EFAB DRAFT

The Use of the Financial Test and Corporate Guarantees in RCRA Programs

August 15-16, 2005

A ratio of current assets to current liabilities of greater than 1.5; and
(B) Net working capital and tangible net worth each at least six times the sum of current closure and post-closure care costs estimates being covered by the test; and
(C) Tangible net worth of at least $10 million; and
(D) Assets in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current closure care cost estimates being covered by the test.

Alternative II:
(A) A current rating for the owner or operator's most recent bond issuance of AA, AA, A or BBB as issued by Standard and Poor's or Aaa, Aa, A or Baa as issued by Moody's;
(B) Tangible net worth at least six times the sum of current closure and post-closure care cost estimates being covered by the test; and
(C) Tangible net worth of at least $10 million; and
(D) Assets in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current closure and post-closure care cost estimates being covered by the test.

In 1991, EPA proposed revisions to the financial test for hazardous waste facilities (50 FR 30201, July 1, 1991). The proposed revisions, which to date have not been the subject of final action by the agency, would change the financial test requirements by requiring compliance with one of two ratios under Alternative I, and modifying the remaining ratio requirements to specifically ensure coverage of the closure and post-closure costs and have minimum net worth/working capital remaining. The goal of the proposed 1991 revisions was to address concerns that the test was less predictive of potential bankruptcies, and did not allow some large financially sound companies to use the financial test.

Agency Questions

In its charge to the Board, the agency posed the following concerning the financial test and corporate guarantee:

> EPA and its state government partners seek general advice on how to improve the financial test and corporate guarantee. Specific questions that have arisen include:
>
> - What are the strengths and pitfalls of the financial test and corporate guarantee?
> - Should EPA adopt the financial test proposed in 1991 for hazardous waste, or have advancements in financial analysis provided better potential tests in the meantime?
> - What, if any, new or different financial tests or protections might be appropriate?
> - Should EPA continue to allow corporate siblings to guarantee the obligations

of another subsidiary or should guarantees only be allowed for parents and higher level companies?

- Does the current level of disclosure of cleanup obligations in financial statements provide sufficiently reliable information for use of a financial test?
- Some states do not allow the corporate financial test. Would applying this approach more broadly be advisable?

Observations

Before responding to the specific questions posed by the agency, the Board would offer the following general observations from its review to date of the financial test and corporate guarantee that provide some context for our responses and recommendations:

- While we have seen statements questioning how well the current financial test has worked to provide financial assurance, the Board has not had brought to its attention any sites requiring remediation that have been abandoned by a party that met the financial test and used it to comply with the financial assurance requirements. At the same time, we have been advised that there have been instances where a party reported that it met the test, but did not, and subsequently was unable to meet the costs of remediation. We also have heard that some situations have been "worked out" short of abandonment by the regulated party. Thus, to date, we have not seen any evidence indicating where the current test failed to provide the required assurance—and in turn been able to make a forensic assessment of why the financial test apparently failed.

- Some unknown number of states have declined to allow the financial test as a means of complying with the financial assurance requirements. To some extent this appears to reflect a lack of confidence in the financial test; in other cases, it appears to result from a concern that the state does not have expertise on its staff to review the financial documentation and assess compliance with the requirements. It would be helpful to have more specific information as to how many states are in this category, what the perceived basis for the position of each state is, and whether there are a significant number of regulated entities requiring financial assurance doing business in those states.

- The state concerns highlight the fact that oversight of the financial assurance requirements rests with federal and state officials whose responsibilities involve the protection of public health and the environment—and normally do not involve financial regulation or oversight. In some instances they have limited staff capacity to undertake reviews of complex financial documents and to reach highly-sophisticated judgments concerning them.

- Regulated entities—primarily large public companies--that utilize the test feel passionately that it should not be changed without sound evidence showing that the test has not achieved its intended purpose and that changes are

necessary to assure that the risks presented by its use are not appreciably larger—or less acceptable– than when the test was adopted. These parties warn that any proposal to modify the test would cause disruption among the regulatory community in meeting their requirements under the test.

- We believe that the use of independent credit analysis, i.e., credit ratings, is a cost-effective mechanism for demonstrating financial assurance and should continue to be an alternative for those companies that have investment-grade ratings on their debt. Many of the large public companies that are obligated to provide financial assurance are participants in the debt markets and carry ratings on their bonds. Also, they help address the limited capacity for undertaking extensive credit analysis by state regulatory bodies. We do caution, however, on the definition of the ratings that may be used to demonstrate financial assurance: the requirement is the "most recent rating". Many companies issued secured debt (with collateral or mortgage pledge) that would carry a higher rating as a result of that securitization. The rating requirement should be the "senior unsecured" or "senior implied" rating which is a statement of fundamental credit quality without regard to specific pledge of assets.

- We note that we have seen very little information concerning the utilization—or non-utilization—of the financial test by small publicly-owned entities and by privately-owned entities. Because such entities are not subject to the same financial requirements imposed on large public companies and/or do not face the same scrutiny from government financial regulators, and because their financial situation may not be as transparent or confirmed by reliable third-parties, their potential use of the financial test as a means of providing financial assurance raises concerns beyond those one might have when large publicly owned companies use the financial test. [This suggests that it might be desirable to distinguish between the large publicly owned companies and smaller or privately owned entities in constructing and applying the financial test requirements.]

