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NAS PENSACOLA
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MEMORANDUM

DATE: August 26, 1994
TO: Tier 2 Team
FROM: Naval Air Station Pensacola Tier 1 Team
RE: Identification and Resolution of CERCLA, RCRA Regulatory Issues Relevant to BRAC Construction at Chevalier Field

Introduction

During the August 3 through 5, 1994 Tier 1 Partnering Team meeting, Tier 2 empowered the Tier 1 Team to address Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) issues relative to Base Realignment and Closure Act (BRAC) construction activities at Chevalier Field. Tier 2 requested that all these issues be resolved by September 7, 1994. Specific issues to be addressed by Tier 1 included:

- Abandonment Procedures for the Industrial Waste Collection and Transfer System
- Disposal of Chevalier Field concrete
- Disposal of Chevalier Field asphalt
- Disposal of Chevalier Field soil
- Disposal of IWTP soil along proposed domestic pipeline

To meet these objectives, Bill Kellenberger of the Florida Department of Environmental Protection (FDEP) has joined the team as an adjunct member with voting authority on issues and principal authority on RCRA issues excluding RCRA corrective actions.

Background Information

Previous field investigation and **analytical** results were reviewed by **all** Tier 1 Team members and **discussed** at an August 12, 1994 meeting in **Pensacola, Florida**. A figure showing the locations of the Installation Restoration sites, underground storage tank (UST) sites, and Industrial Wastewater Treatment Plant (**IWTP**) area is provided as Attachment A. Each report reviewed and discussed during the meeting is summarized below.

Pre-Construction Soil Investigation, Chevalier Field, Naval Air Station Pensacola, Pensacola, Florida. Ecology and Environment, Inc. (**E&E**) Pensacola, Florida. June 1994.

This document summarizes the soil investigation across the non-Installation Restoration Chevalier Field Area and the analytical results for **50 soil** samples collected. 1,1,1-trichloroethane ranging from 3.3 parts per billion (ppb) to **52 ppb** was present in approximately 20 of the **50** samples. The sampling locations were based on existing data and the proposed locations of the CNET facility buildings. **Soil** samples submitted for TCLP analysis exhibited no hazardous waste characteristics.

Pre-Demolition Investigation, NADEP/Chevalier Field, Naval Air Station Pensacola, Pensacola, Florida. Ecology and Environment, Inc. Pensacola, **Florida**. June 1994.

This document presents the finding of a pre-demolition investigation conducted at Naval Aviation Depot (**NADEP**) buildings on Chevalier Field. Locations of concrete samples were based on knowledge of past practices. Contamination was not detected outside of the buildings.

Preliminary Data *of Soil, Concrete, Asphalt, Building 3557 Sumps, Soil at IWTP, Results from Chevalier Field, NAS Pensacola.* Rust Environment & Infrastructure (Rust). Charleston, South Carolina. July 1994.

Soil: This report summarizes verification samples from eight areas identified by E&E as having the highest concentrations of 1,1,1-trichloroethane. 1,1,1-trichloroethane was not detected in the samples collected. However, methylene chloride was detected in seven of the eight areas at concentrations ranging from 23 ppb to 270 ppb. Although the detected concentrations of methylene chloride are above the leachability criteria, they are significantly below exposure levels. The soil is not considered a risk to groundwater at this time.

Asphalt: Samples collected from the Chevalier Field asphalt had concentrations of methylene chloride ranging from below detection limits to 110ppb. Tetrachloroethene and 2-hexanone were detected in one sample each. This asphalt is not considered to be a hazardous waste.

Concrete: Concrete samples were collected at seven locations outside Buildings 630, 606, 627 and 631 for laboratory analysis. No contaminants were detected.

Sumps: This report also summarizes samples collected from the cells in the sump in Building 3557. Contamination was not detected in any sample collected, except for methylene chloride, acetone, and methyl isobutyl ketone in samples from the upper 5 feet of Cell 5.

IWTP soil

Soil samples were collected along the proposed domestic pipeline. Detected concentrations of methylene chloride are above the leachability criteria, but are

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significantly below exposure levels. The **soil** is not considered a risk to groundwater at this time.

Sizes 9, 29, and 34 Phase I Technical Memorandum. EnSafe/Allen & Hoshall (**E/A&H**), Memphis, Tennessee. May 1994.

This memorandum summarizes the results of the **Phase I** field investigation and recommendations for additional work. Based on the **results** of the investigation, removal actions of discrete **areas** exceeding preliminary remediation goals (PRGs) were recommended.

Size 29 Technical Memorandum Addendum. EnSafe/Allen & Hoshall, Memphis, ~~Tennessee~~. July 1994.

This addendum summarizes verification **soil** sampling conducted by E/A&H at the four sampling locations identified by E&E as having the highest **1,1,1-trichloroethane** concentrations. 1,1,1-trichloroethane was not detected in **any** of the samples collected by E/A&H.

Decisions

So that BRAC construction activities can continue on schedule, the **NAS Pensacola Tier 1 Team** has made the following decisions regarding the issues **listed** above.

