

APPENDIX H. BENEFICIAL USE DESIGNATIONS FOR CERTAIN LIMITED AREAS OF GROUNDWATER

A. Within Oklahoma there are some bodies or areas of groundwater the quality of which is not suitable for the beneficial uses that are designated on a default basis in OAC 252:730-7-3(b). In most cases this unsuitability is caused by natural conditions or irreversible human-induced impacts such as pollution. Consequently, it is necessary to provide for beneficial use designations for these limited areas of groundwater which are more accurate and appropriate than the default designations in OAC 252:730-7-3(b). The absence of an area of a groundwater formation from this appendix does not indicate that area is free from contamination or has quality suitable for any beneficial use.

B. The groundwater formations or portions thereof that require special designations are identified in the tables that follow in this Appendix. The groundwater formations or units are identified by their name (e.g., "Garber Wellington") and legal description (e.g., "2-4, 9-11, 13-16 T2N R20W " denoting section(s), Township and Range). The area identified may be localized and not necessarily inclusive of the entire hydrogeologic basin or groundwater formation. The tables also set forth a general description of the physical location above the groundwater formation or unit for use as a general point of reference. The tables also set forth columns to show the groundwater classifications and beneficial uses which are designated for each identified area of groundwater. A "Depth Zone" also is indicated, to which the beneficial uses and "Remarks" listed in following columns are applicable.

C. Designations of beneficial uses for an identified groundwater formation or portion thereof are reflected in the tables by the presence of a dot ("•") in the columns to the right of the groundwater name and location. An empty space in a column means that column's beneficial use or subcategory thereof is not designated for that groundwater. Groundwater not identified in this Appendix is subject to the default designations detailed in OAC 252:730-7-3.

D. The state environmental agency that requested the groundwater formation or unit to be so identified and designated with certain beneficial uses and/or limitations is shown in the column headed "Agency". A specific division within that agency may also be listed. Questions relating to the quality of the groundwater found in any particular formation or unit, or concerns related to any comment in the "Remarks" column, should be addressed to the agency denoted in the "Agency" column.

E. The presence of any comment in the "Remarks" column denotes special circumstances which are applicable only to the groundwater formation or unit so identified. These comments may refer to certain constituents of the groundwater at that location, special well construction requirements, or other information deemed pertinent by the agency that requested this listing.

F. Definitions

"ACOG" means Association of Central Oklahoma Governments

"Corp Comm" means Oklahoma Corporation Commission

"DEQ" means Oklahoma Department of Environmental Quality

"SEP" means Supplemental Environmental Projects

"RCRA" means Resource Conservation and Recovery Act

"VCP" means Voluntary Cleanup Program

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Garber Wellington (Thunderhead Hills)	W 1/2 of W 1/2 of Section 20, T14N, R2W, IM; W 1/2 of NW 1/4 and NW 1/4 of SW 1/4 of Section 29, T14N, R2W, IM	Along and 1/4 mile east of Coltrane from Danforth Rd to Sherrywood Rd, Edmond, Oklahoma County	85-200 ft deep; 1/4 mile wide by at least 1 3/4 mile long	2		•		Corp Comm, Oil and Gas Div & ACOG	Brine plume moving south about 80 feet/year. Case/cement new wells through upper affected zone.
Garber Wellington (Double Eagle / 4 th St superfund site)	SE 1/4 of Section 35, T12N, R3W, IM and SW 1/4 of Section 36, T12N, R3W, IM	Oklahoma County	0-160	2		•	•	DEQ	Brine, chlorinated solvents and hydrocarbons. Special well construction required.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	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 T29N, R22E, IM. Sections 13-36 of T29N, R23E, IM. Sections 17-19, W 1/2 of Section 20, W 1/2 of Section 29, and Sections 30-32 of T29N, R24E, IM. 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 T28N, R22E, IM. 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 T28N, R23E, IM, W 1/2 of Section 5, Section 6 all in T28N, R24E, IM.	Ottawa County	0-350	2	•	•	•	DEQ	Toxic metals, special well construction required

