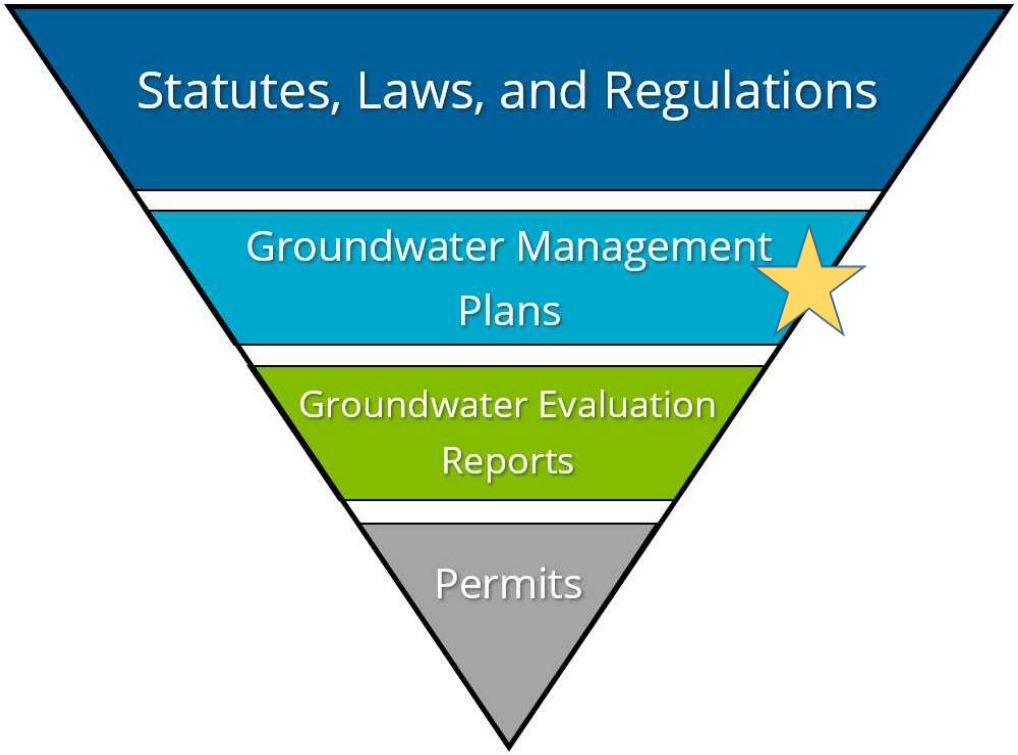
Santee-Lynches Capacity Use Area Groundwater Management Plan

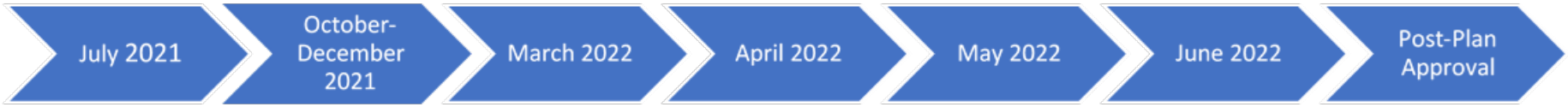
South Carolina Department of Health and Environmental Control

Healthy People. Healthy Communities.

Agenda

- Welcome
- Response to survey
- Water level trends
- Break
- Strategies discussion
- Implementation
- Lunch





DHEC Board Designation of Santee-Lynches Capacity Use Area	Stakeholder Planning & workgroup	Public Information and Comments	Publish in State Registrar	Public Comments from State Registrar	Proposed DHEC Board Review of Plan	Implement Program & Permitting consistent with the Plan
		Opportunity for Comments			Public Hearing	

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Well Status Unused or Decommissioned

- " Abandoned well " means a well where the pump has been disconnected for reasons other than repair or replacement and whose use has been discontinued for a period of one year or has been pronounced as abandoned by the owner or operator.
- "… wells have been abandoned and no longer put to beneficial use and are deemed by the Department to have an unreasonable adverse effect…"
- Abandoned by a SC certified well driller and 1903 submitted.

