

***Limited Remedial Action
Reference Documentation
For
Site Professionals***

Version 1.1 - November, 2002

New
Nouveau  Brunswick

Environment & Local Government/
Environnement et Gouvernements locaux

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1.0 LRA Background

Limited Remedial Action (LRA) was defined in the 1999 "**Guideline for the Management of Contaminated Sites**" as remediation of a site without the use of a Site Professional. It has become evident over the past three years of **Guideline** use, that there may be simple situations where a complete site assessment (as defined in the Atlantic RBCA Reference Documentation) would not be necessary to delineate and remediate contamination. Limited Remedial Action is now defined as follows: "The remediation of soil impacts at a site under direction of a Site Professional, or DELG personnel in exceptional circumstances. The DELG shall determine during completion of a site inspection questionnaire if it is appropriate to attempt to use limited remedial action measures at a site."

LRA would not be applicable in the following types of scenarios:

- Operating service stations or bulk storage facilities;
- Sites with multiple sources of contamination;
- Sites where spillage was not recent.

It is expected that most LRA procedures will be directed by Site Professionals. The involvement of NBDELG in directing actual remedial activities will be limited to exceptional situations. These would typically occur when the Responsible Party does not have the financial resources to adequately address significant risks to the environment or to human health.

Once it has been determined by DELG that it is feasible to carry out LRA, the Responsible Party is requested to hire a Site Professional to carry out the LRA process. As per the requirements of the **Guideline**, Site Professionals must be currently registered or licensed engineers or geoscientists with the Association of Professional Engineers and Geoscientists of New Brunswick.

The Site Professional will carry out testing and remediation of the site using his or her professional knowledge and judgment while ensuring that the Minimum LRA Testing and Reporting Requirements, as outlined in Section 3, are met.

The Site Professional will apply the Atlantic PIRI Risk-Based Corrective Action Approach at Tiers I and II for LRA. Note that any Tier I exceedences must be addressed by use of the Atlantic PIRI RBCA computer model at Tier II, or by the evaluation of pathways and addition of engineered improvements (i.e. a new floor slab for dirt floor basement) which would make Tier I numbers applicable.

Upon completion of LRA, the Site Professional submits a closure report and LRA Record of Site Condition for acknowledgement and signing by the DELG inspector assigned to the file. A copy of the LRA Record of Site Condition is contained in Appendix A. Minimum requirements regarding content of the report are contained in Section 3 of this document. The Site Professional is required to notify, by registered mail, any 3rd parties who are impacted above Tier I Risk-Based Screening Levels.

2.0 LRA Procedure and Flow Chart

Limited Remedial Action procedure

Following the initial notification to the DELG of the spill, accident or occurrence, the inspector will conduct a site inspection and/or review the situation with the Site Professional. The significance of the problem will be evaluated by utilizing an internal departmental inspection questionnaire. The DELG will make a determination as to whether it is appropriate to attempt to use limited remedial action measures at a site. The DELG will attempt to determine a responsible party at this time and may then order the responsible party to carry out the remediation of a contaminated site.