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Quaternary Terrace (Kingfisher Wellhead Protection Area)	Section 33, SW 1/4 of Section 36 in T18N, R7W, IM. SW 1/4 of Section 1, NW 1/4 and S 1/2 of Section 2, N 1/2 of Section 3, N 1/2 of Section 4, NE 1/4 of Section 11, and Section 12 all in T17N, R7W, IM	Kingfisher County	0-100	1	•	•	•	DEQ	Zone 1 Wellhead Protection Area, no pollution sources
Southwestern Oklahoma (Altus AFB area)	Sections 34-36 in T3N, R20W, IM. Sections 1-3, Sections 10-15, and Sections 22-24 all in T2N, R20W, IM	North of US 62, eastern edge of City of Altus and entire AFB, Jackson County	0-60	3		•	•	OWRB	TCE and by-products, remediation activity in-place
Ogallala (Dobson Ranch)	One square acre within NW 1/4 of Section 17, T11N, R26W, IM	State Highway 152, approximately four miles west of Sweetwater, OK, Roger Mills County	0-20	2	•	•	•	DEQ - VCP	Restriction on groundwater use within the 1 square mile recorded on a deed notice due to Benzene contamination. See DEQ or county clerk for location details

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Quaternary Terrace Deposits - (Cornerstone Shopping Center)	SE 1/4 of Section 16, T12N, R4W, IM, Approx six (6) acres of WEST PARK ADDITION to Oklahoma County, Oklahoma.	3900 N. MacArthur Avenue, Oklahoma City, Oklahoma County, Oklahoma	0-22	2	•	•	•	DEQ - VCP	Tetrachloro-ethene - Deed restriction on file. See DEQ or county clerk for location details.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Alluvium & Terrace Deposits - (OKC Urban Renewal Phase I)	21.6 acres of the NW 1/4 of Section 3, T11N, R3W, IM	An area bounded to the South of Reno Avenue, East of the BNSF railroad tracks, North of Interstate 40/or its replacement street and west of a line extended from Stiles Avenue to Interstate 40/or its replacement street in Oklahoma City, Oklahoma County, Oklahoma.	0-30	2	•	•	•	DEQ - VCP	Deed restriction on groundwater use. See DEQ or county clerk for location details.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Coffeyville Formation (Compass Industries Landfill Superfund site)	SE 1/4 of NE 1/4 and NE 1/4 of SE 1/4 of Section 13, T19N, R11E, IM, and S 1/2 of NW 1/4 and N 1/2 of SW 1/4 of Section 18, T19N, R12E, IM	7600 W 26th St, Tulsa, Tulsa County, Oklahoma	0-105	2	•	•	•	DEQ-Superfund	Deed restriction on groundwater use for any purpose. See DEQ or county clerk for location details.
Weatherford Member of the Cloud Chief Formation & Rush Springs Sandstone Formation (Oklahoma Refining Company Superfund site)	S 1/2 of SW 1/4 of Section 18, T5N, R9W, IM and NW 1/4 of Section 19, T5N, R9W, IM, and NW 1/4 of Section 19, T5N, R9W, IM, and SE 1/4 of SE 1/4 of Section 13, T5N, R10W, IM and E 1/2 of NE 1/4 of NE 1/4 of Section 24, T5N, R10W, IM	South Baskett St, Cyril, Caddo County, Oklahoma	0-145	2	•	•	•	DEQ - Superfund	Deed restriction on disturbing landfill caps and on groundwater use for any purpose due to hydrocarbon contamination. See DEQ or county clerk for location details.
North Canadian Alluvium (Tenth Street Superfund site)	2.931 acres in the NW 1/4 of Section 31, T12N, R2W, IM	3200 NE 10th St Oklahoma City, Oklahoma County, Oklahoma	0-20		•	•	•	DEQ - Superfund	Deed restriction on drilling of any type of wells through the landfill cap or into the landfill. See DEQ or county clerk for location details.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
North Canadian Alluvium and Garber (Mosley Road Landfill Superfund site)	71.765 acres in NE 1/4 of Section 21, T12N, R2W, IM	Mosely Road Between NE 23 & NE 36 Oklahoma City, Oklahoma County, Oklahoma	0-150	2	•	•	•	DEQ - Superfund	Restriction on groundwater use for any purpose. See DEQ or county clerk for location details
Tallant Formation (Blackstar Performance)	SE 1/4 of Section 25, T20N, R8E, IM and NE 1/4 of Section 25, T20N, R8E, IM	East of Highway OK-48, about 4 miles north of Highway OK-51 intersection, in Terlton, Pawnee County, Oklahoma	0-30; depth of contamination not yet defined	2	•	•	•	DEQ - RCRA	1,1,1-Trichloroethane and 1,1-Dichloroethene Depth of contamination unknown, private wells to 200 feet are impacted. See DEQ for additional details.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
N. Canadian Terrace Deposits underlain by Hennesey Group (OKC Solvent Plume)	Approximately 80 acres in NE 1/4 of Section 27, T12N, R4W, IM and NW 1/4 of Section 27, T12N, R4W, IM	Between NW 23rd and NW 19th and N Meridian and Ann Arbor, Oklahoma City, Oklahoma County, Oklahoma	0-30; depth of contam ination not yet defined	2	•	•	•	DEQ -SEP	Tetrachloro-ethylene (max 1200 ppb) and Trichloro-ethylene (max 35 ppb). Plume not delineated; private wells impacted. See DEQ for details.