Break

Strategies Tabletop Discussion

Strategy #1: Identify areas where a leveling &/or reduction in pumping is appropriate.

Strategy #2: Review of permit applications based on demonstrated reasonable use.

Strategy #3: Establish a comprehensive groundwater monitoring program.

Strategy #4: Establish a conservation educational plan for the general public and existing groundwater withdrawers.

Strategy #5: Regulation and Planning.

Strategy #6: Establish a plan for continual stakeholder engagement and awareness of groundwater development

Who Needs a Permit?

- Anyone who withdraws **>3 million gallons** of water in any given month
- Currently, those withdrawing >3 million gallons in a month ***should*** be registered and reporting water use in the Santee-Lynches Region
- Those who have been previously registered, prior to designation, will be issued a permit after the approval of the Groundwater Management Plan
- New withdrawers, or those not previously registered, can apply for a permit now
  - Permits can be issued now, and will be reviewed to be consistent with the GWMP after approval

Well Permitting

Existing Registered

- Reporting water use, or register and under the limit

Existing Nonregistered

- Not reporting water use or not meeting threshold

Proposed Wells Before July 15

- Groundwater NOI (not private well NOI)
  - No public Notice

Proposed Wells After July 15

- Permit
  - Public notice Required

Permitting Process

1. An application and required documentation is submitted to the Department by a potential groundwater withdrawer
2. Department reviews application for completeness
3. Department performs a technical review of permit
4. All new and modified permits are Public Noticed
5. A Permit to Construct is issued if new wells are requested to be installed
   - Is not a Permit to Withdraw, only authorized construction of the well(s)
6. Permit to Withdraw is issued
   - If a new well was installed, the Department requires well records be submitted prior to issuance of a permit

Groundwater Withdrawal Permit Application
Bureau of Water

A. General Information.

1. Facility Name:

2. Facility Owner:	7. Contact:
3. Facility Address: City: State: Zip:	8. Contact Address: City: State: Zip:
4. Facility Telephone Number:	9. Contact Telephone Number:
5. Facility Fax Number:	10. Contact Fax Number:
6. Owner E-mail Address:	11. Contact E-mail Address:

12. Type of Application: ☐ New ☐ Modification ☐ Renewal

13. Total Requested Withdrawal Rates.

A. Million Gallons per Month: B. Million Gallons per Year:

14. Purpose of Groundwater Withdrawal: (please indicate number of wells beside description which best applies, total below should equal total number of wells owned).

Aquaculture (AQ)	Number:	Agricultural Irrigation (IR)	Number:
Golf Course Irrigation (GC)	Number:	Other (OT)	Number:
Industrial (IN)	Number:	Water Supply (WS)	Number:

15. **Road map of Facility must be included for application review** (please make sure all roads leading to the site entrance are labeled). ☐

16. **Site map of all wells labeled for the facility must be included for application review** (wells for agricultural irrigation must indicate fields to be irrigated as well as the size of each field, and crop to be grown). ☐

17. **Describe all groundwater conservation practices in use, or to be in use, including Best Management Practices.** (These include, but are not limited to, highly efficient equipment, wetting agents, other water sources, groundwater recycling, withdrawing from alternate aquifer, equipment maintenance.)

