WASHINGTON STATE DEPARTMENT OF ECOLOGY

Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information	
File Name	HC1.WAD
Start Date and Time	2010/01/11 10:20:09

Site Details	
Site Name	HC1
Operator(s)	MGW

System Information	
Sensor Type	FlowTracker
Serial #	P1789
CPU Firmware Version	3.4
Software Ver	2.11

Units	(English Units)
Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	1.1%
Velocity	1.6%	5.4%
Width	0.1%	0.1%
Method	1.3%	-
# Stations	2.3%	-
Overall	**3.2%**	**5.6%**

Summary

Averaging Int.	40	# Stations	22
Start Edge	REW	Total Width	12.700
Mean SNR	25.8 dB	Total Area	14.217
Mean Temp	35.65 °F	Mean Depth	1.119
Disch. Equation	Mid-Section	Mean Velocity	0.2292
		Total Discharge	**3.2590**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:20	4.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*10:20*	*6.00*	*0.6*	*0.670*	*0.6*	*0.268*	*0.0295*	*1.00*	*0.0295*	*1.005*	*0.0297*	*0.9*
2	*10:21*	*7.50*	*0.6*	*0.940*	*0.6*	*0.376*	*-0.0259*	*1.00*	*-0.0259*	*1.410*	*-0.0365*	*-1.1*
3	*10:22*	*9.00*	*0.6*	*0.910*	*0.6*	*0.364*	*-0.0062*	*1.00*	*-0.0062*	*1.365*	*-0.0085*	*-0.3*
4	*10:23*	*10.50*	*0.6*	*1.100*	*0.6*	*0.440*	*0.0387*	*1.00*	*0.0387*	*1.100*	*0.0426*	*1.3*
5	*10:24*	*11.00*	*0.6*	*1.100*	*0.6*	*0.440*	*0.1250*	*1.00*	*0.1250*	*0.495*	*0.0619*	*1.9*
6	*10:25*	*11.40*	*0.6*	*1.120*	*0.6*	*0.448*	*0.1847*	*1.00*	*0.1847*	*0.448*	*0.0827*	*2.5*
7	*10:27*	*11.80*	*0.6*	*1.340*	*0.6*	*0.536*	*0.4570*	*1.00*	*0.4570*	*0.536*	*0.2449*	*7.5*
8	10:28	12.20	0.6	1.480	0.6	0.592	0.5495	1.00	0.5495	0.518	0.2847	8.7
9	10:29	12.50	0.2/0.8	1.530	0.2	1.224	0.8100	1.00	0.7311	0.459	0.3358	10.3
9	10:30	12.50	0.2/0.8	1.530	0.8	0.306	0.6522					
