MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Remediation and Redevelopment Division

INITIAL ASSESSMENT REPORT TABLE OF CONTENTS FORM

INSTRUCTIONS

Utilize the following Table of Contents (TOC) to ensure that all information required by Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, is provided in the Initial Assessment Report (IAR). RBCA is defined in Part 213 as the ASTM standards E 1739-95 (2010), E 2081-00 (2010), and E 2531-06. Information in these standards must be provided, as applicable per site conditions. The Department of Environment, Great Lakes, and Energy (EGLE) may request supporting documentation to the data and conclusions of the IAR, which may include information in the ASTM standards referenced above.

Complete the IAR report cover sheet and pages 1 through 5 of the TOC. The order and format in which the information is provided is at the submitter's discretion. Each page of the report, including appendices, should be consecutively numbered. The column labeled as "Page(s)" should be completed with the range of page numbers for each section. You may reference previously submitted material by specifying where the information is located within the referenced document.

INITIAL ASSESSMENT REPORT TABLE OF CONTENTS (TOC) PAGE(s)

A. EXECUTIVE SUMMARY (Optional)

1. An executive summary with a brief description of initial assessment activities.

References: ASTM E1739-95 (Reapproved 2010), Section 6.11.1

B. SITE INFORMATION

1. The property address.
2. The name of the business, if applicable.
3. The name, address, and telephone number of a contact person for the owner or operator.
4. The time and date of release discovery.
5. The time and date the release was reported to the department.
6. A description of how the release was discovered.
7. A list of regulated substances the underground storage tank system contained when the release occurred.
8. A list of the regulated substances the underground storage tank system contained in the past.

B. SITE INFORMATION (Continued)

9. The component of the underground storage tank system from which the release occurred.
10. A review of historical records of site activities and past releases and potential source areas.

References: Part 213, Section 21308a(1)(b); ASTM E1739-95 (Reapproved 2010), Section 6.2.1.1

C. INITIAL RESPONSE ACTIONS AND INTERIM REMEDIAL ACTION

1. Was the underground storage tank system emptied to prevent further release?
2. The extent to which all or part of the underground storage tank system or soil, or both, was removed.
3. Results of initial response actions taken under Part 213, Section 21307(2).
4. Identify the steps taken to mitigate immediate fire, explosion hazards, and acute vapor hazards.
5. Description of the actions taken to prevent further release of the regulated substance into the environment, including removing the regulated substance from the underground storage tank system that is causing the release.
6. Describe the steps taken that were necessary and feasible, to address unacceptable immediate risk regarding Non-Aqueous Phase Liquid (NAPL), using the process outlined by Risk-Based Corrective Action (RBCA).
7. Amount of soil excavated, contained, treated, or disposed, above the water table, that were visibly contaminated and likely to cause a fire hazard.
8. Any other actions taken to abate an immediate threat to public health, safety, or welfare, or the environment.
9. A description of what other steps were taken to prevent further migration of the regulated substance into the soil or ground water.
10. Whether toxic or explosive vapors, or migrating or mobile NAPL was found, the steps that were taken to evaluate those conditions, and the current levels of toxic or explosive vapors or migrating or mobile NAPL in nearby structures.
11. Data from analytical testing of soil and ground water samples.

References: Part 213, Section 21308a(1)(a), Section 21308a(1)(b), and Section 21307(2)

D. MOBILE OR MIGRATING NAPL INVESTIGATION

1. A description of the mobile or migrating NAPL investigation, and an evaluation conducted pursuant to Part 213, Section 21307(2)(c).
2. A description of NAPL removal, if NAPL is recoverable and removal is

D. MOBILE OR MIGRATING NAPL INVESTIGATION (Continued)

necessary to abate an unacceptable risk pursuant to the provisions outlined in RBCA.

3. A description of the actions taken to remove any NAPL.
4. The name of the person or persons responsible for implementing the NAPL removal measures.
5. The estimated quantity, type, and thickness of NAPL observed or measured in wells, boreholes, and excavations.
6. The type of NAPL recovery system used.
7. Discharge location if any discharge will take place on or off site during the recovery operation.
8. The type of treatment applied to, and the effluent quality expected from, any discharge.
9. The steps that have been or are being taken, to obtain necessary permits for any discharge.
10. The quantity and disposition of the recovered NAPL.
11. Please note the following: If migrating or mobile NAPL is discovered at a site after the submittal of an IAR pursuant to Part 213, Section 21308(1), the owner or operator shall do both of the following:
    a. Perform initial actions identified in Part 213, Section 21307(2)(c).
    b. Submit to the Department an amendment to the IAR within 30 days of discovery of the migrating or mobile NAPL that describes response actions taken as a result of the migrating or mobile NAPL discovery.