18. Complete the following table for proposed wells.

Well ID	Latitude	Longitude	Depth	Screened/Open Interval	Est. Yield (In GPM)	Flow Measurement Method
1)						
2)						
3)						
4)						
5)						
6)						
7)						
8)						

19. Complete the following table for *all* wells. Use abbreviations provided on previous page for Type of Use.

Well ID	Type of Use	Max. monthly withdrawal rate (in million gallons)	Max. yearly withdrawal rate (in million gallons)
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			
16)			
17)			
18)			

20. Please complete the following table for all other sources of water.

Owner ID - Purchased, Effluent, or Surface Water	Type of Use	Million Gallons per Month	Million Gallons per Year

B. Agricultural Irrigation.

	Field / Course ID	Vegetation	Acres
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
		Total Acres Irrigated:	

2. Groundwater Requirements.

	Crop	Length of Growing Season (wks)	Water Requirement (in)
1)			
2)			
3)			
4)			
5)			
6)			
7)			

C. Industry.

1. Describe your operation, including the types of products produced, and the uses for groundwater in the industrial process. Please include reason to use groundwater rather than alternative sources of water.

2. Please Estimate to the best of your ability the volume of groundwater to be withdrawn and used for each industrial process. i.e. If you have 3 seperate cooling processes, please list them seperately by a known name such as 1,2,3, etc.

Process ID	Million Gallons per Month	Million Gallons per Year
Processing:		
Cleaning:		
Cooling:		

D. Golf Course.

1. Number of acres irrigated:

2. Type of grass on course:

3. Are there any groundwater alternatives available?

General Water Use Calculation

Agriculture and Golf Course Irrigation

$$\frac{27{,}154 \text{ gallons}}{\text{acre} \cdot \text{inch}} \times \frac{1.5 \text{ inches}}{\text{week}} \times \frac{18 \text{ weeks}}{\text{year}} = \frac{73{,}158 \text{ gallons}}{\text{acre} \cdot \text{year}}$$

Water Supply

$$\text{Population} \times \frac{100 \text{ gallons}}{\text{day}} \times 365 \text{ days} = X \text{ gallons}$$

Industry and Power vary by size and operation and are based off similar industry standards.

Reasonable use table

Water Use Type	General Reasonable Use Guidelines
Aquaculture (AQ)	• Size of operation (acreage) • Depth of holding ponds, lagoons, or lakes • Refill rates
Golf Course (GC)	• Based on current systematic and industry-based standards • Application rates • Acreage irrigated • Duration of irrigation
Industry (IN)	• Based on current systematic and industry-based standards • Variable based on size and type of industry
Irrigation (IR)	• Based on current systematic and industry-based standards • Crop type • Irrigation method • Acreage irrigated • Duration of irrigation • Stress period buffering
Mining (MI)	• Based on current systematic and industry-based standards • Variable based on size and type of industry
Hydro Power (PH)	• N/A
Thermo Power (PT)	• Based on current systematic and industry-based standards • Availability of alternative water sources
Nuclear Power (PN)	• Based on current systematic and industry-based standards
Water Supply (WS)	• Based on current systematic and industry-based standards • Population served • Per capita use
Other (OT)	• Variable based on size and type of operation • Department approved Corrective Action Plans

E. Public Water Supply.

1. Current number of customers served:

2. Current number of taps:

3. Amount of water sold to other entities (i.e. public water supply, industry, etc.):

Entity	Amount of Water Sold (million gallons)
1)	
2)	
3)	
4)	
5)	
6)	
7)	
8)	

F. Signature.

I hereby certify the information enclosed is true, complete, and that conservation measures will be researched and enacted when economically feasible.

Printed/Typed Name | Title

Personal information provided on this document is subject to public scrutiny or release.

Signature | Date (MM/DD/YYYY)

An application guideline, permitting process outline, and a brief summary of the Groundwater Use and Reporting Act is included with this application. The Groundwater Use and Reporting Act summary provides the owner with a brief description of the laws that govern this application. The guideline is provided to help the applicant correctly complete the application. The outline provides a list of steps to be completed by the applicant and the Department. It is important that these steps be followed closely, because no action will be taken by the Department until each step in the outline is completed and correct. If any information received is not correct then the party in charge of the permitting will be informed. If the required information is not received, or is late, and the Department is not notified at least 15 days prior, the permit may be delayed, denied, or revoked.