- Another potential distinction that can be made between entities that might use the financial test is whether the entity essentially is only in the waste business—or alternatively whether it has one or more captive TSDFs that are only a relatively small part of its overall business operations.

- Finally, because the financial tests are expressed as multiples of the estimated closure and post-closure costs, confidence in the integrity and relative accuracy of those estimates is integral to whether the financial test provides adequate assurance. To the extent the financial test is being used with reference to projected corrective action costs, the timing of the imposition of the financial assurance requirement as well as the determination of the amount to be secured have to be carefully considered in tandem with the structure of the financial test itself.

We believe that it is premature at this time to respond specifically to the first three questions posed:

- What are the strengths and pitfalls of the financial test and corporate guarantee?
- Should EPA adopt the financial test proposed in 1991 for hazardous waste, or have advancements in financial analysis provided better potential tests in the meantime?
- What, if any, new or different financial tests or protections might be appropriate?

However, we believe that there are some modifications that could enhance the strength of the current financial test, particularly for those entities that do not use bond ratings, as a mechanism for determining financial capacity. As a starting point, we believe that a well-grounded test has the following characteristics:

1. Transparent and objective: Enables the regulated community to assess its ability to meet the standards and allows the regulatory community, and the public at large, to determine compliance

2. Comprehensive: Addresses both financial performance and financial position to assess market dynamics; incorporates a liquidity test; addresses reinvestment; and considers the overall performance of the industry in which the regulated party operates

3. Rigorous: Not susceptible to manipulation

4. Historical and dynamic: Examines and incorporates trends. The current test requires the regulated party to meet the test on an annual basis. However, credit quality is not measured through static data, but is observed in changes in an individual firm's circumstances as well as the industry in which it operates. A firm that is today financially sound but economically uncompetitive may see rapid deterioration in its financial position.

The current test is transparent and objective, but falls short on some of the other criteria. The board recognizes that the Agency seeks to have the test fulfill a least-cost criterion. Inevitably, there will be a tension between this goal and the goal of transparency, with a "comprehensive" test. There is a real risk that additional comprehensiveness of a test will come at the expense of a test that is much more complex, difficult to understand and administer—and that marginal gains in reduction of risk have to be weighed against those potential costs.

Some elements of current financial analysis practice that are not reflected in the current test –and how the financial test might be modified to incorporate them so as to provide a

better reflection of fundamental credit quality-- include:

1. An examination of trends in operating revenue and operating income. The agency might consider a benchmark decline, with adjustments made for changes in business scope that would result in a failure of the test. Such a test would provide some assessment of general business direction and dynamics.

2. Earnings before interest, taxes, depreciation and amortization (EBITDA) is a common calculation used in corporate financial analysis. A test that establishes a threshold EBITDA for each of a period of three years against an owner/operator's current closure, post-closure care, corrective action cost estimates and any other environmental obligations would gauge the business's ability to generate annual operating income to cover ongoing obligations.

3. A thriving business continues to invest in its physical plant. An improved test might require a minimum ratio of capital expenditure to depreciation.

4. The net assets test should be modified to require a minimum level of liquidity (i.e., cash or marketable securities).

5. A high degree of leverage has proven to be a key determinant in corporate insolvencies. An improved test would establish maximum thresholds for indebtedness related both to cash flow and financial position.

[*Is it possible for us to formulate what an additional regulatory requirement based on each of these elements would look like—they wouldn't need to be polished but it might increase some members comfort level with the recommendations if we could scope out what the regulatory language might look like—i.e. how would the test look after it was reformulated to include them.*]

We would also note that:

1. A number of terms used in the regulations establishing the financial test may need to be redefined to make them consistent with current financial industry practices and accounting board pronouncements. For example, the concept of "net worth" needs to be defined to incorporate those terms, such as "net assets" shown in financial reports of publicly held companies.

2. The current financial test includes a requirement of $10M minimum tangible net worth. This requirement would appear designed to preclude small and marginal firms from utilizing this financial assurance alternative. The passage of several decades since the requirement was adopted would suggest that it be increased to account for inflation and perhaps even revisited to see if it continues to represent a logical cut-off point for qualifying for the financial test.

In addition, we also acknowledge that there are some other factors the agency may

need to consider in deciding whether or not to change the current financial test and increase the complexity of the test. First, the agency might need to consider whether such changes—either individually or in total-- would bring reductions in financial risk commensurate with any lost opportunity costs on the part of the agency and regulated community in putting such changes in place and complying with them.

Second, the agency might wish to consider the extent to which any proposed changes would make it significantly more difficult for federal and state regulators to review financial information provided by firms and to assess its compliance with the regulatory requirements. It may not be realistic to expect that agencies will have or be in a position to acquire internal resources to provide the level and quality of detailed analysis that financial institutions and credit reporting agencies have access to. Options for addressing these concerns might include modifying the regulations to rely more heavily on third party certifications—or having agencies outsource the analysis—both of which raise additional issues.