Abandonment Procedures of the Industrial Waste Collection and Transfer System: RCRA clean closure of **the** IWTP sewer line is preferable to RCRA/CERCLA risk-based closure. Closure activities must meet the applicable portions of **Hazardous Waste Generator Closure Guidance** (FDEP, November 19, 1993). A copy is included as Attachment B.

IWTP Sewer Line: To obtain clean closure and to prevent conflicts with construction activities, the Tier 1 Partnering Team decided that the IWTP sewer line should be cleaned and closed before construction dewatering. The closure plan generally follows the previously submitted closure plan completed by NADEP with the following modifications. The IWTP sewer line should be flushed with potable water for at least 24 hours at 2,300 gallons per minute. It is the understanding of the Tier 1 Team that the IWTP can accept this volume and that the Base utilities can provide this volume. E/A&H will sample the influent and effluent following the criteria outlined below. One sample of influent potable water will be collected at the 24th hour of flushing. Effluent samples from manholes A-5 and A-1 will be collected at 12, 22, 23, and 24 hours. Two discrete aliquots will be collected at the 24th hour. One of the aliquots at the 24th hour will be analyzed first for the Drinking Water Methods (500 series) using priority turnaround on all parameters with a Florida Primary Drinking Water Standard. The laboratory results of the effluent samples will then be compared to the Florida maximum contaminant levels (MCLs). If the concentrations are below the Florida MCLs for drinking water, the IWTP sewer line will be granted clean closure under RCRA. The second aliquot would then be submitted for analysis of full Target Analyte List/Target Compound List using Contract Laboratory Program protocol.

If the detected concentrations in the 24th hour sample (500 series method) are above Florida MCLs, the samples collected at 12, 22, and 23 hours will be analyzed to check for asymptotic conditions. If conditions are not asymptotic, the IWTP sewer line will be flushed for an additional 24 hours and the effluent rinse water will be sampled and analyzed following the previously listed procedures. If, after additional flushing, the detected concentrations in the effluent rinse water are above the MCLs and asymptotic conditions are achieved, the IWTP sewer line will not be granted clean closure. In this case, the IWTP sewer line will be risk-based closed under CERCLA and possibly grouted in place by the construction contractor. The IWTP sewer line can be used for construction dewatering after closure without additional sampling whether clean closure is obtained or not.

Sumps: All cells in the sump in Building 3557 below 5 feet beneath the ground surface are non-hazardous waste based on the existing data from E&E and Rust. The cells will be granted clean closure, except for the upper 5 feet of cell 5 which should be removed as hazardous waste for disposal at a permitted facility. The upper 5 feet of the other cells 1, 2, 3, 4, and 6 will also be removed, but can be placed into the sump to act as fill.

Building 3588 is an active aircraft painting hangar and the detected concentrations in the sump are from painting operations. The sump is non-hazardous and will be granted clean closure.

Disposal of Chevalier Field Concrete: Based on the data collected by E&E and Rust, the concrete on Chevalier Field is non-hazardous. The concrete can be disposed of as solid waste or recycled at the discretion of the construction contractor. Standard Navy procedures for health and safety and RCRA disposal will be followed by the construction contractor.

Disposal of Chevalier Field Asphalt: Based on data collected by Rust, the asphalt on Chevalier Field is not considered hazardous waste and can be recycled for use as sub-grade below paved surfaces. Any excess asphalt can be stored on any surface and will be sampled for laboratory analysis before disposal at a landfill. The type of analysis required will be determined by the landfill.

Health and Safety: The construction contractor is responsible for health and safety issues and should monitor conditions in accordance with OSHA.

Disposal of Chevalier Field Soil: The following decisions have been made regarding the Chevalier Field soils.

Soil at Installation Restoration Sites — **Areas** identified as exceeding PRGs at Sites 9, 29, 34 and 36 will be removed by the construction contractor. E/A&H will collect samples at the extent of the excavation to verify conditions remaining in the excavation. **Soil** concentrations at Site 30 are **below PRGs** and *can be returned* to the excavation.

Site 23 — Currently, there is no information available for **Site 23**. Inform construction contractor of possible petroleum contamination for health and *safety* issues. **Soil** removed during construction *can be returned* to the excavation if the site will be **assessed** or remediated after construction. The **soil** is not to be dispersed across the land surface outside the disturbed **area**.

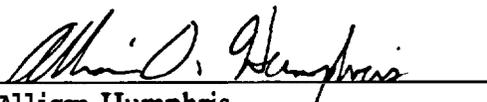
Non-Installation Restoration Chevalier Field Soil — **Based** on current analytical results **collected** by E&E and Rust, and **because** it is not possible to determine if a spill **occurred** before or after the RCRA regulations were promulgated in 1980, the Non-Installation Restoration Chevalier Field **soil** is not considered RCRA hazardous waste. The detected concentrations in **soil** did not exceed the PRGs. **Standard** Navy procedures for health and *safety* and RCRA disposal will be **followed** by the construction contractor.

