

DATE: July 6, 1999, April 7, 2004, **Revised April 30, 2008**

TO: Office of Drinking Water Staff

FROM: J. Wesley Kleene, Ph.D., P.E., Director
Office of Drinking Water

SUBJECT: Permits & Project Review – Well Development

RELATED: WM 784 (Permit Application Process),
WM 824 (SDWIS Data Reports and Retrieval Program),
~~WM 879 (Construction Permits and Processing of Reports, Plans and Specifications);~~

SUMMARY STATEMENT:

This memo provides ODW staff with the procedures for processing a well development request, siting a well, development of a well, and approval or rejection of a proposed well. A new document is created which offers information on methods, materials, and procedures in the construction and development of a well to waterworks owners.

Revision Highlights:

Converts and revises Enclosures 1 (Well Site Inspection Form), and Enclosure 3 (Well Site Approval Letter). Revises and reformats Enclosure 2 (Construction of Public Water Supply Wells Information Package) into a new public document for distribution and web posting. Enclosure 4 (Ordering well development Sample Containers) has been eliminated.

This revision adds a new Well Development Activity Checklist, and clarifies the procedure for approving wells located in the Coastal Plain and Groundwater Management Areas.

Sampling and testing procedures for Groundwater Under the Direct Influence of Surface Water (GUDI) determinations are specifically excluded.

The following attachments are referenced in this memo and are posted separately on Y:\03-Memos\301-Active Working Memos\301.02-Forms Letters Manuals:

1. Well Development Activity Checklist
2. Handbook for Developing a Public Water Supply Well
3. Well Site Inspection Form
4. Well Site Approval Letter

I. APPROVAL PROCEDURE

The well approval process is usually initiated when ODW is contacted by the owner of a proposed or existing waterworks about developing a new groundwater source for a public water system. The owner should be directed to the District Engineer initially, and a Preliminary Engineering Conference conducted if the source is for a proposed (new) waterworks. Refer to 12 VAC 5-590-280- Procedure for obtaining a construction permit for well sources and WM 784 for further information on the permit application process and the Preliminary Engineering Conference.

ODW must emphasize to the owner that selection of the best possible water source is our goal. After the meeting with the owner, an inspection of the well site is scheduled by ODW and the owner (or owner's agent.) ODW should receive sufficient information about the proposed well sites *prior* to going out into the field for a well site inspection.

The Well Development Activity Checklist (Attachment 1) should be used by ODW to track the well development process. A copy of this checklist should also be provided to the owner during the preliminary meeting, along with the Handbook for Developing a Public Water Supply Well (Attachment 2).

II. WELL SITE INSPECTION

ODW staff will perform a well site inspection with the owner or owner's agent. Staff will approve selected sites when they do not present a potential threat to public health, after reviewing the available topography, surrounding land use activities, and nearby potential sources of contamination. ODW may suggest an alternative if the well lot is encroaching on any limiting factor (i.e. property line, existing well, easement, etc.). In addition, ODW should inform the owner of well lot building restrictions, and possible restrictions to future property development adjacent to the well lot (to maintain setback requirements to a drainfield, for example). Refer to the Regulations, 12 VAC5-590-660 Site location, -820 General, and -840 Groundwater Sources, for specific well site requirements.

During the inspection ODW staff should:

- Obtain GPS coordinates of the proposed well site(s),
- Develop a well site sketch highlighting distances and any significant boundaries,
- Identify the proposed site(s) on a topographical map,
- Physically mark the proposed well site and the boundaries of the proposed well lot if possible to prevent confusion about these locations,
- Photograph the site in a manner that the markings are clearly visible in relationship to obvious landmarks.

When the well site is located on a proposed land development project which includes industrial, commercial or domestic facilities with on-site storage, processing or disposal of contaminants or waste, ODW may require the owner to provide a site plan identifying such facilities prior to performing the well site inspection. Setbacks substantially greater than the 50 feet minimum may be required from chemical storage areas, waste lagoons, mass drainfields and other facilities which pose an extraordinary risk to the well.

Use the Well Site Inspection Form provided in Attachment 3 to document the information collected at the inspection.