- Site Map showing proposed withdrawal locations
- Proposed well construction diagram
- Additional Information may be needed on site specific basis
- Best Management Plan

***No fee for application**

Elements of an Agricultural Irrigation Best Management Plan

As required by Regulation 61-113, a "best management plan" for water use and water conservation is designed to protect water quality and reduce water consumption to include, but not limited to:

1. Reasonable and appropriate conservation techniques, application processes, and alternative sources of water, including but not limited to, surface water(s) and/or availability of treated effluent, to minimize or eliminate groundwater sources. Examples may include but are not limited to:

    a. Determine soil type and monitor soil moisture to determine watering needs
    b. Prevention of excessive water use by spot watering dry areas, using drip or trickle irrigation, and/or watering at night or early in the morning
    c. Utilize micro-irrigation wherever possible (ex. Drip emitters, soaker hoses, bubblers, or micro-sprayers)

2. Based on current and/or proposed withdrawal rates, provide reasonable and appropriate documentation that the proposed water use is necessary to the anticipated needs of the applicant **to include, but not limited to**, the following:

    a. Irrigated acreage Water use per acre
    b. Major crops (with irrigated acreage for each crop)
    c. Water use by crop (per acre)
    d. Calculated irrigation requirement (including available precipitation)
    e. Critical period growth requirements
    f. Growing season
    g. Nutrient and pest management strategy

    Please specify flow measurement method in this section.

3. Maintenance schedule to preserve the integrity and deficient operation of water conveyance system(s). Examples may include but are not limited to:

    a. Routine inspections
    b. Meter installation, replacement, and calibration
    c. Leak detection and repair
    d. Upgrade old equipment with new water-efficient equipment

4. A statement specifying the beneficial use of the groundwater being withdrawn as necessary to meet the reasonable needs of the applicant.

Elements of a Golf Course Irrigation Best Management Plan

As required by Regulation 61-113, a "best management plan" for water use and water conservation is designed to protect water quality and reduce water consumption to include, but not limited to:

1. Reasonable and appropriate conservation techniques, application processes, and alternative sources of water, including but not limited to, surface water(s) and/or availability of treated effluent, to minimize or eliminate groundwater sources. Examples may include but are not limited to:

    a. Determine soil type and monitor soil moisture to determine watering needs
    b. Determine weekly site-specific precipitation amounts using a centrally located rain gauge; adjust irrigation schedule accordingly
    c. Implement low-water demand landscaping
    d. Prevention of excessive water use by spot watering dry areas, using drip or trickle irrigation, and/or watering at night or early in the morning

2. Based on current and/or proposed withdrawal rates, provide reasonable and appropriate documentation that the proposed water use is necessary to the anticipated needs of the applicant **to include, but not limited to**, the following:

    a. Irrigated acreage (differentiating actual golf course areas and aesthetic landscaping)
    b. Water use per acre
    c. Calculated irrigation requirement (including available precipitation)
    d. Annual water use statistics
        i. Monthly average
        ii. Peak summer/winter consumption
    e. Nutrient and pest management strategy

    Please specify flow measurement method in this section.

3. Maintenance schedule to preserve the integrity and deficient operation of water conveyance system(s). Examples may include but are not limited to:

    a. Routine inspections
    b. Meter installation, replacement, and calibration
    c. Leak detection and repair
    d. Upgrade old equipment with new water-efficient equipment

4. A statement specifying the beneficial use of the groundwater being withdrawn as necessary to meet the reasonable needs of the applicant.

