New Well Checklist

- ☐ What flow rate do you require, in gallons per minute (GPM)? _____
- ☐ What pressure do you require, at the surface, in pounds per square inch (PSI)? _____
- ☐ How will you power the pump?
  - ☐ Electricity
  - ☐ Diesel
  - ☐ Natural Gas
- ☐ Contractors Company Name:_____
- ☐ Contractors contact person:_____
- ☐ Contractors contact person phone #:_____
- ☐ Contractor is licensed by the State of California, Contractor's Licensing Board?
- ☐ Contractor has a C-57 Well Drilling License, which is valid?
- ☐ Contractor has correct, and sufficient insurance?
- ☐ Will the Contractor be securing all permits?
  - ☐ When will I get a copy of each permit?
- ☐ What drilling method will be used?
  - ☐ Direct Rotary
  - ☐ Reverse Rotary
  - ☐ Cable Tool
- ☐ What diameter bore hole will be drilled, in inches?
- ☐ How thick will the gravel pack be, in inches?
- ☐ What will the well be constructed of?
  - ☐ Low Carbon Steel (LCS) casing
  - ☐ Polyvinyl Chloride (PVC) casing
- ☐ How thick will the casing be?
  - ☐ ¼" (0.25")
  - ☐ 5/16" (0.3125)
  - ☐ 3/8" (0.375)
  - ☐ Other _____
- ☐ What kind of well screen will be used?
  - ☐ Vertically-milled slots
  - ☐ Horizontally-milled slots
  - ☐ Louvered well casing
  - ☐ Rod-based, wire-wrapped screen
- ☐ How will the size of the well screen and gravel pack be decided?
  - ☐ Standard practice, aka what usually works
  - ☐ Engineering openings and filter pack
- ☐ If I video my well before the drilling equipment leaves, and the well is plugged, will the Contractor take responsibility for cleaning the well?

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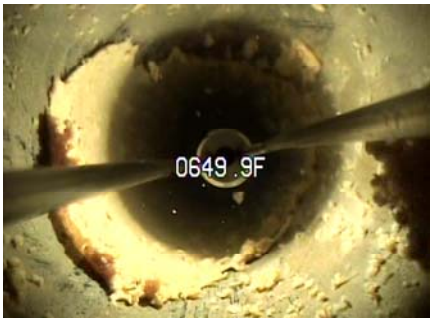
www.aegisgw.com
559 801 1604

New Well Considerations

- Drilling methods will vary in the time it takes to complete the bore hole.
- The larger the bore hole, the thicker the gravel pack will be.
- Ideally, gravel packs are 3-4 inches thick, with 6 inches considered to be too thick.
- The thicker the gravel pack, the more time needs to be allocated to well development.
- For LCS, increasing the casing thickness is one way to reduce the risk of corrosion-induced failures.
- The type of "well screen" and the gravel pack size and gradation will greatly affect the risk of sand production while pumping.
- "Developing a well" is a term of art, that really means to "develop the efficiency of the well". Development is as important as any other process, and if done correctly will be the single most important step to achieving a high flow rate, and an efficient well.



- Residual drilling fluid in a new well – this is not good!

- ☐ When will I get my copy of the State of California Department of Water Resources Well Completion Report form?
  - ☐ Will the Contractor be filing this report on my behalf?
- ☐ How will my well be developed?
  - ☐ Swabbing
  - ☐ Swabbing and airlifting
  - ☐ Swabbing, airlifting, then pumping
- ☐ What criteria will the Contractor use to determine if my well has been adequately developed? _____
- ☐ How large will my "pad" be?
  - ☐ What will the pad be made of? _____
  - ☐ How thick will it be? _____
- ☐ Who will be responsible for reporting the well yield and specific capacity to me?
  - ☐ Who will interpret the data, to recommend the type of pump, the type of motor, and the depth of the pump setting? _____
  - ☐ What will be the basis of the recommendations? _____
- ☐ If I want my water tested, who will be responsible for that?
  - ☐ What should I test my water for? _____
    - ☐ Total and Fecal Coliform
    - ☐ General Minerals and Physicals
    - ☐ Nitrate
    - ☐ Naturally occurring radionuclides
    - ☐ Title 22
    - ☐ Ag Irrigation Suitability
- ☐ Websites

http://www.water.ca.gov/groundwater/index.cfm

http://www.water.ca.gov/groundwater/wells/standards.cfm

http://www.groundh2o.org/

http://www.grac.org/

http://nrwa.org/

http://www.cfbf.com/electricityrates/#pge

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New Well Considerations

- "Drawdown" in the well is the difference between the pumping water level and the static water level.
- "Specific capacity" is a term describing the well yield, in gallons per minute, per foot of drawdown in the well when pumped. The higher the specific capacity, generally the more efficient the well is.
- Well efficiency can determine energy consumption as much or more then the type of pump and motor selected.

