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**Incremental Sampling Methodology Added to Chapter 62-780**

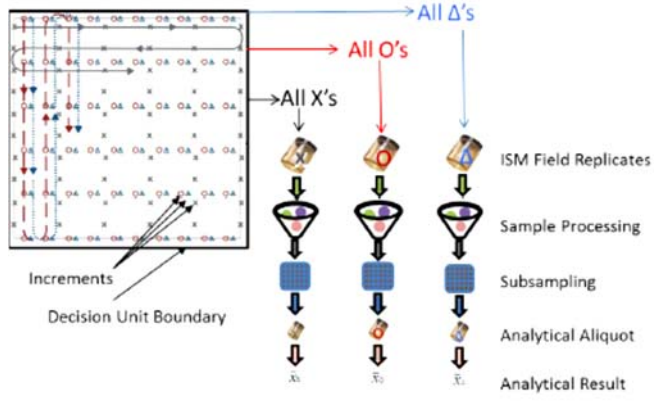
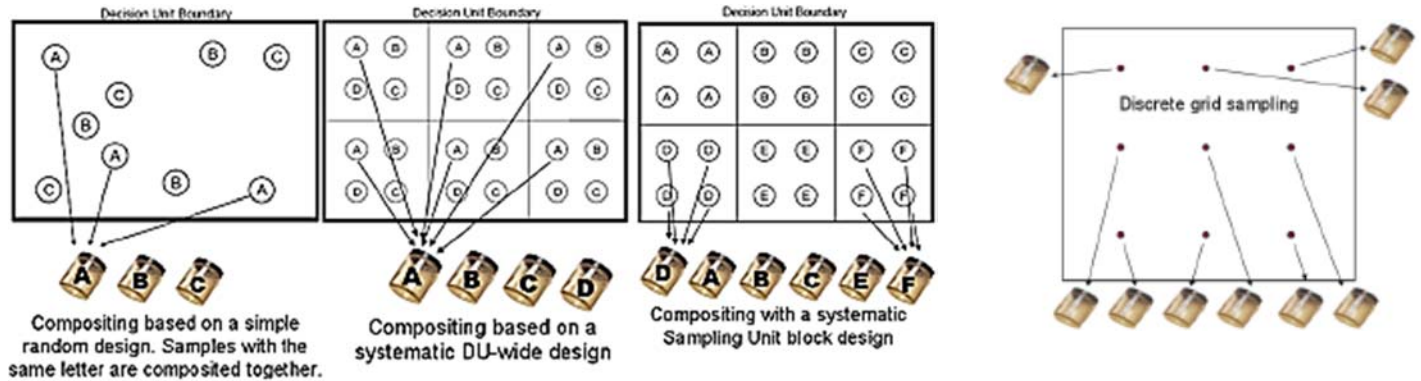
Incremental Sampling Methodology (ISM) has now been added as part of Chapter 62-780 of the Florida Administrative Code (FAC). ISM is defined as a structured composite sampling and processing protocol that reduces data variability and provides a reasonably unbiased estimate of mean contaminant concentrations in a volume of soil in the rule chapter. A 2012 document prepared by Interstate Technology & Regulatory Council (ITRC) is cited in the referenced chapter as the guideline to implement ISM. As a result of this rule amendment, ISM data could now be utilized to achieve No Further Action and No Further Action with Controls. It should be noted that traditional discrete sampling and the use of 95% Upper Confidence Limit (UCL) are still valid means of collecting and interpreting soil contamination as part of a 62-780 site assessment. This article provides some basic explanations of the terminologies and techniques associated with ISM sampling.

Variability in measured contaminant concentrations between discrete soil samples is due primarily to the particulate nature of soil and heterogeneity in the distribution of contaminants. The elements of ISM that control data variability are incorporated into (a) the field collection of soil samples and (b) laboratory processing and subsampling procedures. ISM is designed to obtain a single aliquot for analysis that has all constituents in the same proportion as an explicitly defined volume of soil. If properly executed, the methodology provides reasonably unbiased, reproducible estimates of the mean concentration of analytes in the specified volume of soil. It is noteworthy that Chapter 62-780.680 requires at least three (3) representative ISM samples be collected to derive conclusions regarding soil contamination.

