NCDENR
North Carolina Department of Environment and Natural Resources

Dexter Matthews, Director | Division of Waste Management, UST Section | Beverly Eaves Perdue, Governor, Dee Freeman, Secretary

October 5, 2009

Commanding Officer
Attn: I&E/EMD, Mr. Nick Schultz, Bldg. 12
PSC Box 20004
MCB Camp Lejeune, NC 28542-0004

Subject: Review of Report Entitled "Comprehensive Site Assessment Report, AS-41447 (JP-5 2009 Pipeline Release)"
Incident No. 32542
White Street, MCAS/Camp Lejeune
Onslow County

Dear Mr. Schultz:

Thank you for submitting the subject report to the Division on September 28, 2009. The Division has reviewed the report and offers the following comments and/or concerns:

- The report references that one additional existing monitoring well (OBG-06) will be gauged and sampled in the near future. That recommendation is fine, but the Division also needs to see results from another monitoring well to be located north-northwest of well OBG-06, since OBG-6 appears to be located cross-gradient to upgradient of the source area.

- The other recommendations found in the report are satisfactory, except that the soil-sampling interval in recommendation number 3 appears to be rather shallow in our opinion. Please submit all additional sampling and gauging information by March 31, 2010.

- One of the main purposes of the Comprehensive Site Assessment Report is to define the entire extent of contamination in both affected media. The Section's report format from the latest Guidelines document is attached for your reference. This was not accomplished in the subject report, therefore the report is incomplete.

If there are any questions concerning this letter, please call me at (910) 796-7400.

Regards,

Bruce Reed
Hydrogeologist II

Cc: WiRO-UST
S:bruce/schultz2009jp5csa.sep

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SUBJECT: REVIEW OF REPORT ENTITLE "COMPREHENSIVE SITE ASSESSMENT REPORT, AS-41447 INCIDENT NO. 32542

COMMENTS: Bryan / Thomas / Mich - please plan on submitting a revised CSA to complete states requirements. Let me know if ya have another solution.
JM

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North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor
William G. Ross Jr., Secretary

Division of Waste Management
Underground Storage Tank Section

Dexter R. Matthews, Director

February 12, 2009

Commanding Officer
Attn: I&E/EMD/EQB, Dr. Johanna Arnold-
UST Program Manager, Bldg. 12
PSC Box 20004
MCB Camp Lejeune, NC 28542-0004

Re: Notice of Regulatory Requirements
15A NCAC 2L .0404 and 2L .0405
Risk-based Assessment and Corrective Action
for Petroleum Underground Storage Tanks

USMC Camp Lejeune 2009 JP-5 Line Release
White Street-Marine Corp Air Station
Onslow County
Incident Number: TBD
Risk Classification: U
Ranking: U

Dear Dr. Arnold:

Information received by this office on February 9, 2009 confirms a release or discharge from a petroleum underground storage tank (UST) system at the above-referenced location. Records indicate that the USMC is the owner or operator of this UST system. Therefore, as a responsible party, the USMC must comply with the initial response and abatement action requirements of Title 15A NCAC 2L .0404 and, if applicable, the assessment and reporting requirements of Title 15A NCAC 2L .0405, within the timeframes specified in the attached rules. (Be aware that if the latter rule is applicable, the USMC must comply with its requirements even if it does not receive formal notification from the UST Section.)

Initial abatement action requirements include the preparation and submittal of an Initial Abatement Action (IAA) Report, in accordance with Title 15A NCAC 2L .0404 and the most recent version of the *UST Section Guidelines for Site Checks, Tank Closure, and Initial Response and Abatement,* within 90 days of discovery of the release.

Because a release or discharge has been confirmed, a Licensed Geologist or a Professional Engineer, certified by the State of North Carolina, is required to prepare and certify all reports submitted to the Department in accordance with Title 15A NCAC 2L .0103(e) and 2L .0111(b).

Please note that before the USMC sells, transfers, or requests a "No Further Action" determination for a property that has not been remediated to below "unrestricted use" standards, the

USMC must file a Notice of Residual Petroleum ("Notice") with the Register of Deeds in the county where the property is located (NCGS 143B-279.9 and 143B-279.11).

Failure to comply with the State's rules in the manner and time specified may result in the assessment of civil penalties and/or the use of other enforcement mechanisms.

If there are any questions regarding trust fund eligibility or reimbursement from the Commercial or Noncommercial Leaking Petroleum Underground Storage Tank Cleanup Funds, please contact the UST Section Trust Fund Branch at (919) 733-8486. If there are any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at the address or telephone number listed below.

Sincerely,

Bruce Reed
Hydrogeologist II
Wilmington Regional Office

Enclosures: Title 15A NCAC 2L .0404 and 2L .0405
A Brief History of North Carolina Session Laws, Rules, and General Statutes...

cc: George O'Daniel, Onslow County Health Department
WiRO-UST

UST Regional Offices

Asheville (ARO) – 2090 US Highway 70, Swannanoa, NC 28778 **(828) 296-4500**

Fayetteville (FAY) – 225 Green Street, Suite 714, Systel Building, Fayetteville, NC 28301 **(910) 433-3300**

Mooresville (MOR) – 610 East Center Avenue, Suite 301, Mooresville, NC 28115 **(704) 663-1699**

Raleigh (RRO) – 1628 Mail Service Center, Raleigh, NC 27699 **(919) 791-4200**

Washington (WAS) – 943 Washington Square Mall, Washington, NC 27889 **(252) 946-6481**

Wilmington (WIL) – 127 Cardinal Drive Extension, Wilmington, NC 28405 **(910) 796-7215**

Winston-Salem (WS) – 585 Waughtown Street, Winston-Salem, NC 27107 **(336) 771-5000**

Guilford County Environmental Health, 1203 Maple Street, Greensboro, NC 27405, **(336) 641-3771**

S:\bruce\arnoldjp52009.iaa

SECTION .0400 - RISK-BASED ASSESSMENT AND CORRECTIVE ACTION FOR PETROLEUM UNDERGROUND STORAGE TANKS

15A NCAC 02L .0401 PURPOSE AND SCOPE

(a) The purpose of this Section is to establish procedures for risk-based assessment and corrective action sufficient to:

(1) protect human health and the environment;
(2) abate and control contamination of the waters of the State as deemed necessary to protect human health and the environment;
(3) permit management of the State's groundwaters to protect their designated current usage and potential future uses;
(4) provide for anticipated future uses of the State's groundwater;
(5) recognize the diversity of contaminants, the State's geology and the characteristics of each individual site; and
(6) accomplish these goals in a cost-efficient manner to assure the best use of the limited resources available to address groundwater pollution within the State.

(b) The applicable portions of Section .0100 not specifically excluded apply to this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(a);
Amended Eff. December 1, 2005.

15A NCAC 02L .0402 DEFINITIONS

The definitions as set out in 15A NCAC 02L .0102 apply to this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Eff. December 1, 2005.

