**TIER 2 REPORT CHECKLIST**

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☐ Report Cover Sheet. Signed by certified groundwater professional and responsible party (542-0723). .....1
☐ Tier 2 Report Checklist ..... 2-3


**Summary Sheets:**


☐ 🖫 Tier 2 Data Before Modeling.....4
☐ 🖫 Site Hydrogeology.....5
☐ 🖫 Source Width and Length Selection.....6
☐ 🖫 Preliminary Pathway Evaluation Requirements Groundwater.....7
☐ 🖫 Preliminary Pathway Evaluation Requirements Soil Leaching .....8
☐ 🖫 Preliminary Pathway Evaluation Requirements Soil .....9
☐ 🖫 Tier 2 Groundwater Receptor Summary.....10
☐ 🖫 Tier 2 Soil Vapor Receptor Summary.....11
☐ 🖫 Tier 2 Soil to Water Lines Receptor Summary .....12
☐ 🖫 Tier 2 Soil Leaching Receptor Summary .....13


**Report Body:**


☐ Field Screening Results.....14
☐ 🖫 Soil Analytical Data .....15
☐ 🖫 Groundwater Analytical Data.....16
☐ 🖫Soil Gas Analytical Data .....17
☐ 🖫Water Samples (if applicable) .....18
☐ Indoor Vapor Analytical Data .....19
☐ Groundwater Elevations.....19
☐ Receptor Survey -- Groundwater Well Survey.....20
☐ Receptor Survey -- Affected Property Owner Table.....21
☐ Receptor Survey -- Commingled Plume Discussion.....22
☐ Receptor Survey -- Off-Site Contamination Source Support Discussion.....22
☐ Free Product.....22
☐ Receptor Survey -- Enclosed Space Survey.....23
☐ Receptor Survey -- Surface Water Survey .....24
☐ Risk Justification and Corrective Action Proposed ..... 25-26
☐ 🖫Groundwater Monitoring Plan.....27
☐ Soil Gas Monitoring Plan .....28


🖫 **Pathway Assessment Attachments:**

**Groundwater Pathways:** If a receptor type must be evaluated, check the box at the left and include the Receptor ID (Identification) Map. If any potential or actual receptors are identified by the Receptor ID Map, the Receptor Evaluation Map (for each applicable chemical for each receptor) and SSTL Table (for each receptor) must be provided in the corresponding appendix. Check the boxes in the table for those items attached.

| Pathway | Receptor ID Map | Receptor Evaluation Map | | | | | | SSTL Tables |
|---|---|---|---|---|---|---|---|---|
| | | B | T | E | X | D | WO | |
| ☐ 1a. GW Ingestion - Drinking Water Wells | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ☐ 1b. GW Ingestion - Nondrinking Water Wells | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| ☐ 2. GW Ingestion - Protected GW Source | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ☐ 3a. GW Vapor - Confined Space Residential | ☐ | ☐ | ☐ | ☐ | | ☐ | | ☐ |
| ☐ 3b. GW Vapor - Confined Space Nonresidential | ☐ | ☐ | ☐ | ☐ | | ☐ | | |
| ☐ 4. GW Vapor - Potential Confined Space | | ☐ | ☐ | ☐ | | ☐ | | ☐ |
| ☐ 5a. GW Vapor - Sanitary Sewer Residential | ☐ | ☐ | ☐ | ☐ | | ☐ | | ☐ |
| ☐ 5b. GW Vapor - Sanitary Sewer Nonresidential | ☐ | ☐ | ☐ | ☐ | | ☐ | | |
| ☐ 6. GW Vapor - Potential Sanitary Sewer | | ☐ | ☐ | ☐ | | ☐ | | ☐ |
| ☐ 7. GW to Water Line | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ☐ 8. Surface Water | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Soil Leaching Pathways:** Check the box at the left if this receptor type must be evaluated. The Receptor ID (Identification) Map and Soil SSTL Table (for each receptor) must be provided in the corresponding appendix.