[*Tentative conclusions/recommendations—once we have completed the analysis of the 1991 proposed changes, we need to formulate responses to the queries put to the Board in this and the preceding question.*

A second possible conclusion would be along the lines of-- Current financial analysis/assessment of creditworthiness practice utilizes a number of measures that are not included in the current financial test used by EPA. Those measures include not only dynamic elements that consider changes in the firm and its industry over time but also measures of liquidity and firm vitality and viability. If adopted by EPA, they would provide the regulators with a broader-based assessment of the fundamental credit quality more akin to that used by the private sector. At the same time, such changes could increase the complexity of the judgments the regulators would need to make.]

- Should EPA continue to allow corporate siblings to guarantee the obligations of another subsidiary or should guarantees only be allowed for parents and higher level companies?

I don't know that we have fully vetted this issue. I am uncomfortable responding here.

- Does the current level of disclosure of cleanup obligations in financial statements provide sufficiently reliable information for use of a financial test?

The level of disclosure will vary among obligated parties, particularly as a function of the potential obligation relative to its overall scope of business operations. Generally, the independent auditor will render a judgment on materiality. Thus, for some regulated parties, the cost of clean-up obligations may not be sufficiently material to require disclosure in their financial statements.

- Some states do not allow the corporate financial test. Would applying this approach more broadly be advisable?

To the extent the test has worked reasonably well (which is what the absence of documented problems seems to suggest), then its broader use in states which do not allow it now could have some advantages: (1) large public companies appear to prefer meeting the financial test, particularly where it is demonstrated through the bond rating as it is cheaper and more straightforward than having to pay a third-party for insurance or qualifying a captive to provide insurance; (2) our workshop in New York in June 2004 suggested that changes in third party mechanisms, particularly insurance, may make these more expensive and less available.

If the agency decides at some point to go forward with changes to the financial test—either to address past problems and/or to increase its comfort level that an improved test would be better position it to avoid unfunded site problems in the future—or to be utilized for other categories of facilities to which it might be extended—the Board would be pleased to work with the agency to develop specific proposed changes. We would also note that the Board has identified looking at the financial assurance requirements of other federal agencies as a potential source of ideas for an enhanced financial test. If the agency believes it would be desirable for the Board to do so, it will add this to its work schedule.

We will, of course, be pleased to respond to any questions you or the agency may have concerning this initial report and we look forward to continuing to work with the agency as this project continues into its next stage.

Sincerely,

Lyons Gray
Chair

A. Stanley Meiburg
Executive Director

Remaining issues:

Mining cases
Adequacy of test v. fraudulent behavior
If you choose to revise the test, do this.
Context overview;

EMERGENCY RESPONSE
QUALITY ASSURANCE SAMPLING PLAN

FOR

HURRICANE KATRINA RESPONSE
Screening Level Sampling for Sediment in Areas Where Flood Water Receded
SOUTHEAST, LOUISIANA

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EMERGENCY RESPONSE
QUALITY ASSURANCE SAMPLING PLAN

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Screening Level Sampling for Sediment
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1. INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, and tasking by FEMA under ESF #10 of the National Response Plan, EPA Region 6 has prepared this Quality Assurance Sampling Plan for EPA Region 6 Response and Prevention Branch to conduct initial assessment activities of residential areas where floodwaters from Hurricane Katrina have receded. This Quality Assurance Sampling Plan (QASP) describes the technical scope of work to be completed as part of this Emergency Response. The objective of this initial sampling is to determine the nature and type of contaminants that may have impacted residential areas due to migration of hazardous materials by flood. Further assessment may be warranted based on the results of this initial sampling, and/or if the particular residential area is located near an area of potential concern (such as an area of known chemical storage), and will be addressed in a subsequent QASP. In addition, the information collected during this phase may be used to develop a plan for further detailed sampling of residential areas in the affected parishes. Initial sampling will be performed at 24 sediment (residue) locations within an area no larger than one-square mile area to be determined by EPA. These locations will be residential areas in southern Louisiana parishes where flood waters have receded to such an extent that the public can be allowed to return. Exact sample locations will be determined in the field by sampling personnel.

1.1 PROJECT OBJECTIVES

The objective is to determine the nature and type of contaminants in sediments in residential areas where flood waters have receded. Sediments samples will be analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, PCBs and metals, fecal coliform, total petroleum hydrocarbons and percent moisture. This information will be used to help assess the presence of hazardous substancs in residential sediments and the potential for exposure of residents to contaminants in sediments.

The objective will be achieved by collecting 24 grab samples with duplicates from surface sediments sample locations in residential areas of southeast Louisiana where flood waters from Hurricane Katrina have receded.

1.2 PROJECT TEAM

The OSC for this assessment is Gary Moore. Gary Moore will direct all field activities. The sampling may be conducted by several field teams. Each field team will coordinate with Gary Moore in determining the location for sample collection in the field, collecting samples as necessary, logging the activities at each sample location in the field logbook, verifying the sample documentation, and utilizing SCRIBE software.