Elements of an Industrial Best Management Plan

As required by Regulation 61-113, a "best management plan" for water use and water conservation is designed to protect water quality and reduce water consumption to include, but not limited to:

1. Reasonable and appropriate conservation techniques, application processes, and alternative sources of water, including but not limited to, surface water(s) and/or availability of treated effluent, to minimize or eliminate groundwater sources. Examples may include but are not limited to:

    a. Establish programs to improve long-term efficiency of water use
    b. Clean products, equipment, and facility only when necessary, and utilize dry cleaning methods wherever possible
    c. Reuse water wherever possible by reclaiming wash and rinse water, reusing blow-down water, employing recirculation technology on reverse osmosis and deionized water systems, installing an evaporative cooling tower system, and/or reusing single-pass or cooling tower discharge
    d. Irrigate only when necessary or not at all

2. Based on current and/or proposed withdrawal rates, provide reasonable and appropriate documentation that the proposed water use is necessary to the anticipated needs of the applicant **to include, but not limited to**, the following:

    a. Industry type
    b. Anticipated growth
    c. Annual water use statistics
        i. Monthly average
        ii. Peak summer/winter consumption

    Please specify flow measurement method in this section.

3. Maintenance schedule to preserve the integrity and deficient operation of water conveyance system(s). Examples may include but are not limited to:

    a. Routine inspections
    b. Meter installation, replacement, and calibration
    c. Install sensors or spring-loaded valves that shut off water flows when not in use
    d. Leak detection and repair
    e. Upgrade old equipment with new water-efficient equipment

4. A statement specifying the beneficial use of the groundwater being withdrawn as necessary to meet the reasonable needs of the applicant.

Elements of a Water Supply Best Management Plan

As required by Regulation 61-113

A "Best management plan" for water use and water conservation is designed to protect water quality and reduce water consumption to include, but not limited to:

1. Reasonable and appropriate conservation techniques, application processes, and alternative sources of water, including but not limited to, surface water(s) and/or availability of treated effluent, to minimize or eliminate groundwater sources. Examples may include, but not limited to:
    a. Assessment of water supply alternatives, including implementation of water conservation and reuse practices, and the utilization of alternate sources, including purchasing water from adjacent facilities.
    b. Cross connection control program.
    c. Using a water loss modeling program.
    d. Reducing pressure seasonally and/or where available to reduce loss from background leaks.
    e. Monitor night flow measurements.
    f. Develop water balance by comparing water produced to water consumed.
    g. Metering individual pressure zones.
    h. Develop water utility rate structures that promote water conservation.
    i. Water bill structure and comparison- highlight historical use patterns for residential customers.
    j. Send water conservation notices using bill stuffers to customers.
    k. Promote customer low flow plumbing fixtures incentive programs.

2. Based on current and/or proposed withdrawal rates, provide reasonable and appropriate documentation that the proposed water use is necessary to the anticipated needs of the applicant to include, but not limited to, the following;
    a. Population served,
    b. Anticipated growth,
    c. Annual water use statistics.

