12/28/2002

Station	BS	HI	FS	Elev.
RM1	4.385	14.385		10.000
RP2				
RP3			3.355	11.030
orifice			5.970	8.415
PZF			6.285	8.100
TP			5.110	9.275
	5.716	14.991		
PZF			6.890	8.101
orifice			6.578	8.413
RP3			3.960	11.031
RP2				
RM1			4.990	10.001
new orifice			6.801	8.190

Station	Ave Elev
RM1	10.001
RP2	#DIV/0!
RP3	11.031
orifice	8.414
PZF	8.101

9-276
(Rev. 7-67)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Station Number ----------

LEVEL NOTES

Stream C1 - COMMONWEALTH

Locality

Party JG, PAS, KDC Date Dec 28, ~~19~~2002

STATION	B. S.	HT. INST.	F. S.	ELEVATION	REMARKS
RM1	4.385	14.385		10.000	30 ft, DS Rt ELEV GIVEN
RP99			5.110	9.275	rock in channel
RP3			3.355	11.030	top of rebar, rebar is bent
orifice			5.970	8.415	
PZF			6.285	8.100	
RM1			4.385	10.000	ø ✓
Turning point ("turned" by changing height)					
RM1	4.990	14.990		10.000	ELEV GIVEN
RP99			5.716	9.274	0.001
RP3			3.960	11.030	ø avg = 11.030
orifice			6.578	8.412	0.003 avg = 8.414
PZF			6.890	8.100	0 avg = 8.100
RM1			4.990	10.000	ø ✓
water level			6.520	8.470	only one measmt avg = 8.470 11:28
new orifice			6.801	8.189	only one measmt avg = 8.189 11:45
RM1			4.990	10.000	ø ✓

No. ____ of ____ sheets Comp. by ____ Chk. by ____

☆ GPO 1984 O-452-826

this allows lower water levels to be recorded

lowered orifice & pointed it perpendicular to flow

RP2 = 11 ft upstr - not measured this time

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
WYOMING DISTRICT

SUMMARY OF LEVELS

Sta. ID _____ Sta. Name _____

Party _____ Date _____

Purpose of Levels _____

Chain/Wire Weight found (not needed) at _____ HR.

Chain/Tape Length found (not needed) at _____ HR.

Corrected to (not needed) at _____ HR.

Instrument Type _____ S/N _____

Rod Length Checked Y N Two-Peg Test Date _____

Point	Elevation given	Mean elev. found	Diff
RM			
RM			
RM			
RM			
CK Bar (not needed)			

