

**DEPARTMENT OF ENVIRONMENTAL PROTECTION  
PETROLEUM RESTORATION PROGRAM**

**LIMITED CONTAMINATION ASSESSMENT REPORT (LCAR)**

**PREPARATION GUIDANCE**

February 14, 2017

A Limited Contamination Assessment Report (LCAR) is required for participation in the Petroleum Cleanup Participation Program (PCPP), Advanced Cleanup (AC) Program, and the Site Rehabilitation Funding Allocation (SRFA) Program (for guidance on preparation of an LCAR for a SRFA see <https://www.floridadep.gov/waste/petroleum-restoration/content/site-rehabilitation-funding-allocation-srfa> as stated in Sections 376.3071 (13) and 376.30713 Florida Statutes (F.S.)). The purpose of the LCAR is to support the proposed course of action and to estimate the cost of the proposed course of action. A LCAR does not necessarily have to be of a scope comparable to a Site Assessment Report (SAR), as required by Chapter 62-780, F.A.C., but it must be signed and sealed by a registered Professional Engineer or Professional Geologist as specified in Rule 62-780.400, F.A.C., and must be adequate to determine the best course of action to achieve site closure and to develop a reasonably accurate estimate of the cost required to implement the selected course of action. The more information that is provided in the LCAR, the better the cost estimate will be, and the more accurate the cost share amount will be. Existing assessment information should be used to its maximum extent if that information is current or applicable.

Due to the time constraints associated with review of the AC application and LCAR, it will not be possible for the Florida Department of Environmental Protection (FDEP) to request and obtain supplemental assessment data. Therefore, a consequence of an inadequate LCAR will be that the AC application will be considered incomplete.

For the PCPP, a LCAR is not required until the FDEP notifies the responsible party that funding is available to initiate cleanup activities at the site. If the LCAR submitted for the PCPP is found to be inadequate, the FDEP may request that additional assessment activities be performed, if needed, to support the proposed course of action and to estimate the cost of the proposed course of action.

The LCAR at a minimum must include:

- (1) A short site history which describes all current and past petroleum storage systems and the type of products stored in them, as well as the type and volume of products that were discharged at the source property. A short summary of any previous assessment or remediation activities should be included. If historical assessment data is not included in the current LCAR tables and figures, historic

data and figures should be included in the Appendix of the LCAR. A site map illustrating the locations of all current and past tanks and other potential sources of contamination at the source property and their associated integral piping and dispensers must be provided.

- (2) Results of a well survey conducted to locate all private water supply wells (potable, irrigation, industrial, etc.) within a ¼ mile radius and public water supply wells within a ½ mile radius of the contaminated area. All available records are to be reviewed (especially those at the local Department of Health office) and a walk-through reconnaissance of the area should be conducted to complement those records. The use and construction details of wells identified during the well survey should be reported (if reasonably available), and a vicinity map illustrating the locations of the wells in relation to the source property must be provided.
- (3) Results of a soil assessment conducted in and around each potential source area (fuel storage tanks, fuel dispensers, and fuel piping) to determine if there is any contaminated soil present in the unsaturated zone. The soil sample laboratory analysis must be performed less than five years prior to LCAR submittal. If contaminated soil is detected, additional soil borings should be installed as needed to estimate the horizontal and vertical extent of soil contamination in the unsaturated zone. Also, if positive corrected hydrocarbon measurements are obtained, at least three soil samples must be collected from areas where the high, medium, and low (but above background) OVA readings were detected and the samples analyzed for BTEX and MTBE using EPA Methods 8021 or 8260, PAHs using EPA Methods 8100, 8270 or 8310, and TRPHs using FL-PRO. If used oil was stored in the contaminated area, then the soil samples must be analyzed for the complete Used Oil Analytical Group parameters (see Table D of Chapter 62-780, F.A.C.). If positive corrected hydrocarbon measurements are not obtained, then at least one soil sample per source area should be collected and the samples analyzed for BTEX and MTBE using EPA Methods 8021 or 8260, PAHs using EPA Methods 8100, 8270 or 8310, and TRPHs using FL-PRO. A site map illustrating the locations of the soil borings and horizontal and vertical extent of soil impacts and tables summarizing the OVA and laboratory analytical data must be provided. Soil boring lithology logs, laboratory analytical reports, and the chain of custody forms must be provided.
- (4) Results of groundwater sampling and analyses from at least one properly constructed monitoring well installed in each source area (fuel storage tanks, fuel dispensers, and fuel piping). The samples must be collected less than 270 days prior to LCAR submittal and must be analyzed for BTEX and MTBE using EPA Methods 602 or 8021, PAHs using EPA Method 8310, and TRPHs using FL-PRO. If used oil was stored in an area, then the monitoring well installed in that area must be sampled and analyzed for the complete Used Oil Analytical Group parameters (see Table D of Chapter 62-780, F.A.C.). If groundwater contamination is detected, the direction of groundwater flow must be determined

and additional monitoring wells installed to estimate the horizontal extent of the groundwater contamination within the source property boundaries. If contaminant concentrations greater than the Natural Attenuation Default Concentrations listed in Table V of Chapter 62-777, F.A.C., are detected in water-table monitoring well(s), the vertical extent of contamination must be determined by installing one or more vertical extent monitoring wells adjacent to the most contaminated well(s). A site map illustrating the locations of the monitoring wells and a table summarizing the well construction details must be provided. Well construction and lithologic logs must also be provided.