15A NCAC 02L .0403 RULE APPLICATION

This Section applies to any discharge or release from a "commercial underground storage tank" or a "noncommercial underground storage tank," as those terms are defined in G.S. 143-215.94A, which is reported on or after the effective date of this Section. This Section shall apply to any discharge or release from a "commercial underground storage tank" or a "noncommercial underground storage tank," as those terms are defined in G.S. 143-215.94A which is reported before the effective date of this Section as provided in 15A NCAC 02L .0416 of this Section. The requirements of this Section shall apply to the owner and operator of the underground storage tank from which the discharge or release occurred, a landowner seeking reimbursement from the Commercial Leaking Underground Storage Tank Fund or the Noncommercial Leaking Underground Storage Tank Fund under G.S. 143-215.94E, and any

other person responsible for the assessment or cleanup of a discharge or release from an underground storage tank, including any person who has conducted or controlled an activity which results in the discharge or release of petroleum or petroleum products as defined in G.S. 143-215.94A(10) to the groundwaters of the State, or in proximity thereto; these persons shall be collectively referred to for purposes of this Section as the "responsible party." This Section shall be applied in a manner consistent with the rules found in 15A NCAC 2N in order to assure that the State's requirements regarding assessment and cleanup from underground storage tanks are no less stringent than Federal requirements.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(b);
Amended Eff. December 1, 2005.

15A NCAC 02L .0404 REQUIRED INITIAL ABATEMENT ACTIONS BY RESPONSIBLE PARTY

A responsible party shall:

(1) take immediate action to prevent any further discharge or release of petroleum from the underground storage tank; identify and mitigate any fire, explosion or vapor hazard; remove any free product; and comply with the requirements of Rules .0601 through .0604 and .0701 through .0703 and .0705 of Subchapter 02N;

(2) incorporate the requirements of 15A NCAC 02N .0704 into the submittal required under Item (3) of this Paragraph or the limited site assessment report required under 15A NCAC 02L .0405 of this Section, whichever is applicable. Such submittals shall constitute compliance with the reporting requirements of 15A NCAC 02N .0704(b);

(3) submit within 90 days of the discovery of the discharge or release a soil contamination report containing information sufficient to show that remaining unsaturated soil in the side walls and at the base of the excavation does not contain contaminant levels which exceed either the "soil-to-groundwater" or the residential maximum soil contaminant concentrations established by the Department pursuant to 15A NCAC 02L .0411 of this Section, whichever is lower. If such showing is made, the discharge or release shall be classified as low risk by the Department;

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(c)(1)-(3);
Amended Eff. December 1, 2005.

15A NCAC 02L .0405 REQUIREMENTS FOR LIMITED SITE ASSESSMENT

If the required showing cannot be made under 15A NCAC 02L .0404 of this Section, submit within 120 days of the discovery of the discharge or release, or within such other greater time limit approved by the Department, a report containing information needed by the Department to classify the level of risk to human health and the environment posed by a discharge or release under 15A NCAC 02L .0406 of this Section. Such report shall include, at a minimum:

(1) a location map, based on a USGS topographic map, showing the radius of 1500 feet from the source area of a confirmed release or discharge and depicting all water supply wells and, surface waters and designated wellhead protection areas as defined in 42 U.S.C. 300h-7(e) within the 1500-foot radius. For purposes of this Section, source area means point of release or discharge from the underground storage tank system;

(2) a determination of whether the source area of the discharge or release is within a designated wellhead protection area as defined in 42 U.S.C. 300h-7(e);

(3) if the discharge or release is in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985, a determination of whether the source area of the discharge or release is located in an area in which there is recharge to an unconfined or semi-confined deeper aquifer which is being used or may be used as a source of drinking water;

(4) a determination of whether vapors from the discharge or release pose a threat of explosion due to the accumulation of vapors in a confined space or pose any other serious threat to public health, public safety or the environment;

(5) scaled site map(s) showing the location of the following which are on or adjacent to the property where the source is located: site boundaries, roads, buildings, basements, floor and storm drains, subsurface utilities, septic tanks and leach fields, underground storage tank systems, monitoring wells, borings and the sampling points;

(6) the results from a limited site assessment which shall include:

(a) the analytical results from soil samples collected during the construction of a monitoring well installed in the source area of each confirmed discharge or release from a noncommercial or commercial underground storage tank and either the analytical results of a groundwater sample collected from the well or, if free product is present in the well, the amount of free product in the well. The soil samples shall be collected every five feet in the unsaturated zone unless a water table is encountered at or greater than a depth of 25 feet from land surface in which case soil samples shall be collected every 10 feet in the unsaturated zone. The soil samples shall be collected from suspected worst-case locations exhibiting visible contamination or elevated levels of volatile organic compounds in the borehole;

(b) if any constituent in the groundwater sample from the source area monitoring well installed in accordance with Sub-item (a) of this Item, for a site meeting the high risk classification in 15A NCAC 02L .0406(1), exceeds the standards or interim standards established in 15A NCAC 02L .0202 by a factor of 10 and is a discharge or release from a commercial underground storage tank, the analytical results from a groundwater sample collected from each of three additional monitoring wells or, if free product is present in any of the wells, the amount of free product in such well. The three additional monitoring wells shall be installed as follows: as best as can be determined, one upgradient of the source of contamination and two downgradient of the source of contamination. The

monitoring wells installed upgradient and downgradient of the source of contamination must be located such that groundwater flow direction can be determined; and

(c) potentiometric data from all required wells;

(7) the availability of public water supplies and the identification of properties served by the public water supplies within 1500 feet of the source area of a confirmed discharge or release;

(8) the land use, including zoning if applicable, within 1500 feet of the source area of a confirmed discharge or release;

(9) a discussion of site specific conditions or possible actions which could result in lowering the risk classification assigned to the release. Such discussion shall be based on information known or required to be obtained under this Paragraph; and

(10) names and current addresses of all owners and operators of the underground storage tank systems for which a discharge or release is confirmed, the owner(s) of the land upon which such systems are located, and all potentially affected real property owners. When considering a request from a responsible party for additional time to submit the report, the Division shall consider the extent to which the request for additional time is due to factors outside of the control of the responsible party, the previous history of the person submitting the report in complying with deadlines established under the Commission's rules, the technical complications associated with assessing the extent of contamination at the site or identifying potential receptors, and the necessity for immediate action to eliminate an imminent threat to public health or the environment.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(c)(4);
Amended Eff. December 1, 2005.

15A NCAC 02L .0406 DISCHARGE OR RELEASE CLASSIFICATIONS

The Department shall classify the risk of each known discharge or release as high, intermediate or low risk unless the discharge or release has been classified under 15A NCAC 02L .0404(3) of this Section. For purposes of this Section:

(1) "High risk" means that:

(a) a water supply well, including one used for non-drinking purposes, has been contaminated by the release or discharge;

(b) a water supply well used for drinking water is located within 1000 feet of the source area of a confirmed discharge or release;

(c) a water supply well not used for drinking water is located within 250 feet of the source area of a confirmed discharge or release;

(d) the groundwater within 500 feet of the source area of a confirmed discharge or release has the potential for future use in that there is no source of water supply other than the groundwater;

(e) the vapors from the discharge or release pose a serious threat of explosion due to accumulation of the vapors in a confined space; or

(f) the discharge or release poses an imminent danger to public health, public safety, or the environment.

(2) "Intermediate risk" means that:

(a) surface water is located within 500 feet of the source area of a confirmed discharge or release and the maximum groundwater contaminant concentration exceeds the applicable surface water quality standards and criteria found in 15A NCAC 02B .0200 by a factor of 10;

(b) in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985, the source area of a confirmed discharge or release is located in an area in which there is recharge to an unconfined or semi-confined deeper aquifer which the Department determines is being used or may be used as a source of drinking water;

(c) the source area of a confirmed discharge or release is within a designated wellhead protection area, as defined in 42 U.S.C. 300h-7(e);

(d) the levels of groundwater contamination for any contaminant except ethylene dibromide, benzene and alkane and aromatic carbon fraction classes exceed 50 percent of the solubility of the contaminant at 25 degrees Celsius or 1,000 times the groundwater standard or interim standard established in 15A NCAC 02L .0202, whichever is lower; or

(e) the levels of groundwater contamination for ethylene dibromide and benzene exceed 1,000 times the federal drinking water standard set out in 40 CFR 141.

