to assume that even if one target analyte is present at levels below toxicological benchmarks, the others will also be below such benchmarks.

13. There are two additional items that need to be addressed. On October 8, 1998, MEDEP commented on the Draft Final Closure Report for Building 95 (August 1998). The Navy must respond to these issues and comments.

    Also the Draft Long Term Monitoring Plan for Building 95 will need to be revised incorporating all the modifications discussed in the last year. Due to the substantial changes to the plan, a final draft must be submitted for review and comment prior to implementation.

I hope this information will be helpful in resolving the impasse at Building 95. If you have any questions or comments please call me at (207) 287-7713.

Respectfully,

Claudia Sait
Project Manager-Federal Facilities
Bureau of Remediation & Waste Management

Cf: File
Larry Dearborn-DEP (electronic copy only)
Jason Spiecher-NorthDiv (electronic copy only)
Al Easterday-EA (electronic copy-only)
Michael Barry-EPA
Anthony Williams-BNAS
Carolyn LePage-LePage Environmental
Peter Nimmer-EA
Ed Benedikt

RESPONSE TO COMMENTS FROM THE STATE OF MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION ON THE DRAFT LONG-TERM MONITORING PLAN FOR BUILDING 95, NAVAL AIR STATION, BRUNSWICK, MAINE

COMMENTOR: Claudia Sait **DATED: 20 July 1999**

The Department of Environmental Protection (DEP or Department) has reviewed the report entitled, *Draft Long-Term Monitoring Plan, Building 95*, dated May 1997, prepared by EA Engineering, Science, and Technology. Based on that review, the Department has the following comments and issues.

GENERAL RESPONSE TO COMMENTS

Following the receipt of the Response to Comments from MEDEP and EPA, it was determined that there were many issues which needed to be resolved. The major issues for the Building 95 Long-Term Monitoring Plan were discussed with the Navy, MEDEP, EPA, and the Citizen's Group at technical meetings and on conference calls. A memo was sent on 30 November 1999 to interested parties by the Navy presenting their position (Attachment A). MEDEP responded to that memo on 7 February 2000 and presented their position (Attachment B). Further discussions were held during the Technical Meetings on 8 and 9 March 2000. Based on these discussions and memos, the following decisions were made regarding the Long-Term Monitoring Program at this site:

- Two new wells are scheduled to be installed in March 2000 downgradient of the Building 95 site. The well depth and screen interval will be the same as MW-NASB-067, which is located in the central portion of the site (i.e., screened from 4 to 14 ft bgs).

- The two new wells will be sampled for two rounds during high and low water conditions (April and September 2000, respectively). If any compound is detected above the State Maximum Exposure Guideline or Federal Maximum Contaminant Level in either well during either sampling event, monitoring well MW-NASB-067 will be added to the sampling program in 2001.

- Monitoring wells will be sampled and analyzed for Target Compound List volatile organic compounds, Target Compound List semivolatile organic compounds, 2,4,5-T, 2,4-D, Target Analyte List metals, baygon, cyanide, DDT, diazinon, lindane, malathion, sevin, and simazine. After a review of the data for the April and September 2000 sampling events has been completed, results will be discussed with MEDEP and other Restoration Advisory Board members, and it will be determined if it is necessary to add avitrol, maleic hydrazide, and/or rotenone to the sampling program.

- The LTMP is being issued in Draft Final form due to the significant revisions to the Plan, as requested by MEDEP.

GENERAL COMMENTS

1. The Department has commented over the past year that the existing well locations at Building 95 are inadequate to monitor ground-water contamination downgradient of the source. The essence of General Comment 1 from our review of the Draft 1998 Annual Report is restated below:

   Water level data shown on Figures 3-1 through 3-7 of the 1998 Annual Report clearly illustrate that the existing well monitoring network, which consists of four wells, is inadequate for long-term monitoring. Using data on the above figures, a single straight-line head contour was triangulated by MEDEP on each figure using wells MW-NASB-065, MW-NASB-067, and MW-NASB-068. A ground-water flow line drawn perpendicular to each contour gave a range of flow direction between S 18° E and S 56° E in 1998. (In 1996, a typical flow direction was determined by MEDEP to be S 60° E). When the 1998 flow lines are drawn through sampling point ABB-26 (the heart of the source area), the downgradient extensions of these lines are no closer cross-gradient than 37 to, and as far away as 62 ft from, the Navy's "downgradient" well MW-NASB-068. This crossgradient offset is too large for a site as small as Building 95.

   The Department strongly believes that the lack of monitoring of ground water near the downgradient 4-ft excavation of soil represents an important data gap. In our letter of 13 April 1998, regarding the revised direct-push sampling plan, we stated "...MEDEP is proposing that the following changes would satisfy our concerns regarding pesticide distribution." It was our understanding that this work was aimed at resolving gaps in the delineation of source area contamination, and was not intended to delineate downgradient ground-water quality. Although a significant source of pesticides was found in the ABB-26 area immediately upgradient of the direct-push area and supposedly has been effectively remediated through soil removal, the Building 95 outdoor drum rack was located 20 ft downgradient of the direct-push area. Ground water has never been tested downgradient of the drum rack. This oversight is justification for a properly locating a new monitoring well.

