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REGULATOR COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION/FEASIBILITY STUDY WORK PLAN FOR MCCOY ANNEX LANDFILL WITH ATTACHMENT NTC ORLANDO FL
9/5/1995
U S EPA REGION IV

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

September 5, 1995

4WD-FFB

Mr. Wayne J. Hansel
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
Charleston, SC 29419-9010

SUBJ: Comments on the Remedial Investigation and Feasibility Study Workplan for McCoy Annex Landfill, Naval Training Center, Orlando, Florida

Dear Mr. Hansel:

The United States Environmental Protection Agency (EPA) has completed review of the Remedial Investigation and Feasibility Study (RI/FS) Workplan for McCoy Annex Landfill prepared by ABB Environmental Services for the Naval Training Center (NTC), Orlando. This document, just like the RI/FS workplan for the North Grinder Landfill, uses the presumptive remedy of capping and containment for the landfill.

On January 5, 1995, EPA sent comments on the North Grinder Landfill RI/FS workplan. EPA's comments were later discussed in a conference call on February 27, 1995. EPA recommends that the changes agreed to be made in the North Grinder Landfill RI/FS workplan are also made in the McCoy Annex Landfill RI/FS workplan. I am also enclosing other comments on the McCoy Annex Landfill RI/FS document for your consideration.

Guidance documents on the applicability of the presumptive remedy to military landfills, and land use and risk characterization are also enclosed. These should be useful in preparing the RI and FS.

Printed on Recycled Paper

If you have any questions regarding these comments, please call me at (404) 347-3555 extension 2062.

Sincerely,

Nancy Rodriguez

Nancy Rodriguez
Remedial Project Manager

Enclosures (5)

cc: David Clowes, FDEP
Jim Manning, ABB-ES

RI/FS WORKPLAN FOR McCOY ANNEX LANDFILL
NTC ORLANDO

I. General Comments

The data generated should be presented graphically as contour maps, delineating the contaminants of interest and their critical concentrations as determined by PRGs or similar risk-based mechanism.

Use of Non-Parametric Statistics

How will these statistical methods be used? The methods for comparison to background for selection of COPCs was not discussed in detail. Please note that the Region IV Office of Health Assessment prefers the 2X background criterion to statistical methods of comparison.

II. Specific Comments

1. Page 2-22, first full paragraph.

It says:

> *The potential exposure of maintenance workers in direct contact with landfill wastes is avoidable, and risks to human health far outweigh the convenience of maintaining such utilities in the future.*

The exact meaning of this sentence is unclear. It should be rewritten.

2. Page 2-24, ordnance.

If ordnance was in fact disposed of in the landfill, how will it be detected?

3. Page 5-3, recreational users and inhalation of landfill gases.

As well as site maintenance workers, recreational users, presumably golfers, should also be evaluated for exposure to landfill gases.

JAN 05 1995

4WD-FFB

Mr. Wayne Hansel
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, SC 29419-9010

SUBJ: Draft RI/FS Work Plan for Operable Unit 1, North Grinder Landfill, Naval Training Center, Orlando

Dear Mr. Hansel:

The U.S. Environmental Protection Agency (EPA) has completed a review of the draft RI/FS Work Plan for the North Grinder Landfill. EPA requests that the Work Plan be revised to address the enclosed comments and resubmitted to EPA for review before the Work Plan is implemented. We also request a written response be provided for any comment the Navy believes does not warrant a Work Plan revision.

Please call me at 404/347-3555, extension 2052 if you have any questions regarding the enclosed comments.

Sincerely yours,

Craig S. Brown
Remedial Project Manager

Enclosure

cc: David Clowes, FDEP

bc: Fred Sloan
Ted Simon

C. Brown/cb:4wd-ffb:2052/1-3-95/ou1wpcom.ntc

EPA Comments on the Draft RI/FS Work Plan for Operable Unit 1, North Grinder Landfill, NTC, Orlando

1. Sect. 1.1, p. 1-1: The second sentence is repeated in the text of the first paragraph.

2. Sect. 2.2, p. 2-2: A minor discrepancy between Chapter 1 and this section concerning the timing of the Army Air Command's acquisition of the property has been noted. A statement in the first paragraph of this section indicates that landfilling operations started between 1939 and 1947, at a time when the property was under the control of the Army Air Command. According to Chapter 1, the Army Air Command acquired the property in August 1940. Is the earlier landfill start date, 1939, simply an observation based on review of aerial photos?