| Pathway | Receptor ID Map | Soil SSTL Table |
|---|---|---|
| ☐ 9-1a. Soil Leaching to GW Ingestion - Drinking Water Wells | ☐ | ☐ |
| ☐ 9-1b. Soil Leaching to GW Ingestion - Nondrinking Water Wells | ☐ | ☐ |
| ☐ 9-2. Soil Leaching to GW Ingestion - Protected GW Source | ☐ | ☐ |
| ☐ 9-3a. Soil Leaching to GW Vapor - Confined Space Residential | ☐ | ☐ |
| ☐ 9-3b. Soil Leaching to GW Vapor - Confined Space Nonresidential | ☐ | ☐ |
| ☐ 9-4. Soil Leaching to GW Vapor - Potential Confined Space | ☐ | ☐ |
| ☐ 9-5a. Soil Leaching to GW Vapor - Sanitary Sewer Residential | ☐ | ☐ |
| ☐ 9-5b. Soil Leaching to GW Vapor - Sanitary Sewer Nonresidential | ☐ | ☐ |
| ☐ 9-6. Soil Leaching to GW Vapor - Potential Sanitary Sewer | ☐ | ☐ |
| ☐ 9-7. Soil Leaching to GW to Water Line | ☐ | ☐ |
| ☐ 9-8. Soil Leaching to Surface Water | ☐ | ☐ |

☐ 10. 🖫 Soil Vapor to Enclosed Space. If this pathway must be evaluated, check the box at the left and provide the Soil Vapor Map.

☐ 11. 🖫 Soil to Water Line. If this pathway must be evaluated, check the box at the left and provide the Soil to Water Line Map.

**Other Maps:**

☐ 12. 🖫 Groundwater Summary Corrective Action Map
☐ 13. 🖫 Soil Summary Corrective Action Map
☐ 14. Monitoring Plan Map
☐ 15. Landowner Map
☐ 16. X, Y Coordinates Map (on a Site Map)
☐ 17. Zoning Documentation
☐ 18. 🖫 Groundwater Source Width/Length Map
☐ 19. 🖫 Soil Source Width/Length Map
☐ 20. 🖫 Soil Contamination Plume Map
☐ 21. 🖫 Groundwater Contamination Plume Map
☐ 22. Groundwater Flow Direction Map
☐ 23. Well Survey Map
☐ 24. Enclosed Space and Conduit Map
☐ 25. Surface Water Map

**Other Appendices:**

☐ 26. Laboratory Data Sheets / Chromatograms
☐ 27. Construction Diagrams for Soil Gas Mon. Wells
☐ 28. Soil Boring Logs/Mon. Well Construction Diagrams
☐ 29. Well Logs (drinking and non-drinking water wells)
☐ 30. Off-Site Contamination Source Support Data
☐ 31. Tier 1 Selected Information
- ☐ Pages 5, 6 and 11 of the Report Body
- ☐ Appendix 1 - Topographic Site Map
- ☐ Appendix 2 - Site Plan Map
- ☐ Appendix 4 - Field Screening Map
- ☐ App. 11 - Tank Tightness Test Results
- ☐ Appendix 14 - "K" Measurements

☐ **32. Corrective Action Documentation – (if applicable)**
- ☐ Environmental Covenants / Institutional Controls
- ☐ Abandoned Water Well Plugging Record(s)
- ☐ Water Supply Notification (DNR Form 542-1530)
- ☐ Water Line- Utility Company Notification (DNR Form 542-1531)
- ☐ Sanitary Sewer Notification (DNR Form 542-1532)
- ☐ Report of Excavation Activities and, if applicable, completed Land Application Notification Form.