10	*10:32*	*12.80*	*0.8/0.2*	*1.670*	*0.2*	*1.336*	*0.8337*	*1.00*	*0.6288*	*0.501*	*0.3152*	*9.7*
10	*10:31*	*12.80*	*0.8/0.2*	*1.670*	*0.8*	*0.334*	*0.4239*					
11	*10:33*	*13.10*	*0.2/0.8*	*1.800*	*0.2*	*1.440*	*0.7556*	*1.00*	*0.5407*	*0.540*	*0.2921*	*9.0*
11	*10:35*	*13.10*	*0.2/0.8*	*1.800*	*0.8*	*0.360*	*0.3258*					
12	*10:37*	*13.40*	*0.8/0.2*	*1.700*	*0.2*	*1.360*	*0.6903*	*1.00*	*0.6073*	*0.510*	*0.3099*	*9.5*
12	*10:36*	*13.40*	*0.8/0.2*	*1.700*	*0.8*	*0.340*	*0.5243*					
13	*10:38*	*13.70*	*0.2/0.8*	*1.880*	*0.2*	*1.504*	*0.5945*	*1.00*	*0.6350*	*0.564*	*0.3584*	*11.0*
13	*10:39*	*13.70*	*0.2/0.8*	*1.880*	*0.8*	*0.376*	*0.6755*					
14	*10:41*	*14.00*	*0.8/0.2*	*1.890*	*0.2*	*1.512*	*0.3960*	*1.00*	*0.4700*	*0.567*	*0.2667*	*8.2*
14	*10:40*	*14.00*	*0.8/0.2*	*1.890*	*0.8*	*0.378*	*0.5440*					
15	*10:43*	*14.30*	*0.2/0.8*	*1.790*	*0.2*	*1.432*	*0.2963*	*1.00*	*0.3880*	*0.537*	*0.2085*	*6.4*
15	*10:44*	*14.30*	*0.2/0.8*	*1.790*	*0.8*	*0.358*	*0.4797*					
16	10:46	14.60	0.8/0.2	1.800	0.2	1.440	0.2730	1.00	0.3307	0.629	0.2080	6.4
16	10:45	14.60	0.8/0.2	1.800	0.8	0.360	0.3885					
17	*10:47*	*15.00*	*0.2/0.8*	*1.800*	*0.2*	*1.440*	*0.2172*	*1.00*	*0.2239*	*0.809*	*0.1811*	*5.6*
17	*10:48*	*15.00*	*0.2/0.8*	*1.800*	*0.8*	*0.360*	*0.2306*					
18	*10:50*	*15.50*	*0.8/0.2*	*1.630*	*0.2*	*1.304*	*0.1391*	*1.00*	*0.1301*	*0.815*	*0.1060*	*3.3*
18	*10:49*	*15.50*	*0.8/0.2*	*1.630*	*0.8*	*0.326*	*0.1211*					
19	10:52	16.00	0.6	1.350	0.6	0.540	-0.0121	1.00	-0.0121	0.675	-0.0082	-0.3
20	*10:53*	*16.50*	*0.6*	*1.220*	*0.6*	*0.488*	*-0.0217*	*1.00*	*-0.0217*	*0.732*	*-0.0159*	*-0.5*
21	10:53	17.20	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

