**Section 734.315 Stage 1 Site Investigation**

The Stage 1 site investigation must be designed to gather initial information regarding the extent of on-site soil and groundwater contamination that, as a result of the release, exceeds the most stringent Tier 1 remediation objectives of 35 Ill. Adm. Code 742 for the applicable indicator contaminants.

a) The Stage 1 site investigation must consist of the following:

1) Soil investigation.

A) Up to four borings must be drilled around each independent UST field where one or more UST excavation samples collected pursuant to 734.210(h), excluding backfill samples, exceed the most stringent Tier 1 remediation objectives of 35 Ill. Adm. Code 742 for the applicable indicator contaminants. One additional boring must be drilled as close as practicable to each UST field if a groundwater investigation is not required under subsection (a)(2) of this Section. The borings must be advanced through the entire vertical extent of contamination, based upon field observations and field screening for organic vapors, provided that borings must be drilled below the groundwater table only if site-specific conditions warrant.

B) Up to two borings must be drilled around each UST piping run where one or more piping run samples collected pursuant to Section 734.210(h) exceed the most stringent Tier 1 remediation objectives of 35 Ill. Adm. Code 742 for the applicable indicator contaminants. One additional boring must be drilled as close as practicable to each UST piping run if a groundwater investigation is not required under subsection (a)(2) of this Section. The borings must be advanced through the entire vertical extent of contamination, based upon field observations and field screening for organic vapors, provided that borings must be drilled below the groundwater table only if site-specific conditions warrant.

C) One soil sample must be collected from each five-foot interval of each boring drilled pursuant to subsections (a)(1)(A) and (B) of this Section. Each sample must be collected from the location within the five-foot interval that is the most contaminated as a result of the release. If an area of contamination cannot be identified within a five-foot interval, the sample must be collected from the center of the five-foot interval. All samples must be analyzed for the applicable indicator contaminants.

2) Groundwater investigation.

A) A groundwater investigation is required under the following circumstances:

i) There is evidence that groundwater wells have been impacted by the release above the most stringent Tier 1 remediation objectives of 35 Ill. Adm. Code 742 for the applicable indicator contaminants;

ii) Free product that may impact groundwater is found to need recovery in compliance with Section 734.215 of this Part; or

iii) There is evidence that contaminated soils may be or may have been in contact with groundwater, except that, if the owner or operator pumps the excavation or tank cavity dry, properly disposes of all contaminated water, and demonstrates to the Agency that no recharge is evident during the 24 hours following pumping, the owner or operator does not have to complete a groundwater investigation, unless the Agency's review reveals that further groundwater investigation is necessary.

B) If a groundwater investigation is required, the owner or operator must install five groundwater monitoring wells. One monitoring well must be installed in the location where groundwater contamination is most likely to be present. The four remaining wells must be installed at the property boundary line or 200 feet from the UST system, whichever is less, in opposite directions from each other. The wells must be installed in locations where they are most likely to detect groundwater contamination resulting from the release and provide information regarding the groundwater gradient and direction of flow.

C) One soil sample must be collected from each five-foot interval of each monitoring well installation boring drilled pursuant to subsection (a)(2)(B) of this Section. Each sample must be collected from the location within the five-foot interval that is the most contaminated as a result of the release. If an area of contamination cannot be identified within a five-foot interval, the sample must be collected from the center of the five-foot interval. All soil samples exhibiting signs of contamination must be analyzed for the applicable indicator contaminants. For borings that do not exhibit any signs of soil contamination, samples from the following intervals must be analyzed for the applicable indicator contaminants, provided that the samples must not be analyzed if other soil sampling conducted to date indicates that soil contamination does not extend to the location of the monitoring well installation boring:

i) The five-foot intervals intersecting the elevations of soil samples collected pursuant to Section 734.210(h), excluding backfill samples, that exceed the most stringent Tier 1 remediation objectives of 35 Ill. Adm. Code 742 for the applicable indicator contaminants.

ii) The five-foot interval immediately above each five-foot interval identified in subsection (a)(2)(C)(i) of this Section; and

iii) The five-foot interval immediately below each five-foot interval identified in subsection (a)(2)(C)(i) of this Section.

D) Following the installation of the groundwater monitoring wells, groundwater samples must be collected from each well and analyzed for the applicable indicator contaminants.

E) As a part of the groundwater investigation an in-situ hydraulic conductivity test must be performed in the first fully saturated layer below the water table. If multiple water bearing units are encountered, an in-situ hydraulic conductivity test must be performed on each such unit.

i) Wells used for hydraulic conductivity testing must be constructed in a manner that ensures the most accurate results.

ii) The screen must be contained within the saturated zone.

3) An initial water supply well survey in accordance with Section 734.445(a) of this Part.

b) The Stage 1 site investigation plan must consist of a certification signed by the owner or operator, and by a Licensed Professional Engineer or Licensed Professional Geologist, that the Stage 1 site investigation will be conducted in accordance with this Section.

c) If none of the samples collected as part of the Stage 1 site investigation exceed the most stringent Tier 1 remediation objectives of 35 Ill. Adm. Code 742 for the applicable indicator contaminants, the owner or operator must cease site investigation and proceed with the submission of a site investigation completion report in accordance with Section 734.330 of this Part. If one or more of the samples collected as part of the Stage 1 site investigation exceed the most stringent Tier 1 remediation objectives of 35 Ill. Adm. Code 742 for the applicable indicator contaminants, within 30 days after completing the Stage 1 site investigation the owner or operator must submit to the Agency for review a Stage 2 site investigation plan in accordance with Section 734.320 of this Part.