3. Sect. 2.3, p. 2-7: In discussing the potential for inter-aquifer migration of contaminants, the common occurrence of sinkholes in the area should be acknowledged.

4. Sect. 2.6, pp. 2-17 through 2-19: The entire description of the statistical sampling method is unclear, making it difficult to evaluate relative to EPA guidance on the subjects of sampling plan design and data quality objectives (DQOs). For example, on page 2-17 it says:

> *... two different sampling strategies will be applied to the different media within and surrounding the landfill.*
>
> - *Samples to evaluate gas generation and migration from the landfill will be taken. Hydrologic and groundwater data will be collected on a grid or biased basis due to the heterogeneity involved.*
>
> - *In areas where contamination is considered to be either unlikely or more homogeneously distributed (sediment, surface water, and surface soil), a statistically biased sampling methodology will be applied.*

This section was confusing because of the inaccurate use of the terminology.

There are two types of environmental sampling strategies. The first type seeks to sample areas in which contamination is known or suspected. It is called biased, purposive, judgmental or "hot-spot" sampling. This first type generally seeks information regarding the maximum level of contamination present.

The second type seeks to sample areas in which contamination is not known to be present. It is called random, systematic, statistical, grid-based or unbiased sampling. However, there are some differences between these. This second type generally seeks to 1) determine the areal extent of contamination; and 2)

determine if contamination is present in areas hitherto believed to be "clean."

Further on, the work plan indicates that non-parametric statistics will be used to determine levels of confidence and sample sizes. EPA guidance on the subjects of sampling design and DQOs generally stress the need to establish a decision rule and specify limits on decision errors. Using the surface soil sampling plan (Chapter 3) as an example, what does it mean to say that we are 95 percent confident that the maximum contaminant concentration encountered is greater than the 0.75 quantile, in terms of making a right or wrong decision about whether remedial action is required?

In determining the number of samples to collect, it is often necessary or desirable to know the identity of the principle contaminants in the medium being sampled, something about data distribution and variability, the screening or cleanup standard site data will be evaluated against, and the analytical detection limits for each contaminant. Again, using surface soil sampling as an example, we know little or nothing about surface soil contamination at the Grinder Landfill that could aid us in developing a statistically based sampling plan. However, there are two pieces of information that need to be obtained from the initial round of soil sampling: (1) standard surface soil samples to determine if landfill contents have impacted the surface; and (2) the depth to the landfill contents.

Also, in this discussion, there was no consideration of the receptors and the exposure units appropriate for these receptors. Briefly defined, an exposure unit (EU) is the area of an environmental medium a receptor will routinely contact during the course of a day. For example, a recreational user might be a youth baseball/softball player who will move over 1-2 acres (the size of a baseball field) whereas the site worker will probably range over the entire 15 acres of the landfill.

The sampling strategy should consider EU for the two scenarios - recreational user/site worker and off-site resident. How much of a given medium will they contact in a day? Sampling should be designed to estimate the RME concentration of a contaminant within that EU. If sampling within each EU is adequate and the maximum detected concentration of a contaminant is less than the risk-based level or regulatory standard, then a finding of No Further Action would be supported.

The choice specified in the document is to take fewer samples and use statistical means to support decisions. EPA suggests that statistics and consideration of the receptors should be used to develop a sampling plan, the results of which could support decisions without additional recourse to statistics.

5. Sect. 2.7.1, pp. 2-20 through 2-22: The conceptual site model presented in this section represents a significant compression of the generic conceptual site model presented in EPA's fact sheet on the Presumptive Remedy for CERCLA Municipal Landfill Sites. This can be accounted for in part by discounting contaminant release/transport mechanisms that are not active at the Grinder Landfill (e.g., surface expression of leachate). However, some release mechanisms and exposure routes have been omitted without explanation. Also, the probable release mechanisms and potential deviations are not consistent with application of the presumptive remedy. Examples of some of the inconsistencies and problems with the conceptual site model are as follows:

Direct contact/ingestion has been retained as a probable exposure pathway for terrestrial wildlife but identified as a potential deviation for humans. The presumptive remedy's cover component will eliminate this pathway for humans and should eliminate this pathway for most terrestrial wildlife. We would expect to see a substantial portion of the sampling effort devoted to assessing probable release mechanisms, but no biota or subsurface landfill sampling is planned to assess this potential ecological risk. Either the direct contact/ingestion pathway for terrestrial wildlife should be identified as a potential deviation or the lack of sampling for a probable exposure pathway should be explained.