(3) "Low risk" means that:

(a) the risk posed does not fall within the high or intermediate risk categories; or

(b) based on review of site-specific information, limited assessment or interim corrective actions, the Department determines that the discharge or release poses no significant risk to human health or the environment.

If the criteria for more than one risk category applies, the discharge or release shall be classified at the highest risk level identified in 15A NCAC 02L .0407 of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(d);
Amended Eff. December 1, 2005.

15A NCAC 02L .0407 RECLASSIFICATION OF RISK LEVELS

(a) The Department may reclassify the risk posed by a release if warranted by further information concerning the potential exposure of receptors to the discharge or release or upon receipt of new information concerning changed conditions at the site. After initial classification of the discharge or release, the Department may require limited assessment, interim corrective action, or other actions which the Department believes will result in a lower risk classification. It shall be a continuing obligation of each responsible party to notify the Department of any changes that might affect the level

of risk assigned to a discharge or release by the Department if the change is known or should be known by the responsible party. Such changes shall include, but shall not be limited to, changes in zoning of real property, use of real property or the use of groundwater that has been contaminated or is expected to be contaminated by the discharge or release, if such change could cause the Department to reclassify the risk.

(b) If the risk posed by a discharge or release is determined by the Department to be high risk, the responsible party shall comply with the assessment and cleanup requirements of Rule .0106(c), (g) and (h) of this Subchapter and 15A NCAC 02N .0706 and .0707. The goal of any required corrective action for groundwater contamination shall be restoration to the level of the groundwater standards set forth in 15A NCAC 02L .0202, or as closely thereto as is economically and technologically feasible. In any corrective action plan submitted pursuant to this Paragraph, natural attenuation shall be used to the maximum extent possible. If the responsible party demonstrates that natural attenuation prevents the further migration of the plume, the Department may approve a groundwater monitoring plan.

(c)If the risk posed by a discharge or release is determined by the Department to be an intermediate risk, the responsible party shall comply with the assessment requirements of 15A NCAC 02L .0106(c) and (g) and 15A NCAC 02N .0706. As part of the comprehensive site assessment, the responsible party shall evaluate, based on site specific conditions, whether the release poses a significant risk to human health or the environment. If the Department determines, based on the site-specific conditions, that the discharge or release does not pose a significant threat to human health or the environment, the site shall be reclassified as a low risk site. If the site is not reclassified, the responsible party shall, at the direction of the Department, submit a groundwater monitoring plan or a corrective action plan, or a combination thereof, meeting the cleanup standards of this Paragraph and containing the information required in 15A NCAC 02L .0106(h) and 15A NCAC 02N .0707. Discharges or releases which are classified as intermediate risk shall be remediated, at a minimum, to a cleanup level of 50 percent of the solubility of the contaminant at 25 degrees Celsius or 1,000 times the groundwater standard or interim standard established in 15A NCAC 02L .0202, whichever is lower for any groundwater contaminant except ethylene dibromide, benzene and alkane and aromatic carbon fraction classes. Ethylene dibromide and benzene shall be remediated to a cleanup level of 1,000 times the federal drinking water standard set out in 40 CFR 141. Additionally, if a corrective action plan or groundwater monitoring plan is required under this Paragraph, the responsible party shall demonstrate that the groundwater cleanup levels are sufficient to prevent a violation of:

(1) the rules contained in 15A NCAC 02B;
(2) the standards contained in 15A NCAC 02L .0202 in a deep aquifer as described in 15A NCAC 02L .0406(2)(b) of this Section; and
(3) the standards contained in 15A NCAC 02L .0202 at a location no closer than one year time of travel upgradient of a well within a designated wellhead protection area, based on travel time and the natural attenuation capacity of the subsurface materials or on a physical barrier to groundwater migration that exists or will be installed by the person making the request.

In any corrective action plan submitted pursuant to this Paragraph, natural attenuation shall be used to the maximum extent possible.

(d) If the risk posed by a discharge or release is determined by the Department to be a low risk, the Department shall notify the responsible party that no cleanup, no further cleanup or no further action will be required by the Department unless the Department later determines that the discharge or release poses an unacceptable risk or a potentially unacceptable risk to human health or the environment. No notification will be issued pursuant to this Paragraph, however, until the responsible party has completed

soil remediation pursuant to 15A NCAC 02L .0408 of this Section except as provided in 15A NCAC 02L .0416 of this Section or as closely thereto as economically or technologically feasible. The issuance by the Department of a notification under this Paragraph shall not affect any private right of action by any party which may be affected by the contamination.

History Note: Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;
Recodified from 15A NCAC 02L .0115(e)-(h);
Amended Eff. December 1, 2005.

15A NCAC 02L .0408 ASSESSMENT AND REMEDIATION PROCEDURES

Assessment and remediation of soil contamination shall be addressed as follows:

(1) At the time that the Department determines the risk posed by the discharge or release, the Department shall also determine, based on site-specific information, whether the site is "residential" or "industrial/commercial." For purposes of this Section, a site is presumed residential, but may be classified as industrial/commercial if the Department determines based on site-specific information that exposure to the soil contamination is limited in time due to the use of the site and does not involve exposure to children. For purposes of this Paragraph, "site" means both the property upon which the discharge or release has occurred and any property upon which soil has been affected by the discharge or release.

(2) The responsible party shall submit a report to the Department assessing the vertical and horizontal extent of soil contamination.

(3) For a discharge or release classified by the Department as low risk, the responsible party shall submit a report demonstrating that soil contamination has been remediated to either the residential or industrial/commercial maximum soil contaminant concentration established by the Department pursuant to 15A NCAC 02L .0411 of this Section, whichever is applicable.

(4) For a discharge or release classified by the Department as high or intermediate risk, the responsible party shall submit a report demonstrating that soil contamination has been remediated to the lower of:

(a) the residential or industrial/commercial maximum soil contaminant concentration, whichever is applicable, that has been established by the Department pursuant to 15A NCAC 02L .0411 of this Section; or

(b) the "soil-to-groundwater" maximum soil contaminant concentration that has been established by the Department pursuant to 15A NCAC 02L .0411 of this Section.

History Note: Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;
Recodified from 15A NCAC 02L .0115(i);
Amended Eff. December 1, 2005.

15A NCAC 02L .0409 NOTIFICATION REQUIREMENTS

(a) A responsible party who submits a corrective action plan which proposes natural attenuation or to cleanup groundwater contamination to a standard other than a standard or interim standard established in 15A NCAC 02L .0202, or to cleanup soil other than to the standard for residential use or soil-to-groundwater contaminant concentration established pursuant to this Section, whichever is lowest, shall give notice to: the local Health Director and the chief administrative officer of each political jurisdiction in which the contamination occurs; all property owners and occupants within or contiguous to the area containing the contamination; and all property owners and occupants within or contiguous to the area where the contamination is expected to migrate. Such notice shall describe the nature of the plan and the reasons supporting it. Notification shall be made by certified mail concurrent with the submittal of the corrective action plan. Approval of the corrective action plan by the Department shall be postponed for a period of 30 days following receipt of the request so that the Department may consider comments submitted. The responsible party shall, within a time frame determined by the Department to be sufficient, provide the Department with a copy of the notice and proof of receipt of each required notice, or of refusal by the addressee to accept delivery of a required notice. If notice by certified mail to occupants under this Paragraph is impractical, the responsible party may give notice by posting such notice prominently in a manner designed to give actual notice to the occupants. If notice is made to occupants by posting, the responsible party shall provide the Department with a copy of the posted notice and a description of the manner in which such posted notice was given.