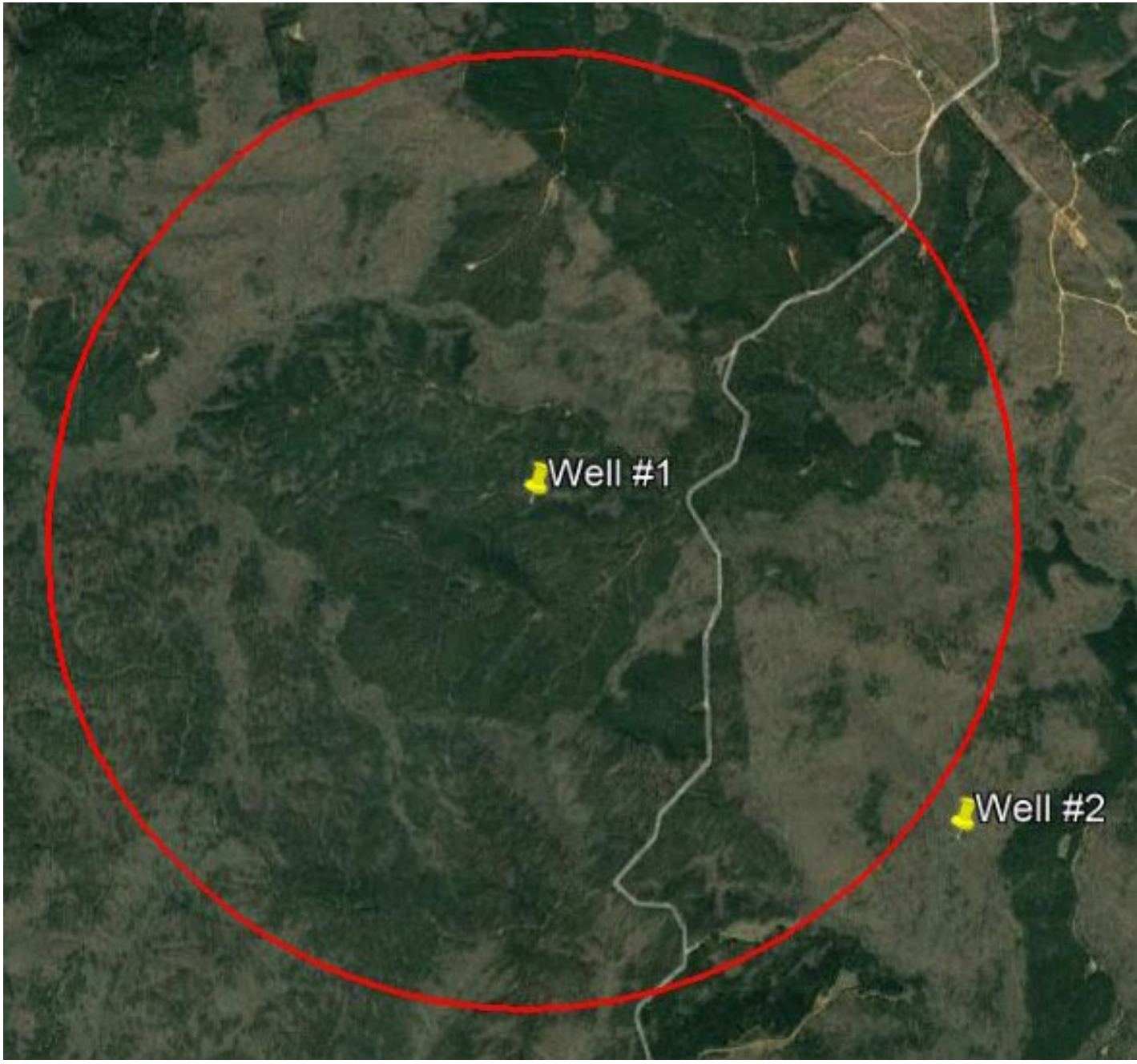
3. Maintenance schedule to preserve the integrity and deficient operation of water conveyance system(s). Examples to include:
    a. Develop and implement a metering program based on current AWWA practices and standards.
    b. Meter calibration/replacement.
    c. Install temporary or permanent leak noise detectors and loggers.
    d. Conducting water loss surveys to uncover long running leaks, underlying leaks masked by sounds of larger leaks, and new leaks.
    e. Reducing repair time on leaks.
    f. Preforming annual inspection of facility.

Please specify flow measurement method in this section.