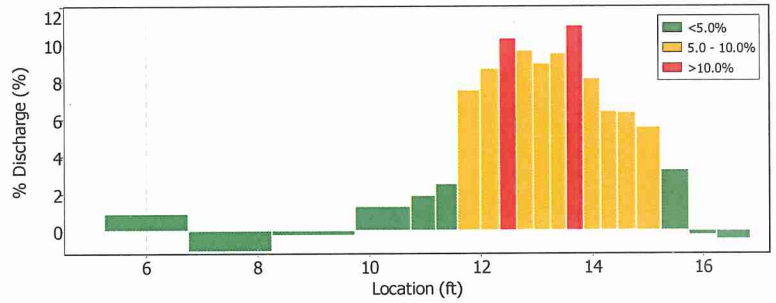
WASHINGTON STATE DEPARTMENT OF ECOLOGY

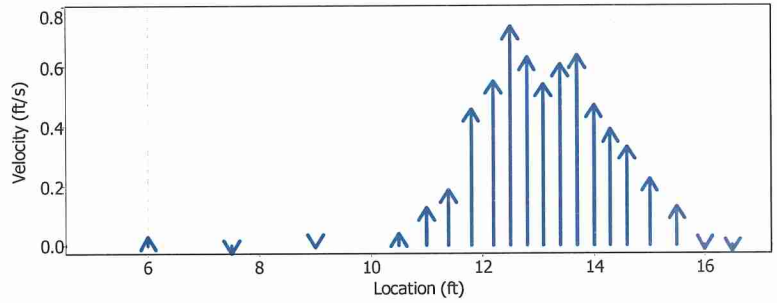
Discharge Measurement Summary

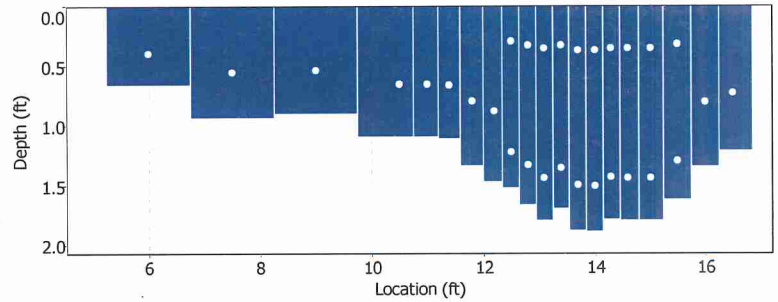
Date Generated: Tue Feb 2 2010

File Information
File Name HC1.WAD
Start Date and Time 2010/01/11 10:20:09

Site Details
Site Name HC1
Operator(s) MGW







WASHINGTON STATE DEPARTMENT OF ECOLOGY

Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information		Site Details	
File Name	HC1.WAD	Site Name	HC1
Start Date and Time	2010/01/11 10:20:09	Operator(s)	MGW

Quality Control

St	Loc	%Dep	Message
1	6.00	0.6	High differences in beam SNR: 33.1,44.7
		0.6	SNR (38.9) is different from typical SNR (25.8)
		0.6	High SNR variation during measurement: 5.2,4.7
2	7.50	0.6	High angle: 131
		0.6	SNR (47.1) is different from typical SNR (25.8)
3	9.00	0.6	SNR (44.9) is different from typical SNR (25.8)
4	10.50	0.6	High angle: 45
		0.6	SNR (44.1) is different from typical SNR (25.8)
5	11.00	0.6	High angle: 35
		0.6	SNR (40.6) is different from typical SNR (25.8)
6	11.40	0.6	High angle: 25
		0.6	SNR (41.1) is different from typical SNR (25.8)
		0.6	High SNR variation during measurement: 7.7,7.7
7	11.80	0.6	High SNR variation during measurement: 4.7,5.2
10	12.80	0.8	High standard error: 0.040
11	13.10	0.2	High standard error: 0.048
		0.8	High standard error: 0.039
12	13.40	0.8	High standard error: 0.041
13	13.70	0.8	High standard error: 0.039
14	14.00	0.8	High standard error: 0.036
15	14.30	0.8	High angle: 27
17	15.00	0.2	High angle: 22
		0.8	High angle: 27
18	15.50	0.8	High angle: 52
20	16.50	0.6	High angle: 111
		0.6	Boundary QC is Poor; possible boundary interference

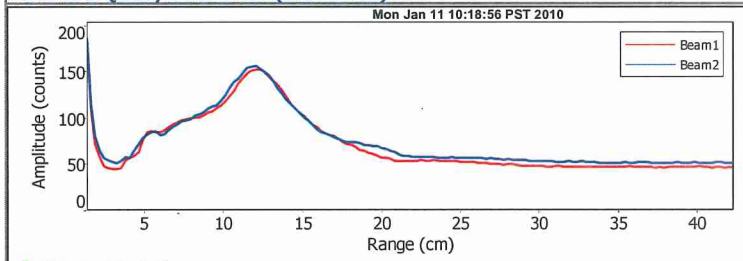
WASHINGTON STATE DEPARTMENT OF ECOLOGY

Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information		Site Details	
File Name	HC1.WAD	Site Name	HC1
Start Date and Time	2010/01/11 10:20:09	Operator(s)	MGW

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information	
File Name	HC3.WAD
Start Date and Time	2010/01/11 11:33:54

Site Details	
Site Name	HC2
Operator(s)	MGW

System Information	
Sensor Type	FlowTracker
Serial #	P1789
CPU Firmware Version	3.4
Software Ver	2.11

Units	(English Units)
Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty		
Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	1.6%
Velocity	0.8%	3.7%
Width	0.1%	0.1%
Method	1.7%	-
# Stations	2.0%	-
Overall	**2.9%**	**4.2%**

