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MINUTES FROM PRELIMINARY RISK EVALUATION MEETING 21 AUGUST 95 WITH
TRANSMITTAL LETTER NTC ORLANDO FL
8/31/1995
ABB ENVIRONMENTAL



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August 31, 1995

Commanding Officer
Southern Division,
Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, SC 29419-9010

Attention: Mr. Wayne Hansel (Code 1887)
Mr. Steve Wilson (Code 1889)

Subject: Preliminary Risk Evaluation Meeting of August 21, 1995

Enclosure: (1) Draft Minutes of Preliminary Risk Evaluation Meeting

Dear Gentlemen:

The subject meeting was held at USEPA Region IV headquarters in Atlanta, GA. The purpose of the meeting was to arrive at an agreed-upon protocol for conducting Preliminary Risk Evaluations (PRE) at BRAC installations (though the application of the process may be far wider). Attached you will find the minutes of that meeting, in a draft format, as well as the list of attendees. When finalized, a copy of the meeting's presentation materials will be included with these minutes.

Since the final publication of the minutes will represent the approved PRE process, the attendees agreed that their review and consensus is essential prior to the final publication and distribution. All attendees will receive a copy of these draft minutes and it is requested that any comments, recommended corrections, thoughts, etc. be provided by September 15th. ABB Environmental Services will coordinate those responses, ensure consensus, and publish the final minutes. Individual project teams will then incorporate the approved process into their site screening efforts. Additionally, on-going screening efforts, which have been on hold pending approval of this process, will be finalized and their respective reports submitted.

If you have any questions, please feel free to call me at (904) 269-7012.

Respectfully submitted,

ABB ENVIRONMENTAL SERVICES, INC

Philip Georgariou
BRAC Program Manager
#8519.1880

ABB Environmental Services, Inc.

Enclosure (1)
Preliminary Risk Evaluation
Draft Meeting Minutes of August 21, 1995

**Draft Minutes of August 21, 1995
Preliminary Risk Evaluation Meeting**

Attendees:	Ted Simon	USEPA, Region IV
	Nancy Rodriguez	USEPA, Region IV
	Joan DuPont	USEPA, Region IV
	Wayne Hansel	SouthDiv
	Mark Davidson	SouthDiv
	Barbara Nwokike	SouthDiv
	David Clowes	Florida DEP
	Jane Fugler	Florida DEP
	Philip Georgariou	ABB-ES (Jacksonville)
	Jim Manning	ABB-ES (Jacksonville)
	Lisa Routhier	ABB-ES (Jacksonville)
	Eric Blomberg	ABB-ES (Tallahassee)
	Mike Murphy	ABB-ES (Wakefield, MA)

Meeting Goal: Obtain an agreed-upon approach for conducting Preliminary Risk Evaluations (PREs) at DOD sites.

- Meeting was initiated at 10:00 AM and concluded at 3:20 PM

This meeting discussed the Navy's proposed approach for conducting Preliminary Risk Evaluations (PREs) at sites which are not yet in the RI/FS or RCRA corrective action programs. The PREs are to be performed with initial, and often limited, sampling and analytical data. The proposed approach would be used with other site information to determine the suitability for lease or transfer and to determine if any further investigative or remedial actions are warranted. The proposed approach is generally consistent with the USEPA Region IV December 20, 1994 document, "Amended Guidance on Preliminary Risk Evaluations (PREs) for the purpose of reaching a Finding of Suitability for Lease (FOSL)." These FOSLs, and their counterparts, Findings of Suitability for Transfer (FOST), are documents that attest to the environmental condition of the property in question and are required for the transfer of DOD property into the public domain.

The proposed PRE approach was presented to the group by Michael Murphy of ABB Environmental Services. It was agreed at the meeting that the results of the PRE alone would not be the basis of decisions about property lease or transfer, or the need for further actions. Site history and other site-related information would be used in conjunction with the results of the PREs in making such decisions. In all cases, at least with DOD property, the determination of suitability for lease/transfer rests with the BRAC Clean-up Team, which is comprised of the Navy, the State, and the USEPA. It was also agreed that the PRE will not be separate document, but an appendix to the site screening report.

Overall, the response to the proposed approach was favorable, with exceptions noted below. The details of the human health PRE have been agreed upon. There remain some open issues relative to the ecological PRE approach, as noted below.

Enclosure (1)
Preliminary Risk Evaluation
Draft Meeting Minutes of August 21, 1995

The human health PRE (HHPRE) and the ecological PRE (ECOPRE) each involve two components: background screening and risk-based screening. These components are further addressed below. Because the background screening process is consistent for both human health and ecological screening, it will only be presented once.

