

## **JUSTIFICATION FOR UPDATING 785:45 APPENDIX H**

The Department of Environmental Quality (DEQ) has proposed changes to 785:45 Appendix H, “Beneficial Use Designations for Certain Limited Areas of Groundwater.”

The first change applies to the Boone shallow groundwater at the Tar Creek Superfund Site. The modifications to the already existing listing in Appendix H identifying special well construction for toxic metals in the Boone shallow groundwater at the Tar Creek Superfund Site are to address the requirements of the February 20, 2008, Record of Decision (ROD) for Operable Unit 4 (OU4) of the Tar Creek site. Specifically, Table 19.2.6 states the ODEQ is responsible to implement institutional controls under OWQS 785, Chapter 45, Appendix H to restrict the future uses of groundwater from the portion of the Boone aquifer (or shallower) for potable or domestic supply that is impacted with site-related contaminants above the Final Remediation Goals (i.e., lead greater than 15 ug/l).

To meet this, ODEQ proposes under “Remarks” to add a water testing requirement and conditionally, a water treatment requirement; and under “Agency” to add a reference to a fact sheet that will be located on the DEQ website detailing the special well construction and testing requirements. The testing requirement, and potential water treatment requirement, would serve as the institutional control for the site by notifying the well drillers and local landowners of the possibility of encountering contaminants in the shallow groundwater that may exceed the drinking water maximum contaminant levels (MCLs) and further, that water treatment would be required for potable use. The contaminants include lead, cadmium, and arsenic.

A recent ongoing hydro-geologic study conducted at the Tar Creek site (under “Location”) by the US Environmental Protection Agency (EPA) has shown that much of the water from the Boone is impacted by elevated dissolved iron and sulfate concentrations, but is considered treatable as defined in the water quality standards. Since much of the water within the area is treatable and only scattered locations show lead, cadmium, and arsenic concentrations above MCLs, the beneficial use category need not be changed.

The main impacts to the new users of shallow groundwater from this area will be a small additional cost for testing the water before its use for presence of the above referenced metals. In most of the area, treatment for potable use would already be necessary to remove the elevated dissolved iron. While there may be an additional cost to remove any lead, cadmium, and arsenic, as needed, this cost may be minimized by selection of a compatible treatment technology.

The second change is the addition of the North-Central Oklahoma Aquifer at the Former Farmland Feed Mill Site in Enid, Oklahoma. The North-Central Oklahoma Aquifer beneath the site has a nitrate concentration that is greater than the allowable concentration under the drinking water standards. The economic impact is expected to be limited because the City of Enid requires that property owners within city limits use the City’s drinking water instead of well

water. No existing groundwater wells are used for drinking water purposes on the affected property at this time.

The third change is ground water use is prohibited at the former Hudson Refinery Superfund Site in Payne County, Oklahoma. Deed notices have been filed in county land records prohibiting the use of ground water for any purpose. Hydrocarbon contamination of the ground water has been documented at the site.

The fourth change is ground water well drilling is prohibited at the former Blackwell Zinc Company (BZC) Site in Kay County, Oklahoma. City Ordinance No. 2801 has been passed by the City of Blackwell prohibiting installation of ground water wells within the ground water protection area due to cadmium, and zinc contamination due to historic smelter operations. The ordinance refers to Figure 3, a Groundwater Protection Area based on a Cadmium 0.005 mg/l concentration isopleth line plus a 300-foot buffer zone.

Groundwater formation name (site name)	Location	Address	Depth Zone (upper-lower limit)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Boone (Tar Creek superfund site)	Sections 13, 14, 23, 24, 25, 26, 35, and 36 of T 29 N, R 22 EIM. Sections 13-36 of T 29 N, R 23 EIM. Sections 17-19, W 1/2 of Section 20, W 1/2 of Section 29, and Sections 30-32 of T 29 N, R 24 EIM. Section 1, E 1/2 of Section 2, E 1/2 of Section 11, Section 12, N 1/2 of Section 13, NE 1/4 of Section 14 all in T 28 N, R 22 EIM. Section 1, W 1/2 of Section 5, Section 6, Section 7, W 1/2 of Section 8, NW 1/4 of Section 17, N 1/2 of Section 18 all in T 28 N, R 23 EIM, W 1/2 of Section 5, Section 6 all in T 28 N, R 24 EIM.	Ottawa County	0-350 ft	2	•	•	•	DEQ Land Protection Division (see fact sheet on DEQ web for details under "ICs for the shallow ground water at the Tar Creek site")	"Toxic metals (lead, cadmium and arsenic) exceeding MCLs may be present in the Boone and shallow aquifer. Therefore special protective well construction is required through the Boone to obtain water for potable use from the deeper Roubidoux wells. For Boone wells, groundwater testing is required for toxic metals; and treatment is required to meet potable use standards when lead is greater than 15 ug/l, arsenic is greater than 10 ug/l, or cadmium is greater than 5 ug/l."

North-Central Oklahoma (Former Farmland Feedmill Site)	36.26 acres in SW/4 19, T22N, R6W	3013 South Van Buren Street, Enid, Garfield County, Oklahoma	0-30 ft depth of contamination not defined.	2	•	•	•	DEQ – Water Quality Division	Restriction on groundwater use due to nitrate contamination. Nitrate concentrations exceed drinking water standards. Therefore, drinking water wells should not be constructed in this area. See DEQ Water Quality Division for location details.
Vanoss Group (Hudson Refinery Superfund Site)	NE 1/4 of NW 1/4 of Section 4, T 17 N, R 5 EIM and SW 1/4 of Section 33, T 18 N, R 5 EIM	Payne County	18-168 ft	2	•	•	•	DEQ Land Protection Division	Deed restriction was filed with county prohibiting ground water use for any purpose due to hydrocarbon contamination. See DEQ-Land Protection Division or county clerk for location details.

<p>North-Central Oklahoma (Blackwell Zinc Company (BZC) Site)</p>	<p>Portions of Sections 14, 15, 16, 21, 22, 23, 26, 27 and 28 of T27N-R1W. It is generally located to the north and south between 500 ft. north of Doolin Avenue and Adams Avenue and to the west and east between 21<sup>st</sup> Street and 200 ft. east of Main Street</p>	<p>Kay County</p>	<p>0-40 ft.</p>	<p>2</p>	<p>•</p>	<p>•</p>	<p>•</p>	<p>DEQ Land Protection Division</p>	<p>City Ordinance No. 2801 prohibiting installation of ground water wells within the ground water protective area due to cadmium, and zinc contamination. Contact DEQ Land Protection Division or City for location details.</p>
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