



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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TDD 401-222-4462

February 28, 2005

Curt Frye, Remedial Project Manager
U.S. Department of the Navy
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Code 1823-Mail Stop 82
Lester, PA 19113-2090

RE: Navy's Response to Comments on the Residual Risk Calculations for Various Removal Options, Old Fire Fighter Training Area, Naval Station Newport, Newport, Rhode Island

Dear Mr. Frye,

The Rhode Island Department of Environmental Management, Office of Waste Management has reviewed the Navy's Response to Comments on the Residual Risk Calculations for Various Removal Options, Old Fire Fighter Training Area February 14, 2005. Attached is an evaluation of the responses.

If the Navy has any questions concerning the above, please contact this Office at 401-222-2797, ext. 7111.

Sincerely,

Paul Kulpa
Office of Waste Management

cc: Matthew DeStefano, DEM OWM
Richard Gottlieb, DEM OWM
Kymberlee Keckler, EPA Region I
Cornelia Mueller, NSN

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**Responses to Comments from RIDEM
Residual Risk Calculations for Various Removal Options
Site 9, Old Fire Fighting Training Area**

1. General Comment

The exposure duration for the residential exposure scenario used in the evaluation was 240 days per year. Please be advised that the exposure duration for the residential scenario under the Rhode Island Department of Environmental Management Site Remediation Regulations is 350 days per year. Please recalculate the residual risk estimates using the 350-day exposure duration.

Response: As stated at the meeting and in the summary information, the 240 days per year exposure was used as consistent with the risk assessment in the remedial investigation. It is unwise to change the elements of these calculations after the RI and the FS are completed.

Additionally, the residual risks were calculated as an illustration of how the different excavation options would affect the residual risk. A final residual risk may be calculated for the site after the details of the target depths and contaminant concentrations are worked out. Manipulating different parameters of the risk calculations and regenerating all the risks from disqualified options is not productive.

Evaluation of Navy's Response

As stated in the meeting application of the standard exposure duration of 350 days per years would change the residual risk calculations for certain scenarios and result in the "C" option (removing soils to the water table) no longer being within the same risk range as either option "B" removing soils up to three feet into the water table or option "A" removing all of the contaminated soils. As an illustration, the maximum risk for option "C" under the 240-day exposure scenario is 7.05 EE-5, under the standard 350-day exposure scenario the risk increases to 1.02 EE-4. This represents a risk, which is outside of the USEPA acceptable risk range. Conversely, whether the 240 day or 350 day exposure scenarios are used for the "A" options the risk stays within the ten to the minus five ranges. Further, the average risk for option "C" under the 240-day exposure is 8.2 EE-6; under the standard 350-day exposure scenario the risk increases to 1.19 EE-5. The risk is considerably lower for the "A" options under either the 240-day scenario or the 350-day scenario (i.e. the risk in both scenarios is in the ten to the minus six range which is considered safe by the EPA).

The Navy's position is that the residual risk under wither the "A" options or "C" options are essentially equivalent and there is no justification for increasing the excavation beyond the depth of the water table. However, applying the standard 350-day exposure duration to the exposure scenarios generated by the Navy the risk under the "A" options is lower and/or within acceptable EPA risk ranges. Conversely, the risk for the "C" options is higher and /or outside of acceptable EPA risk ranges. In essence, application of the Navy's own exposure scenarios to the site

demonstrates that the “C” option represents either a higher risk and/or a risk outside of EPA acceptable risk range.

2. General Comment

The “A” scenarios assume that the excavation will be dug to the PRGs. That is, all soils exceeding the PRGs would have been removed from the excavation and the concentration of a particular contaminant left in the excavation would be equal to or lower than the PRG. As such, in order to evaluate residual risk, the respective PRGs should be employed in the “A” exposure scenarios. A review of the supporting data tables on the CD indicates that this is not the case (that is concentrations above the PRG were used in the residual risk evaluation). Please recalculate the “A” exposure scenarios using the appropriate PRGs.