Volatilization and inhalation of volatile organic compounds (VOCs) buried in the landfill should be presented as a distinct transport mechanism and pathway from landfill gas. Generally, we are referring to methane when we mention landfill gas. Methane poses a significant potential risk due to explosivity and to a lesser degree, poses a risk as an asphyxiant. VOCs, such as tetrachloroethylene and other chlorinated solvents that may have been landfilled, are carcinogens. Methane and VOCs pose different risks and require different sampling strategies. Therefore, they warrant distinction in the conceptual site model.

Potential deviations (1) and (2) need to be more clearly distinguished. As written, they appear to be identical. Surface water and sediments in nearby lakes and ponds may be impacted by discharge of groundwater contaminated by landfill leachate. Surface water and sediment in ponds and lakes could also be impacted by contaminants carried in surface water runoff from the landfill as the soil cover erodes. Another deviation which is not reflected in the conceptual model but is covered in the sampling plan is human receptor contact with or ingestion of contaminated surface soil. As a result of settlement, erosion, inadequate cover placement at landfill closure, or utilities excavation, waste and contaminated soil may be exposed at the landfill surface. Sampling directed at determining soil cover thickness and presence of contaminants is appropriate and is

included in the sampling plan. But, this potential deviation should be depicted in the conceptual site model.

6. Sect. 2.7.2.2, pp. 2-24 through 2-26: EPA risk assessment guidance requires development of current exposure estimates and potential future exposure estimates. To avoid confusion, land use options from the base reuse plan should be referred to as "future reuse scenarios" rather than "current reuse scenarios".

The list of potential receptors appears incomplete and requires some clarification. The site maintenance worker at the landfill may be exposed to landfill gas (methane), VOCs and contaminated soil or waste. Recruits housed in the barracks adjacent to the landfill and off-base residents just to the west of the landfill should be identified as potential receptors. Methane gas could potentially migrate laterally through the soil and accumulate at explosive levels in nearby buildings. An attempt should be made to better define the distinction between on-site and off-site receptors. For this purpose, on-site might be defined by the boundary of the landfill as determined by the geophysical survey and sampling.

Instead of assuming that no utilities pass through the former landfill, historical records of the local government, Navy and Air Force should be checked.

7. Sect. 2.7.3.2, p. 2-35: The listing of probable and potential contaminated media in the second paragraph should be revised as follows:

> *The probable contaminated media are subsurface soil (within and beneath the landfill) and groundwater; potential contaminated media include air, surface water, surface soil, and sediment.*

The first sentence in the third paragraph should be revised as follows:

> *The likely CPCs at the North Grinder Landfill include organics, inorganics, chemicals derived from biomedical waste, and possibly radionuclides.*

8. Sect. 2.8, p. 2-41: The value of surface geophysics to determine soil cover thickness is questionable given prevailing landfill operation and closure practices in the 1960s. We would not expect to see an abrupt change in soil density or soil type between the "final cover" and intermediate or daily soil cover as we would at a landfill closed in the 1990s. In the sixties, the same local soil would be used for daily, intermediate, and final cover. There may not have been any specifications for final cover regarding compaction and thickness. Over the years, the

soil cover may have settled or eroded such that it now contains entrained waste and is indistinguishable from soil mixed with the waste. This problem is acknowledged on page 3-3. To ensure that we do obtain sufficient data to assess cover adequacy, EPA recommends that soil cover thickness be determined at each soil gas sampler location and at each surface soil sampling station (after the soil sample is collected).

9. Table 2-5, p. 2-43: To make clear EPA's position, please note that in the description of probable condition and reasonable deviation for groundwater, we interpret "contaminated" to mean contains contaminant concentrations at levels that pose a risk to human health and "offsite" to mean beyond the "zone of discharge" as defined in FDEP regulations.

