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- 3. A typical trench section showing depth of cover and bedding material; and
- d. Elevation contours at not less than 5 foot intervals; and
- (4) For campgrounds and other transient non-community water systems which have water distribution piping systems, a water distribution system plan.

Source. (See Revision Note at part heading for Env-Dw 406) #10613, eff 6-1-14

Env-Dw 406.08 Design Flow.

(a) Subject to (b), below, anticipated design flows for a proposed non-community water system, based on the type of use, shall be as determined in Table 406-1 below:

Type of Use	Design Flow
Institutions other than hospitals	135 gpd per bed
Golf Club	20 gpd per locker
Bed & Breakfast	60 gpd per bedroom
Shopping center/stores	5 gpd per 100 square feet (sq.ft.)
Hospitals	200 gpd per bed
Campground with 3-way hook-up	90 gpd per site
Campground with central comfort station	75 gpd per site
Motel/Hotel	50 gpd per person, calculated at 4 persons per room
School with gym and cafeteria	25 gpd per student
Factory - sanitary use only	20 gpd per worker
Restaurant	40 gpd per seat
Lounge	20 gpd per seat
Office space	15 gpd per person or 15 gpd/100 sq. ft.

Table 406-1: Anticipated Design Flows

- (b) If the specific type of use is not listed above, the design flow shall be determined in accordance with Env-Wq 1008.
- (c) For non-community water systems that are being expanded or upgraded, the design flow shall be determined either in accordance with (a) and (b), above, or by using historical water readings in accordance with one of the following:
 - (1) By finding the daily average flow from water meter readings and multiplying the average by a minimum factor of 2 or a maximum factor of 3 depending on the type or frequency of the meter readings; or
 - (2) By examining 12 months of consecutive daily water meter readings, in which case, the water system's design flow shall be based on the highest daily flow noted, without application of a multiplying factor.
- (d) Since the design flows contained in Table 406-1 and Env-Wq 1008 do not include exterior water use, for those water systems where watering lawns and gardens, filling swimming pools, or other high water use demands are expected, the total design flow for the water system shall be increased accordingly.

Source. (See Revision Note at part heading for Env-Dw 406) #10613, eff 6-1-14

Env-Dw 406.09 Acceptable Sources of Water Supply.

(a) Surface water shall not be used as a source by any non-community water system.

- (b) Where the residential-equivalent units exceed 45, a minimum of 2 wells shall be required.
- (c) If connection to a municipal water system is proposed, the applicant shall submit a letter of confirmation to the department from the supplying water system owner which states that:
 - (1) Adequate quantities of water are available to serve the proposed water system; and
 - (2) With the proposed water system on line, adequate system pressures will be maintained.
 - (d) Design criteria for municipal water system piping extensions shall be as specified in Env-Dw 404.

Source. (See Revision Note at part heading for Env-Dw 406) #10613, eff 6-1-14

Env-Dw 406.10 Required Source Capacity.

- (a) The required minimum total source capacity for non-community water systems shall be not less than 1.5 times the design flow for the water system based on a 24-hour day.
- (b) Since the design flows contained in Table 406-1 and Env-Wq 1008 do not include exterior water use, for those water systems where watering lawns and gardens, filling swimming pools, or other high water use demands are to be expected, additional source capacity for these uses shall be provided.
- (c) For those NTNC water systems whose reliability is directly important to public health as outlined in Env-Dw 406.02(c) that are required to have 2 or more wells, the minimum total permitted production volume with the largest source out of service shall be equal to or greater than 50% of the system's design flow.

Source. (See Revision Note at part heading for Env-Dw 406) #10613, eff 6-1-14

Env-Dw 406.11 Well Location.

- (a) Non-community water system wells shall be located at least 50 feet from surface waters, wetlands, and natural drainage ways.
- (b) The wellhead shall be above the 100-year flood level, provided, however, that where wells must be located within a floodway, the area immediately surrounding the well and pump house shall be built up above the 100-year flood elevation.
- (c) Non-community water system wells shall be kept at least 50 feet from the edge of road right-of-ways, driveways, and parking areas to minimize contamination from de-icing salts.

Source. (See Revision Note at part heading for Env-Dw 406) #10613, eff 6-1-14

Env-Dw 406.12 Sanitary Protective Area and Permitted Production Volume for Groundwater Sources

- (a) To protect the long-term quality of each public water system, a sanitary protective area shall be established around each groundwater source and a permitted production volume shall be assigned to the source based on the size of the sanitary protective area established. The sanitary protective area shall be a circle with a specified radius, centered on the well.
- (b) The permitted production volume shall not be greater than the source capacity based on a 24 hour period defined by the pumping test in accordance with Env-Dw 406.13 or the well driller's well completion report.
- (c) The sanitary protective area, based on the permitted production volume established by the system, shall be as shown in Table 406-2 below.