Background Screening

It was agreed that a background screening would be conducted and that only those analytes with maximum concentrations higher than background concentrations would be evaluated in the risk screening. The background screening will involve the comparison of the maximum site concentration of each analyte to two times the mean of the background data set for each analyte. If PAHs and pesticides are to be included in the background screening, the number of background samples must be adequate to insure sufficient statistical power.

USEPA expressed a preference that there be less than 1% chance of Type II statistical error. This would mean that there is less than a 1% chance that we would conclude that site concentrations are consistent with background, when, in fact, they are higher. The specific criteria to be used in this analysis perhaps warrants further discussion, given the large number of samples which might be required and pending a discussion of the minimum detectable relative difference which would be appropriate.

There is no need to conduct PREs for surface water and sediment in HHPREs. The PRE will rely on the ecological PRE component to evaluate these media.

Risk-Based Screening

Because the risk-based screening considers different factors for human health and ecological, they are presented separately.

Human Health PRE

An evaluation of complete or potentially complete pathways will be an initial step of the PRE. Samples taken from locations (or media) which are unlikely to involve human exposure (such as under a permanent building) would not be included in the HHPRE. The evaluation of complete exposure pathways would be an implicit part of the screening process (it would not involve the preparation, for the PRE report, of a figure which portrays a site conceptual model).

Both industrial and residential land use scenarios will be evaluated unless: 1) the site is already in residential use (in which case an industrial scenario becomes superfluous); or 2) physical or institutional controls prohibit residential use.

The risk-based screening also involves the comparison of the site maximum concentration of each analyte in surface soil (0-1 ft bgs), subsurface soil, and groundwater to one or more screening values. These screening values are USEPA Region III Risk-Based Concentrations (RBCs) [hazard quotient = 1 for each analyte], drinking water standards and Florida standards and guidance values. All exceedances of screening values will be identified.

Enclosure (1)
Preliminary Risk Evaluation
Draft Meeting Minutes of August 21, 1995

At USEPA's suggestion, the carcinogenic PAHs will be evaluated as a group. Based on Relative Potency Factors (published by USEPA - ORD, 1993), concentrations for all of the carcinogenic PAHs will be converted to Benzo(a)pyrene toxic equivalent (TEQ) concentrations, and those concentrations will be summed to obtain total benzo(a)pyrene TEQ. This single concentration, would represent all of the carcinogenic PAH compounds, and will be compared to the RBC for benzo(a)pyrene. (It should be noted that the Relative Potency Factors were not published as toxic equivalency factors, but they are being treated as such here.) Indent(1,2,3-cd)pyrene will be included in the group of carcinogenic PAHs.

Arsenic will be treated as both a carcinogen and non-carcinogen. The uncertainty in the cancer slope factor will be discussed in the PRE. The PRE will suggest that regulating arsenic as a non-carcinogen is a viable option, given the considerable uncertainty in the arsenic cancer slope factor.

If groundwater analyte concentrations exceed Florida groundwater criteria, FDEP leachability-based soil cleanup goals will be used as risk-based screening values for soil likely to impact groundwater. FDEP indicated the leaching-based goals should be applied to surface soil if groundwater criteria had been exceeded. ABB-ES suggested that the leaching-based values should be applied to subsurface soil, since that soil is closer to groundwater and more likely to impact the groundwater. This issue still needs to be clarified.

Risk-based screening of groundwater will not include Florida secondary standards for inorganic analytes. Exceedances of secondary standards for xylenes, toluene, ethylbenzene and naphthalene will be identified, but these secondary standards will not be used in risk calculations because the concentrations are not health risk-based.

Ecological PRE

The proposed approach was viewed as comprehensive and appropriate in general. A habitat and exposure pathway evaluation was proposed as a means of determining if an ecological-PRE is required. USEPA asked for clarification: If current land use included a mowed lawn, would it be assumed that the lawn might sometime in the future become a field? Size and proximity to adjacent buildings/activities will become determining factors.

The wildlife species chosen for calculation of surface soil (0-1 ft bgs) Protective Contaminant Levels (PCLs) in the proposed approach were discussed. Before agreeing with the approach, USEPA would like to know the rationale for selection of these species and suggested that another bird, and perhaps the gopher tortoise, be added to the list. This still needs to be resolved.

The treatment of essential nutrients was also discussed. USEPA would like to see the identification of concentrations at which essential nutrients in soil become toxic (including data for plants and invertebrates).