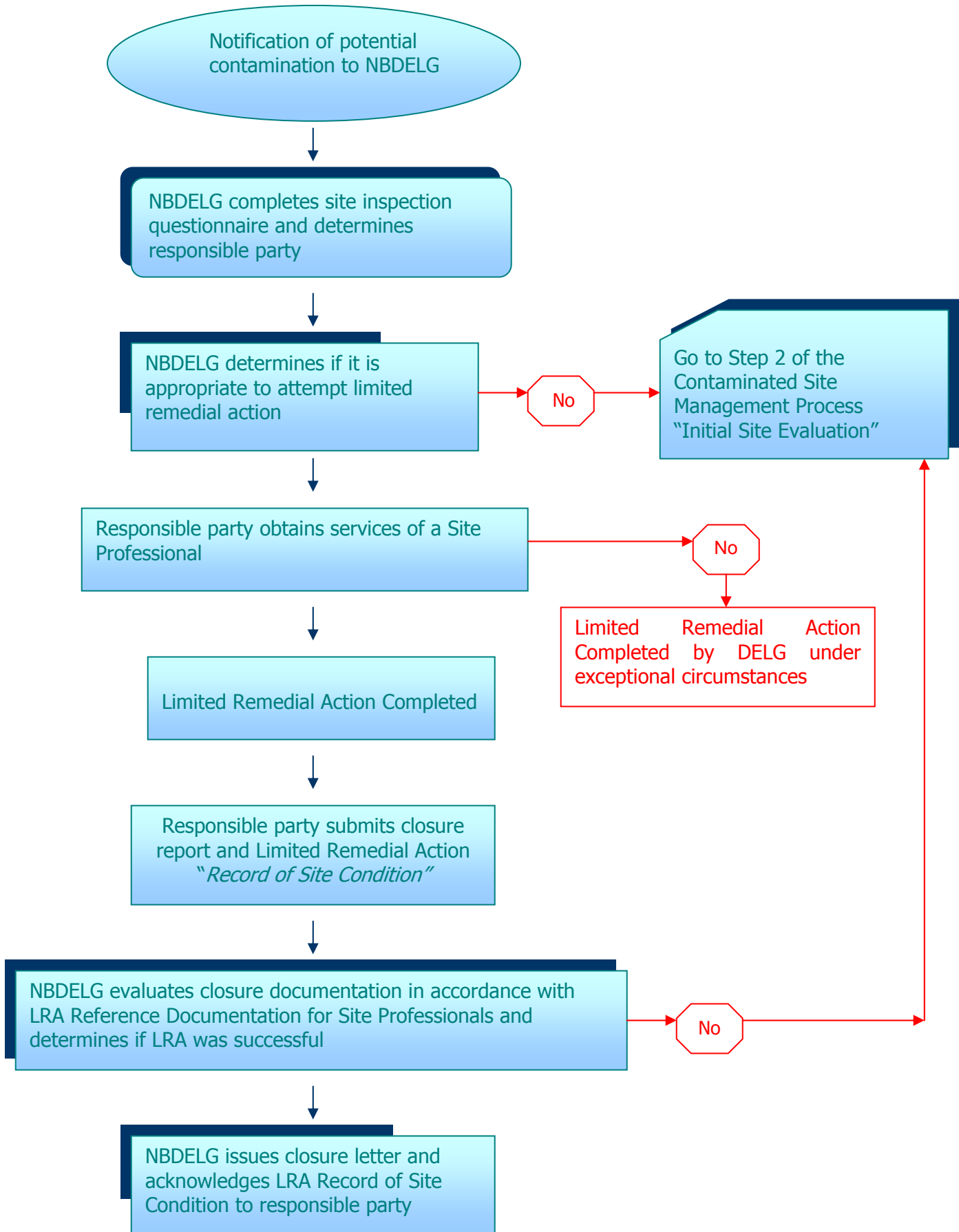
The use of limited remedial action measures would be restricted to the expeditious removal of impacted soils **only** and within a reasonable timeframe (approximately 30 days) subject to the DELG approval. It is limited to situations where the contamination is restricted to soils only and where no impacts to groundwater are evident. The use of limited remedial action measures is also restricted to sites which do not pose a significant risk to potential ecological receptors. Sites where measures other than short-term emergency action and/or excavation are required to address vapours within a building, would not qualify for use of limited remedial action.

Limited remedial action must be directed by the DELG or a Site Professional. When a Site Professional oversees a limited remedial action program at a site on behalf of a responsible party, the Site Professional will conduct the necessary confirmatory soil sampling of the excavation boundaries and submit a closure report along with a Limited Remedial Action "Record of Site Condition" for review and acknowledgement of receipt by the DELG.

In the case where the work is not overseen by the Site Professional, the DELG will conduct the necessary confirmatory soil sampling of the excavation boundaries and submit a closure letter to the responsible party.

If at any time during the limited remedial action program it becomes evident that the situation is more complex and no longer meets the requirements of a limited remedial action program, the DELG will require that the Contaminated Site Management Process be followed.

LIMITED REMEDIAL ACTION FLOWCHART



3.0 Minimum LRA Testing and Reporting Requirements

Testing requirements for site evaluation

Soil samples

Once soil removal is complete, representative confirmatory soil samples must be collected from all walls and the floor of the excavation.

Any anomalous soils must be identified and sampled.

Sampling protocols, consistent with current industry standards, must be adhered to.

Soils must be analyzed at a CAEAL (Canadian Association of Environmental Analytical Laboratories) certified lab.

Soils must be analyzed for Benzene, Toluene, Ethylbenzene, Xylenes (BTEX,) and Total Petroleum Hydrocarbons (TPH) according to Atlantic PIRI Tier I or II analytical methods where the contaminant of concern is hydrocarbons. Any other chemicals of concern must be analyzed by a method acceptable to DELG.

Water samples

On sites where there is a potable well or spring supplying water, the well or spring must be sampled and analyzed for BTEX and TPH, according to Atlantic PIRI Tier I or Tier II methods. Sampling for Methyl Tertiary-Butyl Ether (MTBE) must also be carried out on the water supply and the analytical method must meet the requirements of DELG.