1.3 QASP FORMAT

This QASP has been organized in a format that is intended to facilitate and effectively meet the project objectives. The QASP is organized in the following sections:

- Section 1 - Introduction
- Section 2 - Site Background
- Section 3 - Sampling Approach and Procedures
- Section 4 - Analytical Approach
- Section 5 - Quality Assurance

Appendices are attached with the following information:

- A Data Quality Objective
- B Standard Operating Procedures
- C EPA Region 6 Human Health Medium-Specific Screening Levels

2. SITE BACKGROUND

On 25 August 2005, Hurricane Katrina made first landfall on the south Florida coast, then crossed the state and greatly increased in intensity as it moved over the Gulf of Mexico. On 28 August 2005, Hurricane Katrina turned north and made second landfall on the south U.S. coast, causing massive damage and flooding to broad areas of Alabama, Louisiana, and Mississippi. EPA Region 6, which has responsibility for the State of Louisiana, has sent and is continuing to

send personnel and resources to Louisiana to address hurricane damage. EPA Region IV is providing assistance to the States of Mississippi and Alabama.

2.1 SITE LOCATION AND DESCRIPTION

Areas of southeast Louisiana where Hurricane Katrina flood waters have receded.

2.2 SITE CONCERNS

The primary concern being addressed by this QASP is to screen for hazardous substances, which are hazardous to human health and the environment, in areas where flood waters have receded.

3. SAMPLING APPROACH AND PROCEDURES

Samples collected by EPA Region 6 will be used to evaluate the types of contaminants present.

3.1 OVERVIEW OF SAMPLING ACTIVITIES

The EPA OSC and designated sampling personnel will determine appropriate sample locations. EPA will use SCRIBE software to manage sample data in an electronic format.

3.1.1 Health and Safety Plan Implementation

Health and Safety operations will be conducted consistent with activities and responsibilities of the Incident Command System (ICS). All field activities will be conducted in accordance with a site-specific health and safety plan (HASP). The Field Safety Officer (FSO) will be responsible for implementation of the HASP during all field investigation activities. All EPA contractors and subcontractors will be required to conduct their activities according to the guidelines and requirements of the HASP.

3.1.2 Community Relations

Community relations may require additional EPA involvement due to the general nature of the site. It is anticipated that the EPA OSC will be available at all times, and community relations issues will be directed to the EPA OSC. If the EPA OSC is not present, the sampling personnel will manage community relations in the field as directed by the EPA OSC.

3.1.3 Coordination of Pesticide Sampling with the State

The Louisiana Department of Agriculture and Forestry (LDAF) has sole state authority over pesticides, including use, sale, commercial/industrial container disposal, spills, contamination, and site remediation of pesticide producing or pest control operating facilities within the state of Louisiana. EPA will consult with LDAF on pesticide issues in Louisiana if pesticides are found in this screening level analysis. Dick Watkins is Region 6's point of contact on pesticides issues in Louisiana.

3.2 SAMPLING/MONITORING APPROACH

All samples will be collected in accordance with the US EPA Environmental Response Team standard operating procedure 2012 (Appendix B). The specific sampling procedures are described below.

3.2.1 Sampling

The area to be sampled will be a residential area where the public is or could return at this time. Twenty-four samples will be collected over an area not exceed one-square mile. The EPA OSC will determine this area. The number of samples (24) was selected based on time constraints (i.e., in order to collect all the samples in one day). The area of one-square mile was selected based on the team's judgment that this number of samples would not provide meaningful screening level information if collected over a larger area, and based on logistical concerns in trying to cover a larger area.

For this screening level analysis, biased sampling was selected as the most appropriate method in order to give the highest probability of finding contamination. Therefore, efforts should be made

to bias the samples toward areas that are more likely to contain elevated levels of contamination, such as areas that contain oily sediments or large stains. The 24 samples will be spread throughout the sampling area at locations determined by field personnel (GPS coordinates of samples will be documented). The field personnel may decide not to sample certain areas based on safety and logistical concerns.

All samples will be grab samples collected from the surface by scraping the surface with the appropriate sampling device. Efforts should be made to collect samples that contain finer grained sediments and limit collection of coarse or debris laden sediments. Also, the sample must be of the deposited material and not contain the previously existing soil. The sample will be placed immediately into appropriate sample containers.

Samples will be collected from residential yards or, if access is an issue, from such areas as parks or streets to be determined by the field personnel. This plan assumes that level of contamination in sediment samples collected outside the homes will be approximately the same as the level of contamination found in samples collected inside the home. Therefore, to avoid access and safety issues, sediment samples will only be taken from outside the homes.

The EPA OSC will be notified, and concurrence will be obtained, should significant deviations from the planned sampling scheme be necessary (e.g., due to security concerns). Details regarding deviations of the QASP will be documented in the site logbook.

The samples will be delivered to a laboratory to be specified prior to sample collection. Volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, pesticides, herbicides, polychlorinated biphenyls (pcbs), total coliform analyses, and total petroleum hydrocarbons (TPHs) analyses will be conducted, utilizing 1) EPA Publication SW-846, test methods for evaluating solid waste, physical/chemical methods, and 2) the environmental microbiology proficiency analytical testing (EMPAT) program testing (the holding time is 24 hours).

3.2.2 Sampling and Sample Handling Procedures

Samples will be collected using equipment and procedures appropriate to the matrix, parameters, and sampling objective. The volume of the sample collected must be sufficient to perform the laboratory analysis requested. Samples must be stored in the proper types of containers and preserved in a manner appropriate to the analysis to be performed.