10. Sect. 2.9, pp. 2-45 and 2-46: This section should be deleted or substantially revised since it pays only lip service to CERCLA guidance on the data quality objectives (DQO) process. data collection objectives are specified, but not DQOs. EPA's *Data Quality Objectives Process for Superfund*, EPA/540/G-93/071 describes a seven step DQO process. Prior to and during the development of the RI Work Plan, ABB completed the first four steps but failed to complete the next three critical steps: develop a decision rule; specify limits on decision errors; and optimize the sampling design. At this late stage, it would not be a productive to do more than develop a decision rule for each medium. An example of a decision rule for soil cover might be: if the mean soil cover thickness is less than two feet, the cover will be considered inadequate and require remedial action.

11. Sect. 3.1, p. 3-1: Two objectives should be added to the geophysical survey program. One, determine the depth of waste fill relative to groundwater. It is important to determine if waste lies below the water table because this will impact selection of remedial technologies. Two, support and supplement intrusive methods to define subsurface lithology.

12. Sect. 3.2, pp. 3-3 and 3-4: Please specify the number of passive soil gas samplers that will be installed and method for selecting sample locations. Since the passive soil gas samplers do not produce air or soil gas concentration data, use of the results may be limited to identifying areas within the landfill where volatile liquids are buried. However, unless the samplers are closely spaced this effort may not produce meaningful results. Contrary to the first bullet item, the data produced by the passive samplers will not be of use in designing a soil gas collection system because the results cannot be used to evaluate risk due to inhalation of toxic VOCs. In order to determine if VOCs are being released through the cover at levels that may pose a risk to onsite receptors, it makes more sense to measure ambient air concentrations of target compounds at multiple locations on the landfill.

Is the methane sampler identified in this section a conventional explosive gas meter. Also, the critical values for methane are the lower explosive limit (LEL), about 4 - 5%, and 25 % of the LEL. Is the specified accuracy of the meter to be used (0.3 to 5.0 percent) a percent of total volume or percent of the methane concentration?

13. Sect. 3.3, pp. 3-5 through 3-7: The strategy for subsurface investigation using the Terraprobe and Cone Penetrometer Testing (CPT) requires major adjustments. ABB proposes to start with the Terraprobe and collect groundwater samples at water table and at refusal or thirty feet, which ever is shallower. Next, a cone penetrometer rig would be used to map subsurface lithology and collect shallow depth groundwater samples at 15 locations and at six locations, collect groundwater samples, every ten feet in the surficial aquifer. This approach, in EPA's opinion, is backwards, redundant, and results in sampling groundwater, blindly. A better approach would be to first map the subsurface lithology using the CPT, possibly preceded by a geophysical survey, identify the more transmissive zones within the surficial aquifer, then selectively target these zones for groundwater sampling.

What is the "desired sampling depth" for the Terraprobe installed perimeter gas samplers? Methane and VOCs could be expected to preferentially move laterally within the more transmissive zones above the water table. It may be best to do some exploratory soil borings or CPT probes before installing the gas samplers.

14. Sect. 3.4.1, p. 3-8: Regarding the first paragraph, please note the comments above on DQOs and statistically based sampling design.

PCBs should be included in the list of analytes for surface soil samples. However, some of the secondary parameters listed are appropriate only for aqueous samples.

15. Sect. 3.4.2, pp. 3-8 through 3-10: The closest body of surface water in the assumed groundwater flow direction, Lake Spier is about 1800 feet from the landfill. Given the likely problems that would arise in assessing data from a lake in an urban setting, additional contingencies should be applied to surface water sampling plans. Sample surface water if groundwater is contaminated and it is likely that contaminants have migrated to the surface water body.

What is the basis for the list of radionuclides that various media samples would be tested for? Attached is a listing of radionuclides and corresponding DOD installation sources prepared by Region IV's Office of Radiation Programs. Please review this list and make appropriate adjustments to the radionuclide list

for environmental media sample analysis in this work plan.

Leachability analysis of sediment samples would provide no useful data. Total constituent analysis (dry weight basis) is all that is needed. Also, PCBs should be run if sediment samples are collected.

16. Sect. 3.5, p.3-12: The well types "up-gradient", "lateral", "downgradient" and "characterization" should be defined in the text.

17. Sect. 5.1.3, pp. 5-3 and 5-4: The text indicates that cancer risks and hazard indices will be determined for CPCs. Risks and HIs should also be determined for each use scenario. Presumably, the recreational user/site worker will be exposed to landfill gas and surface soil. Presumably, the off-site resident will be exposed to surface soil and groundwater, the assumption being that the gas will become diluted in its passage off the landfill. It is important to determine the total risk for a receptor from all media.

