

Illinois EPA Leaking Underground Storage Tank Section Indoor Inhalation Exposure Route Checklist

Applicability: This checklist may be used to exclude the indoor inhalation exposure route in accordance with 35 Illinois Administrative Code (Ill. Adm. Code) Section 742.312. This checklist shall be applied during the development of site investigation completion report (SICR) and corrective action plan (CAP), if applicable, and may be reapplied after completion of a corrective action plan proposing active remediation.

Re Da	eviewed by: te Reviewed:	BOLID Incident # Site Name: Site Address:		County: City: Leaking UST Technical File	
1.	Do you have volatile chemical	s at your site per 35 I	11. Adm. Code 742	Appendix A.Table J?	
		No	Yes		
	If "No" is checked,	no further evaluation	n of the indoor inh	alation exposure route is required.	
	If "Yes" is checked	l, continue to questio	n No. 2.		
2.	Was groundwater encountered at the site?				
		No	Yes		
	If "No" is checked, continue to question No. 3.				
	If "Yes" is checked, continue to question No. 5.				
3.	Do benzene concentrations in the soil exceed 10 mg/kg?				
		No	Yes		
	If "No" is checked, continue to question No. 12.				
	If "Yes" is checked, continue to question No. 4.				
4.	Vertical Separation Screening	(Residual LNAPL)			
	Is there at least 15 feet of soil exhibiting benzene concentrations less than 10 mg/kg between the soil exhibiting benzene concentrations greater than 10 mg/kg and the lowest point of a building foundation/crawl space or ground surface if there is no overlying receptor?				
		No	Yes		
	If "No" is checked, 35 Ill. Adm. Code	evaluation of the inc version of the inc	loor inhalation exp	posure route in accordance with	

If "Yes" is checked, continue to question No. 10.

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5.	5. Has the groundwater plume been defined to the Class I standards for the volatile chemicals?				
	🗌 No 📃 Yes				
	If "No" is checked, additional investigation is required to define the groundwater plu				
	If "Yes" is checked, continue to question No. 6.				
6.	Do benzene concentrations in groundwater exceed the Class I standard (0.005 mg/L)?				
	🗌 No 📃 Yes				
	Answer this question (No. 6) and continue to question No. 7.				
7.	LNAPL/Residual LNAPL Determination				
	Is there free product exceeding one-eighth of an inch in depth as measured in a monitoring well?				
	🗌 No 🔄 Yes				
	Do benzene concentrations in groundwater exceed 5 mg/L?				
	🗌 No 🔤 Yes				
	Do total BETX concentrations in groundwater exceed 20 mg/L?				
	🗌 No 📃 Yes				
	Do benzene concentrations in soil exceed 10 mg/kg?				
	🗌 No 📃 Yes				
	If "No" is checked for question No. 6, and "No" is checked for all the LNAPL/Residual LNAPL questions above, continue to question No. 12.				
	If "Yes" is checked for question No. 6, and "No" is checked for all the LNAPL/Residual LNAPL questions above, a dissolved groundwater plume is present. Continue to question No. 8.				
	If "Yes" is checked for any of the LNAPL/Residual LNAPL questions above, an LNAPL/Residual LNAPL plume is present. Continue to question No. 9.				

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8. Vertical Separation Screening (Dissolved Groundwater Plume)

Is there at least five feet of soil exhibiting benzene concentrations less than 10 mg/kg between the highest measured groundwater elevation in a monitoring well and the lowest point of a building foundation/crawl space or ground surface if there is no overlying receptor?

No

If "No" is checked, evaluation of the indoor inhalation exposure route in accordance with 35 Ill. Adm. Code 742 is required.

T Yes

If "Yes" is checked, continue to question No. 10.

9. Vertical Separation Screening (LNAPL/Residual LNAPL)

Is there at least 15 feet of soil exhibiting benzene concentrations less than 10 mg/kg between the highest measured free product elevation in a monitoring well or the highest measured groundwater elevation in a monitoring well and the lowest point of a building foundation/crawl space or ground surface if there is no overlying receptor?

🗌 No

Yes

If "No" is checked, evaluation of the indoor inhalation exposure route in accordance with 35 Ill. Adm. Code 742 is required.

If "Yes" is checked, continue to question No. 10.

10. Precluding Factors (Karst Geology)

Are the properties affected by the release located in an area with Karst geology, as determined by the SWAP Mapping System?

🗌 No

Yes

If "No" is checked, continue to question No. 11.

If "Yes" is checked, the release cannot be screened out using a vertical separation distance, and an evaluation of the indoor inhalation exposure route in accordance with 35 Ill. Adm. Code 742 is required.

11. Precluding Factors (Utility Conduits)

Are utility conduits present within the contaminated groundwater or LNAPL/residual LNAPL that may allow for migration of vapors into buildings? Note, for the conduit to allow for migration of vapors into the building, the conduit must be improperly sealed at the building.

🗌 No

Yes

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If "No" is checked, continue to question No. 12.

If "Yes" is checked, the conduit must be properly sealed in a manner that does not allow for migration of vapors into the building.

12. Are there reports of petroleum vapors in buildings as a result of the release from the UST?

🗌 No

Yes

If "No" is checked, no further evaluation of the indoor inhalation exposure route is required.

If "No" is checked, and "Yes" is checked for question No. 8, then an engineered barrier consisting of 5 feet of soil exhibiting benzene concentrations less than 10 mg/kg must be accepted. However, if "Yes" is checked for question No. 4 or question No. 9, an engineered barrier consisting of 15 feet of soil exhibiting benzene concentrations less than 10 mg/kg must be accepted.

If "Yes" is checked, evaluation of the indoor inhalation exposure route in accordance with 35 Ill. Adm. Code Part 742 is required.

CONCLUSION

Evaluation of the indoor inhalation exposure route in accordance with 35 Ill. Adm. Code 742 is required.

Evaluation of the indoor inhalation exposure route is not required.

Evaluation of the indoor inhalation exposure route is not required subject to accepting 5 feet of soil exhibiting benzene concentrations less than 10 mg/kg as an engineered barrier.

Evaluation of the indoor inhalation exposure route is not required subject to accepting 15 feet of soil exhibiting benzene concentrations less than 10 mg/kg as an engineered barrier.

Sources:

<u>https://www.itrcweb.org/PetroleumVI-Guidance/</u> <u>https://www.epa.gov/ust/technical-guide-addressing-petroleum-vapor-intrusion-leaking-underground-</u> <u>storage-tank-sites</u>

Note:

To access a map of Illinois' Karst geology, click https://illinois-

epa.maps.arcgis.com/apps/webappviewer/index.html?id=4d37a05f5ba441f1b30dab54ccb81fc8, click "Layer List," check and expand "Source Water Assessment Protection Data," check and expand "Surficial/Bedrock Geology," and check "Karst."

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