

REGISTERED **E**NVIRONMENTAL **C**ONSULTANT **P**ROGRAM

IMPLEMENTATION GUIDANCE

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Department of Environment and Natural Resources
Division of Waste Management
Superfund Section
Inactive Hazardous Sites Branch

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Submittal of Documents

Unless otherwise directed by the Branch, all certified documents, such as work plans and reports, should only be submitted in electronic format. The specifications for electronic document submittal can be found at the following website: <http://portal.ncdenr.org/web/wm/sf/ihshome>.

Important Notice to Registered Site Managers

This document is the implementation guidance for the REC Program Rules (15A NCAC 13C .0300). Its purpose is to help explain the technical and administrative Rule requirements for conducting voluntary remedial actions under the REC Program. Please read the Rules and this implementation guidance carefully. Note that this guidance addresses only *selected portions* of the Rules that are not considered to be self-explanatory, and should only be used to supplement the complete text of the Rules which can be found at <http://portal.ncdenr.org/web/wm/sf/ihs/recrules>.

The Registered Site Manager is personally responsible for ensuring that site investigations and cleanups comply with the REC Program Rules. Please pay special attention to the certification requirements in Section .0306(b) and the document submittal requirements specified in the executed Administrative Agreement and in .0302(l). Failure to properly certify documents and submit them to the Inactive Hazardous Sites Branch (Branch) is a serious violation of the program Rules.

REC Program Rule violations may result in the Registered Site Manager and/or the REC being temporarily or permanently disqualified from the program. The RSM and the REC may also be subject to penalties and other applicable sanctions.

If there are any questions about the REC Program Rules or the implementation guidance, contact the following:

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For all other Branch-related issues, please contact the appropriate staff shown on the Branch website: <http://portal.ncdenr.org/web/wm/sf/ihs/ihsregmap>.

REC IMPLEMENTATION GUIDANCE

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.0300 Remedial Action Oversight by Registered Environmental Consultants

Background

The Inactive Hazardous Sites Response Act was enacted in 1987 to address hundreds of hazardous substance disposal sites in North Carolina which were not cleanup priorities for the federal Superfund Program. Authority for implementing the Inactive Hazardous Sites Response Act has been delegated to the director of the Division of Waste Management and is administered by the division's Inactive Hazardous Sites Branch. This state statute provides site owners, operators and responsible parties (hereafter referred to as "remediating parties") the opportunity to voluntarily clean up their sites pursuant to administrative agreements with the division. Due to limited staff resources, the division has been unable to keep up with the demand for site cleanups. To address this problem, the General Assembly amended the Inactive Hazardous Sites Response Act in 1994 and 1995. The amendment authorized the division to approve qualified, private environmental consulting firms to certify remedial action compliance in place of state oversight. This program is known as the Registered Environmental Consultant Program (REC Program).

The Registered Environmental Consultant Program

Remedial actions conducted under the REC Program are governed by the Inactive Hazardous Sites Response Act and the REC Program Rules found at 15A NCAC 13C .0300. Branch-approved environmental consulting or engineering firms are known as Registered Environmental Consultants. The REC is hired by the remediating party to implement and oversee the site cleanup in lieu of Branch review and approval. To qualify as an REC, an environmental consulting firm must employ one or more site managers who meet the requirements of Section .0304 of the Rules. These site managers are known as Registered Site Managers. All work performed by RECs must be conducted under the supervision and direction of one or more Branch-approved RSMs.

Many environmental consultants are familiar with the steps involved in implementing a site cleanup. The steps include planning and conducting the remedial investigation, preparing the feasibility study and remedial action plan, and designing and installing a final remedy. Under the REC Program, RSMs must also certify, in writing, that the site investigation and site remediation were conducted in accordance with the Inactive Hazardous Sites statute and the REC Program Rules. Only Branch-approved RSMs may make certifications on behalf of the REC. **This certification is in lieu of Branch review and approval. The Branch will not provide any oversight or approval of the work performed by the REC.**

Once the RSM certifies that a site cleanup has been completed, the site will be transferred to the "no further action" category of the Inactive Hazardous Sites inventory. Ensuring that site cleanups are protective of public health and the environment will rely upon the professional qualifications, judgment and integrity of the REC and its RSM(s). The REC Rules mandate that "a Registered Environmental Consultant shall at all times recognize that its primary obligation is to protect public health, safety, welfare and the environment in the performance of professional services as a Registered Environmental Consultant."

Remediating parties who want an approved remedial action must first notify the Branch in writing. The Branch will screen site conditions and determine, based on the presence of any severe or sensitive site conditions, whether the cleanup will be managed directly by the Branch or under the REC Program. To expedite the screening process, remediating parties and their consultants must complete and submit a *Site Cleanup Questionnaire* to determine REC Program eligibility. Answering “yes” to one or more of the questions does not automatically mean the site will be excluded from the REC Program. The questionnaire’s purpose is to help the Branch identify and evaluate any severe or sensitive site conditions. If the Branch determines that the site is eligible for the REC Program, the remediating party must hire an approved REC and enter into a limited administrative agreement with the division.

Note: In order to be acknowledged by and receive Branch approval, all site cleanups, whether managed under the REC Program or directly by the Branch, must be conducted pursuant to an administrative agreement with the division as required by the Inactive Hazardous Sites Response Act.

To ensure the quality of work performed by RECs, the Branch conducts detailed audits of selected sites. Audit results are used to track the performance of RECs and RSMs. Program Rule violations will result in the RSM and/or REC being temporarily or permanently disqualified from the REC Program. The RSM and the REC may also be subject to penalties and other applicable sanctions.

Submittal of Documents

Unless otherwise directed by the Branch, all certified documents, such as work plans and reports, should only be submitted in electronic format. The specifications for electronic document submittal can be found here: <http://portal.ncdenr.org/web/wm/sf/ihshome>.

Purpose of the Implementation Guidance

The purpose of the implementation guidance is to assist remediating parties, RECs and RSMs in interpreting, applying and complying with the REC Program Rules. The guidance outlines the minimum technical and administrative requirements for site cleanups conducted under the REC Program.

Note 1: The implementation guidance addresses only selected portions of the REC Program Rules, and should be used in conjunction with the complete text of the Rules.

Note 2: Due to the wide range of conditions encountered at hazardous substance disposal sites, this guidance does not address every conceivable situation. Therefore, use of the guidance does not guarantee Branch concurrence on the method or completeness of a remedial action, nor does it guarantee that a remedial action complies with the REC Program Rules. Before beginning any site work, remediating parties and RSMs should read the REC Program Rules and the implementation guidance carefully.

This implementation guidance is updated annually. **RECs should always use the most recent version of the guidance document.**

.0301 Definitions – See REC Rules

.0302 General Provisions

- (a) Purpose of Rules – See REC Rules
- (b) Compliance with Other Laws – See REC Rules
- (c) Enforcement Provisions

The Branch will conduct detailed audits of selected sites to track REC and RSM performance. REC Program Rule violations could result in the RSM and/or the REC being temporarily or permanently disqualified from the REC Program. The RSM and the REC may also be subject to penalties and other applicable sanctions. A listing of firms who have been cited for REC violations within the last five years can be found at <http://portal.ncdenr.org/web/wm/sf/ihs/recviolations>.

- (d) Administrative Agreements

Remediating parties who wish to participate in the REC Program must first enter into an administrative agreement with the division.

Copies of a model administrative agreement are available from the REC Program. The model administrative agreement contains standard provisions that apply to all sites. Only the site identification and site description will be project-specific.

- (e) Authority for Site Access/Response Actions – See REC Rules
- (f) Requirement for REC/RSM Oversight

Please note that only Branch-approved RSMs may manage site cleanups and make certifications on behalf of the REC. **The RSM is personally responsible for the day-to-day oversight of the project. This responsibility may not be delegated to anyone else. Contact with the Branch by phone or mail should only be made by the RSM.**

- (g) Sites Requiring Branch Oversight

The Branch expects that the majority of site cleanups will be eligible for the REC Program. However, the Branch reserves the right to supervise and/or direct site cleanups at its discretion.

(h) Deadlines for Completing Remedial Investigations and Remedial Actions

The purpose of this section is to ensure that site investigations and site cleanups are completed within a reasonable period of time. For sites which fail to meet these deadlines, the administrative agreement between the remediating party and the division may be dissolved and the site may be transferred from the Responsible Party Remedial Action category to the Sites Priority List category of the Inactive Hazardous Sites inventory. Remediating parties at these sites may also be subject to enforcement action.

The "effective date of the agreement to conduct a remedial action" refers to the date that the administrative agreement between the remediating party and the division is signed by the division director. **The Branch has no authority to grant extensions to the statutory deadlines; therefore, no extensions to these deadlines will be granted and an REC violation can be issued.**

Note 1: The initiation of groundwater remediation is interpreted by the Branch as being that point when any pilot tests have been completed, the remedial system becomes fully operational, and the REC submits the certified construction completion report to the Branch. For remedial actions involving monitored natural attenuation, initiation of groundwater remediation is interpreted as that point when the RAP work phase completion statement is received. For monitored natural attenuation, groundwater monitoring must be implemented and the first progress report received within 90 days (see Section .0306(o) for additional information).

Note that, prior to this deadline, the REC must complete a required thirty-day public notice for a remedial action plan, address any public comments received and obtain all necessary permits for implementation of the plan. **Submission of a remedial action plan alone does not constitute initiation of groundwater remediation. See .0306(j) for more information regarding public notices and .0306(l) for information regarding remedial action plans.**

Note 2: The completion of remedial activities is interpreted by the Branch as being that point when the Branch receives from the REC a certified Remedial Action Completion Report that documents the remedial activities are complete and the remedial goals have been met for the entire site.

(i)-(j) Business Confidentiality – See REC Rules

(k) Disclosure of Information – See REC Rules

(l) Maintenance and Submittal of Documents

The REC should ensure that all site-related documents are maintained in an orderly fashion in one location and are made available to the Branch in a timely manner to keep the public record up to date regarding site remedial activities and to demonstrate compliance with the REC Rules. **All work plans and reports must be submitted electronically to the Branch within 30 days of completion (i.e., within 30 days of certification by the RSM). The specifications for electronic document submittal can be found on the Branch’s website.** All other miscellaneous records must be submitted to the Branch at the completion of the work phases shown in Sections .0302(1)(1) through (5).

(m) Requirement to Maintain Documents

Unless otherwise directed by the Branch, RECs must preserve and maintain all documents related to site cleanups for six years after termination of the site-specific administrative agreement.

(n) Branch Requests for Information/Replacement RECs

Section (n) has two parts: (i) failure to comply with Branch requests for information will result in revocation of a consulting firm's REC status; (ii) in the event that an REC is terminated by the remediating party or disqualified from the program by the Branch, the remediating party must propose a replacement REC within sixty days. **Failure to propose a replacement REC within sixty days will be grounds for revoking the remediating party's remedial action status.**

(o) Authority of Branch to Compel Response Actions – See REC Rules

(p) Requests for Site Access

The REC should maintain records (e.g., telephone logs, e-mail correspondence, letters, etc.) showing attempts to obtain permission for access to a site or other location to be investigated that is not owned by the remediating party. Copies of the records will be necessary if the REC or remediating party requests assistance from the Branch to obtain access.

.0303 Approval of Registered Environmental Consultants

(a) REC Application Package

The REC application package is available on the Branch's web site at <http://portal.ncdenr.org/web/wm/sf/ihs/recprogram/recapp>.

(b) Requirement to Supply References

For further information, see the Branch's REC application package.

(c-d) Requirement to Notify Branch of Change in Nature of Business or RSMs

When an REC learns that an RSM intends to change employment, the REC must notify the Branch within the time frames specified in .0303(d). If the sole RSM changes employment, the REC must also propose a replacement RSM within the time frames specified in .0303(d). RECs must also notify the Branch if the name of the REC firm changes, such as after being acquired by a larger firm. In this case, the Branch will request documentation demonstrating that the REC is still primarily an environmental consulting firm. **Failure to notify the Branch and/or to propose a replacement RSM is a violation of the REC Program Rules and may result in the REC being disqualified.** Therefore, the Branch recommends that RECs employ at least two RSMs.

The person responsible for notifying the Branch is the "principal contact" shown on Part 1 of the REC application. To avoid problems caused by personnel changes, RSMs should not be listed as the principal contact.

(e-f) Branch Approval of RECs

Any firm that represents itself as an REC without Branch approval is subject to prosecution under applicable laws.

(g) List of Branch-approved RECs

A list of Branch-approved RECs is available at <http://portal.ncdenr.org/web/wm/sf/ihs/approvedrecs>.

.0304 Minimum Qualifications for Registered Environmental Consultants

An REC applicant must demonstrate that it has an established environmental consulting practice. Additionally, one or more employees of the firm must meet the professional qualifications for RSMs shown in Section .0304. For further information, see the Branch's REC application package.

.0305 Standards of Conduct for Registered Environmental Consultants

(a) Standards of Professional Competence

All documents and completion statements must be certified by the RSM. The RSM must certify documents only when he/she has directly reviewed the work in question. The RSM's certification indicates that the document meets the requirements of the statute, the REC Program Rules, this implementation guidance and accepted standards of practice for hazardous substance site investigation and remediation. Note that the REC Program Rules do not authorize an RSM to practice outside his/her area of professional expertise. If a document contains work outside the RSM's area of expertise, he/she must rely on the advice of other professionals with relevant expertise. Before certifying any document, the RSM must ensure that the document has been certified by a representative of the remediating party and has been signed and sealed by the appropriate professionals, if necessary (e.g., licensed geologist, registered professional engineer, etc.). A single document may require the signature and seal of more than one professional. Violation of these provisions will result in the RSM and/or the REC being temporarily or permanently disqualified from the REC Program. The RSM and the REC may also be subject to penalties and other applicable sanctions.

(b) Standards of Professional Responsibility

Section .0305(b) states that RECs and RSMs are subject to the following standards of professional responsibility. Violations of the provisions will result in the RSM and/or the REC being temporarily or permanently disqualified from the REC Program. The RSM and the REC may also be subject to penalties and other applicable sanctions.

- (1) RECs shall at all times recognize that their primary obligation in the performance of professional services is to protect public health, safety, welfare and the environment.
- (2) RECs must report the existence of imminent hazards to the Branch in writing within 24 hours of discovery, unless the remediating party has already provided such notice in writing.
- (3) RECs must report the presence of sensitive environments, mixed chemical and radioactive wastes, or off-site migration of hazardous substances to the Branch in writing within 24 hours of discovery, unless the remediating party has already provided such notice in writing. As provided by .0302(g), the Branch may elect to supervise and/or direct the cleanup of sites with these site conditions.

- (4) RSMs must follow the requirements and procedures set forth in the Rules, must act with reasonable care and diligence, and must exercise independent professional judgment. "Independent professional judgment" refers to the RSM's judgment with respect to interpretation of the REC Program Rules and accepted standards of practice for hazardous substance site investigation and remediation.
- (5) If an REC becomes aware of new information that would modify its previous opinion on a site cleanup, the REC must promptly notify the remediating party and the Branch in writing.
- (6) If an REC becomes aware of relevant information that was not disclosed by a previous REC on the project, the REC must promptly notify the remediating party and the Branch in writing.
- (7) RECs shall not allow the use of their names or the names of their RSMs by any firm engaging in fraudulent or dishonest business practices. They are also not allowed to associate in a business venture with such firms.
- (8) RECs must ensure that their professional reports, public statements and testimony are objective and truthful. They must include all relevant and pertinent information when the results of an omission could lead to an incorrect conclusion.
- (9) RECs shall not misrepresent an RSM's academic or professional qualifications or degree of responsibility for prior site cleanups.
- (10) RECs must comply with all provisions of the REC Program regulations, all applicable federal and state laws, and local ordinances.
- (11) It is necessary for the RECs and RSMs to read and understand the REC Program Rules, this implementation guidance, and the site-specific administrative agreement.

.0306 Technical Standards for Registered Environmental Consultants

Section .0306 outlines the minimum technical and administrative requirements for conducting site investigations and remedial actions.

- (a) Compliance with Administrative Agreement, Statute, Rules and Guidance

The REC Program Rules are state law; therefore, violations of the program Rules are violations of state law. The implementation guidance is not state law, but it is Branch policy. The purpose of the implementation guidance is to assist remediating parties, RECs and RSMs interpret, apply and comply with the REC

Program Rules. Also see pages 1-2 of this guidance for an explanation of the responsibilities of the REC and the RSM(s).

(b) REC Certification of Documents and Completion of Work Phases

Section .0306(b) requires two separate certifications: certification of documents and certification of work phase completion. Both certifications are notarized, sworn statements subject to penalty of law.

Note: The most current version of the certification forms must be downloaded from the REC Program web site at <http://portal.ncdenr.org/web/wm/sf/ih/recprogram>.

Certification of documents All work phase completion statements, work plans, reports and project schedules submitted to the Branch must first be certified by a representative of the remediating party and then by the RSM. The “certification of documents” statements are shown in Appendix G, Section G.1. The language in the certification statements is specified in the Rules and may not be modified under any circumstances.

Certification of work phase completion The RSM must also certify the completion of the work phases shown in Section .0306(b)(5). The “certification of work phase completion” forms are shown in Appendix G, Section G.2. The language in the work phase completion forms is specified in the Rules and may not be modified under any circumstances.

(1) REC Certification of Documents

In this statement, the REC is certifying that the content of the submitted document complies with both REC Program Rules and the Inactive Hazardous Sites Response Act. It is the responsibility of the REC and its RSMs to read, understand, and comply with the REC Program Rules, the site-specific administrative agreement and this implementation guidance. This certification statement is a notarized sworn statement subject to penalty of law. **The RSM may sign this certification statement only after completion of the certification statement required by .0306(b)(2) and, if applicable, the professional signatures required by .0306 (b)(3).**

(2) Remediating Party Certification of Documents

All work plans, reports and project schedules must also be certified by a representative of the remediating party. The remediating party is certifying that the information is true, accurate and complete. This certification is required to ensure that the REC has been supplied with all the site data it needs to make a competent professional decision. This

certification statement is a notarized sworn statement subject to penalty of law.