All clean, decontaminated sampling equipment and sample containers will be maintained in a clean, segregated area. All samples will be collected with clean decontaminated equipment. All samples collected for laboratory analysis will be placed directly into pre-cleaned, unused glass or plastic containers as appropriate based on the particular analytical method. Sampling personnel will change gloves between each sample collection/handling. All samples will be assembled and catalogued prior to shipping to the designated laboratory.

3.3 SEDIMENT SAMPLING

EPA Region 6 will collect 24 sediment samples (plus all appropriate quality assurance samples) as part of the emergency response task to document the type of contaminants in residential areas where flood waters have receded. Quality assurance samples will be collected at the frequency of one duplicate sample for every ten field samples (total of three). Duplicates will be collected concurrently from particular sample locations.

3.4 SAMPLE MANAGEMENT

Specific nomenclature that will be used by EPA will provide a consistent means of facilitating the sampling and overall data management for the project. The OSC must approve any deviations from the sample nomenclature proposed below.

Sample nomenclature will follow a general format regardless of the type or location of the sample collected. The general nomenclature consists of the following components:

- Geographic location.
- Collection type (grab).

- QA/QC type (normal, duplicate, etc.).
- Sequence - An additional parameter used to further differentiate samples.

Sample data management will be completed utilizing the EPA-provided Forms II Lite software.

3.5 SAMPLE EQUIPEMENT DECONTAMINATION

The nondisposable sampling equipment used during the sample collection process will be thoroughly pre-cleaned before initial use, between use, and at the end of the field investigation. Equipment decontamination will be completed in the following steps:

- High-pressure water spray or brush, if needed.
- Non-phosphate detergent and potable water wash to clean the equipment.
- Final potable water rinse.
- Equipment air-dried.

3.6 SAMPLE PRESERVATION, CONTAINERS, AND HOLD TIMES

Once collected, samples will be stored on ice at 4 degrees Celsius in coolers while at the site and until submitted for laboratory analysis. The samples will be sent by common carrier to the laboratory or driven by the field personnel. See the holding times in Table 4-1 below. Of particular note is the 6-hour holding time for fecal coliform.

4. ANALYTICAL APPROACH

Samples collected by EPA during the sampling task will be delivered to EPA-designated laboratories for VOCs, SVOCs, total metals, pesticides, herbicides, PCBs, fecal coliform analyses and total petroleum hydrocarbons, utilizing EPA publication SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* and EMPAT Program testing. In determining the nature and extent of potential contamination, analytical results (on a dry weight

basis) will be compared to EPA Region 6 Human Health Medium-Specific Screening Levels (MSSLs) for soils in addition to site-specific background levels. The sediments in these yards may become part of the soil. Additionally, the analytical results will be compared to background. The EPA Region 6 MSSLs are provided as Appendix C. Table 4-1 below provides requirements for containers, preservation techniques, sample volumes, and holding times.

TABLE 4-1

REQUIREMENTS FOR CONTAINERS, PRESERVATION TECHNIQUES, SAMPLE VOLUMES, AND HOLDING TIMES

Bottle	Parameter Category	Collected By	Container	Preservation	Minimum Sample Volume or Weight	Maximum Holding Time	Analytical Methods	Laboratory
Hg	Mercury	EPA	4 oz. wide-mouth glass jar	4°C	Fill to capacity	28 days	SW7471A	TBD
Non-Hg Metals	TAL Metals	EPA	4 oz. wide-mouth glass jar	4°C	Fill to capacity	180 days	SW6010B	TBD
USGS	Fecal Coliform	EPA	8 oz. wide-mouth glass jar	4°C	Fill to capacity	6 hours	ASTM 9222D	TBD
EPA	Volatile Organic Compounds (VOCs)	EPA	8 oz. wide-mouth glass jar with Teflon cap liner	4°C	Fill to capacity	14 days	SW8260B	TBD
EPA	Semi-Volatile Compounds (SVOCs)	EPA	8 oz. wide-mouth glass jar with Teflon cap liner	4°C	Fill to capacity	14 days	SW8270C	TBD
EPA	Pesticides	EPA	8 oz. wide-mouth glass jar – one jar can be used for both Pest and PCBs with Teflon	4°C	Fill to capacity	14 days	SW8081B	TBD

Bottle	Parameter Category	Collected By	Container	Preservation	Minimum Sample Volume or Weight	Maximum Holding Time	Analytical Methods	Laboratory
			cap liner					
EPA	PCBs	EPA	8 oz. wide-mouth glass jar – one jar can be used for both Pest and PCBs with Teflon cap liner	4°C	Fill to capacity	14 days	SW8082B	TBD
EPA	Herbicides	EPA	8 oz. wide-mouth glass jar with Teflon cap liner	4°C	Fill to capacity	14 days	SW8151A	TBD
EPA	TPH	EPA	8 oz. wide-mouth glass jar with Teflon cap liner	4°C	Fill to capacity	14 days	SW8015B	TBD
	% Moisture	N/A	Each Sample				ASTM D2216	

5. QUALITY ASSURANCE

Quality assurance will be conducted in accordance with this Quality Assurance Sampling Plan.