Any other water samples the Site Professional chooses to collect must be analyzed for BTEX and TPH according to Atlantic PIRI Tier I or Tier II methods, and for MTBE according to DELG requirements.

Reporting requirements for closure report

Site plan

Plan drawn to scale;

Location of property boundaries;

Property identification numbers;

Locations of human and ecological receptors including buildings, wells, watercourses etc. on subject and adjacent properties;

Locations of preferential pathways (drains, underground lines, etc.);

Limits of soil excavation;

Soil sampling locations;

Sample results for BTEX, TPH and MTBE;

Delineation of hydrocarbon concentrations to applicable screening criteria.

Site description

Identification of land use activities and description of water supply on subject and adjacent properties;

Determination of whether or not the site is located within an existing or proposed municipal/community wellfield protected area;

Identification of soil types, strata, and depth on the site.

Field procedures

Description of remedial activities on the site;

Description of sampling protocols;

Description of disposal method for excavated soils.

Analytical results

Inclusion of lab certificates for all samples.

Applicability of screening or remedial criteria for site closure

Identification of sources, receptors and pathways of contamination;

If Tier I risk assessment carried out, classification of site under Tier I and justification for use of Tier I table;

If Tier II risk assessment carried out, inclusion of Tier II Atlantic RBCA model runs and justification for changing of default values within the model.

Notification of third parties

Third parties whose properties have residual hydrocarbon concentrations above the applicable Tier I Risk-Based Screening Levels for land use on their property, must be informed of this fact by the Site Professional via registered mail;

Proof of notification of third parties must be attached to the closure report.

4.0 Submission and review process for LRA

If LRA is to be carried out by Site Professional, the Site Professional is responsible for submitting a Closure report along with a signed copy of the LRA Record of Site Condition to the Regional Office. A document submission form, completed by the Site Professional, must accompany these documents. A copy of all documentation must also be sent to Remediation Branch of DELG in Fredericton, NB.

The Inspector who has been assigned to the file will review the submission form which accompanies the closure documentation to ensure that all required elements are present in the closure report and Record of Site Condition.

If required elements are missing, the closure documentation may be returned to the Responsible Party for correction and re-submission by the Site Professional. The Site Professional will also be informed that the closure documentation has been returned to the Responsible Party.

The Inspector may review the closure documentation to verify that LRA requirements as per the **Guideline** are satisfied. If there are technical issues requiring further work by the Site Professional, the Site Professional and the Responsible Party will be contacted by the inspector. The inspector may consult with Remediation Engineers at Headquarters in Fredericton to resolve technical issues.

The acknowledgement of receipt will be signed by the inspector and a Limited Remedial Action Letter will be written by the inspector to the Responsible Party, and copied to impacted 3rd parties, when he/she is satisfied that LRA requirements under the **Guideline** have been achieved.

The original Limited Remedial Action Letter and a copy of the LRA Record of Site Condition will be sent by registered mail to the Responsible Party. The original LRA Record of Site Condition will remain at the Regional Office along with a copy of the LRA letter. The LRA Record of Site Condition and the LRA letter will also be copied to the Site Professional and to the Remediation Administrator at DELG Headquarters in Fredericton. The remediation file will then be closed on the Remediation Database.

Appendix A

Limited Remedial Action Record of Site Condition

Guideline for the Management
of Contaminated Sites

**Limited Remedial Action
Record of Site
Condition**



New
Nouveau  Brunswick
Department of the Environment and Local Government

Version 1.0 - November, 2002

Limited Remedial Action “Record of Site Condition”

Part 1 of 6: Property Information

Civic Address: _____
PID Number: _____
Property Owner: _____
Responsible Party: _____

NBDELG File Number: _____

Part 2 of 6: List of Reports

Report Title	Company	Date

Part 3 of 6: Remedial Action Description

- List the types of contaminants identified on the property.

- Specify the current or reasonably foreseeable future site activities on the site and the applicable screening or remedial criteria.

 - Describe the elements of the remedial action(s) conducted for the site

 - If risk assessment was completed as part of the Limited Remedial Action procedure, provide details of the risk assessment approach.

Part 4 of 6: Off-site Impacts

Based on the work completed, the contamination of the source property has or may have migrated to the following third party properties (identified by PID number) at levels exceeding the New Brunswick Department of the Environment and Local Government applicable Tier I screening criteria. The owners of these third party properties have been notified by registered letter of the impacts and of the corrective action taken.