III. WELL SITE APPROVAL / REJECTION

ODW staff will review the well site information and sketches and issue an approval letter if the well site is acceptable. As described in the *Regulations*, this is a “tentative approval...authorizing him (*the owner*) to proceed with drilling of the well...” Well site approvals shall be limited to a 12 month period, starting from the date of the tentative approval letter up to the start of well drilling. Use the Approval Letter template provided in Attachment 4, customizing the letter as appropriate for the proposed well.

If, after a thorough evaluation, no suitable well site can be identified, the owner should be notified as soon as possible verbally, and by a written letter rejecting the proposed sites investigated. This notification should request a preliminary engineering conference with the owner and engineer to discuss water supply alternatives.

IV. WELL YIELD AND DRAWDOWN TESTING

As stated in the *Regulations* 12VAC5-590-840.B.6.: “The yield and drawdown test data over a 48-hour minimum period shall be provided; however, in those areas where geologic conditions warrant, the required test period may be varied by the division.” 12VAC5-590-1250.B of the *Regulations* specifically allows noncommunity systems with source requirements less than 3 gpm the option of reducing the 48-hour minimum drawdown test period, with a limit of not less than 8 hours. Caution should be used when reducing the test period, particularly in locations designated (currently or under consideration) as Groundwater Management Areas. Refer to the following section for further information.

V. WELLS IN GROUNDWATER MANAGEMENT AREAS

If the waterworks is located in a Groundwater Management Area, then the Department of Environmental Quality (DEQ) may require the waterworks owner to secure a Groundwater Withdrawal Permit. Further information regarding groundwater management in Virginia and DEQ’s permit program can be found at: <http://www.deq.virginia.gov/gwpermitting/>.

If a groundwater withdrawal permit is required, ODW staff should encourage the waterworks owner to obtain a draft permit from DEQ prior to constructing the well. This is critical because DEQ may specify well construction features that VDH would not otherwise require (to restrict withdrawal from one or more aquifers, for example). However, ODW should not delay issuance of the waterworks’ construction permit if DEQ has not completed their evaluation. Note that DEQ’s Regulations require a Waterworks Operation Permit prior to issuance of a final Groundwater Withdrawal Permit.

The *Waterworks Regulations* specify a well yield test designed to ascertain the capacity of the well; DEQ requires a more elaborate aquifer test plan (usually the subject well and neighboring wells) to test the capacity of the aquifer. ODW should work with DEQ on the test plan so that their testing results may be used by ODW to establish the well source capacity, and not require a separate well yield and drawdown test. The Well Site Approval Letter template contains language to clearly convey these additional requirements for wells in Groundwater Management Areas to the owner, prior to well construction and testing.

VI. RAW WATER SOURCE DEVELOPMENT SAMPLING & TESTING

All new wells, regardless of waterworks type (community, NTNC or TNC), must test for *all* of the parameters listed in the *Waterworks Regulations* Part II, Article 1. Drinking Water Standards, including:

- Inorganic Chemicals
- Volatile Organic Chemicals (VOCs)

- Synthetic Organic Chemicals (SOCs)¹
- Physical Quality (color, odor, pH, TDS, turbidity)
- Radiological (gross alpha, combined Radium 226 and 228, Uranium)

All groundwater sources shall be tested in order to enable a determination of Groundwater Under the Direct Influence of Surface Water (GUDI). The sampling and testing protocol for making this determination is given in a separate guidance document.

Procedures for ordering development sample test kits from DCLS are given in WM 824. Care should be used when recommending specific sampling test kits, since these are subject to change and may exclude one or more parameters of a class listed in the *Regulations*.

VII. WELL CONSTRUCTION AND DESIGN EXCEPTIONS

Compliance with the minimum construction requirements specified in 12 VAC 5-590-840 of *Manual of Practice for Waterworks Design* (Part III of the *Regulations*) is required for wells. Specific emphasis on casing pipe and grouting requirements should be brought to the owner's attention, since these differ from Virginia Department of Health standards for private wells.

END OF MEMO

¹ If the well is found to be susceptible to contamination by SOC's during the site visit, then development samples for SOC's listed in the *Regulations* will be required. Otherwise, a waiver may be issued for some or all of the SOC parameters. Waiver decisions must be documented in the Well Site Inspection form.