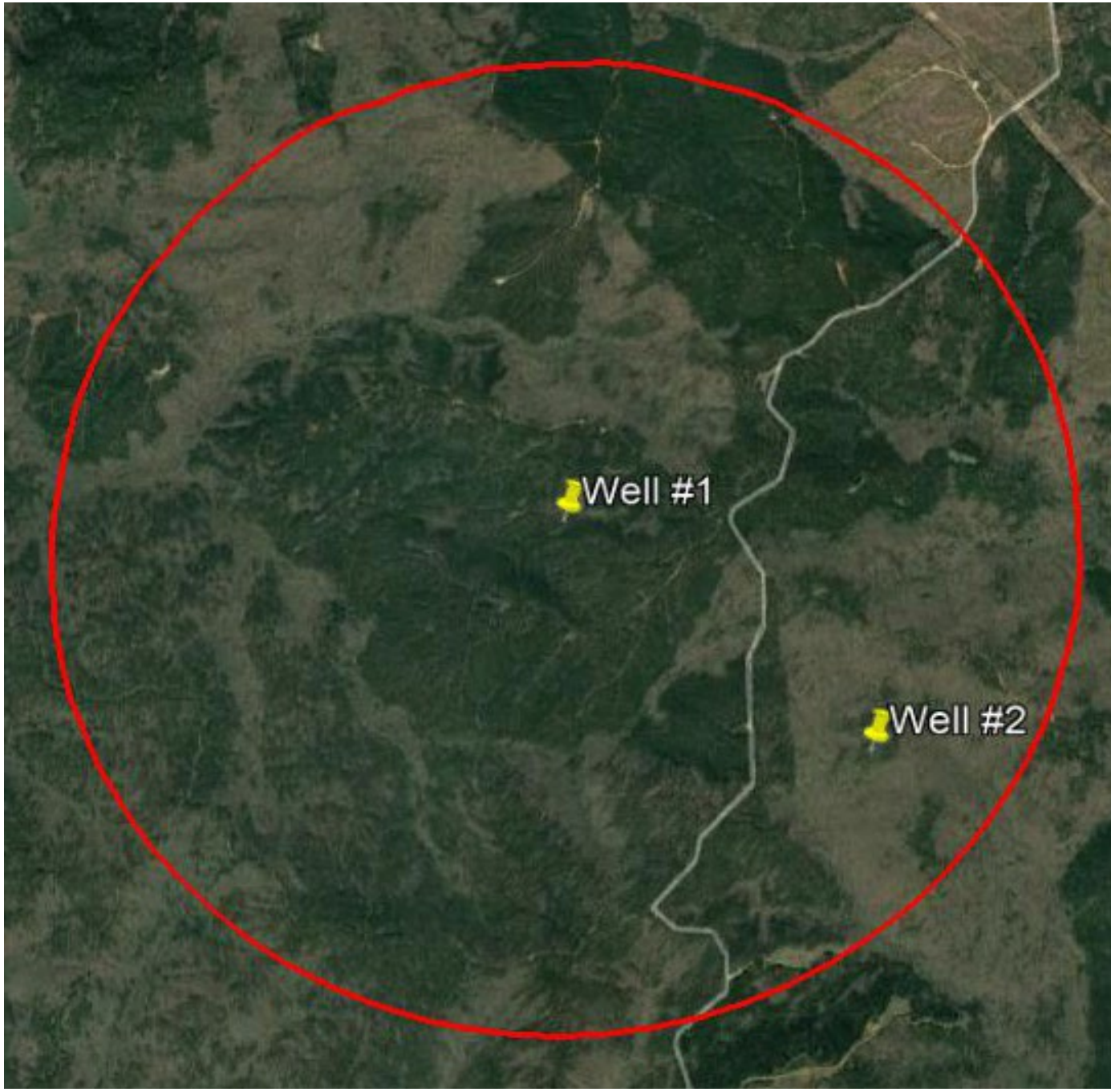
4. A statement specifying the beneficial use of the groundwater being withdrawn as necessary to meet the reasonable needs of the applicant