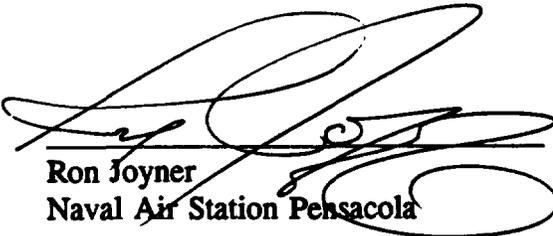
Soil at Petroleum Sites — The petroleum sites include **Site 23**, Building 607 **UST**, Building 3557S **UST**, and the aviation gas line. **ABB** has completed contamination assessments for Buildings 607 and 3557S USTs. **No** further action for the two sites has **been proposed** by **ABB** and is pending **FDEP** review. **ABB** will **begin** investigating **the** aviation gas line in the **fall** of **1994**. Site 23 will not be investigated until authorized by Luis Vasquez, Engineer-in-Charge. Inform construction contractor of petroleum contamination for **health** and *safety* issues.

Disposal of IWTP Soil: **soil** to be excavated at the IWTP during construction *can be used as* backfill for the trench. It is also acceptable **to backfill** the trench **to** above-grade conditions along the excavated area. The **soil** is not to be dispersed across the land surface outside of the disturbed area.

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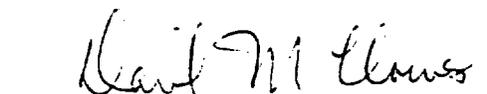
Groundwater Assessment: Groundwater monitoring, assessment, and remediation *can* be conducted before, during or after construction.

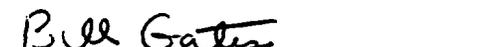

Allison Humphris
U.S. Environmental Protection Agency
Region IV

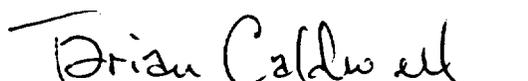

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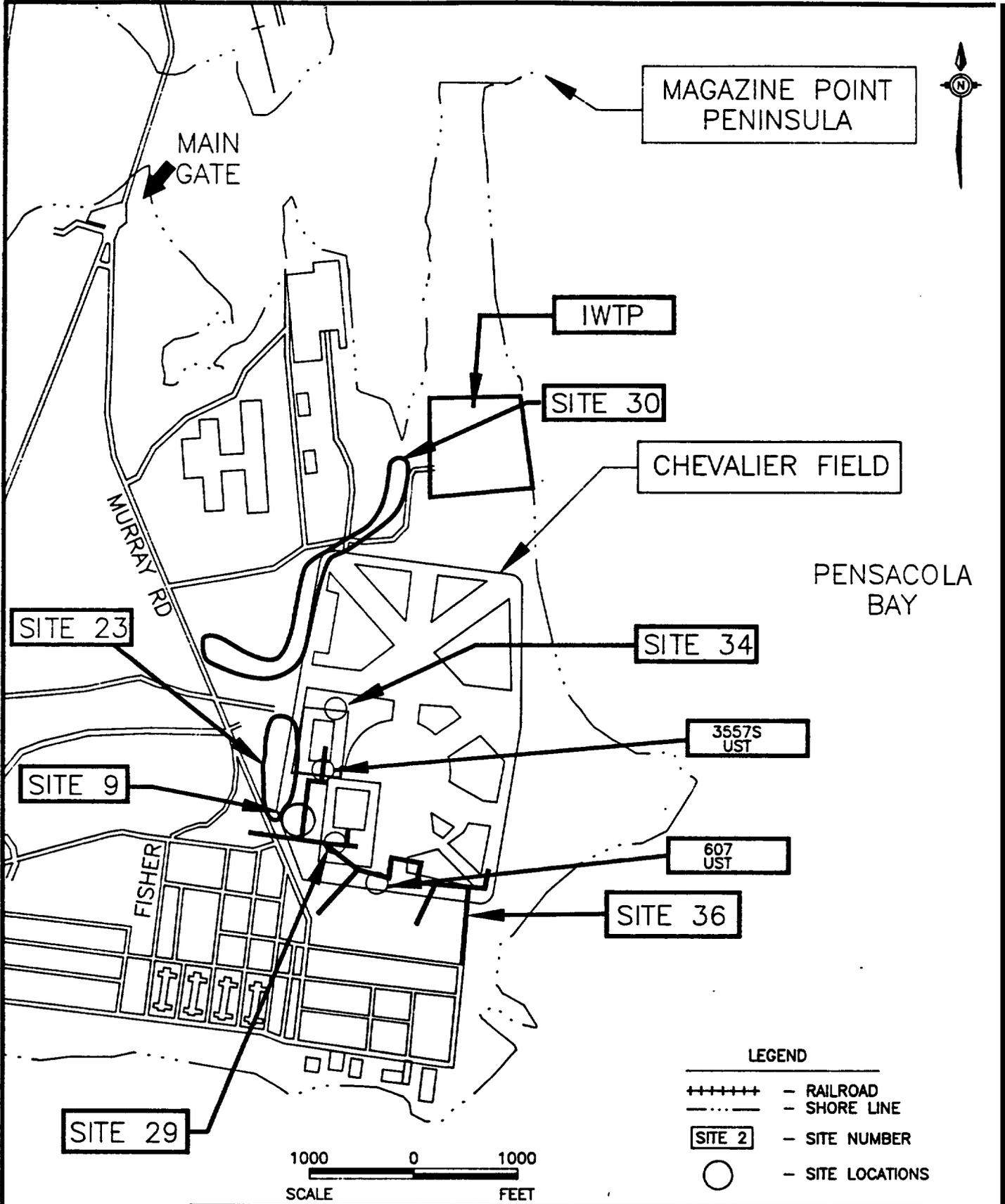