5.1 QUALITY ASSURANCE SAMPLES

The number of QA samples is based upon the assumption that the screening samples (covered by this report) will be conducted in one day. Quality assurance/quality control (QA/QC) samples will be collected according to the following:

- Sampling equipment rinsate blanks will be prepared by pouring laboratory grade deionized water over non-disposable sampling equipment after it has been decontaminated and collecting the rinse water in sample containers for analyses. These samples will be prepared to demonstrate that the equipment decontamination procedures for the sampling equipment were performed effectively. The sampling equipment rinsate blanks will be prepared each day that non-disposable sampling equipment is used. It is estimated that two equipment rinsate samples will be collected during sampling activities.

- Field blanks will be collected when VOC samples are taken and are analyzed only for VOC analytes. The field blank consists of American Society of Testing and Materials (ASTM) Type II reagent grade water poured into a VOC sample vial at the sampling site. It is handled like an environmental sample and transported to the laboratory for analysis. Field blanks are used to assess the potential introduction of contaminants from ambient sources (e.g., gasoline motors in operation, etc.) to the samples during sample collection. Field blanks shall be collected and submitted once per day that VOC samples are collected.

- Material Spike/Material Spike Duplicates will be prepared using a known weight of material and added to a split sample of known weight. The material will be thoroughly mixed to provide a consistent proportion of sample and spike material throughout the sample.

- One duplicate will be collected for every 10 samples. A total of three duplicates will be collected for the 24 samples.

5.2 SAMPLE CHAIN-OF-CUSTODY PROCEDURES

EPA/Contractor will utilize SCRIBE desktop and SCRIBE Enterprise for all sample documentation and chain-of-custody (COC) preparation needs. Because of the sensitive nature of sample collection, the possession of samples must be traceable from the time the samples are

collected until they are introduced as evidence. After sample collection and identification, the samples will be maintained under the COC procedures. If the sample collected is to be split, the sample will be allocated into similar sample containers. Sample labels completed with the same information, as that on the original sample container, will be attached to each of the split samples. All personnel required to package and ship coolers containing potentially hazardous material will be trained accordingly.

A COC record will be completed each time a sample or group of samples is prepared for shipment to the laboratory. The record will repeat the information on each of the sample labels and will serve as documentation of handling during shipment. A copy of this record will remain with the shipped samples at all times, and the member of the sampling team who originally relinquished the samples will retain another copy. EPA/Contractor personnel will complete a COC form for all samples sent to the EPA designated off-site laboratory.

Samples relinquished to the participating laboratories will be subject to the following procedures for transfer of custody and shipment:

- The COC record will accompany samples. When transferring possession of samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of the sample transfer on the record. This custody record documents transfer of sample custody from the sampler to another person or to the laboratory.

- Samples will be properly packed for shipment and dispatched to the designated laboratory for analysis with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be custody-sealed for shipment to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape that is wrapped around the package at least twice. The custody seal will then be folded over and stuck to the seal to ensure that the only access to the package is by cutting the filament tape or breaking the seal to unwrap the tape.

- If sent by common carrier, a bill of lading or airbill will be used. Bill of lading and airbill receipts will be retained in the Hurricane Katrina Response Support file as part of the permanent documentation of sample shipping and transfer.

5.3 PROJECT DOCUMENTATION

Field Documentation

EPA/Contractor will perform field documentation of site activities during all fieldwork. The primary methods of documentation will be completion of a field logbook and production of photographic documentation. All documents will be completed legibly and in ink. Any corrections or revisions will be made by lining through the original entry and initialing the change. The following field documentation will be maintained:

Locational Data

Latitude/longitude ("lat/long") coordinates will be collected and documented with environmental related data samples. This is in addition to, and not precluding, other critical location identification data that may be needed to satisfy individual program or project needs, such as depth, street address, elevation or altitude.

1. A goal of 25 meter level of accuracy will be achieved; managers of individual data collection efforts will determine the exact levels of precision and accuracy necessary to support their mission within the context of this goal. The use of global positioning systems (GPS) is recommended to obtain lat/longs of the highest possible accuracy.

2. Program data managers must collect and document the following information:

- Latitude/longitude coordinates in accordance with federal Interagency Coordinating Committee for digital Cartography (FICCDC) recommendations. The coordinates may be present singly or multiple times, to define a point, line, or area, according to the most appropriate data type for the entity being represented. The format for representing this information is:

  +/-DD MM SS.SSSS (latitude)

  +/-DDD MM SS.SSSS (longitude)

where:

- Latitude is always presented before longitude
- DD represents degrees of latitude; a two-digit decimal number ranging from 00 through 90
- DDD represents degrees of longitude; a three-digit decimal number ranging from 000 through 180.
- MM represents minutes of latitude or longitude; a two-digit decimal number ranging from 00 through 60
- SS.SSSS represents seconds of latitude or longitude, with a format allowing possible precision to the ten-thousandths of seconds.
- + specifies latitudes north of the equator and longitudes east of the prime meridian
- - specifies latitudes south of the equator and longitudes west of the prime meridian

3. Specified method used to determine the lat/long coordinates (e.g., remote sensing techniques, map interpolation, cadastral survey)

4. Textual description of the entity to which the latitude/longitude coordinates refer (e.g., north-east corner of site, entrance to facility, point of discharge, drainage ditch).

