Pumping Plant Performance Test

Diesel

AgriLIFE EXTENSION
Texas A&M System

Owner				Date	
Location		Person Conducting Test		YOU	
County		Irrigation Method		Flood	

ENGINE

Make	Cummins	Configuration	Inline 6	Standard Thermal Eff. (%)	35%
Model	8.3	Turbo Charger	Yes		

Diesel Fuel Consumption

	Volume of Fuel	Elapsed Time		Flow	
Test	Gallons	Minutes	Seconds	Gal/hr.	*Input HP*
1	0.2000	1	23	8.67	*460.6*
2	0.3000	2	2	8.85	*470.1*
3	0.4000	2	42	8.89	*472.0*
Average	*0.30*	*1.67*	*22.33*	*8.81*	*467.56*

PUMP

Make		Size		Labelled GH Ratio	11:10
Well Depth (ft.)		Pump Set Depth (ft.)	160	Calculated GH Ratio	11/10
Static Depth (ft.)	75	Pumping Depth (ft.)	100	GH Efficiency	95%
				Standard Pump and Well Eff.	75%
				Well Column Diameter (in.)	10
				Column Fric. Fact. (ft/100 ft)	2.38
				Column Loss (ft)	3.808

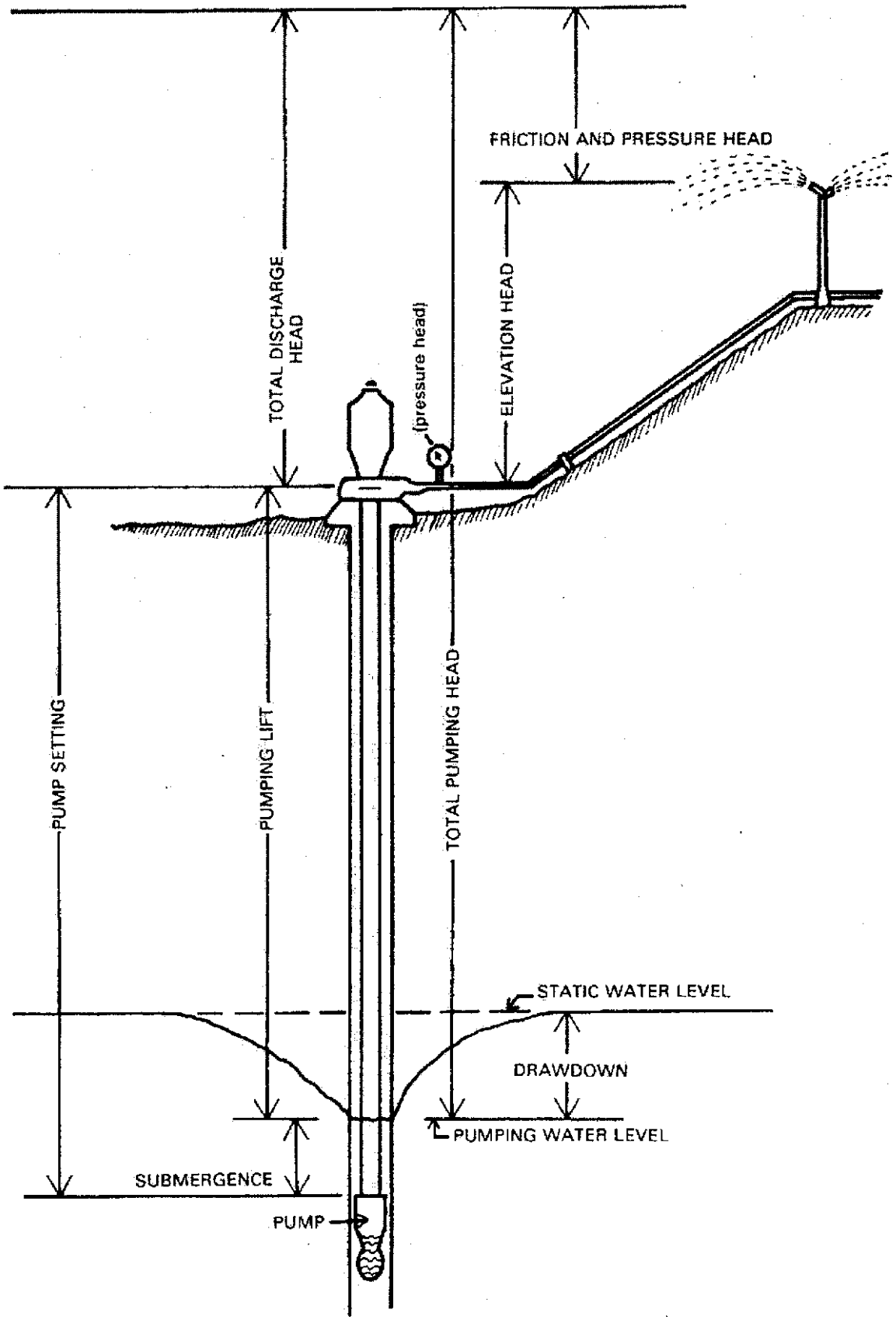
Test	Discharge GPM	Pump RPM	Engine RPM	PSI	TDH (ft)	Water HP
1	*1023*	*1800*	*1980*	5	115.4	29.8
2					—	—
3					—	—
Average	*1023*	*1800*	*1980*	*5*	*115.4*	***29.8***

Overall Efficiency	***6.4%***	***% of Standard Eff.***	***25.6%***
Calculated Pump Efficiency	***19.2%***	***Potential Reduction***	***74.4%***
		Standard Eff.	25%

Fuel Cost ($/Gal)	$ 2.00
Total Acres Irrigated	
Seasonal Application Depth (inches)	
Seasonal RunTime (hours)	2,000

	Current Costs		Potential Costs		Potential Cost Reduction	
	Unit	Seasonal	Unit	Seasonal	Unit	Seasonal
$ /Acre-In	**$ 7.75**	$ -	**$ 1.98**	$ -	**$ 5.77**	$ -
$ / Hour	**$ 17.61**	$ 35,221	**$ 4.50**	$ 9,002	**$ 13.11**	**$ 26,219**

Field Notes: 10" discharge pipe used for column friction calculation. /// This test consited of a 5psi false head applied to the pump via the discharge valve to evaluate the pump & well capability. This pump and well is very, very poor and should be reworked and replaced immediately.


FRICTION AND PRESSURE HEAD
TOTAL DISCHARGE HEAD
(pressure head)
ELEVATION HEAD
PUMP SETTING
PUMPING LIFT
TOTAL PUMPING HEAD
STATIC WATER LEVEL
DRAWDOWN
PUMPING WATER LEVEL
SUBMERGENCE
PUMP