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Bill Kellenberger
Florida Department of Environmental
Protection, NW District

Attachment A
Site Locations on Chevalier Field



NAS PENSACOLA
PENSACOM, FLORIDA

FIGURE 1
SITE LOCATIONS ON
CHEVALIER FIELD

Attachment B
Hazardous Waste Generator Closure Guidance

Memorandum

Florida Department of
Environmental Protection

TO: District Directors
Waste Program Administrators
Hazardous Waste Engineering Staff
Hazardous Waste Compliance and Enforcement Staff

FROM: John M. Ruddell, Director *JMR*
Division of Waste Management

DATE: November 19, 1993

SUBJECT: Hazardous Waste Generator Closure Guidance

The guidance attached to this memo contains four elements. The first element is the consent order paragraphs referencing and incorporating the cleanup procedures into the order (Attachment 1). The second element is "Closure Guidance for Generators" document setting out procedures for clean closure of the site (Attachment 2). The third element is a series of scenarios explaining whether to apply CAP/RAP versus Generator Closure versus RCRA facility closure by permit (Attachment 3). The final element (Attachment 4) is a series of graphics depicting the key procedures and a timeline for Attachment 2.

This guidance is intended for cases in which a final departmental order can be used to facilitate the cleanup process. This occurs typically after the site inspection when a consent order is being developed to address the violations at the site that include a hazardous waste discharge.

For Generator Closure, when calculating penalties for 40 CFR 264 Subpart H, Financial, be sure to document why you were not able to calculate the economic benefit of not having a financial assurance mechanism in place that fully funds the closure plan. When there is no closure plan and the extent of contamination is unknown, use a straightforward answer of "Insufficient data available on which to calculate an economic benefit." When calculating penalties for 40 CFR 264 Subpart G, Closure Plan Requirements, be sure to include the economic benefit calculation for the cost of preparing a closure plan for the site. The RCRA Compliance section can provide you with the most recent cost data for these calculations and answer your questions about avoided costs versus delayed costs for economic benefits calculations.

JMR/mrh

Attachments (4)

cc: Alan Farmer, EPA Region IV
Jeff Pallas, EPA Region IV
Satish Kastury

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Northwest Florida

CONSENT ORDER PARAGRAPHS INCORPORATING
RCRA GENERATOR CLOSURE GUIDANCE

X. Respondent shall close the unpermitted 'hazardous waste management unit (described or identified in paragraph A. above) in accordance with the closure performance standard set forth in 40 C.F.R. 264.111, as adopted by reference in Rule 17-730.180(1), F.A.C. In order to accomplish closure, Respondent shall implement the tasks set forth in the document entitled "RCRA Generator Closure Guidance" (Closure Guidance), attached and incorporated as Exhibit (?X?), in the manner and within the time frames set forth therein.

X1. This Consent Order is the "Order incorporating this Closure Guidance (the Order)" referred to in the Closure Guidance.

X2. Failure to make submissions or complete tasks required by the Closure Guidance in a timely manner shall constitute a violation of this Consent Order, and shall subject Respondent to the stipulated penalties set forth in paragraph Y. In particular, and in addition to other possible types of violations under this provision, failure to submit a Source Removal Actions (SRA) plan which adequately addresses the tasks, objectives and information outlined in Paragraph 16 of the Closure Guidance after one request for information (RFI), and failure to submit a Site Assessment Report which adequately addresses the tasks, objectives and information outlined in Paragraphs 23 and 26 of the Closure Guidance after one RFI, and failure to submit a COMPLETE closure application if required by the terms of Paragraph 14, 28 or 29 of the Closure Guidance after one Notice of Deficiency (NOD), are each a violation of this Consent Order for which Respondent agrees to pay \$5,000.

RCRA GENERATOR CLOSURE GUIDANCE

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Part 1 Quality Assurance

1. Pursuant to Chapter 17-160, Florida Administrative Code (F.A.C.), the sampling and analysis activities conducted for Source Removal Actions and Contamination Assessment under this Closure Guidance are Category 4, that is, laboratory and field activities for the specified project shall be outlined in a DEPARTMENT APPROVED Quality Assurance Project Plan (QAPP). Furthermore, any laboratory data which is submitted in support of a "Certification of Clean Closure" (CCC) must be based on EPA Document SW-846 sampling and analysis methods.