Garber-Wellington (Eagle Industries)	Approximately 6 acres in SE 1/4 of Section 7, T11N, R1W, IM	North of SE 29th & West of Westminister Road, Midwest City, Oklahoma County, Oklahoma	0-50; depth of contam ination not yet defined	2	•	•	•	DEQ - RCRA	Trichloro-ethylene (max 2280 ppb). Plume not delineated. See DEQ for details.
East Central Oklahoma bedrock	SE 1/4 of SE 1/4 of SE 1/4 of Section 5, T7N, R9E, IM	Hughes County	200; Aerial extent unkno wn	2	•	•	•	Corp. Comm. O & G Division	Brine affecting aquifer. Disposal well offsetting old (now plugged) oil well was the most likely conduit.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag M&I	Agency	Remarks
Garber-Wellington Sandstone Formation	NW 1/4 of SE 1/4 of Section 1, T9N, R2E, IM	Pottawatomie County	160- 200 ft; 20 acres	2	•	•	Corp. Comm. O & G Division	Brine affecting aquifer. Now plugged disposal well was the most likely source.
Rush Springs Sandstone, Marlow Formation. (Cyril Plume)	Portions of Sections 1 and 12 in T5N, R10W, IM and Sections 6 and 7 in T5N, R9W, IM and Section 36, T6N, R10, WIM and Section 31, T6N, R9W, IM	2-3 miles north of Cyril, Caddo County.	Up to 450 ft deep; some saline ground- water dischar ge into Little Washit a River tributar ies. ~960 acre plume	2	•	•	Corp Comm, Oil and Gas Div	~960 acre plume moving S-SW @ 90'/year; 30 year monitoring program started in 1999. Cyril municipal wells affected were abandoned.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Blaine (Drummond Flats)	NE 1/4 of Section 33, T22N, R8W, IM	From NE corner of Drummond 4 miles north, 1 west, 1 south and 3/8 west. Near Turkey creek.	20-50 ft in affecte d wells.	2	•	•	•	Corp Comm, Oil and Gas Div	Drummond Flats, water has historical contamination.
Terrace Deposits (Drummond Flats)	SW 1/4 of Section 12, T21N, R9W, IM	From Ames, 1/2 mile east, 4 miles north, 3 3/4 east, north into site.	About 40 ft in affecte d wells.	2	•	•	•	Corp Comm, Oil and Gas Div	Drummond Flats, water has historical contamination.
Arkansas River Alluvium (Sand Springs Petrochemical Superfund Site)	W 1/2 of NW 1/4 of Section 13, T19N, R11E, IM and NE 1/4 of Section 14, T19N, R11E, IM	Tulsa County	0-37	2		•	•	DEQ Land Protection Division	Metals, VOC, Special Well Construction Required.
Vamoosa, Tallant, and Barnsdall Formations (Kwikset)	Part of SE 1/4 of NE 1/4 Section 31, T16N, R9E, IM	1201 South Maple Street, Bristow, Creek County	0-60	2	•	•	•	DEQ, Land Protection Division	Property has restrictions on groundwater and land use. Groundwater is contaminated with VOCs. See DEQ-Land Protection Division or county clerk for details.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Savanna and McAlester Formations and Arkansas River Alluvium and Terrace Deposits (Fansteel Metals, a/k/a FMRI)	Part E 1/2 of SE 1/4 Section 17, T15N, R19E, IM; SE 1/4 of SE 1/4 of NE 1/4 Section 17, T15N, R19E, IM; part of W 1/2 of SW 1/4 Section 16, T15N, R19E, IM; S 1/2 of SW 1/4 of NW 1/4 Section 16, T15N, R19E, IM	10 Tantalum Place, Muskogee, Muskogee County	0-40	2	•	•	•	DEQ, Land Protection Division	Trichloroethylene contamination above USEPA MCL of 5-µg/L in Section 17; Uranium contamination above USEPA MCL of 30 µg/L in Section 16. Property in Section 16 and part of S 1/2 of SE 1/4 of SE 1/4 of Section 17 is also under Nuclear Regulatory Commission License SMB-911.
Garber-Wellington and Cimarron River Alluvium (Cimarron Environmental Trust Site, formerly KerrMcGee)	Part of N 1/2 Section 12, T16N R4W, IM; Part of S 1/2 of S 1/2 Section 1, T16N, R4W, IM	100 N US Hwy 74, Guthrie, Logan County	0-80	2	•	•	•	DEQ, Land Protection Division	Uranium, Nitrates and Fluoride contamination are present above USEPA MCLs of 30 µg/L (Uranium), 10 mg/L(Nitrate as N) and 4 mg/L (Fluoride). Site is subject to Nuclear Regulatory Commission License SNM-0928.
Vamoosa-Ada Aquifer and overlying Unconsolidated Materials (Cleveland, KerrMcGee Refinery)	NE 1/4 Section 18, T21N, R8E, IM; E 1/2 of E 1/2 of NW 1/4 Section 18, T21N, R8E, IM	Southwest of Cleveland, Pawnee County	0-60	2	•	•	•	DEQ, Land Protection Division	Benzene, Toluene, Xylenes, Benzo(a) Pyrene, Arsenic, and Lead are present above USEPA MCLs; Light Non-Aqueous-Phase Liquids (LNAPL) present on-site