- over 3 million gallons per month
- Permit required

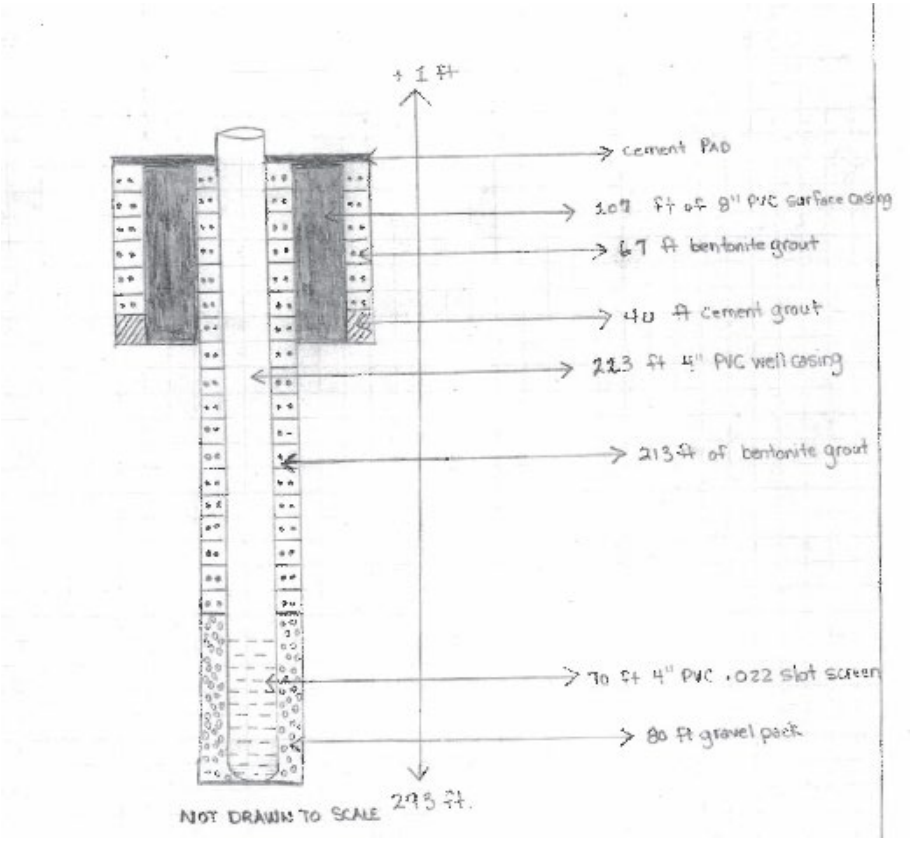
- Under 3 million gallons per month
- No permit required
- 1 mile radius
- Single or multiple wells

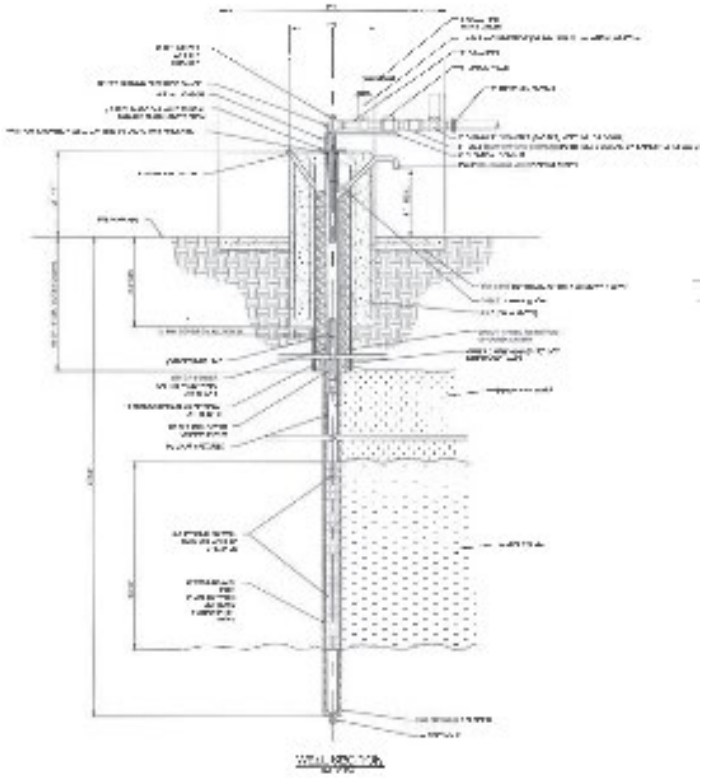


- Combination of 3 million gallons per month
- Permit required
- 1 mile radius
- Single or multiple wells



Well Diagram





Still not sure if you need a permit?

- Questions?
- Ask one of our staff

South Carolina Department of Health and Environmental Control
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