(b) A responsible party who receives a notice pursuant to 15A NCAC 02L .0407(d) of this Section for a discharge or release which has not been remediated to tbe groundwater standards or interim standards established in Rule .0202 of this Subchapter or to the lower of the residential or soil-to-groundwater contaminant concentrations established under 15A NCAC 02L .0411 of this Section, shall, within 30 days of the receipt of such notice, provide a copy of the notice to: the local Health Director and the chief administrative officer of each political jurisdiction in which the contamination occurs; all property owners and occupants within or contiguous to the area containing contamination; and all property owners and occupants within or contiguous to the area where the contamination is expected to migrate. Notification shall be made by certified mail. The responsible party shall, within a time frame determined by the Department, provide the Department with proof of receipt of the copy of the notice, or of refusal by the addressee to accept delivery of the copy of the notice. If notice by certified mail to occupants under this Paragraph is impractical, the responsible party may give notice by posting a copy of the notice prominently in a manner designed to give actual notice to the occupants. If notice is made to occupants by posting, the responsible party shall provide the Department with a description of the manner in which such posted notice was given.

History Note: Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;
Recodified from 15A NCAC 02L .0115(j) and (k);
Amended Eff. December 1, 2005.

15A NCAC 02L .0410 DEPARTMENTAL LISTING OF DISCHARGES OR RELEASES

To the extent feasible, the Department shall maintain in each of the Department's regional offices a list of all petroleum underground storage tank discharges or releases discovered and reported to the Department within the region on or after the effective date of this Section and all petroleum underground storage tank discharges or releases for which notification was issued under 15A NCAC 02L .0407(d) of this Section by the Department on or after the effective date of this Section.

History Note: Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;
Recodified from 15A NCAC 02L .0115(l);
Amended Eff. December 1, 2005.

15A NCAC 02L .0411 ESTABLISHING MAXIMUM SOIL CONTAMINATION CONCENTRATIONS

The Department shall publish, and annually revise, maximum soil contaminant concentrations to be used as soil cleanup levels for contamination from petroleum underground storage tank systems. The Department shall establish maximum soil contaminant concentrations for residential, industrial/commercial and soil-to-groundwater exposures as follows:

(1) The following equations and references shall be used in establishing residential maximum soil contaminant concentrations. Equation 1 shall be used for each contaminant with an EPA carcinogenic classification of A, B1, B2, C, D or E. Equation 2 shall be used for each contaminant with an EPA carcinogenic classification of A, B1, B2 or C. The maximum soil contaminant concentration shall be the lower of the concentrations derived from Equations 1 and 2.

(a) Equation 1: Non-cancer Risk-based Residential Ingestion Concentration
Soil mg/kg =[0.2 x oral chronic reference dose x body weight, age 1 to 6 x averaging time noncarcinogens] / [exposure frequency x exposure duration, age 1 to 6 x (soil ingestion rate, age 1 to 6 / 10^6 mg/kg)].

(b) Equation 2: Cancer Risk-based Residential Ingestion Concentration
Soil mg/kg =[target cancer risk of 10^{-6} x averaging time carcinogens] / [exposure frequency x (soil ingestion factor, age adjusted / 10^6mg/kg) x oral cancer slope factor]. The age adjusted soil ingestion factor shall be calculated by: [(exposure duration, age 1 to 6 x soil ingestion rate, age 1 to 6) /(body weight, age 1 to 6)] + [((exposure duration, total - exposure duration, age 1 to 6) x soil ingestion, adult) / (body weight, adult)].

(c) The exposure factors selected in calculating the residential maximum soil contaminant concentrations shall be within the recommended ranges specified in the following references or the most recent version of these references:

(i) EPA, 1990. Exposure Factors Handbook;

(ii) EPA, 1991. Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual (Part B, Development of Risk Based Preliminary Remediation Goals);

(iii) EPA Region III. Risk-based Concentration Tables (RBC Tables). Office of RCRA, Technical and Program Support Branch. Available at: http://www.epa.gov/reg3hwmd/index.html; and

(iv) EPA, 1995. Supplemental Guidance to RAGS: Region 4 Bulletins Human Health Risk Assessment, including future amendments.

(d) The following references or the most recent version of these references, in order of preference, shall be used to obtain oral chronic reference doses and oral cancer slope factors:

(i) EPA. Integrated Risk Information System (IRIS) Computer Database;

(ii) EPA. Health Effects Assessment Summary Tables (HEAST);

(iii) EPA Region III. Risk-based Concentration Tables (RBC Tables). Office of RCRA, Technical and Program Support Branch. Available at: http://www.epa.gov/reg3hwmd/index.html;

(iv) EPA, 1995. Supplemental Guidance to RAGS: Region 4 Bulletins Human Health Risk Assessment, including future amendments; and

(v) Other appropriate, published health risk assessment data, and scientifically valid peer-reviewed published toxicological data.

(2) The following equations and references shall be used in establishing industrial/commercial maximum soil contaminant concentrations. Equation 1 shall be used for each contaminant with an EPA carcinogenic classification of A, B1, B2, C, D or E. Equation 2 shall be used for each contaminant with an EPA carcinogenic classification of A, B1, B2 or C. The maximum soil contaminant concentration shall be the lower of the concentrations derived from Equations 1 and 2.

(a) Equation 1: Non-cancer Risk-based Industrial/Commercial Ingestion Concentration

Soil mg/kg =[0.2 x oral chronic reference dose x body weight, adult x averaging time noncarcinogens] / [exposure frequency x exposure duration, adult x (soil ingestion rate, adult / 10^6 mg/kg) x fraction of contaminated soil ingested].

(b) Equation 2: Cancer Risk-based Industrial/Commercial Ingestion Concentration

Soil mg/kg =[target cancer risk of 10^{-6} x body weight, adult x averaging time carcinogens] / [exposure frequency x exposure duration, adult x (soil ingestion rate, adult / 10^6 mg/kg) x fraction of contaminated soil ingested x oral cancer slope factor].

(c) The exposure factors selected in calculating the industrial/commercial maximum soil contaminant concentrations shall be within the recommended ranges specified in the following references or the most recent version of these references:

(i) EPA, 1990. Exposure Factors Handbook;

(ii) EPA, 1991. Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual (Part B, Development of Risk Based Preliminary Remediation Goals);

(iii) EPA Region III. Risk-based Concentration Tables (RBC Tables). Office of RCRA, Technical and Program Support Branch. Available at: http://www.epa.gov/reg3hwmd/index.html; and

(iv) EPA, 1995. Supplemental Guidance to RAGS: Region 4 Bulletins Human Health Risk Assessment, including future amendments.

(d) The following references or the most recent version of these references, in order of preference, shall be used to obtain oral chronic reference doses and oral cancer slope factors:

(i) EPA. Integrated Risk Information System (IRIS) Computer Database;

(ii) EPA. Health Effects Assessment Summary Tables (HEAST);

(iii) EPA Region III. Risk-based Concentration Tables (RBC Tables). Office of RCRA, Technical and Program Support Branch. Available at http://www.epa.gov/reg3hwmd/index.html;

(iv) EPA, 1995. Supplemental Guidance to RAGS: Region 4 Bulletins Human Health Risk Assessment, including future amendments; and

(v) Other appropriate, published health risk assessment data, and scientifically valid peer-reviewed published toxicological data.