2. Within 30 days of the effective date of the Order incorporating this Closure Guidance (the Order), Respondent shall submit to the Department documents certifying that the organization(s) and laboratory(s) performing the sampling and analysis have a DEPARTMENT APPROVED Comprehensive Quality Assurance Plan (Comp QAPP) in which they are approved for the sampling and analysis intended to be used for any assessment and corrective actions at the site. The documentation shall, at a minimum, contain the TITLE PAGE and TABLE OF CONTENTS of the approved Comp QAP meeting the requirements of Rule 17-160, F.A.C. If the organization(s) or laboratory(s) performing the sampling and analysis change at any time during the assessment and corrective actions, documentation of the DEPARTMENT APPROVED Comp QAP of the new organization or laboratory must be submitted at least 20 days prior any sampling or analysis. If at any time sampling and analysis are to be conducted which are not in the Approved Comp QAP, documentation of amendments and approvals pursuant to Rule 17-160.210, F.A.C., shall be required.

3. Within 60 days of the effective date of the Order, Respondent shall submit to the Department for review and approval a site-specific Quality Assurance Project Plan (QAPP) which complies with all applicable requirements of Chapter 17-160, F.A.C. A QAPP is required for all persons, including consultants and laboratories, collecting or analyzing samples.

4. In the event that Respondent wishes to amend or change an approved QAPP or the Department requires a new QAPP or modification of the previously approved QAPP, protocols specified in Rule 17-160.220(7), F.A.C., shall be followed. If QAPP modifications are required by the Department, such modifications shall be submitted to the Department within 30 days of receipt of a notice from the Department to do so. The Department, in its sole discretion, may grant an extension of time for submittal of the QAPP modifications.

5. The Department reserves the right to reject all results generated by Respondent prior to QAPP approval if there is reasonable doubt as to the quality of the data or methods used or which are not in accordance with the Department approved QAPP. THE FACT THAT THE DEPARTMENT HAS NOT APPROVED RESPONDENT'S PROPOSED QAPP SHALL NOT ACT TO EXTEND ANY DEADLINES SET FORTH IN THIS CLOSURE GUIDANCE.

Part 2 Warning Signs

6. Within 30 days of the effective date of the Order, Respondent shall post signs at the subject facility in accordance with the requirements of Rule 17-736.500(3), F.A.C. Warning signs shall be maintained throughout the period of time the tasks described herein are on-going.

Part 3 Progress Reporting and Notifications

7. On the first working day of each month after the effective date of the Order, Respondent shall submit written progress reports to the Department. These progress reports shall describe the status of each currently required or on-going closure task. The reports shall be submitted until final closure pursuant to a Department-approved Certification of Clean Closure or until a closure permit is issued.

a. Respondent shall provide written notification to the Department at least ten days prior to installing monitoring or recovery wells, and shall allow Department personnel the opportunity to observe the location and installation of the wells. All necessary approvals must be obtained from the water management district before Respondent installs the wells.

9. Respondent shall provide written notification to the Department at least 20 days prior to any sampling, and shall allow Department personnel the opportunity to observe sampling or to take split samples. Raw data shall be exchanged between the Respondent and the Department as soon as the data is available.

10. Respondent shall immediately notify the Department of any problems encountered by Respondent which require modification of

any task in this Closure Guidance document, and obtain Department approval prior to implementing any such modified tasks.

11. If any event occurs which causes delay or the reasonable likelihood of delay in the achievement of any of the requirements of this Closure Guidance, Respondent shall have the burden of proving that the delay was or will be caused by circumstances beyond the reasonable control of Respondent, and could not have been or can not be overcome by due diligence. Upon occurrence of the event Respondent shall promptly notify the Department orally and shall, within seven calendar days, notify the Department in writing of the anticipated length and cause of delay, the measures taken or to be taken to prevent or minimize the delay, and the time table by which Respondent intends to implement these measures. If the parties can agree that the delay or anticipated delay has been or will be caused by circumstances beyond the reasonable control of Respondent, the time for performance thereunder shall be extended for a period equal to the delay resulting from such circumstances. Such agreement shall be confirmed by letter from the Department accepting or if necessary modifying the extension request. Respondent shall adopt all reasonable measures necessary to avoid or minimize delay. Failure of Respondent to comply with the notice requirements of this paragraph shall constitute a waiver of Respondent's right to request an extension of time to complete the requirements of this Closure Guidance. Increased costs of performance of any of the activities set forth in this Closure Guidance or changed economic circumstances shall not be considered circumstances beyond the control of Respondent.

Part 4 Source Removal Actions

12. A. Within 30 days following the effective date of the Order, Respondent shall submit to the Department a detailed written closure plan for Source Removal Actions (SRA) and a preliminary schedule for site assessment that meets the objectives of 40 CFR 265.111.