   A new monitoring well must be located off the southeast corner of Building 95. We are ready to discuss this in detail with the Navy, and feel it is a situation similar to that jointly resolved at Site 7.

   Response—Please see the General Response to Comments. These issues have been discussed at Technical Meetings, and by letter correspondence. Two new monitoring wells will be installed downgradient of the Building 95 site, and the Long-Term Monitoring Program has been substantially revised. It is believed that these changes will address the issues raised in this comment.

2. In retrospect the monitoring of this site should not have been reduced to annual sampling. Semi-annual sampling needs to be resumed at this site in order to obtain data from both high and low ground water conditions. (Also see Comment Nos. 7 and 9 below.)

   Response—Please see the General Response to Comments. Sampling of the two new monitoring wells will be conducted for two rounds during high and low ground-water elevation conditions (April and September 2000) at Building 95.

3. To be consistent with the other long-term monitoring plans, goals for the LTMP must be developed. It would probably be most productive to discuss these at our next Technical Meeting.

   Response—The goals of the Long-Term Monitoring Program have been discussed during technical meetings, and in MEDEP Specific Comment Nos. 4 and 5. The following goals have been developed, and the second paragraph and second set of bullets of Section 1.1 have been revised as follows:

   The goals of the Long-Term Monitoring Program are to obtain data necessary to document the long-term trends in environmental media at Building 95. These goals are as follows:

   - *Monitor and assess trends in ground-water quality with emphasis on contaminants of concern to verify that soil and debris removal action was effective.*
   - *Assess the potential for adverse environmental impacts by monitoring for evidence of stressed vegetation*
   - *Monitor and maintain the structural integrity of the ground-water monitoring wells.*

SPECIFIC COMMENTS

4. ***Purpose and Scope, Section 1.1, Page 1-1, Second Paragraph, First and Second Bullets***—"Assess ground-water quality following completion of the removal action" and "Evaluate the effectiveness of the soil and debris removal action."

   These bullets are really one in the same. The MEDEP suggests the following language:

   Monitor and assess trends in ground-water quality with emphasis on contaminants of concern to verify that soil and debris removal action was effective.

   Response—The first and second bullets have been combined and revised as suggested.

5. ***Purpose and Scope, Section 1.1, Page 1-1, Second Paragraph, Fourth Bullet***—"Assess the condition of the 4 existing site monitoring wells."

   For consistency, this objective should read the same for each site. Therefore, MEDEP suggests:

   Monitor and maintain the structural integrity of the ground-water monitoring wells.

   Response—The fourth bullet has been revised as suggested.

6. ***Site Background, Section 1.2, Page 1-2, Second Paragraph***—As part of the Long-Term Monitoring Program, sampling of the 4 existing monitoring wells is conducted to establish whether any residual pesticide material is affecting ground-water quality.

The phrase "is affecting ground-water quality" is more vague than it should be. Please mention comparisons to the MCLs/MEGs.

Response—The text has been changed to read as follows:

> *...whether any residual material may be causing exceedances of State Maximum Exposure Guidelines or Federal Maximum Contaminant Levels in ground water.*

7. ***Site Background, Section 1.2, Page 1-2, Second Paragraph***—The purpose of this revision of the LTMP is to set a schedule that is determined to be appropriate for the next 5 years. Based on the need for semi-annual monitoring, it would be better to change this statement to:

   Only one sampling (Monitoring Event 10) has been undertaken after August 1997.

   Response—The sentence has been added as follows:

   Only one sampling event (Monitoring Event 10) has been undertaken after August 1997.

8. ***Sampling Locations, Section 1.3.1., Page 1-2***—The Department does not agree with the configuration of the current monitoring network of wells, as we have stated in the past. Please refer to Comment No. 1 above.

   Response—Please see the General Response to Comments. Two new monitoring wells will be installed downgradient of the Building 95 site.

9. ***Sampling Frequency, Section 1.3.2, Page 1-3***—The Department does not agree with an annual sampling schedule, but would agree to a semi-annual schedule that included both low and high ground-water conditions. During our review of the 1998 Annual Report, it became apparent that the highest pesticide concentrations in ground water have occurred in both March and August. These data for MW-NASB-067 (the only well that is located within the contaminated zone) indicate no discernable long-term trend in concentration of 4,4'-DDT. The highest concentrations are 30 percent of the State's MEG.

   Response—Please see the General Response to Comments. Sampling will be conducted for two sampling rounds (April and September 2000). If any compounds listed in the General Response to Comments are detected in either new well, monitoring well MW-NASB-067 will be added to the sampling program. The sampling program will be reassessed following the September 2000 sampling event, and discussed in a technical meeting so that if changes are necessary, they can be enacted before the next sampling event.

10. ***Monitoring Locations, Section 3.1.1, Page 3-1***—The number and location of monitoring wells needs to be resolved to the satisfaction of MEDEP and EPA. The ideal configuration of monitoring wells would be to add two new wells between MW-NASB-068 and Building 95, and drop wells MW-NASB-066 (upgradient) and MW-NASB-065 (crossgradient) (see Comment No. 1 above).