(3) Other Professional Certification

The RSM may approve work products by relying, in part, on the advice of one or more professionals having relevant expertise (see Section .0305(a)). It is the RSM's responsibility to determine when documents must be sealed by a licensed professional (i.e., a professional licensed by the state). If a portion of the site investigation or site cleanup requires the seal of a licensed professional, that portion must be sealed before the document is certified by the remediating party and the RSM. Work that is not properly prepared under the supervision of, and sealed by, a licensed professional will be reported to the appropriate professional licensing board.

(4) Documents to be Certified Prior to Implementation

The following documents must be certified and notarized **first** by the remediating party (using Document Certification Form No. DC-I), **second** by the RSM (using Document Certification Form No. DC-II) and received by the Branch **before implementation**:

- (A) remedial investigation work plans,
- (B) remedial action plans,
- (C) remedial action preconstruction reports, and
- (D) any major modifications of project schedules.

The certification of documents statement is shown in Appendix G, Section G.1. The most current version of the certification forms must be downloaded from the REC Program web site.

(5) Submittal of Work Phase Completion Statements

The RSM *must* submit work phase completion statements as follows:

- (A) at the completion of the Phase I remedial investigation (*Work Phase Completion Form No. WPC-I*),
- (B) at the completion of the remedial investigation (*Work Phase Completion Form No. WPC-II*),
- (C) at the conclusion of the remedial action plan public notice period [see .0306(j)], after receiving authorization from the Branch (*Work Phase Completion Form No. WPC-III*),
- (D) at the completion of remedial design (*Work Phase Completion Form No. WPC-IV*) and construction (*Work Phase Completion Form No. WPC-V*), and

- (E) at the completion of all remedial action activities (*Work Phase Completion Form No. WPC-VI, Work Phase Completion Form No. WPC-VII, or Work Phase Completion Form No. WPC-III*).

The certification of work phase completion forms are shown in Appendix G, Section G.2. The most current version of the certification forms must be downloaded from the REC Program web site.

Note: The remedial investigation includes preparing remedial investigation work plans(s), sampling and preparing remedial investigation report(s). The remedial investigation should not be certified as complete until all these activities have occurred.

- (6) Content of Completion Statements

The language in the work phase completion forms is specified in the Rules and may not be modified under any circumstances. Note that the RSM is certifying compliance with two requirements: (i) that the work has been completed in accordance with the statute and the REC Program Rules; and (ii) that the REC is in compliance with Section .0305(b)(2) and (b)(3) of the REC Program Rules.

- (c) Quality Assurance for Sampling and Analysis

- (1) Data Quality Objectives

It is necessary to use a level of data quality that is commensurate with its intended use. Data Reporting Procedures are provided in Section A.8. Please note that full Contract Laboratory Program (CLP) documentation packages are not required.

- (2) Methods for Sample Collection and Analysis

RSMs should follow generally accepted standards of practice for hazardous substance site investigations. Standard or common field protocols, analytical methods and data reporting procedures are provided in Appendix A of this implementation guidance, Sections A.6, A.7 and A.8.

- (3-4) Requirements for Analytical Laboratories

Analytical data from unapproved (non-NC certified) laboratories will be rejected and the associated sampling event will have to be repeated.

- (5) Minimum Qualifications for Field Staff

The RSM must ensure that field staff is qualified by education, training and experience.

(6) Reporting Analytical Results

(A) The individual collecting the sample and the date and time of sample collection must be reported on the chain-of-custody form(s).

(B) Procedures for sample filtration are explained in Appendix A, Section A.6.

(C-K) This information must be reported either in the text of the sampling report or in the standard laboratory report (see also Appendix A, Section A.8, "Data Reporting Procedures"). The RSM should ensure that field staff is trained to properly complete chain-of-custody forms. Improperly completed chain-of-custody forms can render the analytical results invalid and the associated sampling event may have to be repeated.

(d) Health and Safety Plans

The RSM must ensure that project health and safety plans explain measures to protect the **surrounding community** from exposure to site contaminants. The goal is to ensure that the health and safety of all persons on and off site will not be adversely affected by the remedial activity. The RSM is responsible for conforming to all local, state, and federal regulations for health and safety.

(e-f) Requirement to Investigate and Delineate All Areas of Concern

The Branch's procedures for investigating all known or suspected areas of concern are outlined in Appendix A. RSMs must delineate contaminant concentrations in all media (soil, groundwater, sediment, surface water, and vapor) to the unrestricted-use goals and should use their professional judgment to determine what additional sampling and analysis is required, based on site conditions.

Note 1: The unrestricted-use remedial goals are established using the procedures outlined in Appendix D. The remediation goals for all media at each area of concern must be determined prior to completion of the remedial investigation.

Note 2: Be aware that unrestricted-use remedial goals for soil may be adjusted using the procedures outlined in Section E.2 of Appendix E depending on the carcinogenic and non-carcinogenic effects.

Note 3: All areas known, suspected, or having a reasonable probability of being contaminated by hazardous substances must be investigated. “Areas known, suspected, or having a reasonable probability of being contaminated” includes any media or areas with respect to which there is evidence (such as, but not limited to, allegations or indications of spills, visual observations, field instrument readings, laboratory data, and chemical odors) of a release of hazardous substances or of materials that contain or may contain hazardous substances.

(g) Remedial Investigation Plans

The remedial investigation must be completed within 3 years of the effective date of the administrative agreement as indicated in Section .0302(h). Certified status update reports, if required by the administrative agreement, must be submitted as well. A remedial investigation work plan must be submitted to the Branch within 30 days of completion (i.e., within 30 days of certification by the RSM) as required by Section .0302(l).

All remedial investigation work plans must be properly certified as indicated in Section .0306 and received by the Branch before implementation. The purpose of the remedial investigation plan is to assemble all available information on disposal history and site characteristics, and to use this information to formally plan the scope of the remedial investigation. The remedial investigation’s purposes are: (i) to identify all releases of hazardous substances to the environment, (ii) to identify potential exposure pathways, (iii) to characterize the chemical nature of such releases and collect sufficient sampling data to support a cleanup-level determination, (iv) to delineate the areal and vertical extent of contamination, and (v) to characterize site conditions sufficiently to conduct a feasibility study of remedial alternatives and to support a proposed remedy (see Appendix A for the sampling and analytical procedures for remedial investigations).

Many sites under the REC Program will not be audited until after the site cleanup is complete. However, a remedial investigation work plan is still required for three reasons. First, the Branch wants to ensure that the RSM has a formal plan for a remedial investigation that will include the procedures that are recognized by the Branch as standard practice in the professional environmental industry. Second, if the site is audited, the Branch will need to review the information contained in the work plan. Third, the work plan needs to be available for the public record. **Work plans and reports must address each component required by .0306(g) and .0306(h).**

Note: At some sites, part or all of the remedial investigation has already been completed when the administrative agreement is executed. In these cases, the RSM must address each component required by .0306(g) and .0306(h)

and should prepare remedial investigation work plans and reports as described below:

Example #1: At site #1, *part* of the remedial investigation has already been completed by the time the administrative agreement is executed.

In this case, the RSM should prepare a work plan for completing the remedial investigation. All pre-existing remedial investigation work plans and reports should be provided as appendices to the work plan. If any pre-existing work plans and reports are already on file with the Superfund Section, appropriate references can be made in the text regarding each document that is on file. For the work plan or report, the text should also include a table identifying the location in the appendices where each component requirement from .0306(g) and .0306(h) is addressed. The combined work plan/appendices must comply with .0306(g) and include the site background information required by .0306(g)(1-13). The RSM should attach the remediating party certification of documents statement shown in Appendix G, Section G.1 to the package. The RSM certification of documents statement shown in Appendix G, Section G.1 should also be attached.

Example #2: At site #2, *all field activities* of the remedial investigation have already been completed by the time the administrative agreement is executed.

In this case, the RSM should prepare a letter report that summarizes the results of the remedial investigation. All pre-existing remedial investigation work plans and reports not in the state file should be provided as appendices to the letter report. If all pre-existing work plans and reports are already on file with the Superfund Section, appropriate references should be made in the letter report regarding each document that is on file. The letter report should also include a table identifying the location in the appendices where each component requirement from .0306(g) and .0306(h) is addressed. The RSM should attach the remediating party certification of documents statement shown in Appendix G, Section G.1 to the package. The RSM certification of documents statement shown in Appendix G, Section G.1, and the remedial investigation certification of work phase completion form shown in Appendix G, Section G.2 should also be downloaded from the web site.

(3) Topographic Maps

Topographic maps should be the most recent available original USGS quadrangle series maps, *not photocopies*.

(4) Survey Plats

Survey plats must also meet the requirements of N.C.G.S. 47-30.

(6) Sources of Potable Water

The RSM must conduct a thorough survey of private and municipal water-supply wells and surface water intakes.

(7) Environmentally Sensitive Areas

The site and all adjacent property must be evaluated for the existence of the environmentally sensitive areas listed below.

- State Parks
- Areas Important to Maintenance of Unique Natural Communities
- Sensitive Areas Identified Under the National Estuary Program
- Designated State Natural Areas
- State Seashore, Lakeshore and River Recreational Areas
- Rare Species (state and federal Threatened and Endangered)
- Sensitive Aquatic Habitat
- State Wild and Scenic Rivers
- National Seashore, Lakeshore and River Recreational Areas
- National Parks or Monuments
- Federal Designated Scenic or Wild Rivers
- Designated and Proposed Federal Wilderness and Natural Areas
- National Preserves and Forests
- Federal Land designated for the Protection of Natural Ecosystems
- State-Designated Areas for Protection or Maintenance of Aquatic Life
- State Preserves and Forests
- Terrestrial Areas Utilized for Breeding by Large or Dense Aggregations of Animals
- National or State Wildlife Refuges
- Marine Sanctuaries
- National and State Historical Sites
- Areas Identified Under Coastal Protection Legislation
- Coastal Barriers or Units of a Coastal Barrier Resources System
- Spawning Areas Critical for the Maintenance of Fish/Shellfish Species within River, Lake or Coastal Tidal Waters
- Migratory Pathways and Feeding Areas Critical for Maintenance of Anadromous Fish Species within River Reaches or Areas in Lakes or Coastal Tidal Waters in Which Such Fish Spend Extended Periods of Time
- State Lands Designated for Wildlife or Game Management
- Wetlands

Appendix B provides the contacts that must be made in order to identify environmentally sensitive areas. The information received with these contacts must be detailed in this section of the work plan and copies of any correspondence included. In most cases, none of these areas will be present. Knowledge of the presence of these sensitive environments is necessary to determine if any special sampling (such as aquatic toxicity testing) is required and whether site remediation may do more harm than good (for example, excavation and destruction of a wetland vs. leaving in place residual contamination which will not significantly impact the wetland environment). If the RSM is uncertain about the existence of an environmentally sensitive area or more research is needed, the work plan should report on the information that was obtained during preparation of the work plan and any necessary additional research that is needed can be included as part of the work to be performed during the remedial investigation. If, based on the remedial investigation activities, it is determined that field work such as an ecological risk assessment is needed, a work plan amendment can be prepared, certified, and submitted to the Branch. **If, during performance of the remedial investigation it is determined that hazardous substances have migrated from the contaminant sources into any of these environmentally sensitive areas, the REC must contact the Branch pursuant to .0305(b)(3).**

Note: The REC will need to contact the Branch for further instructions if an ecological risk assessment is needed. If an ecological assessment is necessary, a report will be needed (see Appendix D.2.2 and D.2.3 for additional information).

In addition to the above environmentally sensitive areas, the REC must also determine if there is evidence of dead domestic animals or wildlife or stressed vegetation in the area of contamination. The REC must contact the Branch if any evidence is noted.

For very large sites with numerous adjacent properties, the Branch interprets this rule to include any environmentally sensitive areas for the site and properties, including right-of-ways that are located within a 1500-foot radius of the contamination. As the remedial investigation is performed, additional information may be acquired through further evaluation and/or sampling (that was outlined in the work plan already on file for the public record). Once the extent of the contamination is defined, the environmentally sensitive areas should be re-evaluated. Any additional acquired information must be included in the Remedial Investigation Report.

(13) Regulatory History

The RSM must provide copies of reports of all previous site investigations (if not already in the public record), whether prepared by the REC firm or other environmental consultants (see two examples in Section 0306(g) above). For existing work plans and reports already on file with the Superfund Section, appropriate references should be made regarding each document that is already on file.

(17) Analytical Parameters

Sampling and analytical procedures for remedial investigations are provided in Appendix A. The RSM must ensure that test methods are capable of determining whether or not appropriate cleanup levels (e.g., health-based soil remedial goals, protection of groundwater remedial goals, etc.) are met.

(19) Health and Safety Plans

The RSM must ensure that project health and safety plans describe the measures to protect the **surrounding community** from exposure to site contaminants. The goal is to ensure that the health and safety of all persons on and off site will not be adversely affected by the remedial activity. The RSM is responsible for conforming to all local, state, and federal regulations for health and safety.

(h) Remedial Investigation Reports

The remedial investigation must be completed within 3 years of the effective date of the administrative agreement as indicated in Section .0302(h). Certified status update reports, if required by the administrative agreement, must be submitted as well. A remedial investigation report must be submitted to the Branch within 30 days of completion (i.e., within 30 days of certification by the RSM) as required by Section .0302(l).

All remedial investigation reports must be properly certified as indicated in Section .0306. The Phase I remedial investigation report must also include the phase I work phase completion statement (*Work Phase Completion Form No. WPC-I*). The final report of the remedial investigation must also include the remedial investigation completion statement (*Work Phase Completion Form No. WPC-II*). These reports should document the findings of the site investigation in sufficient detail to support the cleanup-level determination, conduct the feasibility study of remedial alternatives and support the proposed remedy.

Note 1: A clearly written and well-organized remedial investigation report is critical during a Branch audit for clarity in the public record. If the report is not clear and does not document activities, sample designations, etc., it will have to be revised and the work may have to be repeated.

Note 2: Any required ecological evaluation is part of a remedial investigation and must be completed and the findings included in the certified remedial investigation report.

Note 3: If the remedial investigation is complete and no remedial goals have been exceeded for any of the media (i.e., soil, groundwater, sediment, surface water, air, etc.) and, therefore, remedial action is not necessary, a combined remedial investigation and remedial action completion report should be prepared. This document must include the combined remedial investigation & remedial action completion certification “for No Action Remedy” statement (*Work Phase Completion Form No. WPC-VIII*).

Note 4: In some site-specific cases, the final report of the remedial investigation may include the information typically included for the Phase I investigation and one report prepared. If this is the case, the phase I work phase completion statement (*Work Phase Completion Form No. WPC-I*) and the remedial investigation completion statement (*Work Phase Completion Form No. WPC-II*) must be included with the final report to certify that both the Phase I remedial investigation and the final remedial investigation are complete.

(4) Quality Assurance Procedures

Procedures for standard field protocols are shown in Appendix A, Section A.6.

(8-11) Data Reporting Requirements

Additional data reporting procedures are shown in Appendix A, Section A.8. Note that detailed documentation of analytical data is critical during a Branch audit. If analytical data are not properly documented, the remedial investigation report will have to be revised and the sampling event may have to be repeated. **Unless otherwise directed by the Branch, the data must be submitted as part of the certified document (e.g., work plan, report, etc.) and include the laboratory summary sheet, laboratory results, QA/QC results, and chain of custody documentation. Chromatograms are not needed nor desired for the Superfund files. See Appendix A for additional information.**

(i) Remedies Requiring Branch Concurrence

The three conditions outlined in this section require the Branch's **prior concurrence of the proposed remedy**.

Note 1: For any proposed remedies requiring concurrence from the Branch in accordance with .0306(i), a written proposal must be submitted to the Branch prior to submittal of a Remedial Action Plan. The proposal must describe the condition needing concurrence from the Branch and a summary with specific details regarding how the remedy is supported by the feasibility study. The Branch will only be providing review and concurrence (if necessary) with the proposed remedy and not review and approval of a RAP. The REC will provide approval of the proposed remedy and RAP upon proper certification of the RAP document.

Note 2: The definition of “on-site containment or capping” as described in .0306(i)(2) includes any remedy which leaves in place contaminated media above Branch unrestricted use cleanup levels (e.g., containment remedies which rely on land use restrictions). The procedures for obtaining concurrence on a land use restriction proposal are provided in Appendix F.

(j) Public Notice of Remedial Action Plans (RAPs) and RAP Addendums

The public notice for RAPs and RAP Addendums is performed using the following procedures:

- The REC and RP submit a certified Proposed RAP or RAP Addendum to the Branch (with DC-I and DC-II certifications).
- Branch staff drafts the public notice then e-mail it to the RSM with instructions and a mailing list of parties that have expressed interest in remedial activities at the facility/site. The RSM is responsible for adding to the mailing list any additional parties that have expressed an interest in the site.
- The RSM completes the public notice form by writing the date that indicates the end of the public notice period in the blank near the bottom of the notice form (35 days from the mailing date to allow for postal delivery).
- The RSM distributes the public notice via certified mail to the facility mailing list and e-mails copies of the certified mail receipts to the Branch for the public file.
- At the end of the public notice, the RSM addresses any comments from the public regarding the RAP or RAP Addendum. If the Branch receives significant public comment, the Branch may elect to supervise the site cleanup as provided by .0302(g).

- After any public comments are satisfactorily addressed, the Branch will inform the RSM that the RAP work phase completion statement (WPC-III) can be certified and submitted and the RAP can be implemented. Note: the work phase completion form WPC-III must be accompanied by Document Certification Forms DC-I and DC-II.

Following the RAP public notice and work phase completion certification, progress toward site remediation is expected to begin immediately.

- (k) Discharge of Remediation Waste Streams – See REC Rules
- (l) Remedial Action Plans and RAP Addendums

As indicated in Section .0302(h), groundwater remedial action must be implemented within two (2) years of completion of the remedial investigation. Non-groundwater (i.e., soil, sediment, and surface water) remedial action must be completed within eight (8) years of the effective date of the administrative agreement. Status update reports, if required by the administrative agreement, must be submitted as well. In accordance with Section .0306(o), progress reports must be submitted to demonstrate these work phases have been completed and the deadlines have been met. All required reports must be submitted to the Branch within 30 days of completion (i.e., within 30 days of certification by the RSM) as required by Section .0302(l). Be aware that all remedies must conform to the requirements of .0306(i) & (j).