12. B. The objectives of the SRA shall be to remove specific known contaminant source(s), and/or provide temporary controls to prevent or minimize contaminant migration. Applicable portions of the SRA plan shall be signed and sealed pursuant to Rule 17-103.110(4), F.A.C. The SRA plan will be evaluated with respect to the following criteria:

(1) Rationale for the SRA proposed, incorporating engineering and hydrogeological considerations including but not limited to technical feasibility; long-term and short-term environmental effects; implementability (including any permits or approvals from federal, state, and local agencies); reliability; and a thorough discussion of any alternative SRAs considered and not proposed;

(2) Design and construction details and specifications for the SRA;

(3) Operational details of the SRA including but not limited to the disposition of any effluent; expected contaminant concentrations in the effluent; an effluent sampling schedule if treated ground water is being discharged to ground water, surface water, or to the ground; and the expected concentrations and quantities of any contaminants discharged into the air as a result of remedial action;

(4) Operation and maintenance plan for the SRA including but not limited to daily, weekly, and monthly operations under routine conditions and a contingency plan for non-routine conditions;

(5) Details of the treatment and disposition of any contaminated soils or sediments. Any soils or non aqueous phase liquid removed during the SRA shall be completely analyzed for chemical constituents and TCLP characterization;

(6) The effectiveness of the SRA will be determined by the Contamination Assessment as implemented pursuant to Section 5 "Contamination Assessment."

(7) A detailed schedule for the completion of the SRA, which shall in no case exceed 90 days;

(8) A Department approved Comp QAP.

13. The Department shall review the proposed SRA plan and provide Respondent with a written response to the proposal. Respondent shall not implement the SRA plan until Respondent receives written notification from the Department that the SRA plan has been approved.

14. In the event that additional information is necessary for the Department to evaluate the SRA plan, or if the SRA plan does not adequately address the objectives and criteria set forth in Paragraph 12, the Department will make a written request to Respondent for the information (Request for Information, or RFI), and Respondent shall provide all requested revisions in writing to the Department within 30 days of receipt of the RFI. The Department, in its sole discretion, may grant an extension of time for submittal of the SRA modifications.

15. If the Department determines upon review of the resubmitted SRA plan that the SRA plan still does not adequately address the objectives and criteria set forth in Paragraph 12, the Department, at its option, may choose to do any or all of the following: draft specific modifications to the SRA plan which shall be in writing and which shall be incorporated in the SRA; take legal action to enforce compliance with the Order or

applicable law and to recover damages and civil penalties; or complete the corrective actions outlined herein and recover the costs of completion from Respondent.

16. Once a SRA plan has been approved by the Department, it shall become effective and made a part of this Closure Guidance and the Order. The SRA shall be STARTED within 30 days of receipt of the Department's notification to the Respondent that the SRA has been approved and shall be completed within the approved time schedule set forth in the SRA plan. The approved SRA plan shall incorporate all required modifications to the SRA identified by the Department.

17. Implementation of the SRA plan shall not spread contaminants into uncontaminated or less contaminated areas through untreated discharges or improper treatment.

Part 5 Contamination Assessment

18. Within 60 days of the effective date of the Order, Respondent shall submit to the Department a detailed written Contamination Assessment Plan (CAP). Applicable portions of the CAP shall be signed and sealed pursuant to Rule 17-103.110(4), F.A.C. If, prior to the effective date of the Order, the Respondent has completed a preliminary site or contamination assessment, Respondent shall submit to the Department a detailed written CAP within 60 days of receipt of notice from the Department that a CAP is required.

19. A. The purpose of the CAP shall be to propose methods for collection of information necessary to meet the following objectives to achieve closure plan performance requirements in accordance with 40 CFR 264.111:

(1) Provide a complete and accurate determination, both on site and off site, of the horizontal and vertical extent of soil, sediment, surface water and ground water contamination, and a complete and accurate characterization of any and all contaminated media;

(2) Determine or confirm the contaminant source(s); mechanisms of contaminant transport; rate and direction of contaminant movement in the air, soils, surface water and ground water; and rate and direction of ground water flow;

(3) Determine the amount of material discharged, and the time period over which it was discharged (if applicable);

(4) If leaking storage tanks may be the source of the contamination, determine the structural integrity of all aboveground and underground storage systems (including integral piping) which exist at the site;

(5) Establish the vertical and horizontal extent of material discharged (if applicable);

(6) Describe pertinent geologic and hydrogeologic characteristics of affected and potentially affected hydrogeologic zones;

(7) Describe geologic and hydrogeologic characteristics of the site which influence migration and transport of contaminants; and

(8) Provide a site history as specified in Paragraph 19C. (1).