Response: The A options were generated based on target excavation depths and elevations that are determined for each of the grid cells independently. If there is one boring in the grid cell, the excavation targets the bottom of the last sample that exceeds the PRG. If there was more than one boring in the cell providing different information (one shows the last PRG exceedance at 15 feet deep and one shows the last exceedance only at 10 feet deep) the source information was reviewed and the depths were either averaged, or the less certain value was removed from consideration. In the case where the depths are an average, the deeper PRG exceedance is remaining, and therefore used in the residual risk calculation.

The tables showing the target excavation depths for the different options provided under Navy cover letter dated 12/23/04 describes how the depths were arrived at, in the column titled “Controlling Depth”.

The reader should also be aware that residual risk is also impacted by the metals that are present at background concentrations below the PRG values. For instance, arsenic present at a concentration of 6 mg/kg (below the PRG of 7 mg/kg) will provide a cancer risk of $>1E-5$. This is because the PRG for arsenic is a regulatory PRG, not a risk based PRG. If all PRGs were risk based, and all contaminants exceeding those risk based PRGs were removed, then the residual target risk level would, in theory, be at or below the target risk level from which the PRGs were calculated. Since this is not the case, there is residual risk associated with the regulatory PRGs.

Again, the purpose of the residual risk calculation is to illustrate the risk associated with the different excavation options. If there is agreement on an option or a depth, the residual risk can be calculated to assure that is the appropriate depth to go to. Recalculating all the options with minor adjustments is not practical.

Evaluation of Navy’s Response

The Navy indicates that the removal action would be terminated based upon the average concentration in the confirmatory samples. This had not been the practice to date for removal actions conducted at the Newport Navy base. In all of the previous removal actions excavations were

terminated based upon achieving compliance with regulatory standards and/or site specific PRGs at all locations where confirmatory samples were collected. Further, application of the average is not consistent with the Site Remediation Regulations for removal actions.

The core of the comment was that the Navy's comparison of the "A" and "C" options was biased in that it potentially inflated the risk of the "A" option. Specifically, it assumes that the residual concentrations would be higher than that actually reflected in the removal action. This brings into question the residual risk comparison performed by the Navy and the conclusions that the risk are essentially the same. Therefore, if the Navy elects to use the residual risk calculations in the decision matrix the risk need to be recalculate as originally requested.

3. General Comment

Dieldren, PCBs, etc were identified as contaminants of concern (COCs) for the site. The concentration of these contaminants in the risk tables was listed as zero. This may be an artifact of concurrent removal of other contaminants or simply an oversight. If the former is true, please explain in the submittal how these contaminants were identified as COCs, yet concentrations for these contaminants were not used in the risk calculations, if the latter is true the risk assessment should be recalculated using the appropriate values.

Response: Dieldrin was present in soil sample collected during the installation of MW-11, which is within the excavation target range for Option C. Aroclor 1254 was detected in one sample below the selected PRG, so it was not considered in the PDI or for targeting excavations.

Evaluation of Navy's Response

The Navy has addressed the comment.

4. General Comment

The risk assessment was calculated using the both the average concentration and the maximum concentration. Typically when calculating the risk associated with the average concentration the 95 % UCL is used. This was not done. Please recalculate the average using the 95% UCL

Response: There is enough data to calculate a 95% UCL for all the options. However, doing so for all the options seems excessive, and unless that information will be used to reach a decision on the excavation option, it is not recommended as useful expenditure of time. The Navy instead suggests to recalculate risk to the accepted option once a tentative agreement is reached.

Evaluation of Navy's Response

The residual risk calculations were designed to compare the risk associated with the various removal options. The 95 % UCL must be applied to all options so that a fair and consistent comparison can be made. If the residual risk calculations are to be used to determine the approach for the site they need to be recalculated to address this concern.