(3) The following equations and references shall be used in establishing the soil-to-groundwater maximum contaminant concentrations:

(a) Organic Constituents:

Soil mg/kg = groundwater standard or interim standard x [(.02 x soil organic carbon-water partition coefficient) + 4 + (1.733 x 41 x Henry's Law Constant (atm.-m3/mole))].

(i) If no groundwater standard or interim standard has been established under Rule .0202 of this Subchapter, the practical quantitation limit shall be used in lieu of a standard to calculate the soil-to-groundwater maximum contaminant concentrations.

(ii) The following references or the most recent version of these references, in order of preference, shall be used to obtain soil organic carbon-water partition coefficients and Henry's Law Constants:

(A) EPA, 1996. Soil Screening Guidance: Technical Background Document. (EPA/540/R95/128);

(B) EPA, 1986. Superfund Public Health Evaluation Manual. Office of Emergency and Remedial Response (EPA/540/1-86/060);

(C) Agency for Toxic Substances and Disease Registry, "Toxicological Profile for [individual chemical]." U.S. Public Health Service;

(D) Montgomery, J.H., 1996. Groundwater Chemicals Desk Reference. CRC Press, Inc;

(E) Sims, R.C., J.L. Sims and S.G. Hansen, 1991. Soil Transport and Fate Database, Version 2.0. EPA Robert S. Kerr Environmental Laboratory; and

(F) Other appropriate, published, peer-reviewed and scientifically valid data.

(b) Inorganic Constituents:

Soil mg/kg = groundwater standard or interim standard x [(20 x soil-water partition coefficient for pH of 5.5) + 4 + (1.733 x 41 x Henry's Law Constant (atm.-m3/mole))].

(i) If no groundwater standard or interim standard has been established under Rule .0202 of this Subchapter, the practical quantitation limit shall be used in lieu of a standard to calculate the soil-to-groundwater maximum contaminant concentrations.

(ii) The following references or the most recent version of these references, in order of preference, shall be used to obtain soil-water partition coefficients and Henry's Law Constants:

(A) EPA, 1996. Soil Screening Guidance: Technical Background Document. (EPA/540/R95/128);

(B) Baes, C.F., III, R.D. Sharp, A.L. Sjoreen, and R.W. Shor, 1984. A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides Through Agriculture. Oak Ridge National Laboratory;

(C) Agency for Toxic Substances and Disease Registry, "Toxicological Profile for [individual chemical]." U.S. Public Health Service;

(D) Sims, R.C., J.L. Sims and S.G. Hansen, 1991. Soil Transport and Fate Database, Version 2.0. EPA Robert S. Kerr Environmental Laboratory; and

(E) Other appropriate, published, peer-reviewed and scientifically valid data.

History Note: Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;
Recodified from 15A NCAC 02L .0115(m);
Amended Eff. December 1, 2005.

15A NCAC 02L .0412 ANALYTICAL PROCEDURES FOR SOIL SAMPLES

(a) Analytical procedures for soil samples required under this Section, except as provided in 15A NCAC 02L .0417 of this Section, shall be methods accepted by the US EPA as suitable for determining the presence and concentration of petroleum hydrocarbons for the type of petroleum released.

(b) A sufficient number of soil samples collected, including the most contaminated sample, shall be analyzed as follows in order to determine the risks of the constituents of contamination:

(1) soil samples collected from a discharge or release of low boiling point fuels, including, but not limited to gasoline, aviation gasoline and gasohol, shall be analyzed for volatile organic compounds and additives using EPA Method 8260, including isopropyl ether and methyl tertiary butyl ether;

(2) soil samples collected from a discharge or release of high boiling point fuels, including, but not limited to, kerosene, diesel, varsol, mineral spirits, naphtha, jet fuels and fuel oil no. 2, shall be analyzed for volatile organic compounds using EPA Method 8260 and semivolatile organic compounds using EPA Method 8270;

(3) soil samples collected from a discharge or release of heavy fuels shall be analyzed for semivolatile organic compounds using EPA Method 8270;

(4) soil samples collected from a discharge or release of used and waste oil shall be analyzed for volatile organic compounds using EPA Method 8260, semivolatile organic compounds using EPA Method 8270, polychlorinated biphenyls using EPA Method 8080, and chromium and lead, using procedures specified in Subparagraph (6) of this Paragraph;

(5) soil samples collected from any discharge or release subject to this Section shall be analyzed for alkane and aromatic carbon fraction classes using methods approved by the Director under Rule 2H .0805(a)(1) of this Chapter;

(6) analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph shall be performed as specified in the following references or the most recent version of these references: Test Methods for Evaluating Solid Wastes:Physical/Chemical Methods, November 1990, U.S. Environmental Protection Agency publication number SW-846; or in accordance with other methods or procedures approved by the Director under 15A NCAC 2H.0805(a)(1);

(7) other EPA-approved analytical methods may be used if the methods include the same constituents as the analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph and meet the detection limits of the analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph; and

(8) metals and acid extractable organic compounds shall be eliminated from analyses of soil samples collected pursuant to this Section if these compounds are not detected in soil samples collected during the construction of the source area monitoring well required under 15A NCAC 02L .0405 of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(n);
Amended Eff. December 1, 2005.

15A NCAC 02L .0413 ANALYTICAL PROCEDURES FOR GROUNDWATER SAMPLES

(a) Analytical procedures for groundwater samples required under this Section shall be methods accepted by the US EPA as suitable for determining the presence and concentration of petroleum hydrocarbons for the type of petroleum released.

(b) A sufficient number of groundwater samples, including the most contaminated sample, shall be analyzed as follows in order to determine the risks of the constituents of contamination:

(1) groundwater samples collected from a discharge or release of low boiling point fuels, including, but not limited to, gasoline, aviation gasoline and gasohol, shall be analyzed for volatile organic compounds using Standard Method 6210D or EPA Methods 601 and 602, including xylenes, isopropyl ether and methyl tertiary butyl ether. Samples shall also be analyzed for ethylene dibromide using EPA Method 504.1 and lead using Standard Method 3030C preparation. 3030C metals preparation, using a 0.45 micron filter, must be completed within 72 hours of sample collection;

(2) groundwater samples collected from a discharge or release of high boiling point fuels, including, but not limited to, kerosene, diesel, varsol, mineral spirits, naphtha, jet fuels

and fuel oil no. 2, shall be analyzed for volatile organic compounds using EPA Method 602 and semivolatile organic compounds plus the 10 largest non-target peaks identified using EPA Method 625;

(3) groundwater samples collected from a discharge or release of heavy fuels shall be analyzed for semivolatile organic compounds plus the 10 largest non-target peaks identified using EPA Method 625;

(4) groundwater samples collected from a discharge or release of used or waste oil shall be analyzed for volatile organic compounds using Standard Method 6210D, semivolatile organic compounds plus the 10 largest non-target peaks identified using EPA Method 625, and chromium and lead using Standard Method 3030C preparation. 3030C metals preparation, using a 0.45 micron filter, must be completed within 72 hours of sample collection;

(5) groundwater samples collected from any discharge or release subject to this Section shall be analyzed for alkane and aromatic carbon fraction classes using methods approved by the Director under Rule 2H .0805(a)(1) of this Chapter;