PID Number	Type of Impact	Corrective Action Taken

Part 5 of 6: Summary Statement of Site Professional

- The applicable screening criteria have been achieved for the current or reasonably foreseeable future site activities as cited in Part 3.
- The applicable screening criteria, as cited in Part 3, have not been achieved. Further evaluation has determined that the residual contamination has been addressed and remediated to an acceptable level for the current or reasonably foreseeable future site activities as cited in Part 3 and that no further remedial action is required.

Signature of Site Professional: _____

Date: _____

Company Name: _____

Address: _____

Phone#: _____

Association of Professional Engineers and Geoscientists of New Brunswick Membership or

Licence No.: _____

Part 6 of 6: New Brunswick Department of the Environment and Local Government Acknowledgement of Receipt

A limited remedial action program has been completed on the property in accordance with the New Brunswick Department of the Environment and Local Government Guideline for the Management of Contaminated Sites. Based on information provided by the Site Professional and his/her opinion that the level of contamination remaining on the property will not adversely affect the quality of the environment, the recommendation that **no further remedial or management action is required** is accepted. Notwithstanding this, the Minister reserves the right to evaluate the site should site activities change, or should circumstances change, which result in an increase in contamination or changes in site conditions which may pose a risk to the quality of the environment.

The Minister has not supervised the work undertaken at the site and does not assume any responsibility or liability for the work, or for notifying future owners, or present or future occupants of the property of the work completed. Any persons intending to purchase or occupy the property should make their own independent determination of the environmental condition of the property and the extent of responsibility and liability, if any, that may arise from taking ownership or occupancy.

Department of the Environment and Local Government

Date

Appendix B

Applicability of Risk-Based Screening Levels for Site Closure

The following are the requirements for Application of Risk-Based Screening Levels as per the Atlantic RBCA Reference Documentation and the NBDELG Guidance Manual for the Management of Contaminated Sites:

Overall site characteristics:

- The site characteristics and exposure scenarios must be compatible with the Atlantic RBCA default values for the current and reasonably foreseeable future site activities;
- No exposure potential to ecological receptors;
- No known or reasonably suspected contaminants of concern on site that are not identified on the Tier I look-up table.

Soil requirements:

- Soils must not contain liquid and/or free petroleum product;
- Surface soils must not be stained;
- Residual hydrocarbons in soil must be at concentrations that do not cause objectionable odours or explosive conditions in indoor or outdoor air;
- Application to situations with impacted bedrock requires justification.

Groundwater requirements:

- Non-aqueous phase liquids (NAPL) must not be present in the groundwater;
- Potable water must be free of objectionable hydrocarbon odour and taste;
- No springs supplying potable water on the property;

Indoor air requirements:

- No explosive vapours;
- No objectionable indoor vapours;

Building requirements:

- Concrete floor slab must be present over the entire basement footprint;
- The seasonal high water table must be below the impacted basement floor;
- No open sumps in the basement containing hydrocarbon-impacted groundwater.

Appendix C

Submission Form for Closure Documents

Limited Remedial Action Submission Form for Closure Documents - Version1.0

Remediation file no: _____ Site PID #: _____ Submission date: _____

Site name: _____

DELG Inspector: _____ Project Site Professional: _____

Name of consulting firm: _____ RBCA Tier for closure: Tier I Tier II

<u>Item no.</u>	<u>Item description</u>	<u>Check mark (if present)</u>	<u>Page (if applicable)</u>
Closure report			
1	Site plan		
1a	Scale		
1b	Property boundaries		
1c	PID nos.		
1d	Receptor locations		
1e	Preferential pathway locations		
1f	Excavation limits		
1g	Sampling locations		
1h	Sampling results		
1i	Delineation to closure criteria		
2	Site description		
2a	RBCA Tier I classification (subject property)		
2b	RBCA Tier I classification (adjacent properties)		
2c	Location within wellfield protected area (if applicable)		
2d	Identification of soil type, strata and depth		
3	Field procedures		
3a	Description of remedial activities on the site		
3b	Sampling protocols		
3c	Soil disposal methods		
4	Applicability of closure criteria		
4a	Identification of sources, pathways and receptors (at all RBCA Tiers)		
4b	Justification for use of Tier I table (at Tier I only)		
4c	Tier II model runs (at Tier II only)		
4d	Justification for changing of default values (at Tier II only)		
4e	Proof of notification if Tier I values are exceeded on 3 rd party properties		
LRA Record of Site Condition			
Part 1	All items completed?		
Part 2	Closure report(s) listed?		
Part 3	Completed with screening/remedial criteria listed?		
Part 4	Completed if applicable?		
Part 5	All items completed?		