A remedial action plan is required for three reasons. First, the Branch wants to ensure that the RSM prepares a feasibility study to formally evaluate remedial alternatives and, in some cases, verify that the current remedy is still the most appropriate option for the site. Second, if the site is audited, the Branch will need to confirm that the selected remedy is supported by the results of the feasibility study. Third, the remedial action plan provides a statute-required opportunity for public comment on the proposed remedy.

***Note:* For sites with remedies that were implemented prior to execution of a REC-Administrative Agreement, a certified RAP is required. The RAP must address all components of .0306(l) and any existing remedy must be justified [see .0306(l)(5)].**

All RAPs, and RAP Addendums if a change in remedy is proposed, must be properly certified as indicated in Section .0306. The project schedule for complete implementation of the remedial action includes the time necessary to perform any needed pilot tests and to obtain any required permits and approvals. The remedial action plan must include the sections outlined below and should be written in a style that is understandable to the general public.

(1) Remedial Investigation Results

This section should summarize and reference the remedial investigation reports submitted pursuant to Section .0306(h).

(2) Remedial Action Objectives

This section should summarize the areas of the site to be remediated, the affected media and contaminants of concern, and the remedial design goals, including cleanup standards.

Note: Unrestricted-use remedial goals for soil may be adjusted using the procedures outlined in Appendix E depending on the carcinogenic and non-carcinogenic effects.

(3) Feasibility Study

This section should include a screening of all potentially applicable technologies. It should identify at least three technologies or combinations of technologies to be evaluated, including any remedies already implemented, in the feasibility study. The feasibility study must present a detailed analysis of each remedial alternative using the eight evaluation criteria shown in Section .0306(1)(3)(A) through (H). The feasibility study must also include a comparative analysis of remedial alternatives. Each should be compared to the other alternatives and ranked in order of preference.

Note: Physical barriers are the least favored option for site remediation.

(4) Proposed Remedy

This section should provide a preliminary design of the proposed remedy. It should include a description of the principle of operation of the technology or combination of technologies. Pre-design schematic drawings of all major components of the remedy should also be included.

Note 1: As specified in .0306(m), the final design plans and specifications are submitted later as part of the preconstruction report.

Note 2: For any remedial alternative that involves offsite treatment and/or disposal, the REC must ensure that the remedial alternative complies with state and federal laws, including RCRA. The REC is responsible for performing a hazardous waste determination that complies with current North Carolina Hazardous Waste Section Rules and policies. For additional

information, contact the Programs Branch of the Hazardous Waste Section at (919) 707-8200.

(5) Justification for Selection of Proposed Remedy

The proposed remedy must be supported by the results of the feasibility study. It must be the remedial alternative that best satisfies the eight feasibility study criteria shown in Section .0306(1)(3)(A) through (H).

Note 1: All proposed remedies must include removal and/or treatment of source areas with contamination exceeding health-based remedial goals and contamination leaching to groundwater. Source areas include waste materials, free product, non-aqueous phase liquids in porous media, etc. The Branch will only consider exceptions to this requirement if the REC can demonstrate that source removal is technically impracticable from an engineering perspective. See Appendix D.5 and F.

Note 2: The Branch considers "monitored natural attenuation" to be a possible remedial alternative for attaining the remediation goals established pursuant to .0308. It is *not* a waiver of the remediation goals. Therefore, monitored natural attenuation must include removal and/or treatment of source areas of groundwater contamination as indicated above. If natural attenuation of any contaminated medium is proposed, the REC must demonstrate that it is supported by the results of the feasibility study and that it is the preferred remedy. Progress monitoring and reporting will also be necessary to demonstrate that monitored natural attenuation is an effective remedy. For guidance on evaluating a site's potential for monitored natural attenuation, see appropriate technical literature and U.S. EPA guidance documents on the subject.

(9) Proposed Criteria for Remedial Action Completion

The remedial action plan must include a work plan for monitoring and evaluating the remedy's performance. Performance results should be submitted in remedial action progress reports pursuant to .0306 (o). The work plan must also describe post-remediation confirmation sampling. These sampling results should be submitted in remedial action completion reports pursuant to .0306 (p). Branch guidance on confirmation sampling and analysis is provided in Appendix C.

(10) Health and Safety Plans

The RSM is also responsible for ensuring that project health and safety plans include measures to protect the **surrounding community** from exposure to site contaminants. The goal is to ensure that the health and safety of all persons on and off site will not be adversely affected by the remedial activity. The RSM is responsible for conforming to all local, state, and federal regulations for health and safety.

Note that for site remedial actions transferred from another agency, if the remedial action was already in progress prior to the transfer and continuation of the same remedy is approved by the REC in the certified RAP, the preconstruction and construction completion reports described below are not necessary as long as the applicable components listed in .0306(m) for a preconstruction report and in .0306(n) for a construction completion report are provided in the remedial action plan. The work phase completion forms (Remedial Design Completion Certification for a preconstruction report and Construction Completion Certification for a construction completion report) must be included in the RSM-certified RAP.

(m) Preconstruction Reports

After a RAP or RAP Addendum is certified, the preconstruction report must be prepared, properly certified, and submitted as indicated in Section .0306. The work phase completion statement (*Work Phase Completion Form No. WPC-IV*) must also be included with the preconstruction report. A preconstruction report is required for three reasons. First, before remedial construction, the Branch wants to ensure that the RSM conducts the treatability studies and additional site characterization needed to support the final remedy, prepares a final design report and obtains the necessary permits and approvals. Second, if the site is audited, the Branch will need to review the information contained in the preconstruction report. Third, the preconstruction report documents the final design for the public record.

(1) Treatability Studies and Site Characterization

All treatability study reports and additional site characterization reports should be provided in an appendix and summarized in the text. The Branch strongly recommends the use of pilot-scale treatability studies to evaluate the suitability of proposed technologies based on site-specific conditions and to optimize the remedial design.

(2) Final Engineering Design Report

The engineering design report should include the final plans and equipment specifications for construction of the remedy. The report

should include a narrative description of the final design. It should be written in a style that the general public can understand. The report should also include an updated schedule for construction, operation and maintenance, performance monitoring and evaluation, and progress reporting.

(3) Permits and Approvals

Copies of all registrations, permits and approvals should be incorporated into the preconstruction report as an appendix. Examples of registrations and permits that might be required for groundwater remediation sites include: non-discharge permits for discharge of treated groundwater to re-injection wells or infiltration galleries; pretreatment permits for discharge of treated groundwater to publicly owned treatment works; NPDES permits for discharge of treated groundwater to surface waters; well installation permits for monitoring, extraction and injection wells; air quality registrations/permits for discharge of air streams; etc. **The remediating party and the REC must obtain all necessary permits and approvals.**

Note 1: A preconstruction report is not necessary for a remedial action involving only monitored natural attenuation and/or soil excavation if the applicable components listed in .0306(m), such as final design parameters of the monitoring, excavation and project schedule are provided in the remedial action plan. However, if treatability studies, additional site characterization work, additional design or the acquisition of registrations, permits or approvals will be performed following certification of the remedial action plan, then a preconstruction report must be submitted. The report should document the information obtained from this work and how it will be used to implement the remedial action.

Note 2: For remedial actions involving multiple phases of injection such as for enhanced reductive dechlorination or oxidation technologies, a preconstruction report is not required as long as the applicable components listed in .0306(m) are provided in the RAP. However, to comply with the REC Program Rules for work phase completion statements, the Remedial Design Completion Certification must be submitted with the RAP or it can be included with the construction completion report (see .0306(n) below) following the first phase of injection. For any subsequent phases of injection that have changes/deviations from the original RAP, such as the rates of injection, injection locations, etc., no RAP Addendum is needed, but additional preconstruction reports and construction completion reports must be submitted for each phase of injection. The reports can be brief and simply describe the specific changes from the RAP and initial

phase of injection and provide copies of required permits. Each preconstruction report must have the required Remedial Design Completion Certification and each construction completion report must have the Construction Completion Certification.

(n) Construction Completion Reports

All construction completion reports must be properly certified as indicated in Section .0306. The work phase completion statement (*Work Phase Completion Form No. WPC-V*) must also be included with the construction completion report.

Note 1: If soil excavation is used as the only remedial alternative, once the excavation and transport of the soil to an off-site permitted treatment or disposal facility has been completed, confirmation data has been received that indicates the soil remedial goals have been achieved, and the excavation has been backfilled, a combined construction completion report/soil remedial action completion report (see .0306(p) below) can be submitted and include: 1) the Remedial Design Completion Certification (if a pre-construction report was not previously submitted), 2) the Construction Completion Certification (if a construction completion report has not been submitted), and the Remedial Action Completion Certification (*Work Phase Completion Form No. WPC-VI* or *Work Phase Completion Form No. WPC-VII*). If the soil is transported to an on-site permitted treatment or disposal facility, a construction completion report must be submitted upon completion of the construction activities and include the Remedial Design Completion Certification (if a preconstruction report was not previously submitted) and the Construction Completion Certification. After confirmation data has been received that indicates the soil remedial goals have been achieved, the soil remedial action completion report (see below) can be submitted and include the Remedial Action Completion Certification. The construction completion report and soil remedial action completion report can be combined into one report and the appropriate work phase completion forms included in the document. In any case, if the soil excavation remedial activities take longer than 3 months to complete, certified quarterly progress reports (see .0306(o) below) must be prepared as required by the REC Program Rules until construction is completed and the remedial goals have been met.

Note 2: For remedial actions involving only monitored natural attenuation of groundwater or only institutional controls for a land use restriction scenario (no construction activities), a Construction Completion Report is not required. Therefore, the work phase completion forms for Remedial Design Completion Certification (*Work Phase Completion Form No. WPC-IV*) and Construction Completion Certification (*Work*

Phase Completion Form No. WPC-V) are not required. Any groundwater construction activities such as installation of groundwater monitoring wells or recordation of documents for a declaration of a land use restriction scenario should be documented in the first progress report.

Note 3: The Construction Completion Report is the last document submitted prior to beginning the routine remedial action progress reporting requirements of the REC Program Rules (see .0306(o) below). The Construction Completion Report can be combined with the first Progress Report.

(o) Progress Reports

Remedial action progress reports must be submitted in accordance with Section .0306(o). It is important to keep the public record up to date regarding the status of the site remedial activities. **Following the RAP public notice and RAP work phase completion certification, progress toward site remediation is expected to begin immediately. Remedial action must comply with .0302(h) and special reporting requirements may exist in the signed administrative order/agreement. Unless an alternate schedule is approved by the Branch, the first Progress Report is due within 90 days of receipt of the Remedial Action Construction Completion Report and work phase completion certification statement from the RSM. Each subsequent Progress Report is due within 90 days of the previous report, which is typical industry practice.** After the first full year of remedial action and the completion of four quarterly monitoring events, groundwater sampling and reporting may be performed on a reduced schedule but no less than an annual basis as indicated in .0306(o). Monitoring data collected for use in progress reports must meet the quality assurance requirements of Section .0306(c). **Copies of laboratory data must be included as part of the certified reports. The submitted data should include the laboratory summary sheet, laboratory results, QA/QC results, and chain of custody documentation. Chromatograms are not needed for the Superfund files. See Appendix A for additional information.**

Note 1: For soil excavation only remedial activities that take longer than 3 months to complete, certified quarterly progress reports must be prepared as required by the REC Program Rules until construction is completed and the remedial goals have been met (see .0306(n) above).

Note 2: For remedial action involving only monitored natural attenuation, groundwater monitoring must be implemented and the first Progress Report received within 90 days following receipt of the RAP work phase completion statement (*Work Phase Completion Form No. WPC-III*) by the Branch from the RSM. Progress monitoring must demonstrate that monitored natural attenuation is an effective remedy.

Note 3: The REC should periodically review the site and adjacent properties for possible new receptors and include the findings in progress reports. Any new receptors should be reported to the Branch.

(p) Remedial Action Completion Reports

Non-groundwater (i.e., soil, sediment, and surface water) remedial action must be completed within eight (8) years of the effective date of the administrative agreement as indicated in Section .0302(h).

All remedial action completion reports must be properly certified as indicated in Section .0306. The work phase completion statement (*Work Phase Completion Form No. WPC-VI or Work Phase Completion Form No. WPC-VII*) must also be included with the report. A clearly written and well-organized remedial action completion report is critical during a Branch audit. If the report does not clearly demonstrate that the site cleanup has been completed and cleanup levels have been achieved, the Branch will return the site to the Inactive Hazardous Sites inventory and require additional work.

***Note1:* The final remedial action completion report must indicate that all remediation specified in the executed REC-Administrative Agreement has been completed.**

Note 2: For documentation in the certified Remedial Action Completion Report, the REC should include a copy of the remedial goals obtained from the appropriate DENR source(s) that were applicable at the time the remedial action was complete.

(3) Remedial Action Completion

This section should present the results of the remediation and confirmation sampling that was outlined in the remedial action plan pursuant to Section .0306(1)(9). It should also demonstrate that final remediation goals established in accordance with Section .0308 have been met.

Note: In accordance with N.C.G.S. 130A-310.7(c), a written request can be sent to the Branch for a determination by the Branch that a site has been remediated to unrestricted use standards. After the Branch confirms that the RSM has certified the site has been remediated to unrestricted use standards, the Branch will issue a written notification that no further remediation will be required at the site. The no further action letter from the Branch will be based on the certification by the RSM that the site has been remediated. Additional information regarding no further action can be found at <http://portal.ncdenr.org/web/wm/sf/ih/ra/nfa>.

(4) Project Costs

This section should report the present worth of the total capital costs, and include the operation and maintenance costs to implement the remedial action plan.

(q) Investigation-Derived Wastes

In the remedial investigation and remedial action reports, the REC should describe the generation, treatment, handling and ultimate disposition of wastes produced during the investigation and remedial action phases. For more details, see Appendix A, Section A.6(g).

.0307 Branch Audits and Inspections

(a) Audits-General

Branch audits ensure that site cleanups under the REC Program are conducted in accordance with the REC Program Rules, this implementation guidance, the site-specific administrative agreement and applicable federal and state statutes and regulations. Audits will focus on violations of the REC Program Rules (state law) and this implementation guidance (Branch policy).

(b) Content of Audits – See REC Rules

(c) Financial Assurance

To participate in the REC Program, remediating parties must pay an annual administration cost to offset the cost of the Branch's audit program. The annual administration cost will initially be set at \$2,500 per site. It will be adjusted annually to reflect the actual costs of the audit program. The administration cost will be calculated based on the number of months remaining in the state fiscal year (July 1-June 30). Any unused funds at the end of the year will be prorated towards the following year's payment.

(d) Disciplinary Actions

The Branch will use the results of the audit program to track the performance of RECs and RSMs. Violations of the program Rules may result in the RSM and/or the REC being temporarily or permanently disqualified from the program. The RSM and the REC may also be subject to penalties and other applicable sanctions.

.0308 Cleanup Levels

- (a) The REC must ensure compliance with the remediation goals established in accordance with Appendices D and E.
- (b) Branch guidance on establishing natural background levels is provided in Appendix A, Section A.5.

Appendix A

Sampling and Analytical Procedures for the Remedial Investigation

A.1. Introduction

This appendix provides general guidance on sampling and analytical procedures for sites where the nature and extent of contamination have not been determined. At sites where partial delineation of contaminants has been conducted, the REC will need to prescribe additional sampling and analysis based on site-specific conditions.

During the remedial investigation, the REC should collect the minimum number of samples described below, from each area of concern. Analytical procedures are addressed in Section A.7 of this appendix. Once the first phase of sampling is complete, the REC must review the sampling data and establish preliminary remediation goals in accordance with Appendix D. The second phase of the remedial investigation must be structured to define the extent of each contaminant in each area of concern for each contaminated medium. The extent of contamination must be delineated to the preliminary remediation goals (unrestricted-use standards) established for the site.

Note 1: It will be necessary to establish the remedial goals using the procedures outlined in Appendix D in order to complete the remedial investigation so that a remedial action plan can be prepared appropriately.

Note 2: All areas known, suspected, or having a reasonable probability of being contaminated by hazardous substances must be investigated. “Areas known, suspected, or having a reasonable probability of being contaminated” includes any media or areas where there is evidence (such as, but not limited to, allegations or indications of spills, visual observations, field instrument readings, laboratory data, stressed vegetation, and chemical odors) of a release of hazardous substances or of materials that contain or may contain hazardous substances.

A.2. Soil Sample Collection

A.2.1. Phase I Sampling

The purpose of the Phase I soil investigation is to identify all releases of hazardous substances to site soils, to characterize the chemical nature of such releases, and to collect sufficient sampling data to establish remediation goals.

Known or suspected spills and disposal areas must be investigated using historical research, such as waste management records, employee interviews and vintage maps and aerial photographs. Samples must be collected from *each* known or suspected area of concern. All areas known, suspected, or having a reasonable probability of being contaminated by hazardous substances must be investigated. “Areas known, suspected, or having a reasonable probability of being

contaminated” includes any media or areas where there is evidence (such as, but not limited to, allegations or indications of spills, visual observations, field instrument readings, laboratory data, stressed vegetation, and chemical odors) of a release of hazardous substances or of materials that contain or may contain hazardous substances. The necessary sampling strategy depends on whether or not there is visible evidence of contamination.

A.2.1.1. Visible Evidence of Contamination

At least one grab soil sample should be collected centrally from the most visibly contaminated location and horizon in each area of hazardous substance release or possible release.

A.2.1.2 No Visible Evidence of Contamination

A.2.1.2.1. Surface Release:

- a. If no visible evidence exists in an area of a suspected *surface* release of contaminants, sampling should be conducted by first establishing a grid with grid line intersections (nodes) spaced no farther than 50 feet apart. Samples should be collected from 0 to 6 inches below ground surface at each grid node. Compositing to reduce the total number of samples may be conducted as follows:

| | |
|--|--|
| ≤ 62,500 square feet: (250 ft. x 250 ft.) | No more than four grid node samples may be composited. |
|--|--|

| | |
|-----------------------|---|
| > 62,500 square feet: | A greater number of grid node samples may be composited, but a minimum of five resulting composite samples should be submitted for laboratory analysis. |
|-----------------------|---|

Surface samples for volatile organic contaminants should be collected 6 to 12 inches below ground surface. At least five samples or 25% of the node samples, whichever is more, should be unmixed grab samples. Field screening methods may be used to select these unmixed samples, or, the unmixed samples should be collected from locations that are evenly distributed across the area of suspected contamination. The remaining samples should be collected as either unmixed grab samples or composited samples.