ITRC guidance recommends that the project stakeholders establish an agreed upon conceptual site model (CSM). The use of CSM has also been introduced in Chapter 62-780 to support site assessment and closure. Once the CSM has been agreed to, the project team defines the data quality objectives (DQOs) and determines the appropriate decision unit (DU) size(s) and location(s). DUs are based on project-specific needs and site-specific DQOs; both considerations specify and constrain the appropriate end use of the data. DUs may be defined in regularly spaced and equal volumes; may be based on irregular features of the site which define contaminant transport or receptor exposure; may be based on an understanding of the contaminant distributions, e.g. in and around source areas; and, need to consider remedial design.

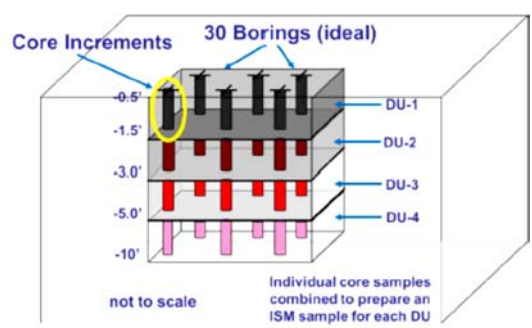
To eliminate field sources of error, it is crucial to ensure data quality and have all field sampling and field processing activities performed and supervised by personnel trained in ISM. The issue of “sample support” for heterogeneous

environmental and waste matrices invalidates the common assumption that the reported concentration of an environmental sample should be the same no matter what mass/volume of sample is collected and analyzed. ISM addresses this problem by collecting many increments which results in a large mass representing the whole volume of the material being investigated. Reducing the overall particle size by grinding prior to subsampling may sometimes be required. Increasing the mass of the subsample and incremental subsampling are common ways to reduce subsampling error. The following graphic shows conceptual representations of discrete, several types of composite and ISM sampling techniques.



The same principles apply to short-scale sampling error. This refers to extrapolating a single data point to a large field area without taking spatial heterogeneity into account. Taking the whole targeted soil volume as a single sample for analysis would provide the concentration for that volume without any sampling error. As that approach is not practicable, we choose to collect discrete samples. But at the same time, we need to have enough samples to include fluctuations in concentration in the result for the soil volume, but without exorbitant cost. This goal can be accomplished by taking increments from many locations and pooling them together for a single analysis. Incremental field sampling increases the sampling density (the number of samples per unit area), and it increases the sample support of the field sample—both of which help control

sampling error. ISM samples are designed to contain all constituents in exactly the same proportion as the area designated as a DU. The mean concentration in the DU is the basis for the decision. The diagram below shows two types of DUs – Exposure area DU and Subsurface DU.



There are current practices and options available to *process* and subsequently analyze field samples obtained via ISM. Multiple options are available depending on the contaminants (i.e., explosives, metals, semi volatile organic compounds, perchlorate,

etc.). It should also be noted that sample processing for various analytical suites is currently in early developmental stages and/or has experienced limited usage such that in many instances little to no performance information or specific standardized and published procedures are available. Future development of laboratory equipment and/or sample processing techniques should be evaluated based on their applicability to ISM and their ability to meet project-specific objectives. A laboratory may have several limitations to handle ISM samples in terms of the equipment needs, space limitations and QA/QC processes. A careful consideration should be given prior to the selection of a laboratory to analyze ISM samples.

In summary, with the revisions to Chapter 62-780, ISM is now a valid alternative to traditional discrete sampling both for characterization and site closure. However, it must be stressed that ISM should be conducted as per the ITRC guidance and should be supported by the DQO for a particular site. It is crucial that all stakeholders understand and agree to the DQOs, DUs and other sampling requirements prior to implementing ISM.

If you have questions or need additional information regarding this article please contact Probas Adak, P.E., at (954) 519-1439 or [padak@broward.org](mailto:padak@broward.org).

References:

Interstate Technology & Regulatory Council, February 2012, *Incremental Sampling Methodology*. ISM-1, Incremental Sampling Methodology Team. [www.itrcweb.org](http://www.itrcweb.org).

