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Supplemental Guidance for Water Line Evaluations

The Department of Natural Resources (DNR) has received water line evaluations in Tier 1 Reports, Tier 2 Site Cleanup Reports (SCRs), and Site Monitoring Reports (SMRs). From these submittals, it is apparent, evaluations are not always adequate. Additionally, there have been a few questions/comments regarding water line construction material. This posting is offered to provide further guidance, and to assist in completion of evaluation of water lines in the absence of updated Tier 2/SMR software.

There are a number of alternative approaches for evaluating water lines not presented in the DNR's Groundwater Professional Bulletin Board (Bulletin Board) postings. If an evaluation approach is used which has not been introduced through the Bulletin Board, Certified Groundwater Professionals (CGWPs) are encouraged to discuss the evaluation approach with the DNR project manager, **prior** to report submittals.

For evaluation of water lines in accordance with Iowa Administrative Code, Chapter 135, the CGWP must provide written justification to support conclusions a water line is, or is not at-risk based on reasoned assessment of data and receptor designation. Evaluation of water lines requires a determination whether a line meets the definition of a water line, whether it is an actual receptor, and a risk classification determination. If after completing evaluation of water line pathways, it is determined a water line receptor is classified high risk, the Responsible Party will be required to address (eliminate or reduce the risk of exposure) the high risk receptor.

- For Tier 1 submittals, any additional water line evaluation information must be included in the Corrective Action Documentation Section of the Tier 1 Report, and titled "Water Line Evaluation". A check-box must also be included in the Tier 1 Report Checklist (page 4) and titled, "Water Line Evaluation"; and the box appropriately checked. Additional information could include the Tier 1 Data Summary (page 2) and Tier 1 Pathway Evaluation Summary (page 3) that are amended to include information in the revised Tier 1 Look-Up Table effective 9/29/2010; and/or applicable items listed below.

The Tier 1 Enclosed Space/Conduit Survey Table and Enclosed Space and Conduit Map must be completed and provided as outlined in Tier 1 Guidance. The Enclosed Space/Conduit Survey Table must now also identify water line and gasket material(s) of construction.

- For Tier 2 SCR submittals, water line evaluation information must be included in Appendix 32-Corrective Action Documentation, and titled "Water Line Evaluation". A check-box must also be included in the Tier 2 Report Checklist (page 2) and titled, "Water Line Evaluation"; and the box appropriately checked.

The Tier 2 Enclosed Space/Conduit Survey Table and Enclosed Space and Conduit Map must be completed and provided as outlined in Tier 2 Guidance. The Enclosed Space/Conduit Survey Table must now also identify water line and gasket material(s) of construction.

- For SMR submittals, water line evaluation information must be included in Appendix 12-Documentation, and titled “Water Line Evaluation”. A check-box must also be included in the SMR Checklist (page 2) and titled, “Water Line Evaluation”; and the box appropriately checked.

Water line evaluation information that must be provided includes but is not necessarily limited to:

- **Water Line Receptor Survey.** A receptor survey should be performed to identify water lines (mains and service lines) within applicable distances (refer to the 10/8/2010 Bulletin Board posting). Provide a description of each water line indicating whether it is a main or service line and its diameter; identify water line gasket and joint construction material; identify water line backfill material, and burial depth; and discuss the relationship of the water line to groundwater level, the groundwater plume and the soil plume. The name and address for each public entity contacted, and the date contacted to determine water line information and other sources of information must be provided.
- **Soil to Water Line Receptor Identification Maps.** Include a separate Soil to Water Line Receptor Identification Map overlain on a Site Plan Map for each chemical of concern exceeding an applicable target level. Each map should show the actual soil plume contoured to the applicable target level with the additional 10-foot contour, water lines, and which areas exceed the applicable target level.
- **Soil Leaching to Groundwater to Water Line Receptor Identification Maps.** Include a separate Soil Leaching to Groundwater to Water Line Receptor Identification Map overlain on a Site Plan Map for each chemical of concern exceeding an applicable target levels (refer to the 10/8/2010 Bulletin Board posting). Each map should show the actual soil and groundwater plumes, contoured to applicable target levels, water lines within 200 feet of the largest actual plume (either soil or groundwater), and which areas exceed applicable target levels.
- **Groundwater to Water Line Receptor Identification Maps.** Include a separate Groundwater to Water Line Receptor Identification Map overlain on a Site Plan Map for each chemical of concern exceeding an applicable target level. Each map should show the actual groundwater plume, water lines within 200 feet of the groundwater maximum location(s), and which areas exceed an applicable target levels.
- **Evaluation.** With this information compiled, one of the methods presented in previous Bulletin Board postings, or alternative method could be used by the CGWP to designate the risk of each actual water line receptor. Refer also to the Water Line Pathway Evaluation Table included below in association the 9/8/2011 Bulletin Board posting on using more conservative models for groundwater and soil leaching evaluations.

Groundwater analytical data used to evaluate water lines for pathway completeness could be from the latest approved Tier 2 SCR, or if it exists, subsequently obtained groundwater data from the most recent SMR could be used. If data from other than the latest approved Tier 2 SCR is used for the evaluation, the groundwater professional must provide adequate justification (e.g. subsequent monitoring indicates groundwater chemicals of concern concentrations have been reduced to below the applicable target level either through corrective action or attenuation, or groundwater data shows a clear declining trend) for doing so.