☐ **33. Exempt Granular Bedrock Attachment – (if applicable)**
- ☐ A. Justification for Bedrock Type
- ☐ B. Hydrolgeologic Cross-Section
- ☐ C. Hydraulic Conductivity and Total Dissolved Solids Table

☐ **RBCA Application Submitted**

**Sampling Results:**

## Field Screening Results

Complete the table below with the field screening results for each boring, monitoring well, and probe point location. In the first column provide the depth increments over which vapor screening was conducted beginning with the ground surface. Label the increments and total depth of boring in units of feet from the ground surface. Place an asterisk (*) at the depth on each column for every soil sample analyzed. Place a water level symbol (v) at the depth on each column to represent the static water level. This page may be duplicated for additional sampling points. Has this page been copied? ☐ **Yes** ☐ **No**

| Sample Identification | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | | | | | | | | | | | | | |
| Depth of Reading - | Depth | PID | Depth | PID | Depth | PID | Depth | PID | Depth | PID | Depth | PID | Depth | PID |
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| Total Depth of Boring | | | | | | | | | | | | | | |

**Soil Boring and Monitoring Well Placement.** Describe soil and groundwater sampling methods. Explain why those samples selected for laboratory analysis represent the highest contamination concentrations encountered during soil boring/ monitoring well installation. Explain why the source(s) has been adequately investigated. If groundwater samples were obtained from wells with free product, describe the method used to collect the samples.

| Indoor Vapor Analytical Data | | | | | | |
|---|---|---|---|---|---|---|
| Complete the table below with indoor vapor analytical data for each enclosed space receptor sampled. Group sampling events by location then arrange chronologically with the oldest data first. | | | | | | |
| Receptor Evaluated | Date Sampled | Elevations (feet Above Sea Level) | | | Benzene ($\mu g/m^3$) | Toluene ($\mu g/m^3$) |
| | | Ground Surface | Basement Floor | Static Groundwater | | |
| | | | | | | |
| | | | | | | |
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**Indoor Vapor Sampling.** If indoor vapor measurements were taken, describe the sampling methods and explain why the methods provide representative sample.

**Groundwater Elevations**

Identify the methodology and device used to determine static groundwater levels. Explain any anomalous measurements or fluctuations in water levels with special emphasis on those which may alter general groundwater gradient or flow direction.

Describe the benchmark used to survey for groundwater surface elevations, including its location and elevation.

If water levels were corrected due to the presence of free product, describe the method used to determine the static water level.

**RECEPTOR SURVEY:**

| Groundwater Well Survey | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Well Number** as identified on Groundwater Well Survey Map | | | | | | | | |
| **Well Status** | | | | | | | | |
| Active | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Abandoned | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Plugged | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| According to Chapter 39 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Not according to Chapter 39 | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Well Use** | | | | | | | | |
| Municipal Well | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Private Drinking Well | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Production Well | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Other: | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Other: | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Static Water Level Elevation | | | | | | | | |
| Well Depth Elevation | | | | | | | | |
| Well Diameter | | | | | | | | |
| Casing Material | | | | | | | | |
| Screened Interval | | | | | | | | |
| Well Log Provided? Yes | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| No | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Well owners and locations.** Provide the name and address of each well owner.

| Well Number - Well Owner Name | Address | City | State | Zip Code |
|---|---|---|---|---|
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**Public Entities.** Provide the name and address for each public entity contacted to determine well locations and details. Indicate the date each public entity was contacted.

**Plugging Methods**. Describe the plugging method for those wells not sealed according to Chapter 567-39 IAC.

| AFFECTED PROPERTY OWNER TABLE | | | | |
|---|---|---|---|---|
| List all properties within any Receptor ID Plume and under the "Z" (zoning) column, provide the zoning for each property with either "R" for residential or "NR" for nonresidential; mark "Y" or "N" regarding whether that property owner was contacted to determine if there is a drinking or non-drinking water well on their property; and provide the date the property owner was contacted. This page may be duplicated. | | | | |
| | **Z** | **Property Owner Name** | **Property Address** | **Owner Mailing Address** |
| **1** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **2** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **3** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **4** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **5** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **6** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **7** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **8** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **9** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **10** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **11** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |
| **12** | | | | |
| | | Contacted? ☐ Y ☐ N Date: | | |