5. Estimate of accuracy in terms of the most precise units of measurement used (e.g., if the coordinates are given to tenths-of-seconds precision, the accuracy estimate should be expressed in terms of the range of tenths-of-seconds within which the true value should fall, such as "+/-0.5 seconds").

6. Recommended labeling of the above information is as follows:

- "Latitude"

- "Longitude"
- "Method"
- "Description"
- "Accuracy"

Field Logbook

The field logbook is a descriptive notebook detailing site activities and observations so that an accurate, factual account of field procedures may be reconstructed. The individuals making them will sign all entries. Entries should include, at a minimum, the following:

- Site name and project number.
- Names of personnel on-site.
- Dates and times of all entries.
- Descriptions of all site activities, including site entry and exit times.
- Noteworthy events and discussions.
- Weather conditions.
- Site observations.
- Identification and description of samples and locations, including GPS coordinates (latitude and longitude).
- Subcontractor information and names of on-site personnel.
- Dates and times of sample collections and COC information.
- Records of photographs.
- Site sketches.

Sample Labels

Sample labels will be securely affixed to the sample container. They will clearly identify the particular sample and should include the following information:

- Site name and project number.
- Date and time the sample was collected.
- Sample preservation method.
- Analysis requested.
- Sampling location.

COC Record

A COC record will be maintained from the time of sample collection until final deposition. Every transfer of custody will be noted and signed, and each individual who has signed it will keep a copy of the record. The COC is discussed in Subsection 5.2, Sample Chain-of-Custody Procedures.

Custody Seal

Custody seals demonstrate that a sample container has not been opened or tampered. The individual who has custody of the samples will sign and date the seal and affix it to the container in such a manner that it cannot be opened without breaking the seal.

Photographic Documentation

Photographic documentation will be used by EPA/Contractor to document site conditions and activities as site work progresses. Initial conditions should be well documented by photographing features that define site-related contamination or special working conditions. Representative photographs should be obtained of phase of site activity. The photographs should show typical operations and operating conditions as well as special situations and conditions that may arise during site activities. Site final conditions should also be documented by photograph as a record of how the site appeared at completion of the work.

All photographs will be date-stamped and should be provided by using a film camera, a digital camera, or a video camera capable of recording the date on the image. Details of each photograph should be recorded in the logbook with the location of the photographer (including GPS coordinates), direction the photograph was taken, the subject of the photograph, and its significance (i.e., why the picture was taken). Where appropriate, the photograph location, direction, and subject should also be shown on a site sketch.

5.4 DATA VALIDATION

All finalized data provided by the laboratory will receive a 10 to 20% validation following *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (January, 2005), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (October, 2004), and the Regional Protocol for Holding Times, Blanks, and VOA Preservation (April 13, 1989). This validation will conducted by a contractor independent from the laboratory. The electronic preliminary data provided by the laboratory will be provided in a Staged Electronic Data Deliverable (SEDD) format and undergo an initial compliance screen using the Automated Data Review (ADR) software.

APPENDICES

APPENDIX A

SEDIMENT DATA QUALITY OBJECTIVE

DATA QUALITY OBJECTIVE NO. 1
HURRICANE KATRINA
MEDIA OF CONCERN: Sediment (Residue)

STEP 1. STATE THE PROBLEM	
Residue (sediment) samples will be collected from areas where flood waters from Hurricane Katrina have receded to screen for the presence of hazardous waste (potential contaminants of concern) that could present an unacceptable risk to human health and the environment, including residents either revisiting or occupying their residences.	
STEP 2. IDENTIFY THE DECISION	
Are there potential chemicals of concern in sediment, represented by a sample, based on comparison to residential screening benchmarks?	
IDENTIFY THE ALTERNATIVE ACTIONS THAT MAY BE TAKEN BASED ON THE DECISIONS.	• If any contaminant exceeds the specified benchmark in the sediment, the sediment will need for further characterization (unless the area is near the vicinity of a known chemical storage area). • If no contaminants exceed the specified benchmarks in sediment, no further screening will be necessary for contaminants being analyzed.
STEP 3. IDENTIFY INPUTS TO THE DECISION	
IDENTIFY THE INFORMATIONAL INPUTS NEEDED TO RESOLVE A DECISION.	Contaminant concentrations in sediment samples collected from where Hurricane Katrina flood waters have receded from residential areas.
IDENTIFY THE SOURCES FOR EACH INFORMATIONAL INPUT AND LIST THE INPUTS THAT ARE OBTAINED THROUGH ENVIRONMENTAL MEASUREMENTS.	• Sediment samples from where Hurricane Katrina flood waters have receded from residential areas. • Analytical results from VOC, SVOC, pesticides, herbicides, metals, PCBs, BAC-T, and TPH.
BASIS FOR THE CONTAMINANT SPECIFIC ACTION LEVELS.	For sediment, EPA Region 6 Human Health MSSLs (unless constrained by limits of detection).
IDENTIFY POTENTIAL SAMPLING TECHNIQUES AND APPROPRIATE ANALYTICAL METHODS.	• Grab samples of surficial sediments that appear to be predominately fined-grained . • Locations from yards (specific yards to be determined in field [if access is an issue, samples shall be collected from locations such as parks or streets]). • See Table 4-1 QASP