Summary			
Averaging Int.	40	# Stations	25
Start Edge	REW	Total Width	27.200
Mean SNR	34.0 dB	Total Area	23.456
Mean Temp	43.71 °F	Mean Depth	0.862
Disch. Equation	Mid-Section	Mean Velocity	0.3239
		Total Discharge	**7.5975**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	11:33	5.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	11:33	8.00	0.6	0.320	0.6	0.128	0.1886	1.00	0.1886	0.720	0.1358	1.8
2	11:34	9.50	0.6	0.320	0.6	0.128	0.2615	1.00	0.2615	0.480	0.1255	1.7
3	11:36	11.00	0.6	0.600	0.6	0.240	0.1621	1.00	0.1621	0.810	0.1313	1.7
4	11:37	12.20	0.6	0.670	0.6	0.268	0.2923	1.00	0.2923	0.804	0.2350	3.1
5	11:38	13.40	0.6	0.880	0.6	0.352	0.3645	1.00	0.3645	0.968	0.3528	4.6
6	11:39	14.40	0.6	1.000	0.6	0.400	0.3156	1.00	0.3156	1.000	0.3155	4.2
7	11:40	15.40	0.6	1.150	0.6	0.460	0.3471	1.00	0.3471	1.150	0.3990	5.3
8	11:41	16.40	0.6	1.120	0.6	0.448	0.2559	1.00	0.2559	1.120	0.2865	3.8
9	11:42	17.40	0.6	1.150	0.6	0.460	0.3461	1.00	0.3461	1.150	0.3979	5.2
10	11:43	18.40	0.6	1.100	0.6	0.440	0.3802	1.00	0.3802	1.100	0.4182	5.5
11	11:44	19.40	0.6	1.230	0.6	0.492	0.4242	1.00	0.4242	1.230	0.5216	6.9
12	11:45	20.40	0.6	1.110	0.6	0.444	0.4213	1.00	0.4213	1.110	0.4674	6.2
13	11:47	21.40	0.6	1.210	0.6	0.484	0.3602	1.00	0.3602	1.210	0.4357	5.7
14	11:48	22.40	0.6	1.110	0.6	0.444	0.2982	1.00	0.2982	1.110	0.3309	4.4
15	11:49	23.40	0.6	1.030	0.6	0.412	0.3550	1.00	0.3550	1.030	0.3655	4.8
16	11:50	24.40	0.6	1.230	0.6	0.492	0.3091	1.00	0.3091	1.230	0.3800	5.0
17	11:51	25.40	0.6	1.190	0.6	0.476	0.3556	1.00	0.3556	1.190	0.4231	5.6
18	11:52	26.40	0.6	1.170	0.6	0.468	0.3842	1.00	0.3842	1.170	0.4493	5.9
19	11:54	27.40	0.6	1.310	0.6	0.524	0.2762	1.00	0.2762	1.310	0.3618	4.8
20	11:55	28.40	0.6	1.100	0.6	0.440	0.3573	1.00	0.3573	1.100	0.3929	5.2
21	11:56	29.40	0.6	0.970	0.6	0.388	0.4879	1.00	0.4879	0.972	0.4744	6.2
22	11:57	30.40	0.6	0.970	0.6	0.388	0.2533	1.00	0.2533	0.779	0.1972	2.6
23	*11:59*	*31.00*	*0.6*	*0.800*	*0.6*	*0.320*	*0.0003*	*1.00*	*0.0003*	*0.720*	*0.0002*	*0.0*
24	11:59	32.20	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