Time	OG	IG				WS	Diff

Levels computed by: _____ Checked by _____

F3 - Lost Seed - installed stag gauge - OPEN - not flowing

12/28/12

C1 Commonwealth

KCJG, PS arrive ~9:40

LEVELS • JG, PS, KC

N_2 tank - 500 psi

N_2 reg = 13 psi

bubble rate was ~90 b/sec, now ~~24~~ 22

pH = 5.58 @ 9:50 AM

Temp Wth = 2.6 °C @ 9:50 AM

Collected Stream Chem Samples

~~Sp. Cond~~ 42.5 µS, 24.7 µS @ 9:55

15 min ago

01: 8.4566 = Stg

02: 9.8047 = Air temp

05: 13.534 = Battery volt

15 sec scan

01 8.4523 = Stg

02 9.4238 = Air temp

05 13.521 = Battery Volt

N_2 is really low

SNOOP kit - leak btw tank & reg valve

tightened connexn

2d SNOOP test again → no leak

To Do Next Time

Bring new N_2 tank

Orifice line should be ⊥ to flow

Ask Chris - Lent Kelsey, what is stg level reading

Retro empty N_2 tank

Return Trubble Bubble to Commonwealth

pH meter calibrated @ 9:45

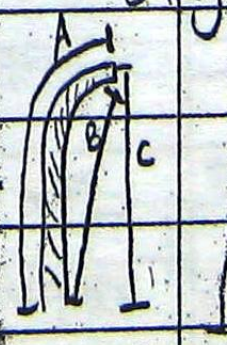
WX: cc 35% cirrocumulus

wind ~ 5-10 mph from NE

air temp

Flow present

stage height - several other measurements in Petes notes



A: top down = 81 cm @ 9:54

B: top down = 78.5 cm @ 9:54

C: top down = 78.8 cm @ 9:54

control looks good

need to move orifice so that it is not pointing upstream

orifice was clear of sediment

DATA Logger

channels recorded earlier

s/m 3 data logger settings o.k

2002, 362, 1022 @ 10:22 on JG's watch

Inside stg Ch.1 = 8.4573 @ 11:23 } every 15 sec

8.4509 @ 11:23 }

Commonwealth

	BS	H.Inst	F.S.	Elev	Notes
RM1	4.385	14.385		10.00	30' ASP
RP2	~~5.110~~		5.110	9.275	rock in ch
RP3	~~3.355~~		3.355	11.030	rebar 15 bent
orifice	~~5.970~~		5.970	8.415	
PZF	~~6.285~~		6.285	8.100	difficult to repeat
~~mark~~					4. mark of pool
RM1	4.385	14.385			
Turning Pt ("turned" by changing height)					
RM1	4.990	14.990		10,000	
RP2	5.716		5.716	9,274	
RP3	3.962		3.960	11.030	
orifice	~~6.578~~		6.578	8.412	
PZF	~~6.890~~		6.890	8.100	
RM1	4.990	14.990			
water surface			6.520		11:28
new orifice			6.801		*
RM1	4.990				see next page

Form 9-275F (Apr. 2001)

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
WATER RESOURCES DIVISION
DISCHARGE MEASUREMENT AND GAGE INSPECTION NOTES

Meas. No. 45
Comp. by
Checked by

Sta. No.
Sta. Name CI - Commonwealth
J-day 362
Date Dec 28, 2002 Party JG, PS, KC arrive @ 9:40 → NO TIME wl Flow !! How?
Width 4.20 Area 0.69 Vel. 0.39 G.H. Disch. 0.27
Method 0.6, S No. secs. G.H. change in hrs.
Method coef. 1.0 Horiz. angle coef. 1.0 Susp. Rod Tags checked OK
Meter Type Pygmy Meter No. 90265 Meter ft. above bottom of wt.
Rating used Spin test before meas. 1:15 ; after OK
Meas. plots % diff. from rating no. Indicated shift

GAGE READINGS						
Time	Tdwn		Levels		Inside	Outside
	cm		ft			
	Start					
(1) 9:54	78.8				8.45	8.446
~~11:23~~					~~8.4573~~	
11:28			8.470			
	Finish					
Weighted MGH						
GH correction						
Correct MGH						

TD

Samples collected: water quality @ 9:55, sediment, biological, other
Measurements documented on separate sheets: water quality, aux./base gage, other
Rain gage serviced/calibrated
Weather: 35th AC - cirrocumulus; wind = 5-10mph @ NE
Air Temp. °C at
Water Temp. 2.6 °C at 9:50 OG
Check bar/chain found
Changed to at
Correct

Wading, cable, ice, boat, upstr., downstr., side bridge, @ ft., mi. upstr., downstr. of gage.
Measurement rated excellent (2%), good (5%), fair (8%), poor (> 8%); based on following conditions: Flow: even regular flow lines, shallow
Cross section: sand

Gage operating: yes Record Removed
Battery voltage: Intake/Orifice cleaned/purged: OK!
Bubble-gage pressure, psi: Tank 500 , Line 13 ; Bubble-rate 90 → ~~22~~ /min.
Extreme-GH indicators: max , min .
CSG checked: HWM height on stick Ref. elev. HWM elev.
HWM inside/outside:
Control: cobble dam, tarp upstr. side (provided DZF

Leak detected contributing to low N2 pressure

Remarks: LEVELS; @ 11:45 - lowered orifice & pointed it perpendicular to flow - dug out some sand to lower orifice line; orifice clean of sediment
GH of zero flow = GH - depth at control = ft., rated

Sheet No. of sheets

	Time	IG	OG
Wtr temp	9:50	N/A	2.6°C
Sp. Cond	9:55	N/A	42.5 µS / 21.7 µS

RTD STG RDGS ⇒ before 11:45 on J-day 362 - orifice probe was not ⊥ to flow so rdgs may be off

INFLC STG RDGS ⇒ Lowered orifice line 8.414 ft → ~~8.189~~ 8.190 ft

Top of rebar elevation from today's levels = 11.030

① Tapedown @ 9:54 = $78.8\,cm \left(\frac{in}{2.54\,cm}\right)\left(\frac{ft}{12\,in}\right) = 2.585\,ft$ → ~~11.030 − 2.585 = 8.446 ft~~ 11.031 − 2.585 = 8.446 ft

Form 9-275G
(Sep. 2000)