Composited samples will be used for qualitative data only.

Note: For extremely large sites (sites several acres in size), contact the Branch to discuss site specific conditions.

- b. In addition to A.2.1.2.1.a, if the actual contaminants released are unknown, mobile contaminants or contaminants that have been detected in groundwater at the site, a soil boring should be advanced to the water table. The boring should be centrally located in the area of concern and adequately sampled at intervals from ground surface to the water table. Examples of sampling intervals include 0 to 6 inches below ground surface, every five feet from 6 inches to the water table, and at the water table. Additional sampling depths should also be chosen based on visual and field-screening evidence. Samples collected for volatile organic analysis should be unmixed grab samples.

A.2.1.2.2. Subsurface Release:

- a. The results of the historical research should be used to conduct geophysical surveys and test trenching. Geophysical surveys should be conducted by scanning areas of concern on parallel and perpendicular traverses spaced no further than 30 feet apart. Closer spacing may be necessary when using a metal detector. Grids should be established in all areas which yield anomalous readings during the scanning phase. Grid nodes should be spaced no greater than 10 feet apart. Readings should be recorded at each grid node and mapped. If areas are excluded from the survey due to instrument interferences, the REC should provide a written justification for exclusion along with a map delineating the features causing the interferences with the remedial investigation report.
- b. Once the subsurface disposal area has been identified, it should be sampled in accordance with Sections A.2.1.1, A.2.1.2.1(b) and A.5.1(1). If the suspected subsurface disposal area cannot be located using the methods above, a soil boring should be advanced through the suspected disposal area in accordance with Section A.2.1.2.1(b).

A.2.2 Phase II Sampling

The purpose of the Phase II soil investigation is to delineate the lateral and vertical extent of contamination in each area of concern, until concentrations less than or equal to the remediation goals established pursuant to Appendix D have been reached. Delineating the extent of soil contamination requires sampling all ditches, culverts or other drainage features which may have received runoff from known contaminated areas. Field screening methods, such as soil gas testing and immunoassay test kits, may be used to help define the extent of contamination. If these methods are used, soil samples should also be collected at the expected vertical and lateral boundaries of each contaminated area and sent to the laboratory for confirmation.

A.3. **Groundwater Sample Collection**

A.3.1. Phase I Sampling

The purpose of the Phase I groundwater investigation is to identify all releases of hazardous substances to groundwater, characterize the chemical nature of the contaminant plume(s), and collect sufficient sampling data to establish remediation goals.

The need for groundwater assessment at a site with known soil contamination will be determined on a case-by-case basis. If the water table is within five feet of the land surface, the contaminants are known to extend to within a five-foot depth of the water table, or the contaminants are somewhat mobile (such as VOCs and leachable metals), the uppermost groundwater aquifer must be sampled. At least one well should be installed centrally *within each area of release* that meets one or more of the above criteria. Where contaminants are believed to be "floaters" due to density and solubility in water, well screens must be positioned across the water table. Where contaminants are believed to be "sinkers," the well screen should be positioned just above the bedrock surface or a continuous impermeable layer (sufficient data may be necessary to determine the continuity of the impermeable layer). In many cases, insufficient information on the nature of hazardous substance releases at the site will make it necessary to perform the Phase I groundwater field work after the Phase I soil work is completed.

If the remediating party decides not to install a well within an area due to grossly contaminated conditions or concern for rupturing buried vessels, a minimum of three wells should then be installed immediately surrounding the suspect area. Once groundwater flow patterns are clearly defined, a well will be necessary on the hydraulically down-gradient perimeter of the area of concern. A previously installed well may be appropriately located. Depending on the size of the area and nature of the release, additional monitoring wells may be necessary once the source is removed or remediated.

Groundwater elevation data should be collected during each sampling event and at least every six months during the remedial investigation. If subsequent water table elevation data indicate a significant change in the direction of groundwater flow, additional wells will be necessary to adequately evaluate groundwater contamination. Groundwater elevations should be measured from a datum established by a registered land surveyor.

A minimum of one sample should be collected from each monitoring well.

A.3.2. Phase II Sampling

If Phase I sampling indicates hazardous substances are present in groundwater, additional groundwater assessment will be necessary. The purpose of the Phase II groundwater investigation is to delineate the lateral and vertical extent of all contaminant plumes, on- and off-site. The lateral and vertical extent of the groundwater contaminant plumes must be defined by wells free from hazardous substance concentrations that exceed Branch remediation goals.

Note: Site-specific conditions may require more than two phases to complete the groundwater investigation. Examples include complex hydrogeology, such as fractured bedrock aquifers, and complex contaminant behavior, such as the migration of dense non-aqueous phase liquids.

A.4. Surface Water and Sediment Sample Collection

A.4.1. Phase I Sampling

The purpose of the Phase I surface water/sediment investigation is to identify all releases of hazardous substances to surface water or sediments, characterize the chemical nature of such releases, and collect sufficient sampling data to establish remediation goals. A surface water and sediment assessment will be necessary if there is a potential for contaminants to migrate to surface water via surface runoff or through a discharge of contaminated groundwater to a surface water body. Water and sediment samples should be collected at the probable point of entry. In addition, at least one water and one sediment sample should be collected immediately upstream of the site and one water and one sediment sample should be collected immediately downstream of the site. Analyze these samples only for those contaminants previously detected in other media at the site unless a non-permitted direct discharge of a hazardous substance from the site to surface water has occurred. If such a discharge has occurred, samples should be analyzed for the analytical scan shown in Section A.7.

A.4.2. Phase II Sampling

If contamination is detected in any downstream sample, additional surface water/sediment assessment will be necessary. The purpose of the Phase II surface water/sediment investigation is to define the downstream extent of contamination to concentrations less than or equal to the remediation goals established pursuant to Appendices D and E.

A.5. Other Sample Collection

A.5.1. Phase I Sampling

1. If any abandoned or buried vessels containing unknown materials or hazardous substances are discovered, contact the Branch before proceeding with assessment activities. Depending on the scope, full characterization may be part of the remedy. When an investigation does occur, the contents must be sampled and analyzed for parameters sufficient to meet disposal or treatment facility requirements. A full-scan composite soil sample(s) in the vessel area should be collected as described in Section A.2.1. Soil samples also should be collected at the time of vessel excavation in the immediate vicinity of all joints and junctures of subsurface pipe associated with any underground vessels known or suspected to contain or have contained hazardous substances.
2. Waste materials (e.g., flyash, sludge, etc.) that are known or suspected to contain hazardous substances which may cause an exposure hazard and contaminate other media should be evaluated using the same procedures as if it were contaminated soil. Laboratory analyses are necessary to determine if the contaminants in the waste materials exceed the Branch's remedial goals. See A.2 Soil Sample Collection procedures for additional information.
3. Site-specific background soil samples should be collected to establish natural metals concentrations. Samples should be located away from roadways, railways, parking areas and other potential sources of contamination. Because natural metals concentrations are highly variable, the Branch recommends collecting a minimum of five background soil samples. Background soil samples should be collected from depths and soil types that are representative of contaminated soils, but should not be collected from topsoil (0-6 inches). Statistical methods for establishing representative background concentrations may be used at the RSM's discretion. Sample concentrations that are obvious outliers should not be used to establish background concentrations.

4. If groundwater assessment is required, background groundwater samples should be collected to established natural background conditions. Samples should be collected upgradient of any on-site sources of contamination.
5. If surface water assessment is required, background surface water and sediment samples should be collected to establish natural or anthropogenic background conditions. Samples should be collected upstream of any on-site sources of contamination. If contamination is found upstream of the site in concentrations that are greater than the downstream concentrations, downstream delineation may not be required.

A.5.2. Phase II Sampling

1. Areas determined to have hazardous substance contamination resulting from a release from a vessel should be characterized according to Section A.2.2.
2. At sites having any volatile organic compound contamination located within 100 feet of an occupied or potentially occupied building, evaluation of subsurface vapor intrusion may be required and samples collected as necessary. See Section D.4 for additional information and contact the Branch for instructions.

A.6. **Standard Field Protocols**

1. Unless noted below, the field procedures, specifically those relating to sample collection techniques, sample containers, sample preservation, equipment decontamination, and field measurement procedures, should comply with the most current version of the US Environmental Protection Agency Region IV Science And Ecosystem Support Division (SESD) *Field Branches Quality System and Technical Procedures*. This information is available from US EPA Region IV, SESD at <http://www.epa.gov/region4/sesd/fbqstp/>.
2. In addition to the standard EPA protocols, please observe the following procedures:
 - a. Field QC samples: Duplicate samples, equipment rinsate blanks and VOA trip blanks are strongly recommended. Section .0306(c) provides environmental sample and collection criteria. The RSM should use their professional judgment and have appropriate support for the QA/QC utilized. In some cases, additional support data may be needed for certain work phases such as confirmation samples collected for site closure.

- b. Other than composited samples collected under Section A.2.1.2.1.a, soil, sediment and waste samples for volatiles analysis should be collected directly into sample containers without mixing.
- c. All soil sampling and boring locations must be staked and flagged (or surveyed) until the remedial investigation is complete.
- d. All monitoring well locations must be surveyed by a land surveyor registered in North Carolina.
- e. Filtration of groundwater samples for metals analysis before acid digestion is not permitted. Samples should be prepared using Standard Method 3030C “Preliminary Treatment for Acid-Extractable Metals,” Standard Methods for the Examination of Water and Wastewater, latest edition. If turbidity is a problem, groundwater samples should be collected using a low-flow purging and sampling technique. Additional well development may also be necessary.
- f. For surface waters that are very shallow (less than six inches deep), turbulent or highly turbid, samples may be collected in a separate collection container and then decanted into the sample container. Samples for organic analysis should be decanted into the sample container immediately. Samples for metals analysis may be allowed to settle for a few minutes prior to decanting. All collection containers should be made of the same materials as the sample container. They should be pre-cleaned and handled in the same manner.
- g. Investigation derived waste or IDW (may include drill cuttings and mud, sampling materials, purge water, soil, and residuals from testing) generated as part of assessment activities may be discharged or stored in the area of contamination and are not subject to RCRA permitting as long as the material: 1) stays on site and remains in the contaminated area, 2) is secured, 3) does not increase the spread of contamination or concentrations in a particular medium, 4) does not cause mobilization of contaminants, and 5) does not introduce contamination to uncontaminated soil (causing an increase in contaminant concentrations). In residential and public use areas, IDW will require off-property management unless it meets unrestricted-use levels and disposal permission has been granted by the property owner. IDW cannot be transferred and discharged to another area of concern.

A.7. Sample Analyses

The RSM should provide a copy of the following analytical procedures to the laboratory and discuss the procedures with them to ensure proper analyte lists are used in the analysis of samples.

A.7.1. Phase I Analyses

A.7.1.1 Analytical Parameters

In most cases, the parameters listed below must be included in the first phases of testing each contaminated medium. Typically, the contaminants for an area of concern at an inactive hazardous site are not clearly understood or are unknown due to the uncertainty of past practices at the site (e.g., poor recordkeeping of disposal practices, uncertainty of business practices from a previous property owner or operator, etc.). If the REC believes that some of the analyses below should be excluded, the RSM should contact the Branch to discuss the site specific conditions before excluding analyses.

Each Phase I sample should be analyzed for:

1. Hazardous substance list metals (totals analysis) including antimony, arsenic, beryllium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium and zinc. If chromium is a known or suspected contaminant at the site, Phase I samples should also be analyzed for hexavalent chromium. Also, if total non-speciated chromium concentrations (by totals analysis) in the Phase I samples exceed site specific natural background concentrations and the hexavalent chromium soil remedial goal, hexavalent chromium analyses are required. This analysis can be done during Phase I by collecting sufficient sample volume to run the hexavalent analysis should the total chromium result exceed the hexavalent soil remediation goal. Alternatively, the testing could be performed during the next phase of work.
2. All of the volatile and semi-volatile compounds on the most current USEPA Contract Laboratory Program (CLP) Target Compound List using analytical methods specified in Section A.7.1.2 with a library search (using the National Institute of Standards and Technology mass spectral library) to produce a list of tentatively identified compounds. The library search should identify TICs for the largest 10 peaks in each analytical fraction that have reasonable agreement with reference spectra (i.e., relative intensities of major ions agree within $\pm 20\%$). The list of identified TICs should not include laboratory control sample compounds, surrogates, matrix spike compounds, internal standards, system monitoring compounds or target compounds. Any TICs that have reasonable agreement with reference spectra, and are detected in more than one sample in an area of concern (unless detected in only one sample), should be included in all

subsequent analytical work unless the compound is a laboratory contaminant, naturally occurring, or otherwise a non-toxic anthropogenic source constituent. Quantification of these specific TICs should be performed before cleanup levels can be determined.

3. Pesticides, PCBs, dioxins, cyanide, formaldehyde, nitrates, nitrites, ammonia, phosphorus, and any other CERCLA hazardous substances or pollutants not mentioned here, if the RSM suspects they were used at the site based on its chemical usage history.

A.7.1.2. Analytical Methods

The analytical methods used to test for the parameters discussed in A.7.1 should be the *most recent*, USEPA- approved update of the following analytical methods and must be capable of determining appropriate cleanup levels (e.g., soil health-based remedial goals, soil protection of groundwater remedial goals, etc.):

Soil and sediment samples

| | |
|--|--|
| Volatile Organic Compounds | Method 8260* |
| Semi-volatile Organic Compounds | Method 8270* |
| Pesticides | Method 8081 |
| PCBs | Method 8082 |
| Metals (total concentrations) | SW-846 Methods |
| Dioxins, cyanide, formaldehyde and any other analytes not covered by above methods | USEPA method having the lowest method detection limit |

Water samples (including groundwater, surface water and TCLP/SPLP leachate**)

| | |
|---|---|
| Volatile Organic Compounds | Method 8260* |
| Semi-volatile Organic Compounds | Method 8270* |
| Pesticides | Method 8081 |
| PCBs | Method 8082 |
| Metals***, dioxins, cyanide, formaldehyde and any other analytes not covered by above methods | USEPA method capable of achieving method detection limits less than or equal to the applicable 2L standard. |

- * *With a library search as described in A.7.1.1.2.*
- ** *To demonstrate compliance with the Branch's soil remediation goals for the protection of groundwater, the laboratory must achieve sample quantitation limits less than or equal to the Subchapter 2L groundwater standards, or, alternatively, they must state in the case narrative that the sample quantitation limits are the lowest that can be achieved using EPA-approved methods.*
- *** *Standard Method 3030C "Preliminary Treatment for Acid-Extractable Metals," Standard Methods for the Examination of Water and Wastewater, latest edition, should be used in metals analyses of water samples. Filtration of groundwater and surface water samples before acid digestion is not permitted. Highly turbid water samples for metals analysis should be collected in accordance with Appendix A, Section A.6 (2)(e) and (f).*

A.7.2. Phase II Analyses

A.7.2.1 Analytical Parameters

After the first phase of sampling is conducted as specified in Sections A.2 through A.5 above, any samples subsequently collected need only be analyzed for the following compounds.

1. TICs that meet the criteria in Section A.7.1.1(2), and that are also CERCLA hazardous substances, should be quantified in Phase II analyses using USEPA methods that have the lowest method detection limit. If no USEPA method exists for a particular compound, the best available analytical method should be used.
2. All CERCLA hazardous substances present above method detection limits, unless the contaminant concentration is proven through sampling to be the result of a naturally-occurring condition, or the contaminant is a common laboratory contaminant detected in concentrations below that detected in the method blank. If a compound that is not a common laboratory contaminant is detected in both the blank and a sample, another phase of sampling is necessary to demonstrate the absence or presence of the contaminant.
3. Potential degradation compounds (which are also CERCLA hazardous substances) of those CERCLA hazardous substances detected at the site.

4. If total chromium concentrations in the Phase I samples exceed site specific natural background concentrations and the hexavalent chromium soil remedial goal, hexavalent chromium analyses are required.
5. If laboratory sample dilutions were performed on Phase I samples, Phase II samples should be analyzed for the entire analytical fraction previously diluted in addition to the above items. Sample dilutions raise analytical detection limits and can mask the presence of other constituents at lower concentrations.

A.7.2.2 Analytical Methods

Phase II and subsequent samples should be analyzed using the methods specified above for Phase I samples. Other USEPA methods may be substituted, if the substitute methods achieve equal or lower method detection limits.

A.8. Data Reporting Procedures

Laboratory reports submitted with remedial investigation reports should include the items listed below. Full CLP documentation packages are not required.

1. The laboratory report should state that the laboratory is either certified for applicable parameters under 15A NCAC Subchapter 2H .0800, or that it is a contract laboratory under EPA's Contract Laboratory Program.
2. A signed statement from the laboratory that the samples were received in good condition, at the required temperature and that analysis of the samples complied with all procedures outlined in USEPA methodology, unless otherwise specified. Any deviation from the methods, additional sample preparation, sample dilution and unrectified analytical problems, should be justified in a narrative with the laboratory report.
3. Laboratory sheets for all analytical results, including sample identification, sampling dates, date samples were received by laboratory, extraction dates, analysis dates, analytical methods used, dilution factors and sample quantitation limits.

Note: The laboratory should provide written explanation for any sample having sample quantitation limits that exceed 10 times the U.S. EPA method detection limits.

4. Laboratory sheets for all laboratory quality control samples, including results for bias and precision and control limits used. The following minimum laboratory quality control sample reporting is typical industry practice: (a) at least one matrix

spike and one matrix spike duplicate per sample delivery group or 14-day period, whichever is more frequent (control limits should be specified); (b) at least one method blank per sample delivery group or 12-hour period, whichever is less; and (c) system monitoring compounds, surrogate recovery required by the method and laboratory control sample analysis (acceptance criteria should be specified). All samples which exceed control limits/acceptance criteria must be flagged in the laboratory report.