DATA QUALITY OBJECTIVE NO. 1
HURRICANE KATRINA
MEDIA OF CONCERN: Sediment (Cont'd)

STEP 4. DEFINE THE BOUNDARIES OF THE STUDY	
DEFINE THE DOMAIN OR GEOGRAPHIC AREA WITHIN WHICH ALL DECISIONS MUST APPLY.	Location within a southeast Louisiana as determined by EPA where the public is being allowed to return.
SPECIFY THE CHARACTERISTICS THAT DEFINE THE POPULATION OF INTEREST.	Contaminant concentrations in sediment at the sample locations.
DEFINE THE SCALE OF DECISION MAKING.	The 24 samples will be collected from an area no larger than approximately one-square mile.
DETERMINE THE TIME FRAME TO WHICH THE DATA APPLY.	The analytical data will apply until such a time as additional sampling activities are conducted and/or response actions taken.
DETERMINE WHEN TO COLLECT DATA.	Samples will be collected during the field sampling activities.
IDENTIFY PRACTICAL CONSTRAINTS ON DATA COLLECTION.	Inclement weather.
STEP 5. DEVELOP A DECISION RULE	
SPECIFY THE PARAMETER THAT CHARACTERIZES THE POPULATION OF INTEREST.	The concentrations of chemicals identified in sediment samples.
SPECIFY THE ACTION LEVEL FOR THE DECISION.	For sediment, EPA Region 6 Risk-Based Concentrations for residential exposure to soil (unless constrained by detection limits).
DEVELOP A DECISION RULE.	If any result in a sediment sample is above the contaminant specific screening level, then further characterization may be necessary (which would be addressed by a QASP for a future phase).

DATA QUALITY OBJECTIVE NO. 1
HURRICANE KATRINA
MEDIA OF CONCERN: Sediment (Cont'd)

STEP 6. SPECIFY LIMITS ON DECISION ERRORS	
DETERMINE THE POSSIBLE RANGE OF THE PARAMETER OF INTEREST.	Contaminant concentrations may range from non–detect to above the screening values for sediment
DEFINE BOTH TYPES OF DECISION ERRORS AND IDENTIFY THE POTENTIAL CONSEQUENCES OF EACH.	Type I Error: Deciding that the specified area represented by the sediment sample does not exceed the specified screening level when, in truth, the sediment concentration of the contaminant exceeds its screening level. The consequence of this decision error is that contaminated sediment exists in a neighborhood, possibly endangering human health and the environment. This decision error is more severe.
DEFINE BOTH TYPES OF DECISION ERRORS AND IDENTIFY THE POTENTIAL CONSEQUENCES OF EACH.	Type II Error: Deciding that the specified area represented by the sediment sample does exceed screening level when, in truth, it does not. The consequences of this decision error is that further characterization would take place thereby delaying the time when residents may return.
ESTABLISH THE TRUE STATE OF NATURE FOR EACH DECISION RULE.	The true state of nature when the sediments are decided to be below the screening levels when in fact, they are not below the screening levels, is that further characterization may be necessary. The true state of nature when the sediments are decided to be above the screening levels when in fact, they are not above the specified action levels, is that further characterization may not be necessary.
DEFINE THE TRUE STATE OF NATURE FOR THE MORE SEVERE DECISION ERROR AS THE BASELINE CONDITION OR THE NULL HYPOTHESIS (H_o) AND DEFINE THE TRUE STATE FOR THE LESS SEVERE DECISION ERROR AS THE ALTERNATIVE HYPOTHESIS (H_a).	H_o: The sediments represented by the sample are above the screening level. H_a: The sediments represented by the sample are below the screening level.

DATA QUALITY OBJECTIVE NO. 1
HURRICANE KATRINA
MEDIA OF CONCERN: Sediment (Cont'd)

ASSIGN THE TERMS "FALSE POSITIVE" AND "FALSE NEGATIVE" TO THE PROPER DECISION ERRORS.	• False Positive Error = Type I • False Negative Error = Type II
ASSIGN PROBABILITY VALUES TO POINTS ABOVE AND BELOW THE ACTION LEVEL THAT REFLECT THE ACCEPTABLE PROBABILITY FOR THE OCCURRENCES OF DECISION ERRORS.	The assignment of probability values is not applicable to this DQO because these samples are being collected for baseline and screening purposes.

STEP 7. OPTIMIZE THE DESIGN	
REVIEW THE DQOs.	Review results of this screening level sampling event(s) to determine if modification of this DQO is necessary and/or determine what other steps may be necessary.

In developing the DQOs, the team considered the potential exposure routes for residents of dermal exposure, incidental ingestion, and inhalation. These exposure routes, and other risk scenarios will be characterized more fully, and utilized in the development of DQOs for subsequent sediment sampling plans.

APPENDIX C
EPA Region 6 MSSLs

See: http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm