

Example 1

Alignment data : new1.aln

Pump Characteristics data: new1.pmp

3515 m

4

1500 mm Steel pipe Thickness 10 mm No CM Lining Guniting 25 mm thick Delivery Reservoir 647.9 m

HGL @ Node 4

Sump water level = 583 m Pump head = 70 m

653 m

Head loss in pump

house (assume) - 2 m

HGL @ Node 4 = 651 m

3 Pumps working

Discharge = 3 x 0.82 = 2.46 m³/sec Pump Head = 70 m Efficiency of pump = 90% GD² of Pump = 154 kgf-sqm GD² of Motor = 485 kgf-sqm Speed = 1440 rpm Shut off head = 106 m

Type of NRV = 2 Time of closure = 0.5 sec Delay in closure = 0 sec

Example 2

Data Same as Example 1

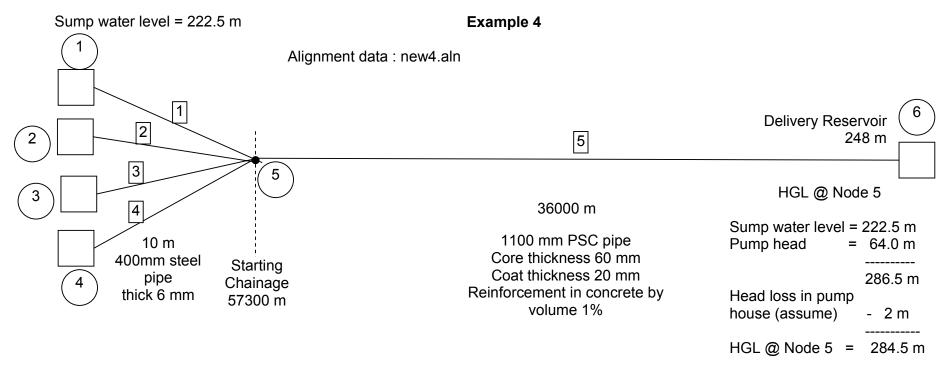
Column separation analysis data Pipe number = 4 Chainage = 4280 m Invert level = 612 m

Example 3

Data Same as Example 1

Details of Air Vessel

Pipe No. 4
Ground elevation at the location (RL, m) = 591.5 m
Size parameter of the air vessel = 4
Connecting pipe size = 900 mm
Type of Air vessel = 1
Size of orifice in connecting pipe = 450 mm



4 Pumps working

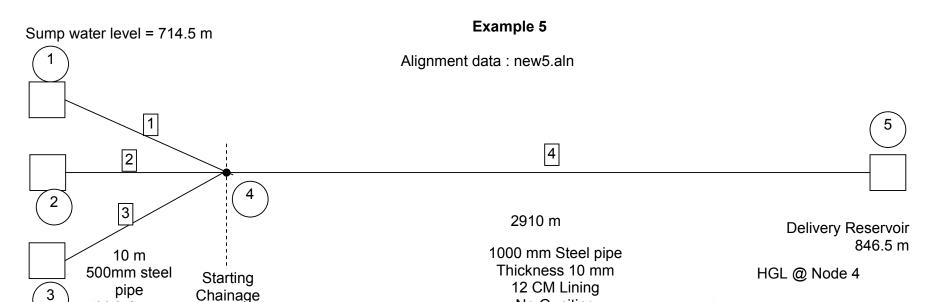
Discharge = 4 x 0.28 = 1.12 m³/sec Pump Head = 64 m Speed of pump = 1440 rpm Radial pump char

Type of NRV = 1 Delay in closure = 0.5 sec Number of one way surge tanks = 2

ramber of one may barge tarms =					
Location	Ground level Staging ht.		Diameter	Storage	Connecting
Chainage				depth	pipe size
73650 m	228.6 m	0 m	2.5 m	2 m	300 mm
83300 m	242 m	0m	7.5 m	3 m	400 mm
	Location Chainage 73650 m	Location Ground lev Chainage 73650 m 228.6 m	Location Ground level Staging ht. Chainage 73650 m 228.6 m 0 m	Location Ground level Staging ht. Diameter Chainage 73650 m 228.6 m 0 m 2.5 m	Location Ground level Staging ht. Diameter Storage Chainage depth 73650 m 228.6 m 0 m 2.5 m 2 m

Number of air valves = 1

Pipe No. 5 Size 200 mm, Chainage 57300 m, Pipe invert level 222.8 m



3 Pumps working

Discharge = 3 x 0.378 = 1.134 m³/sec Pump Head = 148 m Speed = 1440 rpm Radial pump chracteristics

thick 8 mm

0 m

Type of NRV = 1 Delay in closure = 0.5 sec Air Valves = 2
Pipe No. Size Location Pipe Invert
4 200 mm 1400 m 730 m
4 200 mm 2700 m 838 m

No Guniting

Surge Relief Valves = 2
Size of valves = 200 mm
Pipe invert level = 712 m
Low pressure pilot setting = 40m
High pressure pilot setting = 175 m
Closure time of valve = 30 sec

Sump water level = 714.5 m Pump head = 148.0 m

862.5 m

Head loss in pump

house (assume) - 4 m

HGL @ Node 4 = 858.5 m