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
WATER RESOURCES DIVISION
DISCHARGE MEASUREMENT AND GAGE INSPECTION NOTES

Meas. No. _____
Comp. by AQC
Trans ✓2
Checked by _____

Sta. No. 000013
Sta. Name Commonwealth
Date Dec 28, 2002 Party PAS, KAC, JDG
Width 4.20 Area 0.69 Vel. 0.39 G.H. _____ Disch. 0.27
Method 6, 5 No. secs. _____ G.H. change _____ in _____ hrs.
Method coef. 1.0 Horiz. angle coef. 1.0 Susp. Rod Tags checked ok
Meter Type pygmy Meter No. 90265 Meter _____ ft. above bottom of wt.
Rating used 6.99 Spin test before meas. 1:15 ; after ok
Meas. plots _____ % diff. from rating no. _____ Indicated shift _____

GAGE READINGS metric						
Time					Inside	Outside
0954						81.0
					8.45	78.5
↓	Start			*		79.8
	Finish					
Weighted MGH						
GH correction						
Correct MGH						

Samples collected: water quality, sediment, biological, other _____
pH, SpC, Temp
Measurements documented on separate sheets: water quality, aux./base gage, other _____
Rain gage serviced/calibrated ____
Weather: Partly Cloudy
Air Temp. _____ °C at _____
Water Temp 3.0 °C at 0950
Check bar/chain found _____
Changed to _____ at _____
Correct _____

Wading, cable, ice, boat, upstr., downstr., side bridge, @ _____ ft., mi. upstr., downstr. of gage.
Measurement rated excellent (2%), good (5%), fair (8%), poor (> 8%); based on following conditions: Flow: Even, regular flow lines, shallow
Cross section: Sand

Gage operating: yes Record Removed _____
Battery voltage: _____ Intake/Orifice cleaned/purged: _____
Bubble-gage pressure, psi: Tank _____ , Line _____ ; Bubble-rate _____ /min.
Extreme-GH indicators: max _____ , min _____ .
CSG checked: _____ HWM height on stick _____ Ref. elev. _____ HWM elev. _____
HWM inside/outside: _____
Control: Cobble dam, tarp upstream side (provides PZF)

Remarks: SpC = 24.7, 42.5
IPD from RM2 = 23.9 cm @ 1000 IPD = 22.0 @ 1010

GH of zero flow = GH _____ - depth at control _____ = _____ ft., rated _____

Sheet No. _____ of _____ sheets

27

alc 5000 (tm) by JBS Instruments
mware Version AQCUSH8c (c)1995-2000

GAGE ID#	00000013
DATE	12/28/2002
TRANSECT	02
USER ID#	4907
SH BEGIN	78.00
SH END	0.00
GH BEGIN	0.00
GH END	0.00
EST. DISCHARGE	0.00
EST. Q (ADJ)	0.27
METER ID#	90256
AQUACALC ID#	671
SOUNDING WT.	0
START MEAS. AT	LEW
METER TYPE	Pygmy ST2
METER CONST. C1	0.9604
METER CONST. C2	0.0312
METER CONST. C3	0.9604
METER CONST. C4	0.0312
METER CONST. C5	0.0
MEASUREMENT TIME	40
MEAS. SYSTEM	SAE
PERCENT SLOPE	0.00
TOTAL VERTICALS	15
TOTAL STATIONS	15
TOTAL WIDTH	4.20
TOTAL AREA	0.69
TOTAL DISCHARGE	0.272
PCT DIFFERENCE	0.0
MEAN VELOCITY	0.39
WETTED PERIMETER	4.28
HYDRAULIC RADIUS	0.16
MANNING FACTOR	0.00

