



## HOW TO ANALYZE YOUR SITE FOR PETROLEUM CONTAMINATION

### **Scenario I: FOR SITES THAT CURRENTLY HAVE OR HAVE HAD PETROLEUM STORAGE SYSTEMS, OR SITES THAT MAY BE IMPACTED BY PETROLEUM PRODUCTS**

- 1) Intrusive soil and water testing is needed to determine any impact above DNR action levels of petroleum contamination from onsite and offsite sources. A “Phase II” type assessment is required below.
- 2) The minimum number of soil samples and placement of borings and monitoring wells are to follow IAC Chapter 135.
- 3) An Iowa licensed groundwater professional is to be responsible for the work performed.
- 4) A written report, which would include the written conclusion of the licensed groundwater professional, the test results, chain of custody report, scaled diagram indicating the test locations, and the soil/water boring logs and/or as-built drawings of the wells, shall be submitted.
- 5) PMMIC may, at their discretion, accept some or all of any recent environmental assessments performed at the site.

### **Scenario II: FOR COMMERCIAL PROPERTIES THAT HAVE NO KNOWN EXISTING OR PREVIOUS PETROLEUM STORAGE TANKS**

- 1) Site requires a limited environmental “Phase II” type site assessment, which includes an appropriate amount of intrusive soil and water sampling and testing to establish whether or not petroleum contamination exists and to what extent. The assessment will determine the impact which may exist from previous onsite sources or impact coming on the site from adjacent offsite sources.
- 2) The site should at least be triangulated with monitoring wells. At a minimum, one down-gradient groundwater sample should be obtained for analysis.
- 3) An Iowa licensed groundwater professional is to be responsible for the work performed.
- 4) A diagram should be submitted which shows the site and the surrounding properties on all sides within a 2 block or 1,000 foot radius.
- 5) A written report, which would include the written conclusion of the licensed groundwater professional, the test results, chain of custody report, scaled diagram indicating the test locations, and the soil/water boring logs, and/or as-built drawings of the wells, shall be submitted.
- 6) PMMIC may, at their discretion, accept some or all of any recent environmental assessments performed at the site.

### **Scenario III: FOR RESIDENTIAL OR UNDEVELOPED AGRICULTURAL SITES**

- 1) A licensed Iowa groundwater professional should provide a “Phase I” type assessment report which documents the following:
  - Visual check of the site by an independent third party.
  - Research of the abstract of the property and a written explanation of the history.
  - Description of what the site was prior to any tanks being installed by an independent third party who knows the area and site.
- 2) A diagram which shows the site and the surrounding properties on all sides within a 1,000 foot radius.
- 3) If information indicates that the site may have in the past or present been impacted from petroleum products, then Scenario I would be needed.

### **Soil Sample Requirements**

- Soil samples shall be independently collected from around the perimeter of the tank and along connected piping routinely carrying product.
  - These samples must be sent to an independent laboratory, on DNR’s approved list, for analysis.
  - Composite samples are not acceptable and soil/gas sampling is not acceptable.
  - Soil sample requirements are based upon the system being defined as;
    - a cluster (i.e., more than one tank within 10 feet of each other) or,
    - a single tank.
- If a single tank or cluster of tanks is positioned more than 10 feet from another tank or cluster, soil samples shall be taken as though each tank or cluster is a separate system.
- Soil samples should be obtained at distances about 5 feet from the perimeter of the tank and approximately 3 feet below the bottom of the tank or piping.
  - Soil samples must be obtained every 10-15 feet along product piping, up to the end of the dispensing islands.
  - All soil samples must be analyzed using Iowa OA-1 and OA-2 methods.

(continued)

**Exceptions:**

- 1) If a shallow water table is encountered, then soil samples may be waived. Justification including documentation of encountered water depth will be needed before soil sampling can be waived.
- 2) If bedrock is encountered prior to required depth of soil samples, then soil samples should be taken one foot above the bedrock.

**Groundwater Sample Requirements**

- Groundwater flow direction shall be determined by installing a minimum of at least 3 temporary (or permanent) wells to the first saturated groundwater level beneath the system (tanks and piping). Placement should triangulate and be an equal distance or as close to an equal distance as possible around the perimeter of the tank system(s). Measurements of static groundwater levels shall be made to establish groundwater flow direction.
- The screens of the monitoring wells should extend at least five feet below and above the surface of the first saturated groundwater level.
- At a minimum, one groundwater sample shall be independently collected from the down-gradient well for independent lab analysis in accordance with existing DNR regulations. The sample(s) should be taken from the first saturated groundwater level beneath the system.
- All water samples are to be analyzed using Iowa OA-1 and OA-2 methods as necessary.

**Examples of Soil Sampling Locations**