The following comments concerning surface water/sediment ecological screening values were made by FDEP: Florida Sediment Quality Criteria (1994) should be applied, even for fresh waters; for surface water, 5% of an LC₅₀ is an acceptable criteria for protection of aquatic life in Florida; and if there is an exceedance in one medium, other media should also be evaluated (particularly with respect to endangered species). Some clarification of the latter statement is needed.

USEPA would like to get the full citation for the Neuhauser and others (1985) reference concerning invertebrate screening values in Table 1-7 of the example PRE before agreeing on the values selected. The reference to the "PRE Handbook" in that same Table 1-7 was also discussed. Ted Simon indicated that documentation of the

Enclosure (1)
Preliminary Risk Evaluation
Draft Meeting Minutes of August 21, 1995

ecological PRE approach and assumptions could be placed in an appendix to the PRE, but it should not be called a handbook.

USEPA representatives discussed whether the ecological PRE could be streamlined in some way so that an RPM could sit down and complete a PRE in an afternoon. Ted indicated that the PREs should be straightforward and standardized enough that an RPM can do them easily. USEPA representatives concluded that the PRE was generally consistent with current EPA guidance for ecological evaluation and probably could not be streamlined considerably and remain comprehensive.

Presentation of Results

Human Health PRE

All exceedances of risk-based screening concentrations will be identified. A risk summary table will contain risk ratios and/or cancer risks for all analytes which are retained after the background screen. Cumulative cancer risk and hazard index will be presented for each medium and land use scenarios (the latter is the sum across media for a given receptor). (Note: This summing of risk across multiple media is still a point of discussion, but will be resolved prior to finalization of these minutes.)

Cumulative cancer risks will then be represented either by a numerical risk estimate (e.g. 2×10^{-6}) or via a cancer risk ratio for which the range of values 1 - 100 corresponds with cancer risks in the range of 10^{-6} to 10^{-4} . The type of presentation will be selected on a site-by-site basis, in order to achieve the objectives of being easy to understand and avoid being alarmist. When risk has been calculated and presented, uncertainty based on limited sampling will be discussed and state that it is unlikely risks would be greater than those estimated in this manner.

Ecological PRE

All exceedances of ecological screening values will be identified in the medium-specific ecological risk screening tables.

Interpretation of Results

There will be a brief summary and interpretation of the results of the risk-based screening, in text format. Past experience and professional judgement will be employed in describing what the results actually mean to human health and ecological receptors. The results and interpretation of same will be passed onto the BRAC Cleanup Team as one component of decision-making concerning property transfer.

It was agreed that the tables which are the major component of the PRE could be streamlined. It was also agreed that the PREs would be conducted and presented using LOTUS 123™ spreadsheets in the future. Ted Simon offered a copy of a simple PRE comparison table which had been developed by a Region IV RPM (attached). It was also agreed that frequency of detection, mean concentrations, and range of detected concentrations were important enough to the interpretation of the results to be included.

There was no piece of information, presented in the PRE tables in the presentation packet, which was identified as unnecessary. The streamlining has been accomplished by combining the human health risk-based screening

Enclosure (1)
Preliminary Risk Evaluation
Draft Meeting Minutes of August 21, 1995

tables and the human health summary table. One table is still required for the background screening for each medium. There will also be one human health risk-based screening table and one ecological risk-based screening table for each medium. For the human health screening, to present all of the requested information requires a rather complex risk-based screening table for a single medium. Two example tables (conceptual) for the human health PRE are attached. It is proposed that the ecological screening table remain as presented at the meeting.

General issues

FDEP stated that they believe PREs are not necessary because comparison to FDEP Soils Cleanup Goals for Military Sites, Groundwater Guidance Concentrations and FDEP Surface Water and Sediment Criteria already encompass the cleanup requirements. David Clowes identified three types of sites: those which clearly present no problem (no exceedance of Florida standards and guidelines); clearly a problem (multiple exceedances with large concentrations); and sites requiring further investigation (few exceedances).

ABB-ES pointed out that making the comparisons to standards and guidelines actually constituted a PRE. The proposed PRE approach accomplishes the comparison which FDEP is seeking as well as being consistent with USEPA guidance.

FDEP makes it clear that Florida requires all risks greater than 10^{-6} to be remediated unless background is associated with higher risks or unless site concentrations are lower than corresponding ARARs. FDEP intended to include Soil Cleanup Goals for Military Sites as ARARs in this context. USEPA pointed out that FDEP's Soil Cleanup Goals for Military Sites are not promulgated and therefore are not ARARs. FDEP made it clear that regardless of the legal status of these goals relative to ARARs, FDEP guidelines and cleanup goals are what FDEP wants sites remediated to.