5. The results of any library searches performed for "tentatively identified compounds." The library search should identify TICs for the largest 10 peaks in each analytical fraction that have reasonable agreement with reference spectra (i.e., relative intensities of major ions agree within $\pm 20\%$) and provide percent probabilities of match. TICs should not include compounds which are laboratory control sample compounds, internal standards, surrogates, matrix spike compounds, system monitoring compounds and target compounds. Any identified TICs should be evaluated by the REC to determine the correlation to any contaminant source materials.
6. All constituents detected must be reported even if they were not definitively quantified. All estimated concentrations with data qualifiers must be reported.
7. Completed chain-of-custody with associated air bill (if applicable) attached.
8. The laboratory report should include the names of the individuals performing each analysis, the quality assurance officer reviewing the data and the laboratory manager.
9. **The submitted data should include the laboratory summary sheet, laboratory results, QA/QC results, and chain of custody documentation. Copies of QA/QC such as chromatograms are not needed nor desired for the Superfund files.**

Appendix B
Sensitive Environment Contacts

The contacts below must be used in order to identify environmentally sensitive areas:

| CONTACT AGENCY | CONTACT INFORMATION | SENSITIVE ENVIRONMENT |
|---|---|--|
| NC Division of Conservation, Planning, and Community Affairs - Natural Heritage Program | Visit the Natural Heritage Program's data services website (http://portal.ncdenr.org/web/nhp/data-services). Use the NHP Map Viewer to search for records within 2 miles of your project area or the database search tool for record summaries by county and USGS 7.5-minute topo map. You can also download GIS shapefiles of our data; see the "GIS Download" page for details. Email inquiries to: natural.heritage@ncdenr.gov | State Parks Areas Important to Maintenance of Unique Natural Communities Sensitive Areas Identified Under the National Estuary Program Designated State Natural Areas State Seashore, Lakeshore and River Recreational Areas Rare species(state and federal Threatened and Endangered) Sensitive Aquatic Habitat State Wild & Scenic Rivers |
| National Park Service Public Affairs Office | Anita Barnett (404)507-5706 Anita_Barnett@nps.gov for specifics on National Seashore, Lakeshore and River Recreational Areas as necessary. http://www.nps.gov/rivers | National Seashore, Lakeshore and River Recreational Areas National Parks or Monuments Federal Designated Wild & Scenic Rivers |
| US Forest Service | Ruth Berner (828) 257-4862 Heath Luczak (828) 257-4817 | Designated and Proposed Federal Wilderness and Natural Areas National Preserves and Forests Federal Land Designated for the Protection of Natural Ecosystems |

| | | |
|--|--|--|
| NC Division of Water Quality | <p>Jeff Manning Basinwide Planning Unit (919) 807-6415</p> <p>or Melanie Williams (919) 807-6300, x. 76447 <i>Ask for Clean Water Act 305b report</i></p> | State-Designated Areas for Protection or Maintenance of Aquatic Life |
| NC Division of Forest Resources | <p>Chris Carlson (919) 857-4819</p> | State Preserves and Forests |
| US Fish & Wildlife Service | <p>Pete Benjamin (919) 856-4520 x 11</p> | Endangered Species |
| NC Department of Cultural Resources | <p>Renee Gledhill-Earley (919) 807-6579 Email Inquiries to: Environmental.Review@ncdcr.gov</p> | National and State Historical Sites |
| NC Division of Coastal Management | <p>Ted Tyndall (252) 808-2808, x. 207</p> <p>http://dcm2.enr.state.nc.us</p> | Areas Identified Under Coastal Protection Legislation Coastal Barriers or Units of a Coastal Barrier Resources System |
| NC Wildlife Resources Commission | <p>David Cox (919) 528-9886</p> <p>Isaac Harold Isaac.Harold@ncwildlife.org (919)707-0053</p> <p>Contact the NC Wildlife Resources Commission for the latest state map showing the NC Wildlife representative for the area of the site.</p> | <p>National or State Wildlife Refuges</p> <p>State Lands Designated for Wildlife or Game Management Wetlands</p> <p>Migratory Pathways and Feeding Areas Critical for Maintenance of Anadromous Fish Species within River Reaches or Areas in Lakes or Coastal Tidal Waters in which such Fish Spend Extended Periods of Time</p> <p>Spawning Areas Critical for the Maintenance of Fish/Shellfish Species within River, Lake or Coastal Tidal Waters.</p> |
| US Army Corps of Engineers | <p>Dorothy Harrington (919) 554-4884, x. 28</p> | Wetlands |

Appendix C

Procedures for Confirmation Sampling and Analysis

C.1. Introduction

This appendix provides general guidance on the "post-remediation" sampling and analyses necessary to demonstrate compliance with Branch remediation goals. At most sites, the REC will need to prescribe additional sampling and analysis based on site-specific conditions.

C.2. Soil Sampling

C.2.1. Post In-Situ Remediation

For in-situ soil remedies, such as soil vapor extraction, confirmation sampling must be designed to verify that the entire soil column has been remediated to below Branch remediation goals. The remediating party should design a three-dimensional sampling grid that meets the four procedures below.

1. Design a surface sampling grid over the area(s) of concern. Grid nodes should be no more than 50 feet apart.
2. At each grid node, specify "candidate" sampling locations at the surface, at 0 - 6 inches below ground surface, and at a minimum of 5-foot intervals down to the vertical limit of contamination. The result is a three-dimensional grid of "candidate" sampling locations that encompasses the area of concern.
3. Select at least two candidate locations at each grid node for sample collection, using a combination of random and biased selection. Biased samples should be collected from known "hot spots" and from soil zones that are known to be resistant to in-situ methods (e.g., clay lenses).
4. Same-depth samples from up to four adjacent grid nodes may be composited. Samples at different depths may not be composited. For samples submitted for volatiles analysis, at least five samples or 25% of the node samples, whichever is greater, should be unmixed grab samples. Field screening methods may be used to select these unmixed samples, or the unmixed samples should be collected from locations that are evenly distributed across the area of suspected contamination. The remaining samples should be collected as either unmixed grab samples or composited samples. Composited samples will be used for qualitative data only.

C.2.2. Post Ex-Situ Remediation

C.2.2.1 Post-Excavation Sampling

Post-excavation sampling must be designed to verify that all soils/wastes above Branch remediation goals have been removed. Excavations should be sampled using the four procedures below.

1. Design a sampling grid over the base and sidewalls of the excavation. Grid nodes should be no more than 50 feet apart. At each grid node, collect a sample from 0-3 inches into the base or sidewall.
2. For very small excavations, collect at least one composite sample from the base and one composite sample from each sidewall. Composite samples should consist of at least four aliquots each.
3. Biased samples should also be collected from areas of residual contamination, based on visible or field-screening evidence.
4. For excavations <62,500 square feet, samples from up to four adjacent grid nodes may be composited. For excavations > 62,500 square feet, a greater number of grid nodes may be composited but a minimum of five resulting composite samples should be submitted for laboratory analysis. For all excavations, samples from different sidewalls may not be composited. For samples submitted for volatiles analysis, at least five samples or 25% of the node samples, whichever is greater, should be unmixed grab samples. Field screening methods may be used to select these unmixed samples, or the unmixed samples should be collected from locations that are evenly distributed across the area of suspected contamination. The remaining samples should be collected as either unmixed grab samples or composited samples. Composited samples will be used for qualitative data only.

C.2.2.2 Treated Soil Stockpiles

Treated soils/wastes must meet Branch remediation goals before they can be replaced on site. Treated soil stockpiles should be sampled using the following four procedures.

1. Stockpiles should be gridded into equal segments of approximately 100 cubic yards each.

2. Within each segment, use either random or biased selection to locate at least three hand-auger borings. Samples should be collected from two depths within each boring (minimum six samples per segment).
3. Use visible or field-screening evidence to collect additional biased samples from areas of residual contamination.
4. Samples may be composited only within each segment. For samples submitted for volatiles analysis, at least 25% should be collected as unmixed grab samples.

C.3. Groundwater Sampling

Confirmation sampling must demonstrate that site groundwater has been remediated to below Branch remediation goals. Demonstrate this using the procedures below.

1. Groundwater remediation systems may be shut down when two consecutive semiannual (twice a year) sampling events demonstrate that all monitoring wells (on-site and off-site) are free of contamination above Branch remediation goals. To account for the effects of seasonal fluctuations in the water table, semiannual sampling events should be conducted in winter and summer.
2. Following system shutdown, data from at least four consecutive quarterly sampling events should demonstrate that all monitoring wells are free of contamination above Branch remediation goals and contaminant concentrations are not increasing.

C.4. Surface Water/Sediment Sampling

Confirmation sampling must demonstrate that site surface water and sediment have been remediated to below Branch remediation goals. Four consecutive quarterly sampling events should demonstrate that concentrations in downstream samples are less than or equal to concentrations in upstream samples, or, alternatively, concentrations in downstream samples are less than or equal to Branch remediation goals.

C.5. Confirmation Sample Analyses

Confirmation sampling should demonstrate that all contaminants identified during the remedial investigation meet applicable remedial goals. Confirmation samples must be analyzed using USEPA methods with detection limits less than or equal to Branch remediation goals, or USEPA methods with the lowest available detection limits for each contaminant of concern.

Appendix D Procedures for Establishing Remediation Goals

D.1. Introduction

RECs should use the procedures outlined below to establish site-specific remediation goals. The Branch's policy for establishing remediation goals is consistent with the intent of CERCLA/SARA and the National Contingency Plan, as required by N.C.G.S. 130A-310.3. The remediation goal tables referenced in this section may be periodically updated based on new or revised toxicological data. Remediation goals for soil and vapor intrusion screening levels are typically updated twice per year (during the first and third quarters). Therefore, the REC/RSM should periodically check the remediation goal tables to ensure that the most current information is used.

Note: The remediation goals for all media at each area of concern must be determined prior to completion of the remedial investigation so that a remedial action plan can be prepared properly.

D.2. Remediation Goals for Unrestricted Land Use

This section describes the procedures used to establish remediation goals for unrestricted land use for each environmental medium. Remediation goals for restricted land use are discussed in Section D.3.

D.2.1 Remediation Goals for Soils

The Branch has two soil remediation goals. One is a "health-based" remediation goal for total concentrations of contaminants (Sections D.2.1.1, D.2.1.1.2, and E.2). The other is a "protection of groundwater" remediation goal for residual contamination (Section D.2.1.2). ***The REC is responsible for demonstrating compliance with both soil remediation goals. If sensitive environments are present at a site, the Branch may require the adjustment of remediation goals and/or the proposed remedial alternative. In addition, contaminant/vapor intrusion into structures may also alter remedial goals. Decisions will be made based on site-specific conditions.***

D.2.1.1 Health-Based Soil Remediation Goals

D.2.1.1.1 Preliminary Health-Based Soil Remediation Goals for unrestricted use

These goals must be used to delineate the extent of contamination during the remedial investigation and can be used as final health-based remediation goals.

The Branch's preliminary health-based soil remediation goals are shown in the Branch Soil Remediation Goal Table (SRG Table) located under Guidance at <http://portal.ncdenr.org/web/wm/sf/sfavailabledocs>. These remediation goals have been established using current USEPA risk assessment guidance (see Appendix E for more details). Carcinogenic PAHs not listed in the [SRG Table](#) can be screened using the remediation goal for benzo(a)pyrene. Similarly, non-carcinogenic PAHs not listed in the [SRG Table](#) can be screened using the remediation goal for pyrene. For other preliminary health-based remediation goals not found on the SRG Table, contact the Branch for instructions.

Note: See notes that follow Section D.2.1.1.2.

D.2.1.1.2 Final Health-Based Soil Remediation Goals

The preliminary soil remediation goals established pursuant to Section D.2.1.1.1 can be used as final, health-based remediation goals. Under certain site conditions, the preliminary remediation goals may be adjusted. Refer to Appendix E, Section E.2 for allowable adjustments of these numbers.

Note 1: In some cases, site-specific natural background metals concentrations may exceed the acceptable risk range. Cleanup to below site-specific natural background metals concentrations is not required.

Note 2: The soil remediation goal for PCBs was established in accordance with USEPA policy for cleanup of PCBs at Superfund sites. The unrestricted use remediation goal for PCBs is 1 ppm. This number may not be adjusted. However, higher levels can remain in subsurface soils if (1) restrictive covenants are applied which prevent exposure and (2) the remaining concentrations of PCBs in soil are shown not to pose a threat to groundwater (i.e. soils meet protection of groundwater remediation criteria). Application of restrictive covenants requires Branch concurrence (see Section D.3.).

Note 3: If the site is currently or likely to become agricultural (crops, livestock grazing, etc.), the site would have to be evaluated on this basis also due to

the concern for uptake of contaminants by plants and livestock.

Note 4: At sites with surface water contamination, RECs may need to plan the remedial action to address source areas first. For example, surface water contamination may result from continuing releases from soils. In this case, soils must be remediated to whatever levels will ensure attainment of the surface water remediation goals.

Note 5: Contaminant vapor intrusion into structures resulting from contaminated soils may also affect final soil remediation goals.

Note 6: In certain situations, health-based soil remediation goals may be attained through averaging contaminant concentrations. See Appendix E for additional information.

D.2.1.2 Protection of Groundwater Soil Remediation Goals

Procedure

In addition to meeting health-based remediation goals for unrestricted use, soils must meet a protection of groundwater remediation goal. Soils which leach organic contaminants in excess of the groundwater remediation goals will require further remediation. Soils which leach metals in excess of the groundwater remediation goals (or natural leachable background concentrations, whichever are less stringent) will also require further remediation. The protection of groundwater soil remedial goals must be determined using one of the following methods unless one of the exceptions at the end of this section applies:

1. Use the Protection of Groundwater values provided on the Inactive Hazardous Sites Branch Preliminary [SRG Table](#). If a compound is not listed on the SRG Table, a value can be calculated using the equation at the end of the SRG Table.
2. Soil contaminant concentrations (in mg/kg) for both metals and organics (totals analysis) do not exceed values of twenty times the corresponding groundwater remediation goals (in mg/l). See Section D.2.4 for groundwater remediation goals.
3. Determine the site soil's leachability by conducting the Synthetic Precipitation Leaching Procedure (SPLP) or Toxicity

Characterization Leaching Procedure (TCLP) laboratory analysis on several site soil samples in the area of concern. If contaminant concentrations in the soil leachate exceed the respective groundwater remediation goals, those soils require remediation.

Note: If another laboratory model is used to determine leachability, the REC must demonstrate its scientific validity and that its precision and accuracy are commensurate with its stated use.

4. A soil protection of groundwater remediation goal can be determined using total and TCLP / SPLP sample results from the site. Several soil samples must be collected from various locations within the area of concern representing the higher and lower concentrations. Each of the soil samples should be analyzed for 1) the total soil concentrations (in mg/kg) and 2) the leachate concentrations (in ug/L) using the SPLP or TCLP analysis. The data must be plotted against each other to determine the linear correlation. An acceptable total soil concentration for the protection of groundwater would correspond to a leachate concentration at the 15A NCAC 2L standard. The target soil cleanup concentration then becomes the value corresponding with the constituent's site-specific leachability value. A safety factor of at least 15% should be added to the target soil cleanup concentration.
5. Use site-specific data for porosity, bulk density, and organic carbon content to refine a value in the SRG Table using the equation at the end of the SRG Table. Site-specific parameters can only be used in lieu of these above specified parameters in the equation. All calculations and data must be provided.

Exceptions

At sites that meet either of the following two conditions, the protection of groundwater soil remediation goals do not apply. Remember, the site must meet the health-based remediation goals.

1. Soil contaminant concentrations (mg/kg) for metals (totals analysis) do not exceed the site-specific natural background concentrations.
2. If the site will be remediated to unrestricted use health-based remediation goals, the REC may demonstrate meeting the protection of groundwater remediation goals if **either (a) or (b) applies**.

- (a) The REC has determined that all on-site disposal and releases of hazardous substances occurred over 15 years ago and groundwater monitoring immediately at the source area demonstrates that the constituents of concern and any daughter products in groundwater are below the groundwater remediation goals (see Section D.2.4 for groundwater remediation goals).

- (b) The REC-certified remedial action plan for the site includes active groundwater remediation (including remediation of any non-aqueous phase source material in the saturated zone) such that the soil contamination at the source area 1) will be reduced to meet protection of groundwater criteria within 5 years of initiation of groundwater remediation, 2) will not cause an increase in groundwater contaminant concentrations, and 3) the material leaching from the soils will be captured by the active groundwater remediation system at the source area. If active groundwater remediation is discontinued, it will be necessary to demonstrate the contaminants will no longer leach from the soil to the groundwater. The demonstration must be made before the remedial action is certified as complete. Note that use of this provision does not provide a waiver for meeting the deadline for completing non-groundwater remediation. The REC must demonstrate that the protection of groundwater remediation goals have been met before the deadline.

Note: Monitored natural attenuation is not considered active remediation.

D.2.2 Remediation Goals for Sediments

D.2.2.1 Preliminary Remediation Goals for Sediments

The purpose of this section is to establish preliminary remediation goals for sediments to be used as "target" cleanup levels. These goals should be used to delineate the extent of sediment contamination during the remedial investigation for perennial streams. For intermittent streams, the procedures that are used to establish remedial goals for soil should be used as described in Section D.2.1. Final remediation goals for sediments are described in Section D.2.2.2.

RECs must establish preliminary remediation goals for sediment based on the *most stringent* of the following goals.

1. The health-based soil remediation goals listed in the [SRG Table](#) (or the upstream "background" concentrations if less stringent).
2. Remediation goals sufficient to ensure that contaminated sediment will not cause exceedances of the remediation goals for groundwater and surface water.
3. Remediation goals sufficient to ensure protection of aquatic receptors. The REC must compare maximum sediment contaminant concentrations to USEPA Region 4 ecological risk screening levels for sediment located at <http://www.epa.gov/region4/superfund/programs/riskassess/riskassess.html>

Note: To demonstrate compliance with the Branch's preliminary sediment remediation goals for the protection of aquatic receptors, the laboratory must achieve sample quantitation limits less than or equal to the USEPA Ecological Screening Level. If this is not possible, it must be stated in the case narrative that the quantitation limits are the lowest that can be achieved using EPA-approved methods.

If site ecological screening levels for sediments are exceeded, the REC must contact the Branch and prepare a certified report with a request for the Branch to determine the need for further ecological evaluation. The report should provide the following information:

1. A topographic map with roads, surface water features, etc. clearly identified.
2. A map drawn to scale with locations of all sampling points.
3. A summary table containing maximum contaminant concentrations, upstream contaminant concentrations, USEPA aquatic screening levels and sample quantitation limits. All contaminant concentrations that exceed screening levels should be clearly identified and highlighted. Also, concentrations that have no screening level should be clearly identified and highlighted.
4. A statement that indicates whether the contaminated surface water body is perennial or intermittent.
5. A discussion of potential mobility of contaminated sediment and potential for contaminants to leach into surface water.
6. The names and classifications of all downstream surface water bodies *if* they are potential recipients of contaminated surface water or sediment.

