

**LOUISIANA DEPARTMENT OF  
ENVIRONMENTAL QUALITY**

**GUIDANCE FOR RCRA CLOSURE OF  
ABOVEGROUND UNITS**



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ENVIRONMENTAL QUALITY  
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## 1.0 Purpose/Applicability

This guidance is to set forth measures for achieving clean-closure of RCRA aboveground units, such as aboveground tanks, secondary containment pads, container storage areas, or thermal treatment units. Historically, a RCRA clean-closure determination required rinseate analytical results to confirm non-detect for all constituents of concern. Typically, non-detect constituents are assumed to be present in concentrations that are at the laboratory's appropriate reporting limit. This guidance provides procedures for determining if constituents present above non-detect concentrations are still protective of human health and the environment. This document is not guidance for any closures involving environmental media, such as soil or groundwater.

Modifications to currently approved closure plans to incorporate procedures outlined in this guidance may be made in accordance with LAC 33:V.3503.A.2 or when submitting a hazardous waste permit renewal application.

## 2.0 Definitions/Acronyms/Abbreviations

EPA	Environmental Protection Agency
GW <sub>1</sub>	Groundwater Classification 1
IRIS	Integrated Risk Information System
LDEQ	Louisiana Department of Environmental Quality
LELAP	Louisiana Environmental Laboratory Accreditation Program
MCL	Maximum Contaminant Level
RECAP	Risk Evaluation/Corrective Action Program
RfD <sub>i</sub>	Reference Dose, inhalation
RfD <sub>o</sub>	Reference Dose, oral
SDWA	Safe Drinking Water Act
SF <sub>i</sub>	Cancer Slope Factor, inhalation
SF <sub>o</sub>	Cancer Slope Factor, oral

### 3.0 Closure Plan

#### 3.1 Closure Plan Requirements

3.1.1 The Closure Plan must contain all the requirements outlined in LAC 33:V.3511.B.

3.1.2 To adequately meet the requirements of LAC 33:V.3511.B.4, a closure plan must include the following:

3.1.2.1 A list of all constituents of concern (COCs);

3.1.2.1.1 Any constituent ever stored or treated in the RCRA unit is considered a COC unless proven otherwise.

3.1.2.2 The appropriate clean-closure standard for each COC;

3.1.2.2.1 To determine an acceptable clean closure standard, see Section 3.2.

3.1.2.3 The appropriate analytical method that will be used for analyzing each COC; and

3.1.2.4 Applicable analytical QA/QC methods for each analytical method chosen.

3.1.2.4.1 Analytical QA/QC methods may include matrix spikes, matrix spike duplicates, laboratory control samples, laboratory control sample duplicates, surrogates, standards, spikes, and duplicates.

3.1.3 If a commercial laboratory is contracted to perform the clean-closure confirmation analyses, the lab must be LELAP accredited.

#### 3.2 Determining Acceptable Clean-Closure Standards

3.2.1 Clean-closure standards less than or equal to each COC's  $GW_1$  value in RECAP Table 3<sup>a</sup> are acceptable.

3.2.1.1 If a COC is not listed in RECAP Table 3, see Section 5.0.

- 3.2.2 If a COC's proposed clean-closure standard is greater than the  $GW_1$  value, LDEQ may consider the following to determine if the proposed clean-closure standard is acceptable:
  - 3.2.2.1 The proposed clean-closure standard is equal to the method detection limit for the analytical method chosen to analyze for the COC; and
  - 3.2.2.2 The analytical method chosen to analyze for the COC is the standard analysis method that is routinely used for analyzing for the COC.
- 3.2.3 If the facility determines that the RECAP  $GW_1$  values are not appropriate closure standards for its facility, the facility may petition LDEQ to allow for the use of site-specific closure standards. In its petition for the use of site-specific closure standards, the facility must detail the reasons RECAP  $GW_1$  values are not appropriate for its facility. Also, the facility must demonstrate how the proposed site-specific closure standards will be fully protective of human health and the environment. LDEQ must provide approval for any proposed site-specific closure standards.

#### **4.0 Closure Certification Report**

- 4.1 Analysis results for all COCs of concern identified in the approved closure plan must be included in the closure certification report.
- 4.2 Clean-closure is achieved if:
  - 4.2.1 For detects, the detected results are less than or equal to the acceptable clean-closure standards; and
  - 4.2.2 For non-detects, the laboratory's reporting limit is less than or equal to the acceptable clean-closure standards.
- 4.3 If the detected result or reporting limit is greater than the clean-closure standard, clean-closure has not been achieved. The aboveground unit must be re-cleaned, new rinseate samples must be collected and re-analyzed, or other closure options can be considered, such as:
  - 4.3.1.1 Cleaning the aboveground unit to the standards for hazardous debris in accordance with LAC 33:V.2230; or

4.3.1.2 Utilization of an appropriate alternative hazardous waste management method (i.e., disposal at a facility permitted to receive solid hazardous waste).

## 5.0 Developing $GW_1$ Values for Constituents of Concern Not Listed in RECAP Table 3

5.1 For a COC not listed in Table 3, the SDWA MCL<sup>b</sup> shall serve as the  $GW_1$  (RECAP, pg. 59).

5.2 If a MCL is not available, then a risk-based  $GW_1$  shall be developed in accordance with Appendix H of RECAP<sup>c</sup> (RECAP, pg. 59).

5.2.1 The equations that are used to develop  $GW_1$  values are located in pages H-101 – H-103 of Appendix H of RECAP.

5.2.2 Decide which equation to use by determining whether the COC is volatile or non-volatile and whether the COC is a carcinogen or a non-carcinogen.

5.2.2.1 A COC is volatile if its molecular weight<sup>d</sup> is less than 200 g/mole and it has a Henry Law Constant<sup>e</sup> greater than  $1 \times 10^{-5}$  atm-m<sup>3</sup>/mole.

5.2.2.2 IRIS<sup>f</sup> can be used to determine whether a COC is a carcinogen or a non-carcinogen:

5.2.2.2.1 If only SF values are provided by IRIS, a COC can be assumed to be a carcinogen.

5.2.2.2.2 If only RfD values are provided by IRIS, a COC can be assumed to be a non-carcinogen.

5.2.2.2.3 If IRIS provides both SF and RfD values, calculate  $GW_1$  values using both applicable equations, and select the more conservative  $GW_1$  value.

5.2.3 Fill in the chemical-specific data to the COC's applicable equation.

5.3.3.1  $SF_i$ ,  $SF_o$ ,  $RfD_i$ , and  $RfD_o$  values can be found using IRIS.

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<sup>a</sup> RECAP Table 3 can be found on the LDEQ website,

<http://www.deq.louisiana.gov/portal/Default.aspx?tabid=1569>.

<sup>b</sup> The EPA website, <http://www.epa.gov/safewater/contaminants/index.html>, contains a list of contaminants and their MCLs.

<sup>c</sup> Appendix H of RECAP can be found on the LDEQ website,

<http://www.deq.louisiana.gov/portal/Default.aspx?tabid=1569>.

<sup>d</sup> Molecular weights can be determined from the periodic table of elements.

<sup>e</sup> The EPA website, <http://www.epa.gov/ATHENS/learn2model/part-two/onsite/esthenry.htm>, contains a tool for determining Henry Law Constants.

<sup>f</sup> The IRIS database can be found on the EPA website, <http://cfpub.epa.gov/ncea/iris/index.cfm>.