1 cubic foot of water = 7.48 gallons

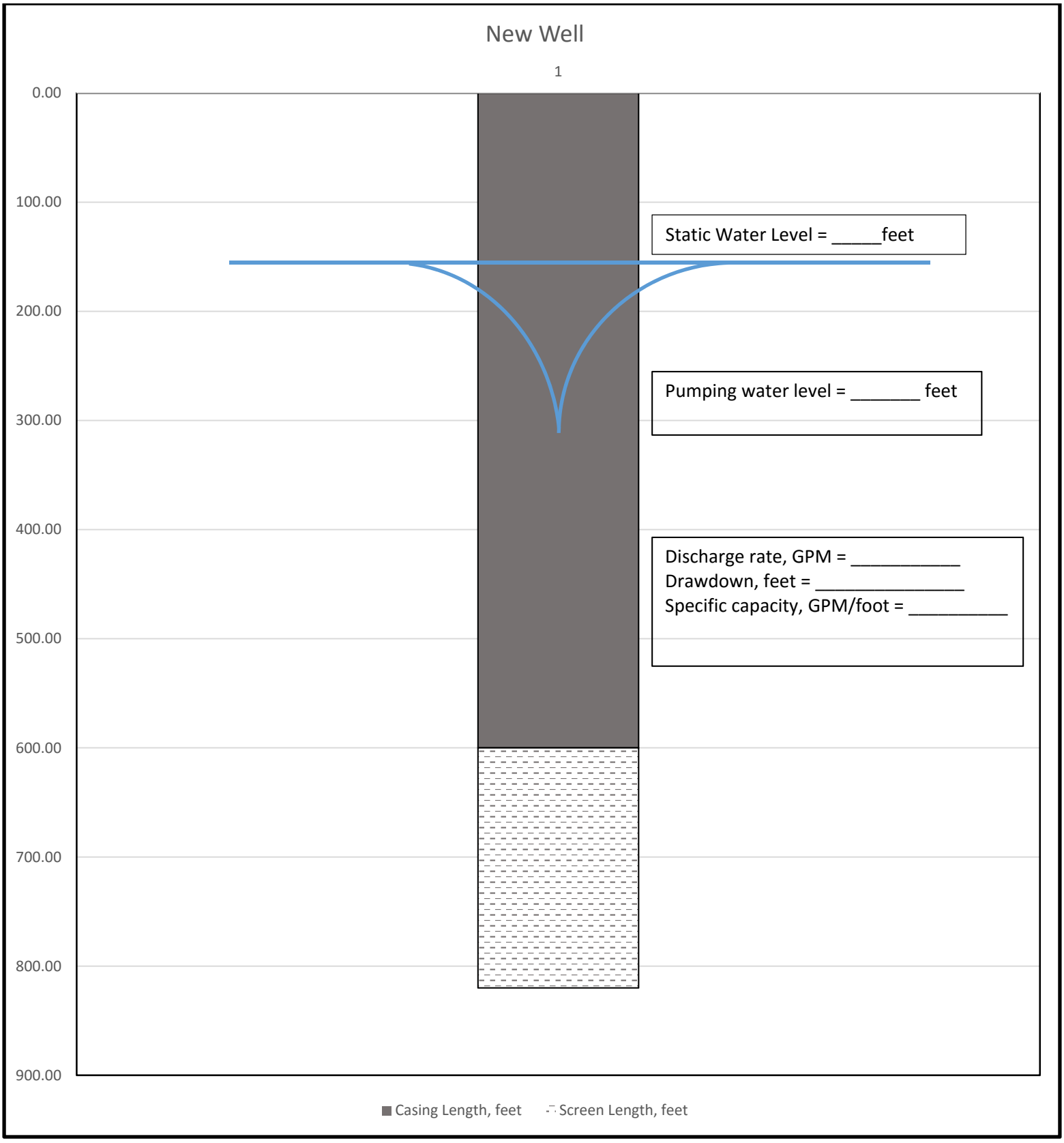
1 cubic foot of water = 62.37 pounds

1 cubic foot per second = 448.83 GPM

1 acre-foot of water = 43,560 cubic feet

1 acre-foot of water = 325,850 gallons

1000 GPM = 4.42 acre-feet per day



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