(6) analytical methods specified in Subparagraphs (1), (2), (3) and (4) of this Paragraph shall be performed as specified in the following references or the most recent version of these references: Test Procedures for the Analysis of Pollutants under the Clean Water Act, Federal Register Vol. 49 No. 209, 40 CFR Part 136, October 26, 1984; Standard Methods for the Examination of Water and Wastewater, published jointly by American Public Health Association, American Water Works Association and Water Pollution Control Federation; Methods for Determination of Organic Compounds in Drinking Water, U.S. Environmental Protection Agency publication number EPA-600/4-79-020; or in accordance with other methods or procedures approved by the Director under 15A NCAC 2H .0805(a)(1);

(7) other EPA-approved analytical methods may be used if the methods include the same constituents as the analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph and meet the detection limits of the analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph; and

(8) metals and acid extractable organic compounds shall be eliminated from analyses of groundwater samples collected pursuant to this Section if these compounds are not detected in the groundwater sample collected from the source area monitoring well installed pursuant to 15A NCAC 02L .0405 of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(o);
Amended Eff. December 1, 2005.

15A NCAC 02L .0414 REQUIRED LABORATORY CERTIFICATION

In accordance with 15A NCAC 02H .0804, laboratories are required to obtain North Carolina Division of Water Quality laboratory certification for parameters that are required to be reported to the State in compliance with the State's surface water, groundwater and pretreatment rules.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(p);
Amended Eff. December 1, 2005.

15A NCAC 02L .0415 DISCHARGES OR RELEASES FROM OTHER SOURCES

This Section shall not relieve any person responsible for assessment or cleanup of contamination from a source other than a commercial or noncommercial underground storage tank from its obligation to assess and clean up contamination resulting from such discharge or releases.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(q);
Amended Eff. December 1, 2005.

15A NCAC 02L .0416 ELIGIBILITY OF SITES TO CONTINUE REMEDIATION UNDER RULES EXISTING BEFORE THE EFFECTIVE DATE OF 15A NCAC 02L .0115

If the risk posed by the discharge or release has been classified by the Department as Class AB under S.L. 1995-648, s. 1 (Reg. Sess., 1996), the discharge or release is classified as high risk under this Section unless and until the Department reclassifies the risk posed by the discharge or release. If the risk posed by the discharge or release has been classified by the Department as Class CDE under S.L. 1995-648, s. 1 (Reg. Sess., 1996), the discharge or release is classified as low risk under this Section unless and until the Department reclassifies the risk posed by the discharge or release. The responsible party shall notify the Department of any factors that might affect the level of risk assigned to Class AB or Class CDE discharges or releases by the Department. Responsible parties for Class AB discharges or releases for which a site assessment pursuant to Rule .0106 (c) and (g) of this Subchapter has been submitted to the Department before the effective date of this Section, shall continue to comply with notices previously received from the Department unless and until the Department determines that application of all or part of this Section is necessary to protect human health or the environment or may result in a more cost effective assessment and cleanup of the discharge or release. If a site assessment pursuant to Rule .0106 (e) and (g) of this Subchapter has not been submitted to the Department for a Class AB or Class CDE discharge or release before the effective date of this Section, the responsible party shall comply with 15A NCAC 02L .0404 of this Section unless the Department has issued a closure notice for the discharge or release. For discharges or releases classified as low risk under this Paragraph and for which a site assessment pursuant to Rule .0106 (e) and (g) of this Subchapter has been submitted to the Department prior to the effective date of this Section, the Department may issue a notification under 15A NCAC 02L .0407(d) of this Section if the responsible party demonstrates that soil contamination does not exceed contamination cleanup levels established (March 1997) in 15A NCAC 02L .0417 of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(r);
Amended Eff. December 1, 2005.

15A NCAC 02L .0417 ESTABLISHING CLEANUP REQUIREMENTS FOR SITES ELIGIBLE TO CONTINUE REMEDIATION UNDER RULES EXISTING BEFORE THE EFFECTIVE DATE OF 15A NCAC 02L .0115

The Department may issue a notification under 15A NCAC 02L .0407(d) of this Section for a discharge or release classified as low risk under 15A NCAC 02L .0416 of this Section if a site assessment pursuant to Rule .0106(c) and (g) of this Subchapter was submitted to the Department prior to the effective date of this Section and the responsible party demonstrates that soil contamination from the discharge or release has been remediated to the final cleanup levels established under this Paragraph. If it has not already done so, a responsible party must submit all information necessary for the Department to establish a cleanup level under this Paragraph, including, but not limited to, the completed forms contained in Tables 1 and 2.

The following requirements are used to establish cleanup levels for sites eligible to continue remediation under the rules existing prior to the effective date of this Section.

(1) In establishing a cleanup level, the Department shall determine whether any of the following conditions apply to the discharge or release:
   (a) groundwater is contaminated by the discharge or release;
   (b) contaminated soil in the unsaturated zone is located less than five feet from the seasonal high water table, bedrock or transmissive indurated sedimentary units. Transmissive indurated sedimentary units shall include, but shall not be limited to shell limestone, fractured shale and sandstone; or
   (c) vapors pose a serious threat of explosion or other public health concern due to the accumulation of the vapors in a confined space.

(2) If any of the conditions specified in Item (1) of this Paragraph apply to the discharge or release, the final cleanup level for the discharge or release shall be:
   (a) 10 mg/kg total petroleum hydrocarbons for discharges or releases of low boiling point fuels, including, but not limited to, gasoline, aviation gasoline, and gasohol;
   (b) 40 mg/kg total petroleum hydrocarbons for discharges or releases of medium and high boiling point fuels, including, but not limited to, kerosene, diesel, varsol, mineral spirits, naphtha, jet fuels and fuel oil no. 2; and
   (c) 250 mg/kg total petroleum hydrocarbons for discharges or releases of waste oil and heavy fuels, including, but not limited to fuel oil nos. 4, 5 and 6, motor oil and hydraulic fluid.

(3) If the conditions specified in Item (1) of this Paragraph do not apply to the discharge or releases, the Department shall determine a final cleanup level in the following manner:
   (a) the total site characteristics score shall be determined from Table 1 by recording and adding the five characteristic scores;

(b) the total site characteristics score shall be used to determine each applicable initial cleanup level on Table 2;

(c) using Table 3, the applicable Site Code shall be determined; and

(d) the final contamination cleanup level for the discharge or release shall be determined by multiplying each applicable initial cleanup level determined in Sub-item (b) of this Item by 1 for Code A sites, 2 for Code B sites and 3 for Code C sites.

(4) Any soil samples obtained to determine cleanup levels pursuant to this Paragraph shall be analyzed as follows:

(a) soil samples collected from a discharge or release of low boiling point fuels including, but not limited to, gasoline, aviation gasoline and gasohol, shall be analyzed using EPA Method modified 8015 (California Method) with EPA Method 5030 preparation;

(b) soil samples collected from a discharge or release of medium or high boiling point fuels including, but not limited to, kerosene, diesel, varsol, mineral spirits, naphtha, jet fuels and fuel oil no. 2, shall be analyzed using EPA Method modified 8015 (California Method) with EPA Method 3550 preparation; and

(c) soil samples collected from a discharge or release of waste oil and heavy fuels, including, but not limited to fuel oil nos. 4, 5 and 6, motor oil and hydraulic fluid, shall be analyzed using EPA Method 9071 or another equivalent EPA-approved method that meets the same detection limits.