US Army Corps of Engineers, July 2019, *Interim Guidance 09-02: Implementation of Incremental Sampling of Soil for the Military Munitions Response Program*

Broward Environmental Remediation Times, September/October 2012, *General Concepts of Incremental Sampling Methodology*, Arrazola, Norman

<http://www.broward.org/Environment/ContaminatedSites/Documents/RemediationTimesArchive/SepOct12.pdf>

Alaska Department of Environmental Conservation, March 2009, *Draft Guidance on Multi Increment Soil Sampling*, Division of Spill Prevention and Response

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### **Notice of Application Period for Advanced Cleanup Program (AC)**

The Department of Environmental Protection (Department) will have an Advanced Cleanup (AC) Application period **beginning May 1, 2017 and ending at 5:00 pm on June 30, 2017**. Applications for individual sites or bundled sites will be accepted. For this application period, the Department will allocate up to **\$12.5 million**.

Any questions or additional comments regarding the AC program can be referred to the AC Coordinator Grant Willis at 850-245-8886 or via email at [Grant.Willis@dep.state.fl.us](mailto:Grant.Willis@dep.state.fl.us).

The following are a list of links to the **updated** AC Application documents:

[AC Program Introduction](#) (Revised)

[AC Bid Application for Single or Bundled Sites](#) (Revised)

[Limited Contamination Assessment Report \(LCAR\) Preparation Guidance](#) (Revised 2/14/17)

[PRP Site Access Agreement](#)

[Cost Share Site Contractor Selection Sheet](#)

[AC Application Sufficiency Checklist for PRP Reviewers](#) (New)

**Subcontractor Quotes for Petroleum Restoration Program**

Improperly prepared quote packages can delay Purchase Order (PO) processing. It has been determined that forty percent (40%) of Remedial Action Construction (RAC) and Source Removal (SR) POs have been delayed two to four months due to quotes issues. This article provide guidelines and hints to help preclude quote issues from delaying PO processing.

• **First - A review of when quotes are needed as listed in the ATC Restated Contract:**

ATC Restated Contract: Attachment A (V2.0) Scope of Services  
 V. Technical Specifications  
 A. Points of Clarification  
 11.

a. *For purchases whose aggregate value is \$2,500.00 or less, a single written quotation or proposal is required (electronic copies accepted). The price should be considered to be "fair and reasonable" by the Contractor and the DEP Project Manager. At the discretion of the DEP Project Manager, the Contractor may be directed to obtain additional quotations.*

b. *For purchases above \$2,500.00, the Contractor, wherever possible, must obtain a minimum of three (3) responsive quotes or proposals, and select the one that best represent a reasonable price from a vendor of demonstrated competence and qualifications. The Contractor shall also include in their solicitation instructions for the subcontractor or vendor to send a copy of the written quotation or proposal to the DEP Project Manager concurrent with their copy to the Contractor (electronic copies accepted).*

In addition, quotes are also required for in-house services.

*In-house quotes should be on the ATC Letterhead and not reference other sub-vendors. In-house quotes of \$2,500 or less require one additional quote from a separate vendor, those over \$2,500 require two additional quotes.*

Note: The three quote requirement is based on the aggregate cost for any given vendor in the PO for all pay items, not on the aggregate cost for a single pay item.

• **Second - Quote Solicitation.**

Now that you know when to solicit quotes, here's an example listing of what your Request for Quote should specify:

- Include instructions for the vendor/supplier/subcontractor to copy the FDEP Site Manager (SM) on their response and copy the SM in your Request for Quote solicitation. Quotes need to remain valid at least until the PO is issued.
- Recommend a minimum amount of time during which the quote must remain valid in your solicitation. If a quote looks like it will expire before the PO is issued, a revised quote or a statement that the prices remain valid will have to be

obtained. Waiting for the revised quote/statement delays the PO process.

- Demand that suppliers specify quantities and unit costs to ensure you're comparing apples to apples. Lump sums and miscellaneous entries are not acceptable.
- Quotes for materials must be for the actual quantities required by the scope of work, not a pre-packaged box store or other supplier bulk purchase.
- Include lines for the appropriate Sales Tax and shipping/delivery costs.



“The three quote requirement is based on the aggregate cost for any given vendor in the PO for all pay items, not on the aggregate cost for a single pay item.”