Response—Please see the General Response to Comments. Two new wells will be added downgradient of the Building 95 site, and MW-NASB-065 and MW-NASB-066 will be dropped from the sampling program.

11. ***Sampling Frequency, Section 3.1.2, Page 3-1***—As with the other long-term monitoring plan, the possible eventuality of increased compounds concentrations and increasing monitoring frequency must also be taken into consideration.

    Response—The last sentence of Section 3.1.2 has been modified as follows:

    > *Depending on the long-term trends of the compound concentrations, monitoring frequency may be changed with the concurrence of EPA and MEDEP.*

12. ***Analytical Parameters, Section 3.1.4, Page 3-2, Bullets***—As EPA has suggested, some of the target analytical tests could likely be dropped, such as semivolatile organic compounds and target analyte list elements. However, the full suite would need to be run for a limited time after the installation of the new monitoring wells.

    Response—Please see the General Response to Comments. Based on discussions with MEDEP and EPA during the 8 and 9 March 2000 Technical Meetings, the two new wells will be sampled and analyzed for Target Compound List volatile organic compounds, Target Compound List semivolatile organic compounds, and Target Analyte List metals in addition to other analyses. The analytical program is summarized in Table 3-1 of the LTMP.

13. ***Program Modifications, Section 3.1.6, Page 3-3***—Please include the parameters for adding new wells to the program.

    Response—A general statement of the Long-Term Monitoring Program modification process has been added based on this comment. Section 3.1.6 has been replaced with the following:

    > *Modifications to the monitoring network included in the LTMP, such as adding or removing monitoring wells from the program, may be appropriate based on observed trends of contamination concentrations. Proposed modifications to the monitoring program will be submitted to EPA and MEDEP in writing in accordance with 40 CFR 264.118.*

14. ***Sampling Procedure, Appendix A.1.4, Page A-3, Third Bullet***—In the second sentence within the parentheses, the greater than symbol (>) should be changed to the less than symbol (<).

    Response—The greater than symbol (>) has been changed to the less than symbol (<) in the first sentence of the third bullet of Section A.1.4.

15. ***Figure 1-2***—Figure 1-2 does not show where the contaminated soil was buried. To have an accurate depiction of the site, this information must be added.

    Response—Figure 1-2 has been revised to show the approximate area where the contaminated soil was buried.

16. ***References***—The last Draft Closure Report was dated August 1998.

Response—The reference in question has been revised to include August 1998 as the date.

17. ***Quality Assurance Project Plan, Section 2.6, Page 2-4***—Field spikes are listed as QC parameters collected. Are samples actually spiked in the field or is this a laboratory procedure using matrix water (or sediment) collected in the field?

Response—Field spikes are not mentioned in this QAPP. We believe the commentor is referring to MS/MSD samples, which are completed by the laboratory. The following text pertaining to laboratory activities was added to this section to clarify the text:

Attachment A-1 identifies QC criteria for analytical laboratory precision and accuracy....

18. ***Quality Assurance Project Plan, Table 3-1***—The formula for nitric acid should be HNO_3. Holding time for rotenone and pyrethrins is incorrect; holding time after extraction should be limited to 30 days. Please correct.

Response—The formula for nitric acid was corrected to HNO_3. The holding time for rotenone was corrected to 30 days. Note that the analysis for pyrethrins will no longer be performed and, therefore, was removed from the table.

19. ***Quality Assurance Project Plan, Table 5-1, Analytical Methods***—The following corrections need to be made to Table 5-1.

- The cited method for pyrethrins and rotenone is intended for polynuclear aromatic hydrocarbons. The applicable method for rotenone is SW-846 8325. The method for pyrethrins is EPA Method 1660. These methods use HPLC columns and mobile phase solvents that are specific for the target analytes. If the cited method has been adapted for pyrethrins and rotenone and the laboratory has data to demonstrate adequate specificity, accuracy, and precision, these data should be presented for review.

Response—The method for rotenone has been revised to EPA Method 632 Modified on Tables 3-1, 5-1, and 5-2, and in Section 5-2.

20. ***Quality Assurance Project Plan, Table 5-3, Target Analytes ...***—Target analytes with Method Detection Limits (MDLs) greater than the Maximum Exposure Guidelines (MEGs) should not be a problem until the time the Navy wants to make a determination that the site is "clean." At that time, methods should be re-evaluated and these analytes would need to be run for at least four rounds at MDLs that are protective of the MEGs.

Response—Further discussions on this topic are anticipated following the receipt and analysis of the first year of analytical results collected at the new site wells (i.e., following October 2000).

21. ***Attachment A-1, Holding Time Laboratory Corrective Action***—Holding time corrective action does not include flagging the report. Either reports should be flagged, or some other mechanism should be worked out to assure samples have been analyzed within the holding time.

Response—If samples were to be run outside of holding times, the QAPP does not indicate these samples should be "flagged," although a note would be added to the data summary table to note holding time exceedance. Any significant problems with sample analysis, such as sample holding time exceedance, would also be noted in the analytical data quality review section of the monitoring event report as stated in the revised third bullet of Section 9.3.1 of the QAPP.