(5) Analytical methods for any soil samples obtained to determine cleanup levels pursuant to this Paragraph shall be performed as specified in the following references or the most recent version of these references: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods, November 1990, U.S. Environmental Protection Agency Publication number SW-846 and Guidelines for Addressing Fuel Leaks, D.M. Eisenberg and others, 1985, California Regional Water Quality Control Board, San Francisco Bay Region.

Table 1

SITE CHARACTERISTICS EVALUATION

Characteristic	Condition	Rating	Score
1) Predominant grain size as classified in accordance with the Unified Soil Classification System or the U.S. Department of Agricnlture Soil Classification System	Gravel	150	
	Sand	100	
	Silt	50	
	Clay	0	
2) Are preferential pathways for contaminant movement such as quartz veins, coarse-grained sediments, fractures and weathered igneous intrusions present in or below the contaminated soil?	Present and intersecting seasonal high water table	10	
	Present but not intersecting seasonal high water table	5	
	None Present	0	
3) Distance between the contaminated/non-contaminated soil interference and the seasonal high water table	5-10 feet	20	
	>10-40 feet	10	
	>40 feet	0	
4) Is the top of bedrock or transmissive indurated sediments located above seasonal high water table?	Yes	20	
	No	0	
5) Are artificial conduits present within the zone of contamination?	Present and intersecting seasonal high water table	150	
	Present but not intersecting seasonal high water table	10	
	Not Present	0	
	Total Site Characteristics Score		

Table 2

CLEANUP LEVEL DETERMINATION

Initial Cleanup Level — Final Cleanup Level

EPA Method 8015/5030 for Low Boiling Point Hydrocarbons such as Gasoline, Aviation Fuels, Gasohol

Total Site Characteristics Score	Initial Cleanup Level TPH (mg/kg)
>150	<10
121 - 150	20
91 - 120	40
61 - 90	60
31 - 60	80
0 - 30	100

Select Site Code*	Final Cleanup Level
Code A (Multiply initial cleanup level by 1)	1 x ____ = ___mg/kg
Code B (Multiply initial cleanup level by 2)	2 x ____ = ____mg/kg
Code C (Multiply initial cleanup level by 3)	3 x ____ = ____mg/kg

EPA Method 8015/3550 for Medium and High Boiling Point Hydrocarbons such as Kerosene, Diesel, Varsol, Mineral Spirits, Naptha

Total Site Characteristics Score	Initial Cleanup Level TPH (mg/kg)
>150	<40
121 - 150	80
91 - 120	160
61 - 90	240
31 - 60	320
0 - 30	400

Select Site Code*	Final Cleanup Level
Code A (Multiply initial cleanup level by 1)	1 x ____ = ___mg/kg
Code B (Multiply initial cleanup level by 2)	2 x ____ = ____mg/kg
Code C (Multiply initial cleanup level by 3)	3 x ____ = ____mg/kg

EPA Method 9071 for Heavy Fuels such as Fuel Oil (#4,#5,#6), Motor Oil, Hydraulic Fluid, Waste Oil

Total Site Characteristics Score	Initial Cleanup Level TPH (mg/kg)
>150	<250
121 - 150	400
91 - 120	550
61 - 90	700
31 - 60	850
0 - 30	1000

Select Site Code*	Final Cleanup Level
Code A (Multiply initial cleanup level by 1)	1 x ____ = ___mg/kg
Code B (Multiply initial cleanup level by 2)	2 x ____ = ___mg/kg
Code C (Multiply initial cleanup level by 3)	3 x ____ = ___mg/kg

See Site Code Description, Table 3

TPH – Total Petroleum Hydrocarbons
mg/kg – milligram per kilogram

Table 3
SITE CODE DESCRIPTIONS

Code-A Site meets both of the following criteria:
1. Water supply well(s) are within 1500 feet of the release.
2. Public water supply is not available for connecting water supply well users.

Code-B Site meets both of the following criteria:
1. Water supply well(s) are within 1500 feet of the release.
2. Public water supply is available for connecting water supply well users, however, water supply wells are still being used.

Code-C Site meets the following criterion:
1. No known water supply well(s) are within 1500 feet of the release.

History Note: Authority G.S. 143-215.2; 143-215 3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;
Recodified from 15A NCAC 02L .0115(s);
Amended Eff. December 1, 2005.

A Brief History of North Carolina Session Laws, Rules, and General Statutes from 1979-2005 Relating to the Rights and Obligations of Underground Storage Tank Owners, Operators, and Landowners
Version 041306

06/10/79 **The initial 2L rules**, "Classifications and Water Quality Standards Applicable to Groundwaters", adopted in Title 15A North Carolina Administrative Code (NCAC) 2L .0100 and .0200, pursuant to North Carolina General Statute (GS) 143-214.1, became effective. Groundwater quality policy, classifications, and standards were first established in these rules.

07/01/85 **Session Law (SL) 1985-551 (S831)**, titled "Underground Storage Tank Regulation-2" became law. This law required the State to develop and adopt standards and regulations to implement programs to prevent pollution from oil and hazardous substance underground storage tanks (USTs) pursuant to federal requirements resulting from the Resource Conservation and Recovery Act (RCRA), as amended inclusive of the Hazardous and Solid Waste Amendments of 1984.

06/30/88 **SL 1987-1035 (H1304)**, titled "Establish Leaking Tank Fund", became law. This law amended GS 143, Article 21A, by adding Part 2A, titled "Leaking Petroleum Underground Storage Tank Cleanup", which then consisted of GS 143-215.94A-M, thereby providing for the cleanups of environmental damage caused by leaking petroleum USTs.

07/15/89 **SL 1989-652 (H957),** titled "Tank Cleanup Amendments", became law. This law amended GS 143, Article 21A, by adding a new Part 2B, titled "Underground Storage Tank Regulation", which then consisted of GS 143-215.94T. This law required the adoption and implementation of a regulatory program such that the Environmental Management Commission (EMC) adopt and the Department implement and enforce rules to regulate USTs.

01/01/91 **The initial 2N rules**, "Criteria and Standards Applicable to Underground Storage Tanks", adopted in Title 15A North Carolina Administrative Code (NCAC) 2N .0100- .0800 pursuant to North Carolina General Statutes and SL1989-652, became effective. The purpose of the 2N rules was 'to establish the technical standards and corrective action requirements for owners and operators of underground storage tank systems". The 2N rules incorporate by reference the Code of Federal Regulations.

02/01/93 **The initial 2P rules,** "Rules for the Administration of the Leaking Petroleum Underground Storage Tank Cleanup Funds", adopted in Title 15A North Carolina Administrative Code (NCAC) 2P .0100- .0400, pursuant to the requirements of North Carolina General Statutes, became effective. The purpose of the 2P rules was to establish criteria and procedures for the reimbursement of costs incurred by owners, operators, and landowners from the Leaking Petroleum UST Cleanup Funds.

07/05/95 **SL 1995-377 (S1012)**, titled "Underground Storage Tank Amends" became law. The purpose of this law was to improve the regulation of petroleum underground storage tanks and the cleanup of leaking petroleum underground storage tanks". This law added new sections to Part 2B, "UST Regulation" (GS 143-215.94V, U, W, X, and Y) and rewrote sections of Part 2A, "Leaking Petroleum Underground Storage Tank Cleanup". Section GS143-215-94V directed the Environmental Management Commission (EMC) to adopt rules which would implement a risk-based approach to assessment and cleanup of petroleum UST releases. It authorized the State to determine for each site of release cleanup standards based on acceptable levels of risk to human health and the environment. It specified that if no (or no further) cleanup is required at a specific site due to its level of risk, then further work performed at that site would not be reimbursed from the State Trust Funds. It directed the EMC to implement this risk-based approach to the maximum extent possible under the existing rules.