Table 406-2: Sanitary Protective Area

Permitted Production Volume (gpd)	Sanitary Protective Radius Length (ft.)
0 - 750	75
751 - 1440	100
1441 - 4320	125
4321 - 14,400	150
14,401 - 28,800	175
28,801 - 57,600	200
57,601 - 86,400	250
86,401 - 115,200	300
115,201 - 144,000	350
Greater than 144,000	400

- (d) When more than one well is inside another well's sanitary protective area, then the individual sanitary protective areas for the wells shall be based on their combined permitted production volume unless the applicant demonstrates through hydrogeological means that these wells are not interconnected.
- (e) The following land uses shall be specifically excluded from within the sanitary protective areas of non-community water systems:
 - (1) Wastewater disposal systems, including septic tanks, grease traps, and effluent disposal areas;
 - (2) Soil fertilization areas;
 - (3) Nitrate set-back areas:
 - (4) Dumpsters;
 - (5) Detention ponds or infiltration basins;
 - (6) Storage tanks for oil, gasoline, propane, or natural gas, or other hazardous chemicals; and
 - (7) Any uses associated with hazardous materials.
- (f) Acceptable uses of the sanitary protective area for non-community water systems shall include those uses listed below:
 - (1) Roadways, with the exception of the required setback in Env-Dw 406.11(c);
 - (2) Parking lots, with the exception of the required setback in Env-Dw 406.11(c);
 - (3) Tennis courts;
 - (4) Surface water such as lakes, rivers, and streams;
 - (5) Permanently protected or undevelopable land;
 - (6) Wastewater piping which passes within the sanitary protective area only if:
 - a. The type of pipe is ductile iron or approved equal pressure-type pipe that is tested for water-tight construction after installation; and
 - b. All wastewater piping is located a minimum distance of the greater of 50 feet or a distance equal to at least one-half the total amount of the well radius length from the well;
 - (7) Pump house and permanent buildings; and

- (8) Other compatible uses proposed in writing to the department by the water system owner if the submittal demonstrates that:
 - a. The type(s) and volume(s) of contaminant(s) associated with the activity, when subject to any best management practices proposed by the owner, will not pose a threat to water quality;
 - b. The owner has a contaminant mitigation plan that will prevent the contaminant(s) from rendering the water unfit for use by the water system; and
 - c. The overall risk of groundwater contamination is outweighed by the benefit expected from the activity.
- (g) The NTNC water system's potential for future waivers from a portion of its chemical monitoring requirements shall be diminished by the location of buildings, roadways, parking lots, and other such construction within the well's protective radius.
- (h) For non-community water systems, the water system owner shall control the sanitary protective area. The water system owner shall, where possible, locate the well and sanitary protective area entirely on the property owned by the water system. Once established, the sanitary protective area shall not be subdivided. Where the sanitary protective area cannot be located fully on the property owned by the water system, written legal easements from abutters shall be obtained. Such easements shall specifically exclude the uses described in (e), above, from the area within the sanitary protective area.

Source. (See Revision Note at part heading for Env-Dw 406) #10613, eff 6-1-14

Env-Dw 406.13 Pumping Tests.

- (a) For all non-community water systems having a design capacity of 13,500 gpd or greater, the water system owner shall demonstrate adequate source capacity by a sustained 48-hour pumping test at a constant rate before final plans can be approved. The pumping test shall demonstrate stabilized drawdown for at least the last 12 hours of the test. Stabilization is defined as a drawdown of less than one inch in 2 hours. If stabilization is not achieved, the pumping test shall continue and the department shall be contacted.
- (b) The water system owner shall submit data documenting the pumping test on a pumping test log sheet that includes the following items:
 - (1) Well depth, in feet;
 - (2) The date of the pumping test;
 - (3) The pumping rate, in gallons per minute (gpm);
 - (4) The level of water in the well prior to pumping in feet below top of casing;
 - (5) The drawdown level during pumping, in feet below top of casing; and
 - (6) The time the test was initiated and concluded and the total hours of the test.
- (c) Each log sheet shall be identified by project name, well number or name, location, and submittal date.
- (d) Readings for water level and pumping rate shall be taken at least every hour so long as the change in drawdown exceeds 2 feet per hour. Thereafter, readings may be taken at appropriate intervals not to exceed 4 hours. Readings shall be direct measurements and not inferred from pump curves or other inferential methods.
 - (e) Where wells are within 150 feet of each other, the pumping tests shall be run simultaneously.

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