SO, YOU WANT TO DRILL A NEW WELL!

A Discussion of the Process of Planning, Drilling, and Testing a New Water Well

Decisions Have Consequences

A drilling project can be looked at as a series of decisions

Unfortunately most of the decisions get locked in place as steel and cement
Drilling Projects are Critical Path Projects

KNOWING AND DOING
THE RIGHT THINGS IN THE RIGHT
ORDER IS IMPORTANT

YOUR MOM TAUGHT YOU CRITICAL
PATH THINKING WHEN YOU WERE
VERY YOUNG

First Your Socks then shoes!

THE DRILLING PROJECT VERSION:
MUCH MORE COMPLICATED

YOU NEED TO KNOW THINGS
YOU NEED TO THINK THROUGH THE WHOLE PROJECT
The Primary Phases

- Planning the project (and funding it)
- Defining the actual work and selecting contractors
- Drilling the well
- Completion and development of the well
- Proper testing of the well
- Formal documentation of the project

Project Planning

- Define the needed production from the well
- Select the appropriate site for the well
- Preliminary design – drilling method, casing diameter(s), depth, likely completion method
- Assess availability of contractors to accomplish the work
Specifications for the contract

- Technical Specifications
- A detailed description of the drillers job
- Definition of how things are measured and paid
- Contingency discussions for changes

- General Specifications (aka boiler plate contract documents
- Requirements of contract
- Payment method and schedule
- Insurance and liability

IT IS A COMPLICATED WORLD IN WHICH YOU WILL DELVE
ONCE YOU HAVE SPECIFIED THE JOB, YOU HAVE ALREADY MADE DECISIONS

- Drilling Rig
- Max depth you can reach
- Casing size
- Possible types of Completion
- Maximum production
- Pumping Equipment that can be used
- Testing that can be done

AT THE VERY LEAST BE AWARE THEY ARE MADE AND MAKE SURE YOU KNOW THESE DECISIONS HAVE CONSEQUENCES TO THE PROJECT

Drilling the hole – observing the geology

- The geology dictates all
- Observe the cuttings (Samples)
- Observe the rig response
- Observe the well response (water)
- Listen to those who know – drillers & consultants
Assessing the design options

Completing the well

Direct Screen design

Gravel-pack Design
Development of the Well – important!

- Development has many methods
- Surging, air-lift, jetting, chemicals
- Surging is most common in our area for larger production wells

Testing the Well

WELL TESTING IS NOT ABOUT WATER
IT IS ABOUT INFORMATION

YOU MUST BE ABLE TO PROJECT THE LONG-TERM WELL PERFORMANCE

ONLY PROPER PROCEDURES AND ACCURATE DATA CAN DO THAT
TEST DATA TELL THE TALE

Normal Drawdown Curve

Earthquake During Test

Interpretation of Test Data

- DOES THE DRAWDOWN HOLD ITS PATTERN?
- IS THE DRAWDOWN LESS THAN WOULD BE EXPECTED? (INDICATION OF POSITIVE BOUNDARY)
- IS DRAWDOWN MORE THAN EXPECTED? (NEGATIVE BOUNDARY)
- WAS RECOVERY FULL? TIMELY?
Rating the Well’s Production

- Available drawdown
- Practical design drawdown
- Specific Capacity of well
- Transmissivity of aquifer
- Long-term well capability

Project Documentation (for posterity)

- Keep records of key decisions and their rationale
- Include both graphics and text to describe what is
- Include basic data where appropriate (test data, lab reports of water quality)
- Clearly state well operation recommendations
REGULATORY NEEDS & DEFINITION OF PROPERTY AND WELL

- Provide information needed to:
  - Demonstrate siting compliance
  - Meet regulatory submittal needs
  - Support Wellhead protection Planning
  - Meet Health Department Requirements

GOOD DECISIONS MAKE GOOD WELLS
THE WORLD IS WET - LIFE IS SWEET

BEST POSSIBLE WELL
BEST POSSIBLE OUTCOME
MOST EFFECTIVE NEW SOURCE
CONTACT INFORMATION

- THANK YOU FOR THE OPPORTUNITY TO ADDRESS THE THURSTON COUNTY PURVEYORS GROUP

- QUESTIONS?
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