## **PIPING HEAD LOSS - WATER** CALC BY CHECK BY TCK BOD SITE: Individual TF Pump - Max Flow DATE: Length 5.0 gpm 0.75 inches Flow rate Max Pump flow rate (0.75" ID Tubing) 150 constant(steel = 100, thermoplastic = 150) Pipe Area FRICTION HEAD Velocity SITE: First Leg TF Header - Flow from 1 well DATE: Length Flow rate 50 ft 5.0 gpm Max Pump flow rate 1.00 inches (1.0" ID Tubing) 150 constant(steel = 100, thermoplastic = 150) ID Pipe Area 0.005 ft2 FRICTION HEAD 1.0 feet of H2O Velocity 2.0 ft/sec SITE: Second Leg TF Header - Flow from 2 wells DATE: Length Flow rate 10.0 gpm 1.50 inches Max Pump flow rate (1.5" ID) ID 150 constant(steel = 100, thermoplastic = 150) Pipe Area 0.012 ft2 FRICTION HEAD feet of H2O 0.2 psi SITE: Third Leg TF Header - Flow from 3 wells DATE: Length Flow rate 50 ft 15.0 gpm Max Pump flow rate 1.50 inches (1.5" ID) 150 constant(steel = 100, thermoplastic = 150) ID C Pipe Area 0.012 ft2 FRICTION HEAD 1.0 feet of H2O 0.4 psi 2.7 ft/sec Velocity SITE: Fourth Leg TF Header - Flow from 4 wells DATE: 50 ft Length Flow rate 20.0 gpm 1.50 inches Max Pump flow rate (1.5" ID) ID 150 constant(steel = 100, thermoplastic = 150) 0.012 ft2 Pipe Area FRICTION HEAD 1.8 feet of H2O 0.8 psi 3.6 ft/sec Velocity SITE: Fifth Leg TF Header - Flow from 5 wells DATE: 50 ft Length 25.0 gpm Max Pump flow rate 1.50 inches (1.5" ID) 150 constant(steel = 100, thermoplastic = 150) Flow rate Max Pump flow rate ID Pipe Area 0.012 ft2 FRICTION HEAD 2.7 feet of H2O 1.1 psi 4.5 ft/sec Velocity SITE: TF Pump Header TF-7A to SXB - Flow from 6 wells DATE: Length Flow rate 30.0 gpm Worst Case Flow Rate 6 Pumps on Header (Zone TF-7) 1.50 inches (1.5" ID) 150 constant(steel = 100, thermoplastic = 150) ID 0.012 ft2 Pipe Area FRICTION HEAD 7.4 feet of H2O 3.2 psi Velocity 5.4 ft/sec SITF: Combined All TF Wells to Treatment System DATE: Length Flow rate 30.0 ID 2.00

gpm inches (2" ID)	) thermonlastic – 150)						
	o, triermopiastic = 150)						
112							
	Elev @ Pump Intake	Elev @ OWS Inlet	Static Head	TDH	TDH w/ 10% FOS	PSI @ 0.9 1.0 SG	
feet of H2O	2.0	31.0	29.0	50.7	55.8	50.24	
psi							
ft/sec							
	<u> </u>						
	feet of H2O	gpm inches (2° ID) constant(steel = 100, thermoplastic = 150) ft2  Elev @ Pump Intake  feet of H2O 2.0 psi	gpm   inches (2" ID)   constant(steel = 100, thermoplastic = 150)   ft2     Elev @ Pump   Intake   Inlet   feet of H2O   psi	gpm inches         (2* ID) constant(steel = 100, thermoplastic = 150) ft2         Elev @ Pump Intake         Elev @ OWS Inlet         Static Head           feet of H2O psi         2.0         31.0         29.0	gpm   inches (2° ID)   constant(steel = 100, thermoplastic = 150)   ft2     Elev @ Pump   Elev @ OWS   Static   Head   TDH   Total   TDH   Total   T	gpm inches         (2* ID) constant(steel = 100, thermoplastic = 150) ft2         Elev @ Pump Intake         Elev @ OWS Inlet         Static Head         TDH w/ TDH         TDH w/ 10% FOS           feet of H2O psi         2.0         31.0         29.0         50.7         55.8	gpm inches         (2° ID) constant(steel = 100, thermoplastic = 150) ft2         Elev @ Pump Intake         Elev @ OWS Inlet         Static Head         TDH w/ TDH         PSI @ 0.9 10% FOS         1.0 SG           feet of H2O psi         2.0         31.0         29.0         50.7         55.8         50.24

Pipe Area

FRICTION HEAD
Velocity