06/21/96 **SL 1995-648 (S1317)**, titled "Underground Storage Tank Amends '96", became law. This law provided for the continued solvency of the Leaking Petroleum UST Cleanup Fund and made other changes to the cleanup program. This law required DENR to rank petroleum UST incident sites according to priority related to impact or risk of impact to groundwater supply wells as A or B (highest priority) or as C, D, or E (lowest priority) and to temporarily suspend cleanup activities at petroleum UST incident sites ranked C, D, and E. The suspension became effective 07/21/96 and was to continue in effect until the adoption required in GS143-215.94V(b) of the risk-based rule (2L .0115). This law also required DENR to notify responsible parties of the ranking of sites and of the suspension of remediation and monitoring activities at C, D, and E sites.

The law authorized cleanup only at UST sites classed A and B. However, at all incident sites the responsible party was required to take immediate action to prevent further release, to identify and mitigate fire, explosion, and vapor hazards, and to remove free product, and at all incident sites the responsible party was required to submit information necessary to classify the risk of the incident.

07/21/96 **Temporary suspension of cleanup activities** began at petroleum UST incident sites classed C, D, and E, pending adoption of the risk-based rule, as directed by SL 1995-648 (S1317). Responsible parties for UST release incident sites with C, D, and E classifications were given notice that their cleanups were temporarily suspended.

01/02/98 **Temporary adoption of the risk-based Rule 2L .0115**, titled "Risk Based Assessment and Corrective Action for Petroleum Underground Storage Tanks" was effective, thereby fulfilling the requirements of GS 143-215.94V and SL 1995-648 (S1317). The new rule 2L .0115 specified a risk-based approach to assessment and cleanup of discharges and

would be reimbursable from the Cleanup Funds, as specified under GS143-215.94B(b) and (b1) and GS143-215.94D(b1), effective 01/01/99. Subsection (e2) also directed the EMC to specify by rule those tasks for which preapproval was required and to adopt rules governing reimbursement of reasonable and necessary costs. Subsection 11(c) of this law made the risk-based Rule 2L .0115 permanent, effective retroactively to 01/02/98.

07/27/03 **SL 2003-352 (H897)**, titled "Underground Storage Tank Program Amendments" became law. This law was intended to improve the solvency of the Leaking Petroleum UST Cleanup Funds by making modifications to GS 143-215.94 and by authorizing the adoption of rules to reduce the cost of testing during assessment and cleanup.

Section 10 of SL 2003-352 modified GS 143-215.94E (Rights and Obligations of Owners, Operators, and Landowners) to require temporarily that DENR determine degree of risk posed by a commercial UST discharge or release and then determine a "schedule" for Commercial Cleanup Fund-eligible sites (based on degree of risk, availability of funds, and order in which releases were reported) for further assessment and cleanup. Initial response and abatement actions and the initial assessment necessary to determine the degree of risk still were required for all petroleum UST incidents.

Section 11 of SL 2003-352 authorized the EMC to adopt rules to reduce "certain testing requirements applicable to the leaking UST cleanup program" in order to reduce costs associated with assessment and cleanup.

09/15/03 **DENR implemented Section 10 of SL 2003-352** by directing in a public memorandum dated 08/21/03 that:

1) For high-risk UST release incidents, responsible parties must continue assessment and cleanup after the LSA;
2) For low-and intermediate-risk release incidents, responsible parties must continue after the LSA to remove or remediate the source of contamination(soil or free product) to the appropriate risk-based levels; and
3) For intermediate-risk incidents, responsible parties must suspend **temporarily** further assessment, monitoring, or cleanup of contaminated groundwater or of free product where present at levels less than ¼ inch in thickness *(unless they agree that costs for such "non-directed" tasks will not be reimbursed until after all "directed" costs).*

07/20/04 **SL 2004-124 (H1414)**, titled "2004 Appropriations Act", became law. Section 30.10 of the law, headed "Leaking Underground Storage Tanks Cleanup Funds Solvency", allocated additional funding, further amended the preapproval requirement in GS 143-215.94E(e2), and rewrote Section 10 of SL 2003-352 to extend its applicability to noncommercial UST releases.

Subsection 30.10(d) of this law, effective 10/01/04, rewrote GS 143-215.94E(e2) as Subdivision (e2)(1) and amended it to give authority to DENR *instead of the EMC* for preapproval and also added Subdivisions (2), (3), and (4) to GS 143-215.94E(e2). Subdivision (e2)(2) states that DENR shall not preapprove any tasks unless sufficient funds are available from the Commercial and Noncommercial Leaking UST Cleanup Funds to pay the claim for that task within 90 days of its receipt. However, Subdivision (e2)(3) allows DENR to preapprove tasks for work which is not directed (due to low priority and insufficiency of funds) if the responsible party agrees to defer payment until DENR has paid all claims for costs for directed work. Subdivision (e2)(4) allows DENR to preapprove tasks for work that is not directed if the discharge or release has created an emergency situation.

Subsection 30.10(e) of this law, effective 10/01/04, rewrote Section 10 of SL 2003-352, so that the requirement that DENR establish the degree of risk posed by a release and determine a schedule for post-LSA assessment and cleanup was extended to apply to noncommercial releases.

10/01/04 **DENR implemented Subsections 30.10(d) and (e) of SL 2004-124** (which prohibited DENR from preapproving any task unless sufficient funds were available and required DENR to develop a schedule based on degree of risk, funding, and date of reporting for post-LSA work) **by** directing in a public memorandum dated 09/14/04 that:

1) Prior to and continuing after 10/01/04, initial abatement actions and assessment to determine degree of risk (the LSA) should be performed for all UST releases without preapproval;
2) After 10/1/04, all work to be conducted after submittal of a LSA report must be preapproved; and
3) After 10/01/04, DENR will send Notices of Regulatory Requirements to responsible parties to direct, according to a schedule, the post-LSA assessment and cleanup activities.

09/08/05 **SL 2005-352 (H1385)**, titled "Underground Storage Tank Amendments" became law. It made clarifying and conforming amendments to GS 143-215.94E, which governs the rights and obligations of UST owners and operators and removed the sunset applicable to, amended, and codified Section 10 of SL 2003-352 as amended by Subsection 30.10 of SL 2004-124.

Section 1 of this law presented the modification and reorganization of Section GS 143-215.94E(e) into new Subsections (e1)-(e5). For the first time incorporating into the General Statutes the requirements of Section 10 of SL 2003-352 (as modified by Subsection 30.10(e) of SL 2004-124), Subdivision (e4)(1) directs the owner or operator to abate the discharge or release and to complete the assessment necessary to determine the degree of risk; and Subdivisions GS 143-215.94E(e4)(2), (3), and (4) direct DENR to establish the degree of risk posed by a discharge or a release of petroleum from a commercial or a non-commercial UST and to determine a "schedule" for *(post-LSA)* assessment and cleanup based on that degree of risk and (if the release is eligible for funding) on the availability of funds and the order in which the release was reported.

Section 2 of this law directed [illegible]

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COMMENTS: Bryan/Johanna – please ensure timely response to Bruce Reed. Do we need to formally request an extension? RLS JT

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