7. The identity of adjacent or downstream wetlands that could be affected.
8. An estimate of the width and depth of the contaminated surface water body.

D.2.2.2 Final Remediation Goals for Sediments

The preliminary sediment remediation goals established pursuant to Section D.2.2.1 can be used as final remediation goals. If concentrations in the contaminated sediments exceed the USEPA Region 4 aquatic screening levels, an ecological risk assessment may be required to determine final sediment remediation goals. The RSM should contact the Branch about potential adjustments to the sediment remediation goals. The Branch will assist in determining final remediation goals.

Note: At sites with surface water contamination, RECs may need to plan the remedial action to address source areas first. For example, surface water contamination may result from continuing releases from sediments. In this case, sediments must be remediated to whatever levels will ensure attainment of the surface water remediation goals.

D.2.3 Remediation Goals for Surface Water

To determine surface water remediation goals, RECs must first submit the items listed in Section D.2.2.1 to the Branch. The Branch will provide a surface water remediation goal following review of this information.

D.2.4 Remediation Goals for Groundwater

For groundwater contaminants with 15A NCAC 2L standards, remediation goals are the permanent and interim groundwater standards established under 15A NCAC 2L. The groundwater quality standards can be found on the Branch's web site at <http://portal.ncdenr.org/web/wm/sf/ihs/ihsguide>. For contaminants without 15A NCAC 2L standards, the remediating party should contact the Branch.

Note 1: Remediation below the practical quantitation limits (using the analytical methods specified in Section A.7.1.2) or site specific natural background levels (for metals only) are not required.

Note 2: The permanent and interim groundwater standards are listed in the North Carolina Administrative Code (NCAC) at 15A NCAC 2L .0202 Groundwater Quality Standards. The NCAC can be found at <http://portal.ncdenr.org/web/wm/sf/sfavailabledocs>.

D.3. Remediation Goals for Restricted Land Use

Under certain site conditions, it may not be appropriate or feasible to meet the unrestricted remediation goals described in Section D.2. The REC may propose (for Branch review and concurrence) a containment remedy with alternate remediation goals based on a restricted land-use exposure scenario. The procedures for proposing a containment remedy are described in detail in Appendix F of these guidelines.

D.4. Structural Vapor Intrusion Potential

At sites having any volatile organic compound contamination located within 100 feet of an occupied or potentially occupied building, evaluation of subsurface vapor intrusion is required. For additional information, see the Branch's vapor intrusion guidance document at <http://portal.ncdenr.org/web/wm/sf/sfavailabledocs> and contact the Branch for instructions.

D.5. Additional Provisions

The Branch considers “monitored natural attenuation” to be a potential remedial alternative for attaining the remediation goals established pursuant to Appendices D and E. Monitored natural attenuation is *not* a waiver of the remediation goals. If natural attenuation of any contaminated medium is proposed, the REC must demonstrate that it is supported by the results of the feasibility study and that it is the preferred remedy.

If an REC determines that cleanup to established final remediation goals are not technically practicable from an engineering perspective, the REC may submit such demonstration to the REC Program for consideration. Contact the Branch for further instructions.

Appendix E

Soil Unrestricted Health-Based Remedial Goals: Adjustments & Averaging

E.1. Introduction

The preliminary health-based soil remediation goals can be used as final health-based remediation goals. However, these goals can be adjusted for the number of actual contaminants present. Also, there are certain situations when the goals can be met at a particular site by averaging contaminant concentrations. This appendix provides general guidance for calculating adjusted final Health-Based Soil Remediation Goals and procedures for demonstrating attainment of Health-Based Soil Remedial Goals through averaging.

E.2. Adjusting Final Health-Based Soil Remediation Goals for Unrestricted Land Use

The Branch's preliminary health-based soil remediation goals are shown in the Branch SRG Table located at <http://portal.ncdenr.org/web/wm/sf/sfavailabledocs>. These remediation goals have been established using current USEPA risk assessment guidance and are based on a lifetime excess cancer risk of 1×10^{-6} (carcinogens) and a hazard quotient of 0.2 (non-carcinogens). The hazard quotient of 0.2 is used to account for multiple (average of five) non-carcinogens in the same critical effect group. The preliminary SRGs can be used as final remediation goals. However, the preliminary remediation goals may be adjusted as explained below.

Carcinogens

The health-based remediation goals for carcinogens in the [SRG Table](#) are based on a lifetime excess cancer risk of 1×10^{-6} . At some sites, the remedy capable of achieving the health-based remediation goals may not be the preferred remedy. For example, incineration may be the only remedial technology capable of meeting the health-based remediation goals. However, it may not be the preferred remedy if incineration is strongly opposed by the local community. At these sites, the REC may approve an alternate remedy if it can achieve final soil remediation goals within the acceptable cancer risk range (i.e., a cumulative excess cancer risk for all contaminants of 10^{-4} to 10^{-6}). *Please note that remedy selection is governed by the results of the feasibility study conducted pursuant to Section .0306(1)(3) of the Rules, and is not based on cost alone. (Refer to .0306(1)(3) of the Rules and this guidance document for more details).* Any adjustment of the health-based remediation goals for carcinogens must be conducted in accordance with the procedures outlined below.

Non-Carcinogens

The health-based remediation goals for non-carcinogens shown in the [SRG Table](#) are based on a hazard quotient of 0.2. The hazard quotient of 0.2 is used to account for multiple (average of five) non-carcinogens in the same critical effect group. For sites with less than five non-carcinogens, RECs may adjust the remediation goals using the

procedures outlined below. Using the procedures, RECs may also adjust the remediation goals based on the number of contaminants per critical effect group.

Adjustment Procedures

To make adjustments to final Health-Based Soil Remedial Goals, the REC should do the following:

- 1. If the contaminant has only carcinogenic effects, use the procedures in Section E.2.1.**
- 1. If the contaminant has only non-carcinogenic effects, use the procedures in Section E.2.2.**
- 2. If the contaminant has both carcinogenic and non-carcinogenic effects, use the procedures in Section E.2.3.**

The effects (carcinogenic and non-carcinogenic) of a contaminant can be determined by looking at the soil supporting table at http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm.

E.2.1 Contaminants With Only Carcinogenic Effects

Sites Without PCB Contamination

At sites where no PCBs are present, RECs should use the following procedure when calculating a concentration corresponding to the upper limit of the acceptable risk range (i.e., 1×10^{-4}). Note that final remediation goals for carcinogens are determined during the remedy selection process. These goals must be the lowest numbers the selected remedy can achieve and must fall within the acceptable cancer risk range (i.e., 10^{-4} to 10^{-6}). The values for carcinogens presented in the [SRG Table](#) correspond each to 1×10^{-6} risk. To determine 1×10^{-4} values, use the following formula.

Multiply the health-based remediation goal in the [SRG Table](#) by $100/n$, where n is the number of carcinogens present (carcinogens are denoted by a "C" in the [SRG Table](#)).

Sites with PCB Contamination

At sites where PCBs are the only carcinogen in soils, the PCB remediation goal in the [SRG Table](#) should be used with no adjustment. For sites where PCBs are not the only carcinogen in soils, contact the Branch prior to making any adjustments of the remediation goal specified in the [SRG Table](#).

E.2.2 Contaminants With Only Non-Carcinogenic Effects

1. If the REC elects to adjust the preliminary remediation goals for sites with less than five non-carcinogens, the following equation must be used.

Final remediation goal = health-based remediation goal x 5/n;
where n= the number of non-carcinogens present (non-carcinogens are denoted by an “N” in the [SRG Table](#)).

2. If the REC elects to adjust the remediation goals based on the number of contaminants per critical effect group/target organ, please contact the Branch for this procedure.

Note: Lead cannot be adjusted. The value in the [SRG Table](#) must be used.

E.2.3 Contaminants With Both Carcinogenic and Non-Carcinogenic Effects

If a contaminant that has both carcinogenic and non-carcinogenic effects (see soil supporting table at http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm), adjusted health-based remediation goals must be determined for both health effects. The final adjusted remediation goal is set at the lower (more stringent) of the two concentrations.

The remedial goals listed in the SRG Table are the lower of the carcinogenic and non-carcinogenic values (carcinogens are denoted by a “C” in the [SRG Table](#); non-carcinogens are denoted by an “N” in the [SRG Table](#)).

1. **To determine the carcinogenic value**, the REC must use the value listed under the “Carcinogenic SL” column under the heading “Carcinogenic Target Risk” of the Residential Soil Supporting Table found on the USEPA Region 3 web site. This table can be accessed at http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm. Multiply the health-based (carcinogen) value (under the “Carcinogenic SL” column) by 100/n, where n is the number of carcinogens present.
2. **To determine the non-carcinogenic value**, use the value listed under the “Noncarcinogenic SL” column under the heading “Noncancer Hazard Index” of the Residential Soil Supporting Table described above. The REC must divide the non-carcinogen value (under the “Noncarcinogenic SL” column) by n, where n is the number of non-carcinogens present.

Note: The RSM must make sure that the soil saturation concentration (**C_{sat}**) is not exceeded for chemicals on the IHSB Soil Remediation Goal Table.

E.3. Procedures for Demonstrating Attainment of Health-Based Soil Remedial Goals Through Averaging Contaminant Concentrations

Cleanup levels for soils under the Inactive Hazardous Sites Program have three components. These are the “health-based remedial goal, the protection of groundwater remedial goal and, if applicable, the ecological risk component. All must be met at the site.

Averaging of contaminant concentrations in soil may be used in demonstrating attainment of Final Health-Based Soil Remedial Goals. All of the following conditions apply to the use of such averaging:

1. Only sample points within one-quarter acre sectors may be averaged for comparison to unrestricted use levels. Restricted industrial use (land use restrictions approved as part of the remedial action plan) may allow for averaging over larger areas if the access and use across the area is consistent. Remote areas and areas of less frequent access may not be included in the industrial restricted-use averaging
2. Samples must be evenly spaced over the zone of averaging.
3. Only samples of the same vertical horizon may be averaged (0-6 inches for surface samples and no more than 5-foot vertical spread for subsurface samples.
4. The quarter-acre zone may be circle or a square or triangle of generally equal sides. One dimension of the zone’s perimeter may not be disproportionately longer than another.
5. Only actual sample data may be used for all points included in the average and not published averages for background concentrations.
6. The sample detection limit must be used for points where concentrations are at or below detection limits.
7. Clearly distinct areas of known or suspected releases or visibly delineable areas (visual characteristics define the areas that exceed cleanup levels) should not be included in any areal averaging. These releases should be delineated and addressed separately.
8. Clean areas adjoining the area of release should not be included in the average even if the area of release is less than a ¼ acre.
9. No single sample point may exceed ten times the site-specific adjusted unrestricted cleanup level for all contaminants except lead. For contaminants where the limit on the maximum sample point concentration is based on a carcinogenic effect cleanup level, the limit on the maximum sample point concentration for averaging may be waived if a demonstration is made to show that the sample point exceeding the

maximum does not represent a separate area of disposal/release. For contaminants with both carcinogenic and non-carcinogenic effects, and where the carcinogenic maximum sample point limit is lower and is waived, the non-carcinogenic maximum sample concentration would apply. The non-carcinogenic limit may not be waived. For lead, no single sample point used in an average may exceed 1000 ppm for unrestricted use and no more than three times the site-specific cleanup level for restricted use.

10. Composite sample results may be included in an average, but must be weighted proportionally to the area they represent. For example, if one composite sample in an area represents $\frac{1}{2}$ of the area and 5 others represent $\frac{1}{10}$ of the area each, then the concentration of the first composite should be multiplied by 5, added to the sum of the other concentrations and then divided by 10 to compute the average concentration.
11. For characterizing soil concentrations over an area, a sampling grid with 50-foot grid node spacing must be established. For large areas that can be demonstrated to have had a consistent use and release of contaminants, sampling grids can be set up with larger grid node spacing than 50 feet. However in such cases, the concentrations may not be averaged in quarter acre zones. The upper end of the range of concentrations is presumed to represent the entire area. No averaging may be conducted. If the upper end concentration exceeds unrestricted use cleanup levels, the area would require cleanup or land use restrictions. If the contaminant concentrations exceed the restricted-use levels based on the intended use, an alternative for larger areas is to take one or more large zones within the overall area that represent the range of environmental conditions present (various geologic and geographic conditions such as slope vs. valley, wetter vs. drier) to represent the overall area. Grids with a 50-foot node spacing should be established across these representative areas. This approach requires the area to be of consistent use and access and requires land use restrictions as part of the remedy.

For unique circumstances, contact the Inactive Hazardous Sites Branch for further guidance.

Appendix F

Alternate Cleanup Levels and Land Use Restrictions

F.1. Background and Overview

Alternate health-based remediation goals are allowed for various media. All remedies where contaminants will remain on site above unrestricted use levels are considered “containment” remedies. Contaminated materials are being “contained” on the property through land use restrictions (LURs) and sometimes engineering controls such as barriers. LURs are allowed in the following situations (refer to the relevant subsequent section for conditions and more details and procedures):

- (1) Soils and non-leachable solid materials (see Section F.2)
- (2) Groundwater (including other media) at sites primarily used for industrial purposes and where there is no off-property migration of contaminants (see Section F.3)
- (3) All media – when remediation is technically impracticable (see Section F.4)

F.2. Alternate Soil Remediation Goals and Procedures

Once a remedial investigation is complete and all potential exposure routes are known, development of a proposed remedy should begin. If the feasibility analysis for the remedy [see 15A NCAC 13C .0306(1)] determines that a containment remedy is the best remedial alternative, it must be proposed to the Branch for concurrence. After concurrence is granted by the Branch, the proposed containment remedy will be incorporated into a remedial action plan (RAP).

To qualify for alternate health-based remediation goals for soils, protection of groundwater remediation goals along with any remediation goals related to abating ecological risks at the site, must be met. In general, alternate soil remediation goals are not allowed at property that will remain in use for single-family homes and property routinely accessed by children such as a day care center or playground. Cleanup to unrestricted use/residential use will also be necessary at many multi-unit facilities unless an existing building obstructs contaminated material or if it is a multi-story mixed use building with no residential access to contaminated areas. LURs and proper engineering controls will then be applied.

If a property is restricted to a particular use such as industrial/commercial, cleanup levels must not only be calculated for industrial/commercial uses, but may also be necessary for construction workers (for future site development or redevelopment) and any other applicable risk groups (such as trespassers at vacant property). Note that “industrial use only” will be an insufficient restrictive covenant because many industrial zoning codes allow for parks, recreational areas and day care facilities on industrial property. The particular site uses will need to be evaluated from a risk perspective and the restrictive covenants will need to be specific.

Remedies not meeting unrestricted use levels throughout the soil column, must include a restrictive covenant that bars taking soils off the property. For example, a site might meet industrial levels/construction worker levels throughout the soil column and there are no prohibitions on excavating, but that soil is not safe for all uses and must not be removed from the site without Branch approval.

If engineering controls are used to prevent exposure, restrictive covenants calling for the inspection and maintenance of these are required. If the remedy utilizes barriers to prevent exposure to higher concentrations in soil than is allowed for the intended use, the barriers must be definable, visible barriers such as concrete or asphalt and the perimeter of these must be recognized with signs at the property and delineated on a Notice plat (further explained below). In general, note that the use of physical barriers as a remedy for contaminated soils is the least favored option. Cleanup to industrial use levels (or other alternate scenario levels) is preferred over the use of physical barriers, such as caps, because the site is left with the most flexibility for use. It also provides the least chance for restrictive covenants to fail to adequately protect human health. If the feasibility evaluation results in a barrier-type remedy being the most suitable for the site, direct-contact cleanup goals may not apply.

A restrictive covenant should be included that does not allow disturbance of the barrier or disturbance of underlying soils without Branch approval. There may be circumstances that can be specified in the restrictive covenants where certain types of disturbance are allowed. Soil only as a barrier is not adequate without erosion/exposure markers such as a geotextile liner unless soil contamination above unrestricted use levels is only present at depths of greater than about 10 feet below ground surface. If a geotextile marker covered with a specified number of feet of cover is used, the elevation of the marker and finished surface should also be surveyed. Soil and a marker as barriers should only be used in areas of low to no traffic. Parking areas, areas accessed by trucks and cars, horse riding rings, kennel yards and ball fields are considered high traffic areas.

Those remediating parties proposing LURs as part of the remedy must ensure that the owner has the financial ability to conduct the annual maintenance and reporting associated with a remedy involving LURs. The maintenance duties must run with the land and bind all future owners.

Procedures

The REC must seek Branch concurrence on all containment remedies. The procedures for proposing a containment remedy using alternate soil remediation goals are described below:

1. The REC and RP should ensure that a certified Remedial Investigation (RI) Report has been completed in accordance with 15A NCAC 13C .0306(h) and is on file with the Branch.
2. If, during evaluation of the site remedy, the REC determines that a containment remedy using alternate remedial goals for soil is the best remedial alternative, it must be submitted to the Branch for review and concurrence prior to completion of a proposed RAP. In this scenario, a proposed containment remedy should be

submitted for Branch review and concurrence first. If the remedy is extremely simple, it can be submitted simultaneously as a stand-alone section within the RAP (contact Branch Staff for further discussion and instructions). The proposed containment remedy should contain the following information:

- a. A statement as to whether standard industrial/commercial cleanup levels or calculated site specific cleanup levels will be used. The soil cleanup levels for a standard industrial/commercial exposure scenario are provided on the [SRG Table](#). Cleanup levels for other site specific exposure scenarios (e.g., park settings, restricted site access, etc.) can be calculated by a risk assessor familiar with the USEPA risk assessment procedures under REC oversight. If the REC calculates cleanup levels, all supporting risk and exposure assessment calculations must be provided for the Branch's review.
- b. Descriptions of the current site and surrounding property use, the proposed site's use, and current and proposed zoning of the site and surrounding properties.
- c. A brief summary of the nature and extent of past release(s), and soil and groundwater conditions. Include copies of or references to the appropriate maps, figures and summary tables of soil and groundwater data provided in a certified remedial investigation report to fully document the extent of contamination on the property.
 - i. Site map(s) and figures must show sampling locations, the lateral and vertical extent of impacts to soil and groundwater for each separate release area.
 - ii. Table(s) of analytical data must identify all contaminant concentrations that exceed remedial goals. For example, the soil table should indicate the soil sample ID, sample depth, concentrations of compounds detected, the laboratory reporting limit if the concentrations were below detection, and their respective remedial goals: the calculated or health-based industrial remedial goal and the protection of groundwater remedial goal, and the proposed remedial goal for each compound for the restricted-use scenario. Each release area must be summarized in the table separately or summarized in separate tables.
- d. A description of the proposed containment remedy with proposed remedial goals for restricted land use. Include an explanation of how the health-based and protection of groundwater soil remedial goals will be met (see Section D.2.1.2 in Appendix D).

