

GROUNDWATER THEORETICAL ANNALYSIS

FILE: 63-4949

DATE: 2-4-05

BY: Daniel A. Nelson

THEORETICAL RATE OF FLOW: $Q = \frac{(8.8 \times (HP) \times (EFF.))}{TDH}$

Q = CFS

HP = Total Brake Horsepower of pumping plant (including booster)

Eff. = Pumping plant efficiency (assume 70% or 0.70)

TDH = Total dynamic head = [(LIFT) + (PSI X 2.31)]

LIFT = Depth to water in FEET from land surface to puijing water level

PSI = Pumping pressure measured in PSI near pump (if open discharge assume [0])

$Q = \frac{(8.8) \times (\underline{5}) \times (0.70) = 30.8}{\underline{\hspace{10em}}} = \underline{0.23 \text{ CFS.}}$

$[(\underline{39 \text{ FT.}}) + (\underline{40} \times 2.31)] = 131.4$

LIFT FROM:

Measurement ()

Owner ()

Area estimate (✓)

Well Logs ()

PSI FROM:

Measurement ()

Owner ()

Estimate ()

Owner Gage ()

Booster (Y) (N)

NOTES ON PUMP:

Motor Make, Serial or ID

Pump Make, Serial or ID, rating

REMARKS: 2 well logs in this area show a
static water level of 10 to 12 ft. using the
Department standard of well depth minus static
water level divided by 2 equals estimated
pumping level. Affidavits say well was 90 ft.
deep (90 - 12) / 2 = 39 ft pumping level.
PSI was estimated at 40 PSI for a standard
system. The pump horse power was supplied
by the pump installed.

0.23 cfs is well above the 0.09 cfs maximum
allowed by IDWR standards.