Although the horizontal extent of the groundwater contamination need only be defined to the source property boundary, if significant levels of groundwater contamination are present at the monitoring well(s) located at the source property boundary and access to the adjacent property is obtainable, it would be beneficial to sample existing monitoring wells or install new monitoring wells on the adjacent property to determine the horizontal extent of groundwater contamination more precisely so that a more accurate cost estimate can be calculated. If such definition is not performed, then modeling to estimate the edge of the groundwater contamination plume must be performed.

If a vertical extent well is installed and contaminant concentrations greater than the Natural Attenuation Default Concentrations listed in Table V of Chapter 62-777, F.A.C. are detected in that well, a well with a deeper isolated screen interval should be installed to determine the vertical extent of groundwater contamination. Depending on the lithology and vertical hydraulic gradient, additional intermediate depth wells may be necessary to determine the horizontal extent of the groundwater contamination in the intermediate depth zone.

If free product is detected, estimate the horizontal extent of the free product within the source property boundaries.

A table summarizing the laboratory analytical results and a figure illustrating the horizontal and vertical extent of groundwater impacts must be provided. Groundwater sampling logs, laboratory analytical reports, and the chain of custody forms must be provided.

- (5) A complete set of water-level measurements obtained concurrent with every groundwater sampling event to verify the direction of groundwater flow and to determine if the screen interval of the monitoring wells intersected the water table during the sampling event. These data must be provided in tabular form (including top-of-casing elevations, depths to water, and corresponding water-level elevations) and in graphic form showing the groundwater flow direction.

- (6) The soil and groundwater samples collected must be analyzed by an FDEP approved laboratory and all required quality assurance samples, pursuant to Rules 62-780.300 and 62-160, F.A.C. must be collected/prepared and analyzed.
- (7) A section that describes the course of action that is proposed to achieve site rehabilitation. A detailed description of the course of action must be provided. In addition to the course of action, an estimated cost and a time schedule to achieve site rehabilitation must be provided. A detailed breakdown of the costs must be provided which clearly demonstrates how the total cost was reached.
- (8) If a Site Assessment Report (SAR) has already been prepared and has either been approved or is pending review by the FDEP or a local program, that report may satisfy the LCAR requirements, as long as the groundwater data were collected no more than 270 days prior to the LCAR submittal and all information necessary to achieve the goal of the LCAR is present. If the CAR or SAR groundwater data were collected more than 270 days prior to the LCAR submittal, a round of sampling and analyses for the appropriate parameters from a sufficient number of monitoring wells to determine the highest contaminant concentrations and verify the previous groundwater plume delineation should be performed prior to submittal of the LCAR.

If a soil assessment was conducted and only OVA measurements were obtained or the soil data were more than 5 years prior to the LCAR submittal, additional soil borings should be performed to confirm the results of the previous assessment. At least three soil samples from each source area must be collected from areas where the high, medium, and low (but above background) OVA readings were detected and the samples analyzed for BTEX and MTBE using EPA Methods 8021 or 8260, PAHs using EPA Methods 8100, 8270 or 8310, and TRPHs using FL-PRO. If used oil was stored in the contaminated area, then the soil samples must be analyzed for the complete Used Oil Analytical Group parameters (see Table C of Chapter 62-780, F.A.C.). If positive corrected hydrocarbon measurements are not obtained, then at least one soil sample per source area should be collected and the samples analyzed for BTEX and MTBE using EPA Methods 8021 or 8260, PAHs using EPA Methods 8100, 8270 or 8310, and TRPHs using FL-PRO. A site map illustrating the locations of the soil borings and tables summarizing the OVA and laboratory analytical data must be provided.

- (9) If a Remedial Action Plan (RAP) has been approved by the FDEP or a local program and a remediation system is either currently operating or was shut down then a copy of the approved SAR, a copy of the As-Built Plans, and a copy of the most recent Annual Report can be submitted in lieu of the LCAR. The Annual Report must include representative analytical data from monitoring wells obtained within 270 days of the submittal date. If groundwater data were collected more than nine months prior to the submittal date, a round of sampling and analyses for the appropriate parameters from a sufficient number of monitoring wells to determine the highest contaminant concentrations and verify the previous plume

delineation should be performed prior to submittal. Also, an explanation of the justification for continued system operation must be provided if that is the recommended course of action.

- (10) If a closure assessment or initial remedial action/source removal has been performed at the source property and a Closure Assessment Report or Initial Remedial Action/Source Removal Report has been prepared, a copy of the report(s) must be provided in the Appendix of the LCAR. If these reports have been signed and sealed by a registered Florida Professional Engineer or Professional Geologist and the sampling and analyses were performed under a FDEP approved Quality Assurance Plan, they may be sufficient to satisfy the LCAR requirement (especially if No Further Action is warranted), assuming groundwater analytical data were collected no later than 270 days from the LCAR submittal date and all information necessary to achieve the goal of the LCAR is present. If the groundwater data contained in the Closure or Initial Remedial Action/Source Removal Report were collected later than nine months from the LCAR submittal date, a round of sampling and analyses for the appropriate parameters from a sufficient number of monitoring wells to determine the highest contaminant concentrations and verify the perimeter of the plume should be performed prior to submittal of the LCAR.