Note: For this scenario (a containment remedy that uses alternate remediation goals for soil only), residual impacted soils cannot leach contaminants to groundwater above the NC 2L Standard, i.e., the protection of groundwater criterion must be met.

- e. A statement of the proposed use of the restricted area (i.e., parking lot, permanent structure, open space, park, etc.) and any proposed use restrictions.
- f. The deed book and page numbers for the property or properties where the restrictions will apply, if approved.
- g. The plat book and page numbers for any “Notice of an Inactive Hazardous Substance or Waste Disposal Site” (Notice) already recorded in relation to the site.
- h. Written consent by the owner(s) of the site to the imposition of LURs using the form provided as Attachment F-1. The property owner must provide a copy of any lease agreements and/or encumbrances that exist for the property.
- i. A proposed inspection plan for the site to verify that the recorded LURs remain in place and activities at the site are in compliance with the restrictions. The proposed inspection plan should be included in the section of the RAP, discussed below, that describes planned inspection, maintenance and progress reporting.

Note: The site owner will be required to conduct an inspection of the site no less than annually. They must also submit to the Branch a signed and notarized statement using the form in Attachment F-2 indicating that the LURs are still in effect and that conditions at the site are not in violation of the LURs. Current and future owners, operators and other responsible parties are required under N.C.G.S. 130A-310.3(f) to enforce the LURs and are expected to take action immediately upon discovery of a violation of the LURs. Failure to do so will cause automatic revocation of Branch concurrence on the remedial action.

3. The Branch will review the certified proposal and will concur, reject, or provide comments to the REC and RP on the proposed containment remedy. After concurrence is issued by the Branch, the proposal will be placed in the public file and staff will direct the REC and RP to prepare and/or submit a certified proposed RAP (unless the proposed RAP has already been submitted as mentioned above). **The proposed RAP must be prepared in accordance with 15A NCAC 13C .0306(l) and the REC Program Implementation Guidance.** The proposed containment remedy must be incorporated into the certified RAP to be made available for public comment. The Branch will transmit a draft Declaration of Perpetual Land Use Restrictions (DPLUR) document to the REC and RP to create a list of land use restrictions applicable to the site. The REC and RP can also discuss/propose any additional restrictions based on the current and future intended use of the site. The REC will also begin creating a draft Notice of an Inactive Hazardous Substance or Waste Disposal Site to go along with the DPLUR. Sections F.5 and F.6 below describe the procedures for preparing the DPLUR and Notice documents. Draft versions of the documents will be incorporated as part of the proposed RAP for public notice. Once the documents are complete, a final DPLUR will be forwarded by the Branch to the REC for later recordation at the

appropriate register of deeds office. See Section F.7 regarding instructions for completing and implementing the RAP for a containment remedy, including specific instructions for document recordation.

F.3 Alternate Groundwater (and Other Media) Remediation Goals and Procedures

N.C.G.S. 130A-310.65-310.77 provides a mechanism for alternate health-based remediation goals for all media at certain eligible sites. Alternate remediation goals for soil only are otherwise available under law for all sites as described in Section F.2. Since N.C.G.S. 130A-310.65-310.77 is limited to certain sites and has additional administrative requirements, it is assumed that this mechanism for alternate cleanup levels will in practice be limited to groundwater. Therefore, the focus of this section will be procedures for approval of alternate groundwater remediation goals.

N.C.G.S. 130A-310.65-310.77 allows for alternate remediation goals for groundwater at sites that have primarily been used for manufacturing or other industrial activities for the production of a commercial product including the generation of electricity. No contamination associated with the site must have traveled off the property or will travel off the property in the future at concentrations in excess of unrestricted use groundwater levels. The site contamination must also have been reported to DENR prior to 1 March 2011. A fee is required for the Branch to determine a site's eligibility.

Being that contaminated groundwater will remain "contained" on the site property, remedies and procedural compliance with N.C.G.S. 130A-310.65-310.77 require REC Program concurrence. The general procedures in the preceding Section F.2 must be followed and the requirements under N.C.G.S 130A-310.65-310.77 must also be met.

The REC will first submit some general information about the site to determine preliminary eligibility for risk-based remediation. Once the Branch determines that the site is potentially eligible, the REC must then submit a technical demonstration package to the REC Program for a proposed containment remedy that includes fate and transport modeling (in most cases), a risk assessment, a demonstration of financial assurance and a fee based on the impacted acreage. After the Branch provides concurrence for the proposed containment remedy, it must be incorporated into a certified RAP that is submitted to the Branch and made available for public comment.

Procedures

The REC and RP must Branch concurrence on all containment remedies. The procedures for determining site eligibility and obtaining concurrence for a containment remedy at a qualifying industrial site using site-specific remediation standards are described below:

1. The REC and RP must ensure that a certified Remedial Investigation Report that has been completed in accordance with 15A NCAC 13C .0306(h) and N.C.G.S.130A-310.69(a) is on file with the Branch.

2. If, during evaluation of the site remedy, the REC determines that a containment remedy using alternate remedial goals for groundwater (and possibly other media) is the best remedial alternative, it must be submitted to the Branch for review and concurrence prior to completion of a proposed RAP. In this scenario, a proposed containment remedy for groundwater should be submitted for Branch review and concurrence in two steps. Initially, the REC and RP must submit a certified Statement of Intent to Remediate to Site-Specific Remediation Standards package (via e-mail) to the Branch that includes the following documentation:
 - a. A brief statement of intent to remediate to site-specific remediation standards.
 - b. A statement that the property is or has been used primarily for manufacturing or other industrial activities for the production of a commercial product in accordance with N.C.G.S. 130A-310.65(4)b. Proof of property usage, including a title search and a summary report of ownership and operational activities since the property's original development from pristine land, must be provided.
 - c. A statement that review and evaluation of all available data indicates contaminants in all environmental media have been delineated and no contaminant associated with the activities at the property is located off the property and will not migrate to any adjacent properties above unrestricted use standards for the contaminant in accordance with N.C.G.S. 130A-310.65(4)c & N.C.G.S. 130A-310.65(4)d. A scaled survey map must be provided showing both the lateral extent of contamination and where it is projected to migrate for each contaminated area on the property. A calculation of the projected acreage which does or will exceed unrestricted use levels (for all media) must be included in order to determine the fee (see N.C.G.S. 130A-310.76). The method of the calculation must be identified.
 - d. A statement that the discharge, spill, or release of contamination was reported to the Department prior to March 1, 2011 in accordance with N.C.G.S. 130A-310.67(c). Proof of the report to the Department prior to March 1, 2011 must be provided and can be in the form of a reference to an assessment report, a IHSB Site Notification form, etc. that is in the public file.
 - e. A "Statement of Intent to Remediate to Site-Specific Remediation Standards Certification" Form (*Site-Specific Remediation Standards Form No. SSRS-I*) must be included with the submittal along with REC Program Document Certification Forms DC-I and DC-II. The certification forms must be downloaded from the REC Program website.

3. The Branch will review the certified Statement of Intent to Remediate to Site-Specific Remediation Standards package and concur, reject, or provide comments to the REC and RP on the proposal. Staff will place the package in the public file. If the site meets the initial step of eligibility, the REC and RP will be given instructions to submit a certified technical demonstration package that shows the containment remedy to be a viable option for remediating the site.
4. For the final step of eligibility, the REC and RP must submit a certified Technical Demonstration to Remediate to Site-Specific Remediation Standards package that describes the containment remedy. The Technical Demonstration should be submitted as a separate document, but it can also be included as a stand-alone section within the RAP (contact Branch Staff for further discussion and instructions). The Technical Demonstration to Remediate to Site-Specific Remediation Standards package must include the following documentation:
 - a. Descriptions of the current site and surrounding property use, the proposed site's use, and current and proposed zoning of the site and surrounding properties.
 - b. A brief summary of the nature and extent of past release(s), and soil, sediment, surface water, and groundwater conditions as well as vapor intrusion issues. Include copies of or references to the appropriate maps, figures and summary tables of analytical data provided in a certified remedial investigation report to fully document the extent of contamination on the property.
 - i. Site map(s) and figures must show sampling locations, the lateral and vertical extent of contamination in all media for each separate release area.
 - ii. Table(s) of analytical data must identify all contaminant concentrations that exceed unrestricted use remedial goals. For example, the soil table should indicate the soil sample ID, sample depth, concentrations of compounds detected, the laboratory reporting limit if the concentrations were below detection, and their respective remedial goals: the calculated or health-based industrial remedial goal and the protection of groundwater remedial goal, and the proposed remedial goal for each compound for the restricted-use scenario. Each release area must be summarized in the table separately or summarized in separate tables.
 - c. A description of the proposed containment remedy, including proposed remediation goals for restricted land use for each media. The remedial goals must address contamination that potentially moves from one medium to another. As stated in N.C.G.S. 130A-310.65-310.77, uncontaminated media cannot become contaminated above unrestricted use levels in the future. Currently, contaminated media

cannot exceed risk based remediation levels. Therefore, verification that the above criteria will be met must be demonstrated.

- d. A report of contaminant fate and transport modeling results that demonstrates contaminants will not migrate off of the property. In some cases with extensive historical monitoring data, contamination that is limited in size and concentration, and geology for the area that promotes containment, computer modeling may not be necessary.
- e. A statement of the proposed use of the restricted area (i.e., parking lot, permanent structure, open space, park, etc.) and any proposed use restrictions.
- f. A risk assessment report detailing the exposure assumptions and calculations used to determine alternate health-based remediation goals.
- g. A remedial action cost estimate and proof of financial assurance (in the form of a draft instrument similar to a financial assurance demonstration required by a solid waste or hazardous waste permit). Refer to N.C.G.S. 130A-310.72 for types of instruments.
- h. The deed book and page numbers for the property or properties where the restrictions will apply, if approved.
- i. The plat book and page numbers for any Notice of Inactive Hazardous Site that is already recorded in relation to the site.
- j. Written consent by the owner(s) of the site to the imposition of LURs using the form provided in Attachment F-1. The property owner must provide a copy of any lease agreements and/or encumbrances that exist for the property.
- k. A proposed inspection plan for the site to verify that the recorded LURs are in place and activities at the site are in compliance with these restrictions. The proposed inspection plan should be included in the section of the RAP, discussed below, that describes planned inspection, maintenance and progress reporting.

Note: The site owner will be required to conduct an inspection of the site no less than annually. They must also submit to the Branch a signed and notarized statement using Form F-2 (below) stating that the LURs are still in effect and conditions at the site are not in violation of the LURs. Current and future Owners, operators and other responsible parties are required under N.C.G.S. 130A-310.3(f) to enforce the LURs and are expected to take action immediately upon discovery of a violation of the LURs. Failure to do so will cause automatic revocation of Branch concurrence on the remedial action.

- l. The names and addresses of adjacent landowners and local government agencies for public notice regarding the intent to clean up the site to site-specific remediation standards (see N.C.G.S. 130A-310.70 for specific details).
 - m. The impacted-acreage calculation fee with check made payable to the NC Division of Waste Management.
 - n. A “Technical Demonstration to Remediate to Site-Specific Remediation Standards Certification” Form (*Site Specific Remediation Standards Form No. SSRS-II*) must be included with the submittal along with REC Program Document Certification Forms DC-I & DC-II.
5. The Branch will review the technical demonstration package describing the proposed containment remedy and concur, reject, or provide comments to the REC and RP on the proposal. After the proposed containment remedy is complete and concurrence is issued by the Branch, the documentation will be placed in the public file and staff will direct the REC and RP to prepare and/or submit a certified proposed RAP (unless the proposed RAP has already been submitted as mentioned above) that describes the complete remedy. The proposed RAP must be prepared in accordance with 15A NCAC 13C .0306(l) and the REC Program Implementation Guidance as well as N.C.G.S. 130A-310.69(b). The proposed containment remedy must be incorporated into the certified remedial action plan to be made available for public comment. When concurrence is granted, the Branch will also transmit a draft DPLUR document to the REC and RP to create a list of land use restrictions applicable to the site. The REC and RP can also discuss/propose any additional restrictions based on the current and future intended use of the site. The REC will also begin creating a draft Notice of an Inactive Hazardous Substance or Waste Disposal Site to go along with the DPLUR. Sections F.5 and F.6 below describe the procedures for preparing the DPLUR and Notice documents. Draft versions of the documents will be incorporated as part of the proposed RAP for public notice. Once the documents are complete, a final DPLUR will be forwarded by the Branch to the REC for later recordation at the appropriate register of deeds office. See Section F.7 regarding instructions for completing and implementing the RAP for a containment remedy, including specific instructions for document recordation.

F. 4. Procedures for Alternate Cleanup Levels (aka a Containment Remedy) Due to Technical Impracticability

Containment remedies with LURs can be imposed on sites where it can be demonstrated that remediation to the remedial goals is technically impracticable. As with any LUR proposal, site characterization data must be presented to demonstrate that the source of contamination is controlled and the contaminant distribution is fully delineated.

Technical discussions and conclusions should be supported by figures, data tables, statistical analyses, fate and transport modeling, or other types of data reduction. A feasibility study must show that the site restoration potential is limited by the effectiveness of available technologies, engineering feasibility, and/or excessive cost. Refer to “Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration” (EPA, September 1993), and contact the Branch for further information.

F.5 Procedures for Preparing a Declaration of Perpetual Land Use Restrictions (DPLUR) Document

The DPLUR document outlines the restrictive covenants or perpetual land use restrictions that must run with the land and bind all future owners.

1. Once concurrence for the proposed containment remedy is issued, the Branch will create and transmit a draft DPLUR document to the REC. The REC, RP and the Branch will work together to come up with the LURs for the site. The following mandatory restrictive covenants will be included in all DPLURs:
 - No surface or subsurface native or fill materials may be removed from the Site without the written permission of DENR or its successor in function.
 - Activities necessary to maintain the security of the Site, prevent human exposure to contaminated materials, and to prevent erosion of the contaminated soil at the Site are permitted with prior written approval by the Superfund Section or its successor in function.
 - Each person who owns any portion of the Site shall submit a letter report, containing the notarized signature of the owner, in January of each year on or before January 31st, to the Superfund Section, or its successor in function, confirming that this Declaration is still recorded in the appropriate register of deeds office and that activities and conditions at the Site remain in compliance with the land use restrictions herein.
 - No person conducting environmental assessment or remediation at the Site, or involved in determining compliance with applicable LURs, at the direction of, or pursuant to a permit or order issued by, DENR or its successor in function may be denied access to the Site for the purpose of conducting such activities.
 - Each person who owns any portion of the Site shall cause the instrument of any sale, lease, grant, or other transfer of any interest in the Site to include a provision expressly requiring the lessee, grantee, or transferee to comply with this Declaration. The failure to include such provision shall not affect the validity or applicability of any land use restriction in this Declaration.
2. When the language is finalized, the final DPLUR as it is to be recorded at the appropriate register of deeds office will be forwarded to the REC.

F.6 Procedures for Preparing a “Notice of an Inactive Hazardous Substance or Waste Disposal Site” (Notice)

1. The Notice is a survey plat of the subject property prepared for recordation at the appropriate county Register of Deeds office. It is prepared and certified by a professional land surveyor registered in North Carolina and in accordance with N.C.G.S. 130A-310.8. Every plat should be a new or existing survey of the entire property conducted by the surveyor preparing the plat unless the property is extremely large or otherwise problematic to re-survey and the Branch has approved the allowance of the modification of an existing survey prepared by another surveyor.
2. Instructions for preparing a Notice can be found under Guidance Documents on the Branch website at <http://portal.ncdenr.org/web/wm/sf/ih/s/ihsguide>. Only items 1 and 2 of these instructions should be followed by the REC and land surveyor to prepare the draft Notice for submittal to the Branch.
3. Once the draft Notice is ready, it can be e-mailed to the Branch for review. The draft Notice will also be reviewed by a DENR registered land surveyor. After the review is complete and any necessary revisions made by the REC and land surveyor that prepared the plat, the REC and RP will be informed that the draft Notice can be finalized after any remedial construction activities are complete.

F.7 Procedures for Completing and Implementing a RAP for a Containment Remedy

1. After concurrence for the proposed containment remedy is issued by the Branch, the proposed RAP, which incorporates a Technical Demonstration to Remediate to Site-Specific Remediation Standards package (a proposed containment remedy for alternate groundwater remediation goals, Section F.3), correspondence regarding the Branch’s concurrence with the containment remedy, the final DPLUR, and the draft Notice are placed in the public file. The Branch will then prepare a public notice for the proposed RAP in accordance with N.C.G.S. 130A-310.70, N.C.G.S. 130A-310.4(c)(2), and 15A NCAC .0306(j). The public notice information and instructions will be e-mailed to the REC for certified mailing. The public notice is issued by the REC using certified mail and lasts for 30 days. See Section .0306(j) of this guidance for the public notice procedures.
2. After the public notice is completed, any comments received from the public must be addressed by the REC. Once the public comments are addressed satisfactorily, the Branch will instruct the REC and RP to submit the work-phase completion statement (Work Phase Completion Form No. WPC-III) for the RAP [see 15A NCAC .0306(b)(5)] and the remedy can be implemented.

Note: The Branch will only be providing review and concurrence with the proposed containment remedy. It will not provide review and approval of the remedial action plan. The REC will provide approval of the entire proposed remedy and RAP upon proper certification of the RAP document.