Risks and hazards should be calculated for a receptor in each given use scenario. By restricting the risks to pathways or media, the actual cleanup levels may be too high. In this regard, the NCP (40 CFR 300) states:

> *For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual between 10^{-4} and 10^{-6} ...*

On page 8-16 of RAGS, it states:

> *...the risk assessor should clearly identify those exposure pathway combinations for which a total risk estimate or hazard index is being developed.*

Supplemental Region IV Guidance on PRGs and RGOs (attached) indicates that Chemicals of Concern (COCs) are determined in regard to each ***use scenario.***

18. Sect. 6.2, p. 6-4: Placing soil cuttings back in the borehole(s) is acceptable only for shallow borings (i.e., 10 feet or less) In addition, the borehole must not have encountered a major change in lithology or extend below the water table.

19. Sect. 6.6, p. 6-6: Please note that RCRA waste listings are retroactive. RCRA listed wastes or contaminated media containing listed waste, if actively managed after the effective date of the RCRA regulations must be managed in accordance with RCRA Subtitle

C regulations, regardless of when the listed wastes were originally disposed. Also, is there text missing between the bottom of page 6-6 and the top of the next page?

20. Sect. 6.8, pp. 6-7 and 6-8: EPA does not believe it is necessary or reasonable to leave the time limit on storage of IDW at the Field Staging Area open-ended. ABB and the Navy should commit to removing and/or disposing of all classes of IDW within a limited number of days (e.g., 30 days) after field work is completed or relevant analytical data is received, whichever is less. Also, you should note that EPA Region IV and State RCRA Compliance Program Offices have taken enforcement action against facilities that store RCRA hazardous IDW in unapproved (i.e., lacking a permit or interim status) storage units for greater than 90 days.

Except when exposure to radioactive materials occurs, the incidental contact with waste or contaminated media by personal protective equipment (PPE) typical of CERCLA site investigations does not warrant management of PPE as hazardous waste. Generally, PPE should be handled as non-hazardous, solid waste.

21. Sect. 7.0, p. 7-1: The RI Report should be made available to the NTC Restoration Advisory Board for review when it is submitted to the BRAC Cleanup Team.

22. Sect. 8.1, p. 8-1: Please note that the referenced presumptive remedy for CERCLA landfill sites is applicable to CERCLA municipal landfill sites. This presumptive remedy may be applicable to military base landfills on a case-by-case basis.

23. Table 8-1, pp. 8-2 through 8-6: Regarding the description of the composite barrier on page 8-3, please note that a 20 millimeter thick membrane is almost an inch thick. EPA recommends a minimum thickness of 30 mils for the synthetic membrane component of a composite cover system.

There does not appear to be any difference between trench vents and interceptor trenches in the process options listings for landfill gas. Consider eliminating one.

24. Appendix A, p. A-5: 40 CFR Part 270 should be deleted from the ARARs list. The permitting requirements of 40 CFR Part 270 are administrative, not substantive standards. Also, we recommend that 40 CFR Part 258 be cited in lieu of, or in addition to 40 CFR Part 257.

Attachments: *Potential Sources of G-RAM Contamination*, 12/94

Supplemental Guidance to RAGS: Region IV Bulletin. Development of Health-based Preliminary Remediation Goals, Remedial Goal Options and Remediation Levels, 10/12/94

POTENTIAL SOURCES OF G-RAM CONTAMINATION

WORK PRACTICE/MATERIAL SOURCE	ISOTOPE(S)
Maintenance/disassembly of ships, e.g., deck markers	Radium-226 strontium-89
Maintenance/disassembly of ships, planes, and land vehicles, e.g., luminous dials and gauges	Radium-226 strontium-89
Luminous dial/gauge painting	Radium-226
Paint	Radium-226, Strontium-90, Tritium, Promethium-247, Krypton-85
Gear boxes	Thorium-232
Aircraft counterweights	Depleted Uranium-238
Welding/welding rods	Thorium-232
Electron tubes	Cobalt-60, Cesium-137
Smoke detectors	Americum-241, Radium-226
Exit/runway lights	Tritium
Analytical devices	Cadmium-109
Gas chromatographs	Nickel-63, Tritium
Moisture density meters	Americium-241
Radiography	cobalt-60, cesium 137