Soil analytical data not marked “ignore” in Tier 2 SCR and SMR Soil Analytical Data Tables shall be used for evaluation of water lines.

If evaluation of the water line pathways identifies high risk receptors the CGWP must provide a plan to address the high risk conditions, as well as an appropriate interim high risk monitoring plan for water line receptors. Upon re-evaluation of water lines, a previously approved monitoring plan may change depending on whether new at-risk water line receptors are identified.

Water Line Pathway comments/questions from CGWPs and DNR responses.

1. Comment/Question

“Though water line piping material is generally known by property owners, municipal public works personnel, and water utility companies, the type of plastic and gasket composition are less likely to be known and more difficult to obtain. How is this uncertainty being managed by IDNR? For example, if a water line is known to be comprised of plastic but the type of plastic is unknown, will the most restrictive target level be used for evaluation?”

Response

The DNR expects CGWPs to review all relevant sources of information to confirm water line material including but not limited to community plumbing codes, city codes, and ordinances, in addition to local plumbing contractors and services, as well as construction specifications and plans that may be available. The name and telephone number for each public entity contacted, and the date contacted to determine water line information and other sources of information must be provided.

Under Iowa’s previously existing Risk-Based Corrective Action process when water line material was not known, it was assumed to be plastic, and the associated target level was assigned. Prior to performing corrective action to address at-risk plastic water lines, groundwater professionals determined if lines were indeed constructed of plastic (e.g., by exposing the line, or by checking the material entering a residence or business). If a water line is known to be constructed of plastic, but the plastic designation is not known, the lowest applicable target level will be assigned.

2. Comment/Question

“I had a question regarding SMRs and the new water line evaluation process: I come across a site in Des Moines where the city indicated that the water mains were old cast iron (installed in the 1940's) and that the joint type was "cement". I know that some other types of joint connections like welded and leaded-jute are not considered receptors. I was wondering if "cement" type joints would also be exempt? Please let me know how the DNR views this type.”

Response

Poured Portland cement mortar jointed cast iron water lines; poured lead and poured leadite jointed cast iron water lines; and welded and soldered jointed cast iron water lines are not required to be treated as receptors under Chapter 135 rules.

In general, the joint fill material must be identified and the information provided to the DNR to determine if an exemption is warranted.

3. Comment/Question

“The water utility notification form 1531 provided by DNR has not been revised to include the new water line standards. What should we be submitting in the way of notification to the water utility authorities? Do we need to submit revised notifications for sites where a prior utility notification was sent?”

Response

Continue to submit the existing Utility Company Notification Form.

If the water line evaluation identifies a high risk water line not previously considered to be at-risk, the utility company supplying water service to the area must be notified of the new high risk condition. If the extent of contamination has been defined, this information must be included in Utility Company Notification, and any previous notification made must be amended to include this information.

Refer to 10/8/2010, 7/26/2011, 09/08/2011 Bulletin Board postings for additional information on evaluation of water lines.

Contact Elaine Douskey at (515)281-8011 or elaine.douskey@dnr.iowa.gov if you have questions.

Water Line Pathway Evaluation
Updated 9/8/2011

Receptor Type		Chemical of Concern					
		Benzene	Toluene	Ethylbenzene	Xylenes	Total Extractable Hydrocarbons: Diesel	Total Extractable Hydrocarbons: Waste Oil
Groundwater	Tier 1 Value	7,500	6,250	40,000	48,000	75,000	40,000
	PVC or Gasketed Mains	Use GWV to CSNR (4,780)	Use DWW (1,000)	Use NDWW (3,700)	Use DWW (10,000)	Not Addressed	Not Addressed
	Tier 1 Value	3,750	3,120	20,000	24,000		
	PVC or Gasketed Service Lines	Use GWV to SSR (3,080)	Use DWW (1,000)	Use NDWW (3,700)	Use DWW (10,000)		
	Tier 1 Value	200	3,120	3,400	19,000		
	PE / PB / AC Mains or Service Lines	Use DWW (5)	Use DWW (1,000)	Use DWW (700)	Use DWW (10,000)		
Soil Leaching Note: Soil Values and GW Values must exceed T1 values	Tier 1 Value	7,500	6,250	40,000	48,000	75,000	40,000
	PVC or Gasketed Mains	Use GWV to CSNR (4,780)	Use DWW (1,000)	Use NDWW (3,700)	Use DWW (10,000)	Not Addressed	Not Addressed
	Tier 1 Value	3,750	3,120	20,000	24,000		
	PVC or Gasketed Service Lines	Use GWV to SSR (3,080)	Use DWW (1,000)	Use NDWW (3,700)	Use DWW (10,000)		
	Tier 1 Value	200	3,120	3,400	19,000		
	PE / PB / AC Mains or Service Lines	Use DWW (5)	Use DWW (1,000)	Use DWW (700)	Use DWW (10,000)		
Other Soil	Not Addressed						