3. After any remedial construction activities are complete and the final Notice is prepared by the surveyor, the final DPLUR and final Notice must be signed and notarized by the property owner and forwarded to the Branch for signature by NCDENR. After all signatures are obtained, the Branch will return the executed documents along with instructions to the REC for recordation at the appropriate register of deeds office.
4. Within 15 days after the executed DPLUR and Notice have been recorded, the remediating party and REC must have the documents recorded at the appropriate register of deeds office. The DPLUR must be recorded first because the book and page numbers of the recorded DPLUR must be referenced on the Notice. The Notice will then be recorded and certified copies of each document must be made. The documents must also be indexed in the grantor index under the name(s) of the owner(s) of all affected property.

***Note:* Recordation of the documents may take place on the same date at the Register of Deeds office as long as they are recorded in the sequence outlined above and the book and page where the land use restrictions are recorded are noted in the designated blanks on the Notice prior to it being recorded.**

5. Within 15 days of document recordation, the REC must submit a certified copy of the recorded DPLUR and Notice and a copy of the relevant grantor index page(s) to the Branch. All documents will then be electronically filed in the public record.

***Note:* Failure of the responsible party and the REC to comply with document submittal deadlines issued by the Branch could be cause for automatic revocation of Branch concurrence of the proposed containment remedy.**

6. The restrictions in the executed and recorded DPLUR document include a requirement that the property owner submit an annual report regarding the status of the containment remedy. An annual report form to demonstrate compliance with the perpetual land use restrictions is provided as Attachment F-2.

F.8. Cancellation of Land Use Restrictions

If the owner believes that all hazards have been removed and that hazardous substances are no longer present at the site above unrestricted use remediation goals, the owner may subsequently request Branch approval to cancel the land use restrictions. Canceling land use restrictions without prior Branch approval will cause automatic revocation of approval of the remedial action plan and will subject the party taking such action to enforcement.

Attachment F-1
Land Use Restrictions Consent Form

The following form is required for submittal indicating provisional consent of the site's owner to the imposition of land use restrictions. This consent is subject to later withdrawal when the owner reviews the land use restrictions document.

CONSENT TO IMPOSITION OF LAND USE RESTRICTIONS

_____ Superfund Site, _____ County, North Carolina

I, _____, owner in fee simple of real property located at [street address], [town or city], _____ County, North Carolina which includes the _____ Superfund site (the "Site"), am agreeable to the imposition of Land Use Restrictions ("Restrictions") partially or completely in lieu of actual remediation of hazardous substances at the Site. I understand that I will be required to document any agreement to the actual Restrictions approved for the Site by the North Carolina Department of Environment and Natural Resources, and that I may refuse to consent upon review of the actual Restrictions.

IN WITNESS WHEREOF, _____ has caused these presents to be executed in its name by [name of atty. or other agent if there is one], its [title], this _____ day of _____, _____.

_____ [name of owner if agent is signing]

By: _____ [signature of atty. or other agent if there is one]

Signatory's name typed or printed: _____

**STATE OF NORTH CAROLINA
COUNTY OF**

I, _____, a Notary Public, do hereby certify that _____ personally appeared before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this _____ day of _____, _____.

Notary Public

My commission expires _____.

Attachment F-2

Annual Report Form for Perpetual Land Use Restrictions

The following form is a signed and notarized statement and is required for submittal to verify that the DPLUR and Notice remain recorded at the Register of Deeds office and activities at the site are in compliance with the land use restrictions. Current and future property owners, operators and other responsible parties are required under N.C.G.S. 130A-310.3(f) to enforce the LURs and are expected to take action immediately upon discovery of a violation of the LURs. Failure to do so will cause automatic revocation of Branch concurrence of the remedial action.

Annual Report Form for Perpetual Land Use Restrictions

Site Name and ID: _____

Site Address: _____

1. All restrictions in the recorded Declaration of Perpetual Land Use Restrictions (DPLUR) document are still in compliance.
2. All posted signs and demarcations that identify the restricted area(s) are visible and readable.
3. The contact information on the signs is current.
4. All physical markers and barriers (e.g., berms, fences, paved areas, etc) are in place and intact.
5. The DPLUR and Notice are still recorded at the county register of deeds office.

Comments:

Note: Any violations of the perpetual land use restrictions must be reported immediately to NC DENR or its successor in function.

Property Owner Certification Statement

After first being duly sworn or affirmed, I, _____, hereby state that: I am over the age of eighteen, I am competent to make this certification based upon my own personal knowledge and belief and, to the best of my knowledge and belief, after thorough investigation, the information contained herein is accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

(Signature of Property Owner)

(Date)

(Printed Name and Title of Property Owner)

(Printed Name of Company)

STATE OF _____, COUNTY OF _____

I, _____, a Notary Public of said County and State, do hereby certify that _____ personally appeared before me this day, produced proper identification in the form of _____, was duly sworn and/or affirmed, and declared that he or she is the owner of the property referenced above or is a duly authorized agent of said owner and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is accurate and complete, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal the _____ day of _____, 20__.

Notary Public (signature)

My commission expires: _____

(OFFICIAL SEAL)

Appendix G Certification Statements

The Inactive Hazardous Sites Branch views certification of documents and work phase completions as a critical and primary means of ensuring the compliance and integrity of the REC Program and that public health is being protected in absence of state review. Below are the instructions for proper certification of documents and work phase completion certification. The documents must be certified and notarized **first** by the remediating party, **second** by the RSM. The certification forms described below must be completed for submittal with the appropriate document. The forms must be downloaded at <http://portal.ncdenr.org/web/wm/sf/ih/recprogram/RECCertForms>.

G.1. Certification of Documents

In accordance with .0306(b)(1) and (b)(2), all work phase completion statements, project schedules, work plans, and reports submitted to the Branch must include a specific notarized certification statement by a representative of the remediating party and a specific notarized certification statement by the RSM. The remediating party must sign and have notarized their certification **prior** to the RSM's certification. There is specific certification language for the remediating party (*Document Certification Form No. DC-I*) and for the RSM (*Document Certification Form No. DC-II*). The language in the certification statements is specified in the Rules and may not be modified under any circumstances. **Therefore, these specific certification statement forms cannot be reproduced in any way and must be used for all certifications. The signatures of both the remediating party and RSM on the certification statements must be properly notarized using only the notary text shown on the forms.**

NOTE: The RSM certifies all documents LAST. Failure to do so is a violation of 15A NCAC 13C .0306(b)(2) of the REC Program Rules and subject to possible enforcement action against the REC and/or RSM.

G.2 Certification of Work Phase Completion

Work phase completion certification forms must be used to certify the completion of work phases in accordance with .0306(b)(5) and (b)(6). These certifications are in addition to the document content certifications. They do not have to be submitted with a document, but must be submitted prior to the next work phase. The work phase completion forms are:

1. Phase I Remedial Investigation Completion Certification (*Work Phase Completion Form No. WPC-I*)
2. Remedial Investigation Completion Certification (*Work Phase Completion Form No. WPC-II*)
3. Proposed Remedial Action Plan Completion Certification (*Work Phase Completion Form No. WPC-III*)
4. Remedial Design Completion Certification (*Work Phase Completion Form No. WPC-IV*)
5. Construction Completion Certification (*Work Phase Completion Form No. WPC-V*)
6. Remedial Action Completion Certification (*Work Phase Completion Form No. WPC-VI*)

7. Remedial Action Completion Certification “for Remedy with Land Use Restrictions” (*Work Phase Completion Form No. WPC-VII*)
8. Combined Remedial Investigation & Remedial Action Completion Certification “for No Action Remedy” (*Work Phase Completion Form No. WPC-VIII*)

G.3 Certification of Site-Specific Remediation Standards

For sites using site-specific remediation standards in accordance with North Carolina General Statutes 130A-310.65 through -310.77, the following two forms are necessary to certify the documents and data provided to the Branch (see Section F.3):

1. Statement of Intent to Remediate to Site-Specific Remediation Standards Certification Form (*Site-Specific Remediation Standards Form No. SSRS-I*)
2. Technical Demonstration to Remediate to Site-Specific Remediation Standards Certification Form (*Site Specific Remediation Standards Form No. SSRS-II*)

These forms must be accompanied by the document content certifications forms, DC-I and DC-II.

Completing Certification Forms

The RSM must download these certification forms from the Branch’s website only. **These specific certification statement forms cannot be reproduced in any way and must be used for all certifications.** Forms that have been modified, retyped or regenerated are unacceptable. All information entered on the forms must be typed or neatly printed. **The signature of the RSM on the statement forms must be properly notarized as indicated on the forms.**

IHSB SITE NAME _____

DATE & NAME OF DOCUMENT _____

TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REMEDIAING PARTY DOCUMENT CERTIFICATION STATEMENT (.0306(B)(2))

“I certify under penalty of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.”

Name of Remediating Party

Signature of Remediating Party

Date

NOTARIZATION

(Enter State)

COUNTY

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ____ day of _____, _____.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: _____.

IHSB SITE NAME _____

DATE & NAME OF DOCUMENT _____

TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REGISTERED SITE MANAGER CERTIFICATION OF SIGNATURES

As the Registered Environmental Consultant for the Site for which this filing is made, I certify that the signatures included herewith are genuine and authentic original handwritten signatures and/or true, accurate, and complete copies of the genuine and authentic original handwritten signatures of the persons who purport to sign for this filing. I further certify that I have collected through reliable means the originals and/or copies of said signatures from the persons authorized to sign for this filing who, in fact, signed the originals thereof. Those persons and I understand and agree that any copies of signatures have the same legally binding effect as original handwritten signatures, and I certify that any person for whom I am submitting a copy of their signature has provided me with their express consent to submit said copy. Additionally, I certify that I am authorized to attest to the genuineness and authenticity of the signatures, both originals and any copies, being submitted herewith and that by signing below, I do in fact attest to the genuineness and authenticity of all the signatures, both originals and copies, being submitted for this filing.

Name of Registered Site Manager

Signature of Registered Site Manager

Date

REGISTERED SITE MANAGER DOCUMENT CERTIFICATION STATEMENT (.0306(b)(1))

“I certify under penalty of law that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq, and the remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.”

Name of Registered Site Manager

Signature of Registered Site Manager

Date

NOTARIZATION

(Enter State)

COUNTY

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certifications is true and accurate, and he or she then signed these Certifications in my presence.

WITNESS my hand and official seal this _____ day of _____, _____.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: _____.

**PHASE I REMEDIAL INVESTIGATION COMPLETION CERTIFICATION
15A NCAC 13C.0306(b)(5)(A)**

Media (check all that apply): All Media Soil Ground water Surface water Sediment

Site Name _____ Street Address _____

County _____

Site ID No. _____

The Phase I remedial investigation, which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and

[REC Name]

is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

RSM Signature

Date

RSM Name

REC Name

Mailing Address

REC No.

City, State, ZIP

NOTARIZATION

(Enter State)

COUNTY

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: _____.

**REMEDIAL INVESTIGATION COMPLETION CERTIFICATION
15A NCAC 13C.0306(b)(5)(B)**

Media (check all that apply): All Media Soil Ground water Surface water Sediment

Site Name _____ Street Address _____

County _____

Site ID No. _____

The remedial investigation, which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and

[REC Name]

is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

RSM Signature

Date

RSM Name

REC Name

Mailing Address

REC No.

City, State, ZIP

NOTARIZATION

_____ (Enter State)

_____ **COUNTY**

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: _____.

**PROPOSED REMEDIAL ACTION PLAN COMPLETION CERTIFICATION
15A NCAC 13C.0306(b)(5)(C)**

Media (check all that apply): All Media Soil Ground water Surface water Sediment

Site Name _____ Street Address _____

County _____

Site ID No. _____

The proposed remedial action plan, which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and

_____ [REC Name]
is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

RSM Signature

Date

RSM Name

REC Name

Mailing Address

REC No.

City, State, ZIP

NOTARIZATION

_____ (Enter State)

_____ **COUNTY**

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: _____.

REMEDIAL DESIGN COMPLETION CERTIFICATION
15A NCAC 13C.0306(b)(5)(D)

Media (check all that apply): All Media Soil Ground water Surface water Sediment

Site Name _____ Street Address _____

County _____

Site ID No. _____

The remedial design, which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and

[REC Name]

is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

RSM Signature

Date

RSM Name

REC Name

Mailing Address

REC No.

City, State, ZIP

NOTARIZATION

(Enter State)

COUNTY

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: _____.

CONSTRUCTION COMPLETION CERTIFICATION
15A NCAC 13C.0306(b)(5)(D)

Media (check all that apply): All Media Soil Ground water Surface water Sediment

Site Name _____ Street Address _____

County _____

Site ID No. _____

The construction of the final remedy, which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and

_____ [REC Name]
is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

RSM Signature

Date

RSM Name

REC Name

Mailing Address

REC No.

City, State, ZIP

NOTARIZATION

_____ (Enter State)

_____ **COUNTY**

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: _____.

REMEDIAL ACTION COMPLETION CERTIFICATION
15A NCAC 13C.0306(b)(5)(E)

Media (check all that apply): All Media Soil Ground water Surface water Sediment

Site Name _____ Street Address _____

County _____

Site ID No. _____

The approved and certified site remedial action plan has been implemented, and to the best of my knowledge and belief, cleanup levels determined pursuant to Rule .0308 of this Section have been achieved, and no significant or otherwise unacceptable risk or harm to human health or the environment remains at the site.

The remedial action which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and _____

[REC Name]

is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false , inaccurate or incomplete information.

RSM Signature

Date

RSM Name

REC Name

Mailing Address

REC No.

City, State, ZIP

NOTARIZATION

(Enter State)

COUNTY

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

(OFFICIAL SEAL)

Notary Public (signature)

My commission expires: _____.

REMEDIAL ACTION COMPLETION CERTIFICATION
“FOR REMEDY WITH LAND USE RESTRICTIONS”
15A NCAC 13C.0306(b)(5)(E)

Media (check all that apply): All Media Soil Ground water Surface water Sediment

Site Name _____ Street Address _____

County _____

Site ID No. _____

The approved and certified site remedial action plan has been implemented, and to the best of my knowledge and belief, cleanup levels determined pursuant to Rule .0308 of this Section have been achieved, and no significant or otherwise unacceptable risk or harm to human health or the environment remains at the site as long as the land use restrictions are maintained.

The remedial action which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and _____

[REC Name]

is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

RSM Signature

Date

RSM Name

REC Name

Mailing Address

REC No.

City, State, ZIP

NOTARIZATION

_____ (Enter State)

_____ **COUNTY**

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: _____.

**COMBINED REMEDIAL INVESTIGATION & REMEDIAL ACTION COMPLETION
CERTIFICATION
“FOR NO ACTION REMEDY”
15A NCAC 13C.0306(b)(5)(B) AND (E)**

Media (check all that apply): All Media Soil Ground water Surface water Sediment

Site Name _____ Street Address _____

County _____

Site ID No. _____

The remedial investigation, which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and _____

[REC Name]

is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

This Combined Remedial Investigation and Remedial Action Completion Certification constitutes a “no action remedy” site remedial action plan for purposes of 15A NCAC 13C. 0306(b)(6). This approved and certified site remedial action plan has been implemented, and to the best of my knowledge and belief, cleanup levels determined pursuant to Rule .0308 of this Section have been achieved, and no significant or otherwise unacceptable risk or harm to human health or the environment remains at the site.

RSM Signature

Date

RSM Name

REC Name

Mailing Address

REC No.

City, State, ZIP

NOTARIZATION

(Enter State)

COUNTY

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

Notary Public (signature)

(OFFICIAL SEAL)

My commission expires: _____.

**STATEMENT OF INTENT TO REMEDIATE TO
SITE-SPECIFIC REMEDIATION STANDARDS CERTIFICATION
N.C.G.S. 130A-310.65 – 310.77**

Site Name _____ Street Address _____
 County _____
 Site ID No. _____

The remedial investigation, which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and _____ is in compliance with Rules .0305(b)(2) and

[REC Name]

.0305(b)(3) of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information. To qualify the above site for remediation to site-specific remediation standards, available environmental records and remedial investigation data have been reviewed for compliance with N.C.G.S 130a-310.65 to 310.77 and the following statutes are true:

- 130A-310.65(4)b – The property is or has been used primarily for manufacturing or other industrial activities for the production of a commercial product. Proof of property usage, including a title search and a summary report of ownership and operational activities since the property’s original development from pristine land, has been completed and provided to the Department.
- 130A-310.65(4)c&d – Review and evaluation of all available data indicates that contaminants in all environmental media have been delineated and no contaminant associated with the activities at the property is located off the property and will not migrate to any adjacent properties above unrestricted use standards for the contaminant.
- 130A-310.67(c) – The discharge, spill, or release of contamination has been reported to the Department prior to March 1, 2011. Proof of notification (e.g., assessment report, IHSB Site Notification, etc.) is on file with the Department.

I have reviewed this data with the remediating party and have attached REC Program Document Certification Forms DC-I & DC-II with this certification.

 RSM Signature Date

 RSM Name

 REC Name Mailing Address

 REC No. City, State, ZIP

NOTARIZATION

_____ (Enter State)

_____ COUNTY

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

 Notary Public (signature) (OFFICIAL SEAL)

My commission expires: _____.

**TECHNICAL DEMONSTRATION TO REMEDIATE TO
SITE-SPECIFIC REMEDIATION STANDARDS CERTIFICATION
N.C.G.S. 130A-310.65-77**

Site Name _____ Street Address _____
County _____
Site ID No. _____

The remedial investigation, which is the subject of this certification has, to the best of my knowledge, been completed in compliance with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq. and the remedial action program Rules 15A NCAC 13C .0300, and _____

[REC Name]

is in compliance with Rules .0305(b)(2) and .0305(b)(3), of this section. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information.

This Technical Demonstration to Remediate to Site-Specific Remediation Standards has, to the best of my knowledge, been completed in compliance with N.C.G.S 130a-310.65 to 310.77. I have reviewed this data with the remediating party and have attached REC Program Document Certification Forms DC-I & DC-II with this certification.

RSM Signature Date _____

RSM Name _____

REC Name Mailing Address _____

REC No. City, State, ZIP _____

NOTARIZATION

_____ (Enter State)

_____ COUNTY

I, _____, a Notary Public of said County and State, do hereby certify that _____ did personally appear and sign before me this day, produced proper identification in the form of _____, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this ___ day of _____, _____.

Notary Public (signature) (OFFICIAL SEAL)

My commission expires: _____.