References: Part 213, Section 21308a(1)(b), and Section 21308a(2)

E. INITIAL SITE ASSESSMENT

1. Describe the site.
2. Provide a summary of the site ownership and use; historical records of site activities; past releases; and potential source areas.
3. Provide a summary of the current and completed site activities.
4. Provide an estimate of the horizontal and vertical extent of on-site and off-site soil contamination exceeding the applicable Risk-Based Screening Level (RBSL) and or the applicable Site-Specific Target Level (SSTL).
5. Estimate the amount of contaminated soil in the vadose zone.
6. Describe the steps that have been taken or will be taken, including an implementation schedule, to expeditiously secure access to off-site properties, to complete the delineation of the extent of the release if the contamination exceeds the applicable RBSL and or the applicable SSTL.
7. Describe and depict the vertical distribution of contaminants.
8. Identify any other contamination on the site not resulting from the release and the source.

E. INITIAL SITE ASSESSMENT (Continued)

9. Identify the Chemical(s) of Concern (CoC), location of major sources of the CoC, and location of maximum concentrations of CoC in soil, ground water, air, soil, gas, surface water, and sediments.
10. Determine the regional hydrogeologic and geologic characteristics (i.e., depth to ground water, aquifer thickness, flow rate, direction, gradient, description of confining units, and ground water quality).
11. Identify potential migration and exposure pathways and receptors.
12. Determine the location of humans and the environmental receptors that could be impacted (i.e., point(s) of exposure).
13. Identify the location of nearby surface waters, wetlands, nearby underground sewers, and utility lines.
14. Evaluate the impacts to environmental receptors.
15. Provide a summary of the analytical data and the appropriate RBSL and or SSTL used.
16. Provide a summary of the ecological assessment and beneficial uses.
17. Provide site photos.
18. Conduct a pathway analysis by identifying potentially significant transport and human and ecological exposure pathways (i.e., ground water transport, vapor migration through soils and utilities).
19. Describe the current and reasonably anticipated future use of the site and surrounding land, including ground water resources, surface water, relevant ecological receptors, and habitats.
20. If appropriate, calculate an appropriate upper confidence limit for the CoC.
21. Determine background concentrations of CoC in the environment.

References: Part 213, Section 21308a(1)(b); and ASTM E1739-95 (Reapproved 2010), Section 6.2 and 6.11; ASTM E2081-00 (2010), Section 6.5 and 6.17

F. CONCEPTUAL SITE MODEL (CSM)

1. Provide a written and/or pictorial overview of the site.
2. Conduct the exposure pathway evaluation, inventory the exposure pathways evaluated, and determine the status of the exposure pathways as relevant or not relevant.
3. Identify corrective actions.
4. Update the CSM as additional information is gathered throughout the RBCA process.
   FOR MOST SITES, A Light Nonaqueous Phase Liquid (LNAPL) CSM (LCSM) WILL BE REQUIRED IN PLACE OF A CSM SINCE A PETROLEUM RELEASE IS A LNAPL RELEASE.

Reference: CSMs: ASTM E2081-00 (2010), Section 3.2.52 and Section 6.3 (CSM)

G. TIER I EVALUATION

1. Compare Site Conditions and Data with RBSLs
   a. Identify potential exposure scenario(s), which are based on site assessment information.
   b. Identify primary and secondary sources, transport mechanisms, and exposure pathways.
   c. Identify receptors based on current/anticipated future use. Take into consideration land use restrictions and surrounding land use.
   d. Identify exposure scenarios where the concentrations of the CoC are above the RBSL.
2. Exposure Evaluation
   a. Characterize the sources and exposure pathways at the site.
   b. Determine for each exposure pathway if the RBSLs are appropriate for comparison.
   c. Compare the site conditions with RBSLs, if appropriate for each identified receptor.
   d. If relying on the RBSL for the soil or groundwater volatilization to indoor air pathway, indicate location of completed "Checklist for Determining if Generic Volatilization to Indoor Air Inhalation Criteria Apply."
   e. Identify potential corrective actions that reduce or eliminate exposure to the CoC.