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Terrace Deposits, Upper and Lower Vanoss (Cushing KerrMcGee Refinery)	Part of S 1/2 Section 22, T18N, R5E, IM; NE 1/4 Section 27, T18N, R5E, IM; SW 1/4 Section 23, T18N, R5E, IM	North of Cushing, Payne County	0-80	2	•	•	•	DEQ, Land Protection Division	No use of groundwater other than for monitoring purposes. Groundwater contamination includes hydrocarbons, sulfate, acid, and metals. See DEQ-Land Protection Division or county clerk for details.
Garber Wellington (Duncan Refinery)	Part of Section 32, T1S, R7W, IM; N 1/2 Section 5, T2S, R7W, IM; SW 1/4 of NW 1/4 of NW 1/4 Section 4, T2S, R7W, IM	South of Duncan, Stephens County	14-40	2	•	•	•	DEQ, Land Protection Division	No use of groundwater other than for monitoring purposes. Groundwater contamination includes: Light Non-Aqueous-Phase Liquids (LNAPL), VOCs, SVOCs, Metals. See DEQ-Land Protection Division or county clerk for details.
Enid Isolated Terrace Aquifer (Former Champlin Refinery)	Sections 3 and 4, T22N, R6W, IM; S 1/2 of SE 1/4 Section 33, T23N, R6W, IM	2529 E. Willow Road, Enid, OK, Garfield County	0-55	2	•	•	•	DEQ, Land Protection Division	Benzene contamination above USEPA MCL of 5 µg/L