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[Symposium Weblink](#)

- Quotes for fuel to operate generators or equipment need to specify the type of fuel and price per gallon. Copies of on-line resources showing fuel prices for multiple locations near a site are acceptable supporting backup documentation. A calculation that shows how the total number of gallons of fuel usage were estimated has to be provided either as part of the quote or separately.
- Make sure your breakdowns do not capture any items listed as "included" in the ATC Restated Contract Section V B, Schedule of Pay Items. Examples:
  - > Pay Items in section 10 for Source Removal already include temporary security fencing, safety devices, barricades, lights, signs, etc.
  - > Pay item 14 In-Situ Injection includes injection material preparation and/or mixing, just not the cost of the material itself.
  - > Pay Item 15.B. Remediation System Integration and Startup includes Compound construction/fencing labor, only the materials are reimbursable. (These are just a few examples. Review the applicable Pay Item section within the restated contract that applies to your particular scope of work to avoid perceived double-dipping by soliciting quotes for costs that are already included in a pay item).
- Breakdowns for Pay Items like 15-3.A. steel traffic plates or security fencing must specify size/length, quantity and, if applicable, the rental period.
- Provide a warning that confidential disclaimers or limitations on who can view the quote are not acceptable.
- **Third - Quote evaluation.**

Review the returned quote(s) for compliance with all of the above as well as the following:

  - Was the SM copied on the submission?
  - Is it likely to expire before the PO is apt to be issued? (Hint: Check the itsy-bitsy fine print in the Terms & Conditions section).
  - Is it dated?
  - Are the quotes on vendor/supplier/subcontractor letterhead or email and for the assigned ATC?
  - Is the quote legible?
  - Make sure it is complete, includes all pages and any referenced attachments.
  - Does it provide breakdowns, details and specifications for all materials, size, volume, sales tax, shipping charges, etc.?
  - Does it demonstrate it adequately covers the correct scope of work to completion?
  - Does it impermissibly contain insurance costs for rental equipment?
  - Are there confidentiality statements? To resolve confidentiality statement issues, request submission of a quote without the statement or a revised quote with the offending statement revised/stricken-through/redacted AND a brief statement with signature that the submitter removed/struck-through/redacted the disclaimer.
  - If the submittal(s) fail to meet any of the above requirements, reject and request proper resubmission.
  - Wash, rinse, repeat: Once the received quotes meet the administrative requirements, perform an analysis to make sure they provide apples-to-apples comparisons. Solicit clarifications as needed. Make sure all of the administrative requirements are met in each set of responses.

Once you've determined the responses meet the administrative requirements and cover the scope of work you can submit the quote package to the SM for expeditious PO processing.

Questions regarding this article can be directed to John Moore at (954) 519-0307 or [jmoore@broward.org](mailto:jmoore@broward.org).

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## **Announcing Important Name Change!**

As of February 7, 2017, Broward County's Pollution Prevention Division (**PPD**) is now called Broward County's Environmental Engineering and Permitting Division (**EEPD**). This name change will be reflected in correspondence issued by **EEPD**.

**ITN Work Assignment and Contractor Selection Process**

**ITN Solicitation #2014004C**

The Department’s general process for assigning work, among the eligible agency term contractors (ATCs) under ITN Solicitation #2014004C, is described on the document that is provided below. This document provides a representation of the general work assignment process, as well as the new Contractor Selection Formula (CSF) algorithm. The CSF is intended to provide an unbiased mechanism for selecting from among those ATCs that would provide a good value to the state for the particular petroleum restoration work that is needed.

The ATC Selection Process, including the work assignment process and CSF algorithm, is provided below. This work assignment process and CSF algorithm may be updated from time to time by the Department.

Memorandum from Deputy Secretary for Regulatory Programs Clifford Wilson III, P.E. (October 7, 2014)

**New Version**

Pursuant to paragraph 2.B of the Department of Environmental Protection’s (Department) agency term contract for petroleum contamination site response action services (Contract), the Department hereby provides notice to its ATCs of a revision to the Petroleum Restoration Program ATC Selection Process assignment of work flowchart.

The Department is implementing a refinement to the ATC Selection Process to provide modifications to the selection process. This modification to the ATC Selection Process flowchart is effective since January 3, 2017.

Work Assignment Process and CSF (Posted 12/23/16; Effective 01/03/2017)

Questions regarding this article can be directed to Matt Theisen, P.G. at (954) 519-0323 or [mtheisen@broward.org](mailto:mtheisen@broward.org).

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