**Well Survey / Contact Method.** Identify the method (on-site well survey or letters) for surveying the area within 300 feet of the sources or within the largest receptor identification plume (whichever is smaller). If letters were sent, provide a copy of the letter in Appendix 23 and state how many letters were sent and how many replies were received.

| Commingled Plume Discussion |
| --- |
| If contamination at the site appears to be commingled with another site provide the owner name and address, and if assigned by the DNR, the Registration and LUST numbers. If the site does not have a Registration or LUST number, provide justification for an off-site source in the section below. |

| Off-Site Contamination Source Support Discussion |
| --- |
| Provide a detailed justification for any conclusions concerning off-site contamination sources. |

| Free Product |
| --- |
| Indicate whether free product has ever been observed at the site and in which wells. If the site has a history of free product, indicate the date the last "Free Product Recovery Report" was submitted. Discuss the status and effectiveness of the free product recovery system. |

| Enclosed Space / Conduit Survey | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Conduit Number (on map[1])** | **Description (main or service?)** | **Construction Material[2]** | **Conduit Backfill Material** | **Slope of Conduit** | **Burial Depth** | **Relationship to Groundwater Level** | **Vapor Survey Results[3]** |
| Example 1 | Sanitary Sewer Main - 1st & Main accessway | concrete | sand | west | 5 ft below surface | 2 ft above groundwater | 7 |
| Example 2 | Basement of Smith residence | cement | NA (Not applicable) | NA | base 8 ft below ground | 1 ft below groundwater | 33 |
| Example 3 | On-site Water Service | PVC, with rubber gaskets | gravel | south | 5 ft below surface | 2 ft above groundwater | NA |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
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| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |

**Survey contacts.** Provide the name and address for each public entity and adjacent property owner contacted to determine enclosed space and conduit details and locations. Provide the date of the most recent enclosed space / conduit survey. All relevant sources of information should be reviewed to confirm water line material including but not limited to community plumbing codes, city codes, and ordinances, local plumbing contractors and services, and available construction specifications and plans.

**Vapor History.** Describe any historic and current problems with vapor accumulation in confined spaces. Indicate the date(s) and where vapors were noted. Describe the measures taken to abate the condition and the current status.

[1] Enclosed Space and Conduit Map
[2] The Enclosed Space/Conduit Survey Table must now also identify water line and gasket material(s) of construction.
[3] See page 6-6 Tier 2 Guidance

| Surface Water Survey | | | |
|---|---|---|---|
| **Surface Water Name** | **Classification - designated or general use** | **Description** | **Visual Observations** |
| Example 1 - Red River | designated B(LW) | river | no sheens or residue observed |
| Example 2 - no name | general use | drainage ditch to the east | Residues noted on bank. Appeared to be non- petroleum. Lab data confirmed no hydrocarbons. |
| | | | |
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| **Surface Water Sampling Analytical Data (µg/L)**<br>(This previously collected data may not be used to clear the surface water pathway) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sample Location | Date Sampled | Group 1 | | | | Group 2 | |
| | | B | T | E | X | TEH-D | TEH-WO |
| | | | | | | | |
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**Surface Water Survey.** Explain how the surface water survey was conducted. If surface water samples were collected, describe the sampling methods. Provide a justification for taking samples.

**RISK JUSTIFICATION AND CORRECTIVE ACTION PROPOSED:**

| Groundwater Ingestion Pathway |
| --- |
| |

| Groundwater Vapor to Enclosed Space Pathway |
| --- |
| |

| Groundwater to Water Line Pathway |
| --- |
| |

| Surface Water Pathway |
| --- |
| |

| Soil Leaching to Groundwater Pathway |
| --- |
| |

| Soil Vapor to Enclosed Space Pathway |
| --- |
| |

| Soil to Water Line Pathway |
| --- |
| |

| SOIL GAS MONITORING PLAN | | |
|---|---|---|
| SUMMARY TABLE | | |
| **Location of Vapor Well** | **Receptor(s) Being Monitored** | **Frequency of Monitoring** |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Comments/Justification: | | |