19. B. The CAP shall specify tasks which are necessary to achieve the objectives described in Paragraph 19.A. above. The CAP shall include a reasonable and detailed time schedule for completing each task, which in no case shall a task exceed 120 days. The tasks may include, but are not limited to, the following:

(1) Use of piezometers or wells to determine the horizontal and vertical directions of the ground water flow;

(2) Use of Electromagnetic Conductivity (EM) and other geophysical methods or vapor analyzers to determine appropriate placement of soil borings or ground water monitoring wells;

(3) Use of fracture trace analysis to discover linear zones in which discrete flow could take place;

(4) Use of monitoring wells to sample ground water in affected areas and to determine the vertical and horizontal extent of the ground water plume;

(5) Sampling of public and private wells;

(6) Sampling of surface water and sediments;

(7) Sampling of air for airborne contaminants;

(8) Analysis of soils and drum and tank residues and review of material safety data sheets (MSDS), waste volumes, and waste management practices for hazardous waste determination and contaminant characterization;

(9) Use of geophysical equipment such as magnetometers, ground penetrating radar, or metal detectors to detect tanks, lines or pipes, etc.;

(10) Determination of the horizontal and vertical extent of soil and sediment contamination;

(11) Use of soil and well borings to determine pertinent site-specific geologic and hydrogeologic characteristics of affected and potentially affected hydrogeologic zones such as aquifers, confining beds, and unsaturated zones;

(12) Use of geophysical methods, pump tests and slug tests to determine geologic and hydrogeologic characteristics of affected and potentially affected hydrogeologic zones; and

(13) As a mandatory task, preparation and submittal of a written Contamination Assessment Report ("CAR") to the Department.

19. C. The CAP shall provide a detailed technical approach and description of proposed methodologies describing how proposed tasks are to be carried out. The CAP shall include, as applicable, the following information:

(1) A detailed site history including: a description of past and present property and/or facility owners; a description of past and present operations including those which involve the storage, use, processing or manufacture of materials which may be potential pollution sources; a description of all products used or manufactured and of all by-products and wastes (including waste constituents) generated during the life of the facility; a summary of current and past environmental permits and enforcement actions; a summary of known spills or releases of materials which may be potential pollution sources; and an inventory of potential pollution sources within 0.25 (one quarter) mile;

(2) Details of any previous site investigations including results of any preliminary ground water flow evaluations;

(3) Proposed sampling locations and rationale for their placement;

(4) A description of methods and equipment to be used to identify and quantify soil or sediment contamination;

(5) A description of water, soil and air sampling methods;

(6) Parameters to be analyzed, analytical methods to be used, detection limits of these methods and justification for their selection;

(7) Proposed piezometer and well construction details, including drilling methods and well development procedures;

(8) A description of methods proposed to determine aquifer properties (e.g., pump tests, slug tests, permeability tests, computer modeling);

(9) A description of geophysical methods proposed for the project;

(10) Details of any other assessment methodology proposed for the site;

(11) A description of any 'survey to identify and sample public or private wells which are or may be affected by the contaminant plume;

(12) A description of the regional geology and hydrogeology of the area surrounding the site;

(13) A description of site features (both natural and man-made) pertinent to the assessment;

(14) A description of methods and equipment to be used to determine the site specific geology and hydrogeology; and

(15) Details of how drill cuttings, development and purge water from installation of monitoring wells will be collected, characterized, managed and disposed of.

20. Department approval of the CAP is not required by the terms of this Closure Guidance. Once a CAP has been submitted to the Department, that CAP shall be made a part of this Closure Guidance and the Order. Respondent shall begin to implement the CAP within 30 days of submittal to the Department, that is, within 90 days of the effective date of the Order. As a courtesy to Respondent, the Department may, at its sole discretion, review the CAP and provide Respondent with an evaluation or recommendations which may be helpful to the Respondent in preparing the required Contamination Assessment Report, which is subject to Department approval pursuant to Paragraphs 23 through 25. NOTE: Any sampling or analysis conducted in the implementation of a CAP must be conducted pursuant to a Department-approved QAPP to which the provisions of Paragraphs 1, 3, 4, and 5, apply.

21. All reporting and notification requirements spelled out in Paragraphs 7 through 11 shall be complied with during the implementation of the CAP tasks. Within 10 working days of completion of the CAP tasks, Respondent shall provide written notice to the Department that the CAP tasks have been completed.

22. Within 300 days of the effective date of the Order, Respondent shall submit a written Contamination Assessment Report (CAR) to the Department. Applicable portions of the CAR shall be signed and sealed pursuant to Rule 17-103.110(4), F.A.C. The CAR shall:

22. A. Summarize all tasks which were implemented pursuant to the CAP;

22. B. Specify results and conclusions regarding the site assessment objectives outlined in Paragraph 19;

22. C. Include, but not be limited to, the following tables and figures:

(1) A table with well construction details, including depth to water measurements and water elevations; bit/auger diameter and drilling fluids; dates of installation; well driller's name and license number; surveyor's name and license number; casing materials, inside and outside diameters of casing; top of casing elevation, and depth of casing; screen material, inside and outside diameter of screen, depth of screened intervals and slot size of screen; annulus material, including additives for sealing, size of annulus material, depth of annulus, installation method of annulus;

(2) A site map showing water elevations, water table contours and the ground water flow direction for each aquifer monitored for each sampling period;

(3) A table with water quality information for all monitor wells;

(4) Site maps showing contaminant concentrations and contours of the contaminants;

(5) Cross sections depicting the site-specific geology at least to the top of the confining unit. In general there should be at least one north to south cross section and one east to west cross section; and

(6) Identification of the first confining unit.