Reference: Part 213, Section 21308a(1)(b)(*xxii*) and Section 21308a(1)(d);
ASTM E1739-95 (2010), Section 5.5, 6.5 through Section 6.7

H. TIER II EVALUATION (Optional)

1. If SSTLs are generated, provide all information and an explanation of the calculation of the SSTLs.
2. IMPORTANT--If proposing use of the 2020 VIAP Screening Levels as SSTLs, indicate location of completed checklist provided in the 2013 Guidance Document for the Vapor Intrusion Pathway.
3. If relying upon alternative points of compliance, provide the reasoning and information supporting their selection.
4. Gather additional site assessment information to develop or identify corrective action goals, if warranted.
5. Complete a Tier II evaluation on relevant exposure pathways.
6. Obtain site-specific hydrogeologic and geologic characteristics to aid in generation of the SSTLs.
7. Define the extent of CoC relative to the residential RBSL and/or SSTL, as appropriate.
8. Evaluate the changes in concentrations of CoC over time to determine if they are stable, increasing, and/or decreasing.
9. Determine the CoC measured at the point(s) of exposure, (i.e., sewers,

H. TIER II EVALUATION (Optional) (Continued)

surface water bodies).

10. Complete mathematical models to generate SSTLs based on the measured and predicted attenuation of the CoC away from the source area(s).
11. Compare the concentrations of the CoC, at the point(s) of compliance, to the RBSLs or SSTLs to determine if corrective action, interim remedial action, or further tier evaluation should be implemented.

Reference: Part 213, Section 21308a(1)(b)(*xxii*), and Section 21308a(1)(d);
ASTM E1739-95 (2010), Section 5.6, Section 6.2, Section 6.7 thru Section 6.7.3,
and Section 6.8 thru Section 6.83

I. SITE CLASSIFICATION

1. Classify the site according to the Michigan site classification system which is based upon the classification process outlined in RBCA.

Reference: Part 213, Section 21308a(1)(c) and Section 21314a;
ASTM E1739-95 (Reapproved 2010), Section 5.4, Section 6.3, and Table 1

J. WORK PLAN AND PROPOSED FOLLOW-UP ACTIVITIES

1. If off-site soil or ground water may be affected, report the steps that have been taken or will be taken including an implementation schedule to expeditiously secure access to off-site properties to complete the delineation of the extent of the release.
2. Include a work plan, including an implementation schedule for conducting a final assessment report, to determine the vertical and horizontal extent of the contamination that exceeds the applicable RBSL and or applicable SSTL as necessary for preparation of the corrective action plan.

Reference: Part 213, Section 21308a(1)(b)(xxiv), and Section 21308a(1)(e)

K. SITE MAPS

1. Provide site map(s) (not aerial photographs) that includes all of the following:
   a. The location of each underground storage tank in the leaking underground storage tank system.
   b. The location of any other known current or former underground storage tank system on the site.
   c. The location of fill ports, dispensers, and other pertinent system components for known current or former underground storage tank systems on the site.

K. SITE MAPS (Continued)

d. Soil and ground water sample locations, if applicable.
e. The locations of nearby buildings, roadways, paved areas, or other structures, aboveground storage tanks, underground storage tanks, buried utilities and conduits, suspected/confirmed sources, groundwater supply wells, and the location of human and environmental receptors that could be impacted by the CoC. A map depicting the ground water elevation/ potentiometric surface.
f. A map depicting the geologic cross section(s).
g. A map of the dissolved plume map(s) with the CoC.
h. A concentration map(s) showing the CoC in the appropriate environmental media.

Reference: Part 213, Section 21308a(1)(b)(vi)(A-E); ASTM E1739-95 (Reapproved 2010), Section 6.2.1.5, Section 6.11; and ASTM E2081 - 00 (2010), Section 6.17.18

L. ANALYTICAL RESULTS AND TABLES

1. Provide laboratory analytical data.
2. Provide a summary of the analytical data and the corrective action goals used.
3. Compare the concentrations of the CoC to the RBSLs and or SSTLs, include site-specific hydrogeologic conditions (i.e., depth to ground water, static water elevation). Tabular form is preferred.

Reference: Part 213 Section 21308a(1)(b)(xxvi); ASTM E1739-95 (Reapproved 2010) Section 6.2.2.1 and Section 6.7