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Alluvium and Terrace Deposits (Former Okmulgee Refinery)	Parts of SE 1/4 Section 31, T14N, R13E, IM; W 1/2 of NE 1/4 Section 6, T13N, R13E, IM; E 1/2 of E1/2 of NW 1/4 Section 6, T13N, R13E, IM	North of Okmulgee, Okmulgee County	0-40	2	•	•	•	DEQ, Land Protection Division	No use of groundwater other than for monitoring purposes and no drilling of groundwater well for domestic consumption, irrigation, or industrial purposes. See DEQ-Land Protection Division or county clerk for details.
Garber Sandstone - Central Oklahoma Aquifer (Boulevard Market Cleaners, Weingarten Nostat, Inc)	Parts of S 1/2, S 1/2, SE 1/4 Section 35, T12N, R2W, IM	101 N. Douglas Voulevard, Midwest City, Oklahoma County	0-65	2	•	•	•	DEQ, Land Protection Division	Groundwater contamination includes VOCs. See DEQ-Land Protection Division for details.
Poteau River Alluvium and Terrace Deposits (Former Rab Valley Wood Preserving Site)	Parts of SW 1/4 Section 15, T8N, R25E, IM and E 1/2 of NE 1/4 of SE 1/4 Section 16, T8N, R25E, IM	Tecumseh St., Panama, OK 74951	0-40	2	•	•	•	DEQ, Land Protection Division	No on-site groundwater use except for monitoring purposes due to NAPL, VOC, and SVOC contamination. See DEQ or county clerk for details.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Vanoss Group (Hudson Refinery Superfund site)	NE 1/4 of NW 1/4 of Section 4, T17N, R5E, IM and SW 1/4 of Section 33, T18N, R5E, IM	Payne County	18-168	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 (405-702-5100) or county clerk for location details.
North-Central Oklahoma (Blackwell Zinc Company ("BZC") site)	Portions of Sections 14, 15, 16, 21, 22, 23, 26, 27 and 28 of T27N, R1W, IM. Generally located to the north and south between 500 ft. north of Doolin Avenue and Adams Avenue and to the east and west between 21st Street and 200 ft. east of main Street, City of Blackwell.	Kay County	0-40	2	•	•	•	DEQ, Land Protection Division	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 (405-702-5100) or city for location details.

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
North-Central Oklahoma (Former Farmland Feedmill site)	36.26 acres in SW 1/4. Section 19, T22N, R6W, IM	3013 South Van Buren Street, Enid, Garfield County, Oklahoma	0-30; depth of contamination not defined	2	•	•	•	DEQ, Water Quality Division	Restriction on groundwater use due to nitrate contamination. Nitrate concentrations exceed drinking water standards. Drinking water wells should not be constructed in this area. See DEQ Water Quality Division for location details.
Atoka and Overlying Alluvium (Sequoyah Fuels Corporation)	Section 21, T12N, R21E, IM	Sequoyah County	0-100	2	•	•	•	DEQ, Land Protection Division	Uranium, Nitrates, and Arsenic contamination are present above USEPA MCLs of 30 µg/L (Uranium), 10 mg/L (Nitrate as N) and 10 µg/L (Arsenic). Site is subject to Nuclear Regulatory Commission License SUB-1010

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag	M&I	Agency	Remarks
Duncan Sandstone (Osage Road Site Plume)	Portions of Sections 8, 9, 16, and 17 in T1N, R7W, IM as follows: 8-1N-7W, SW/4 SW/4; 9-1N-7W, NE/4 NE/4; 17-1-7W, NW; 16-1N-7W	605 West Osage Road, Duncan, Oklahoma, Stephens County	25 up to 200	2	•	•	•	DEQ, Land Protection Division	Approximately 275-acre perchlorate groundwater plume. Partial coverage of deed restrictions on groundwater use. Groundwater remediation is in progress and public water connection is available. Drinking water wells should not be constructed in this area. Contact DEQ Land Protection Division for location details (405-702-5100).

Groundwater formation name (Site name)	Location	Address	Depth Zone (upper- lower limit) feet (ft)	Class* (1-4)	Water Supply	Ag M&I	Agency	Remarks
Boone and Roubidoux Aquifers (Tar Creek Superfund Site)	Sections 13, 14, 23, 24, 25, 26, 35, and 36 of T29N, R22E, IM. Sections 13-36 of T29N, R23E, IM. Sections 17-19, W 1/2 of Section 20, W 1/2 of Section 29, and Sections 30-32 of T29N, R24E, IM. 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 T28N, R22E, IM. 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 T28N, R23E, IM, W 1/2 of Section 5, Section 6 all in T28N, R24E, IM.	Ottawa County	0-350 (Boone) & 500-1500 (Roubidoux Aquifer)	2	•	•	DEQ, Land Protection Division	Boone Aquifer is impacted by former mining activities and may contain toxic metals. For Boone wells, groundwater testing is recommended and treatment is required if lead or arsenic are ≥ 10 µg/L, or if cadmium is ≥ 5 µg/L. For Roubidoux wells, special protective well construction is required to entirely case off the Boone Aquifer. Follow OWRB (785:35-7-1) and DEQ (252:626-7-4) construction standards. See Special Well Construction Fact Sheet on DEQ's Tar Creek webpage for recommendations.