OB	DIST	DEPTH	ICE	REVS	TIME	COS:VF	LOC	COEF	CLOCK	VEL	AREA	FLOW(Q)
1	0.00	0.00	0.00	0	0.0	1.00	6	1.00	10:55	0.000	0.000	0.000
2	0.30	0.20	0.00	6	20.3	1.00	6	1.00	10:55	0.315	0.060	0.019
3	0.60	0.25	0.00	7	21.3	1.00	6	1.00	10:55	0.347	0.075	0.026
4	0.90	0.30	0.00	8	21.9	1.00	6	1.00	10:56	0.382	0.090	0.034
5	1.20	0.28	0.00	11	20.1	1.00	6	1.00	10:39	0.557	0.084	0.047
6	1.50	0.20	0.00	12	20.2	1.00	6	1.00	10:40	0.602	0.060	0.036
7	1.80	0.20	0.00	15	24.3	1.00	6	1.00	10:41	0.624	0.060	0.037
8	2.10	0.19	0.00	22	40.7	1.00	6	1.00	10:42	0.550	0.057	0.031
9	2.40	0.15	0.00	17	40.3	1.00	6	1.00	10:44	0.436	0.045	0.020
10	2.70	0.15	0.00	6	21.4	1.00	6	1.00	10:46	0.300	0.045	0.014
11	3.00	0.10	0.00	11	21.1	1.00	S	1.00	10:47	0.532	0.030	0.002
12	3.30	0.10	0.00	12	24.1	1.00	S	1.00	10:50	0.509	0.030	0.002
13	3.60	0.10	0.00	12	22.4	1.00	S	1.00	10:50	0.546	0.030	0.002
14	3.90	0.10	0.00	12	24.3	1.00	S	1.00	10:51	0.505	0.030	0.002
15	4.20	0.00	0.00	0	0.0	1.00	6	1.00	10:53	0.000	0.000	0.000

HWM inside/outside:

Control: Cobble/dam, 4' upstream side of ... (PZ5)

Remarks: Epc = 24.7, 42.8
TPD from RM2 = 23.9 cm @ 1000 TPD = 22.0 e .01

GH of zero flow = GH ______ - depth at control ______ = ______ ft, rated ______

Sheet No. ______ of ______ sheets

~~[illegible]~~ - installed stage manually - [illegible] - not flowing

C1 - Commonwealth   12/28/02

KC, JG, PS   JG, PS, KC

arrive ~9:40

N_2 tank - 500 psi

N_2 reg = 13 psi

bubble rate was ~90 b/sec, now ~~24~~ 22

pH = 5.58 @ 9:50 AM

Temp Wtr = 2.6 °C @ 9:50 AM

Collected Stream Chem samples

Sp Cond 42.5 µS, 24.7 µS @ 9:55

15 min ago

01: 8.4566 = Stg

02: 9.8047 = Air temp

05: 13.534 = Battery voltg

15 sec scan

01 8.4523 = Stg

02 9.4238 = Air temp

05 13.521 = Battery Voltg

N_2 is really low

SNOOP test - leak b/w tank + regulator

tightened connexn

Re SNOOP test again → no leak

To Do Next Time

Bring new N_2 tank

Orifice line should be ⊥ to flow

Ask Chris - bent rebar, what is stg level recording

Return empty N_2 tank

Return Trubble Bubble to Commonwealth

pH meter calibrated @ 9:45

wx: CC 35% cirrocumulus

wind ~5-10 mph from NE

air temp

flow present

stage height - several other measurements in Petes notes

A: top down = 81. cm @ 9:54

B: top down = 78.5 cm @ 9:54

C: top down = 78.8 cm @ 9:54

control looks good

need to move orifice so that it is not pointing upstream

orifice was clear of sediment

DATA Logger

channels recorded earlier

S/m 3 data logger settings o.k

2002, 362, 1022 @ 10:22 on JG's watch

Inside stg Ch.1 = 8.4573 @ 11:23 } every 15 sec

8.4509 @ 11:23 }

Commonwealth

	BS	H.Inst	F.S.	Elev	Notes
RM1	4.385	14.385		10.00	30' DSH
RP2	~~5.110~~		5.110	9.275	rock in ch.
RP3	~~3.355~~		3.355	11.030	rebar, 15 bent
orifice	~~5.970~~		5.970	8.415	
PZF	~~6.285~~		6.285	8.100	difficult to repeat
~~bank~~					4. mark of pool
RM1	4.385	14.385			
Turning Pt ("turned" by changing height)					
RM1	4.990	14.990		10.000	
RP2	5.716		5.716	9.274	
RP3	3.960		3.960	11.030	
orifice	~~6.578~~		6.578	8.412	
PZF	~~6.890~~		6.890	8.100	
RM1	4.990	14.990			
water surface			6.520		11:28
new orifice			6.801		*
RM1	4.990				see next page

Photo - orifice line not ⊥ to flow

Changing orifice line

finished changing orifice @ 1145

moved lower and pointed ⊥ to flow * re-shot orifice w/ level and closed surveying

also dug out some sand to lower orifice line

took photos on Karch's camera # KG-169

Purged orifice line

25/25 bubbles/min - ran off flow