22. D. Include copies of field notes pertaining to field procedures, particularly of data collection procedures; and

22. E. Make one of the following recommendations: (i) a Certification of Clean Closure (CCC) for the site is appropriate or (ii) the site must undergo further corrective action pursuant to HCRA post-closure requirements. The recommendation shall be based on site rehabilitation levels (SRLs) as set forth in Paragraph 22.F. below. If appropriate monitoring data reveals that the site meets SRLs, then a recommendation of CCC would be supported. If the site does not meet SRLs, a recommendation of RCRA closure permit must be made.

22. F. The SRLs for ground water shall be the Chapter 17-520, F.A.C. standards and the Department's numerical interpretation of the Chapter 17-520, F.A.C. minimum criteria, or background levels, as determined by the Department, whichever is higher. The SRLs for surface waters shall be those specified in Rule 17-302, F.A.C.

or background levels, as determined by the Department, whichever is higher. SRLs for soil shall be background levels, as determined by the Department.

23. The Department shall review the CAR and determine whether it has adequately met the tasks, objectives and information specified in Paragraphs 19 and 22, and whether appropriate data supports the recommendation required by and made pursuant to Paragraph 22.E. above. In the event that additional information is necessary for the Department to evaluate the CAR or if the CAR does not adequately address the CAP tasks, objectives and information set forth in Paragraphs 19 and 22, the Department will make a written request to the Respondent for the information (RFI), and the Respondent shall provide all requested revisions in writing to the Department within 30 days from receipt of the RFI. The Department, in its sole discretion, may grant an extension of time for submittal of the CAR revisions.

24. If the Department determines upon review of the CAR or the CAR revisions that all of the CAP tasks, objectives and information have been satisfactorily addressed and that the appropriate recommendation has been made, the Department will provide written notification to the Respondent.

24. A. If the approved recommendation is a Certification of Clean Closure (CCC), Respondent must submit a CCC within 10 days of receipt of the Department's notification.

24. B. If the approved recommendation is RCRA closure permit, Respondent shall submit a completed application which meets the requirements of Rule 17-730, F.A.C., along with the appropriate application fee, within 60 days of receipt of the Department's notification.

25. If the Department determines upon review of the CAR or the CAR revisions that the CAR still does not adequately address the CAP tasks, objectives and information, or that appropriate monitoring data does not support a recommendation that CCC is appropriate, then Respondent shall submit a completed application which meets the requirements of Rule 17-730, F.A.C., along with the appropriate application fee, within 60 days of receipt of notice of the Department's determination.

26. The Department shall review the application, if any, submitted pursuant to Paragraph 24 or 25 and determine whether it is complete and technically sufficient. In the event that additional information is necessary for the Department to evaluate the application, the Department will issue to Respondent a written Notice of Deficiency (NOD). Respondent shall provide all requested revisions in writing to the Department within the time period set forth in the NOD, or, if no time period is set forth in

the NOD, within 30 days from receipt of the NOD. The Department, in its sole discretion, may grant an extension of time for submittal of the revised application.

27. If the Department determines upon review of the revised application submitted in response to one NOD that the application is still incomplete or technically deficient, the Department, at its option, may choose to do any or all of the following: draft specific modifications to the permit application and issue the permit as modified; notify Respondent of failure to comply with the requirements of Paragraph 24, 25 or 26; take legal action to enforce compliance with the Order or applicable law and to recover damages and civil penalties; issue to Respondent another NOD, with time limits for submittal of revisions. The provisions of paragraphs 26 and 27 apply to responses to a second and any subsequent NODs.

28. Generator closure activities shall not be deemed completed until such time as the Department provides the Respondent with written notice that the CCC is approved, or until a closure permit is issued and complied with.

Scenarios in which to utilize CAP/RAP, Generator Closure, and RCRA Closure.

CAP/RAP

1. A recent, singular spill, accidental release, or when we cannot prove that disposal took place after the effective date of the relevant RCRA regulations, that has resulted in soil or ground water contamination.
2. Respondents have conducted an environmental audit of their property or properties which they wish to purchase that has revealed soil or ground water contamination of indeterminate origin, or where the source of contamination is determined to be not a result of negligent waste management activities.

GENERATOR CLOSURE

1. Facilities where the Department has discovered a discharge of hazardous waste to soils and/or groundwater at a particular site, usually of a single contaminant which may be readily remedied.

RCRA CLOSURE

1. Facilities where multiple hazardous constituents have been discovered, within singular or multiple solid waste management units, in soils or ground water or both.
2. Similar to the above but may consist of some off-site contaminated properties.