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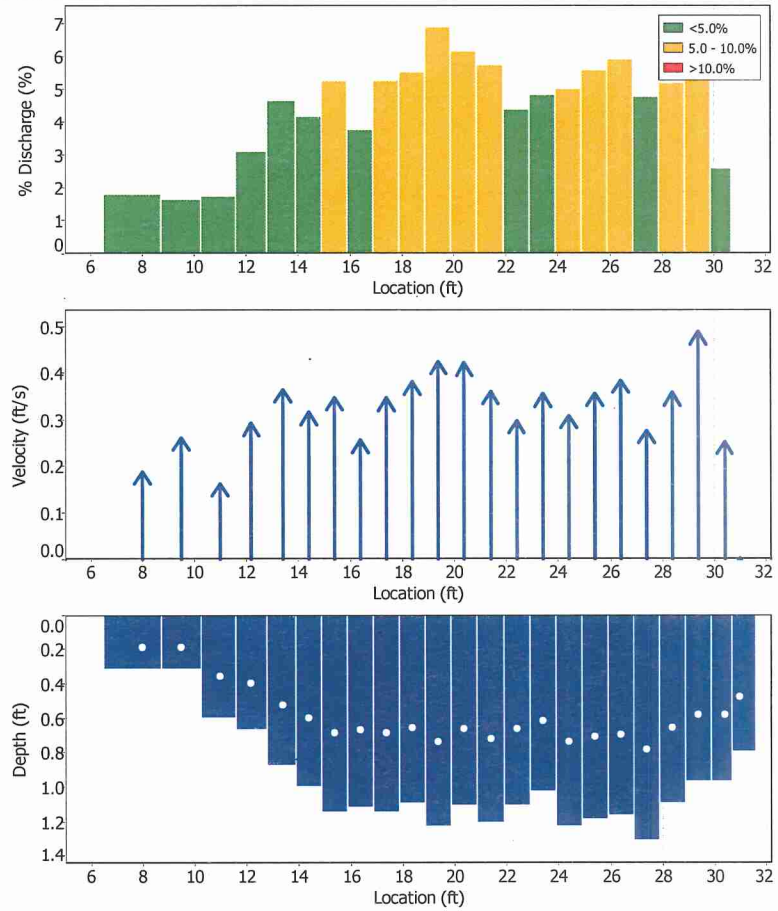
WASHINGTON STATE DEPARTMENT OF ECOLOGY

Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information
File Name HC3.WAD
Start Date and Time 2010/01/11 11:33:54

Site Details
Site Name HC2
Operator(s) MGW



WASHINGTON STATE DEPARTMENT OF ECOLOGY

Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information		Site Details	
File Name	HC3.WAD	Site Name	HC2
Start Date and Time	2010/01/11 11:33:54	Operator(s)	MGW

Quality Control

St	Loc	%Dep	Message
23	31.00	0.6	SNR (57.0) is different from typical SNR (34.0)
		0.6	High SNR variation during measurement: 2.6,5.2
		0.6	Boundary QC is Good; possible boundary interference

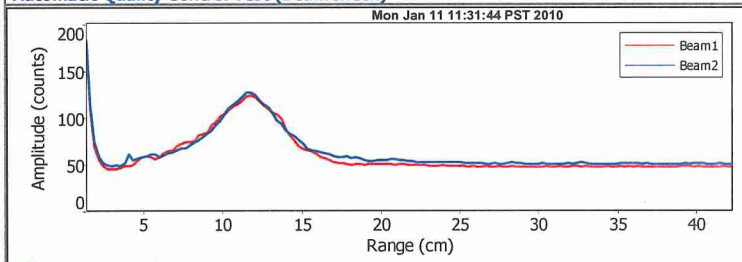
WASHINGTON STATE DEPARTMENT OF ECOLOGY

Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information		Site Details	
File Name	HC3.WAD	Site Name	HC2
Start Date and Time	2010/01/11 11:33:54	Operator(s)	MGW

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information

File Name	HC5.WAD
Start Date and Time	2010/01/11 12:24:57

Site Details

Site Name	HC5
Operator(s)	MGW

System Information

Sensor Type	FlowTracker
Serial #	P1789
CPU Firmware Version	3.4
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	1.1%
Velocity	0.8%	2.7%
Width	0.1%	0.1%
Method	1.7%	-
# Stations	2.0%	-
Overall	**2.9%**	**3.0%**

Summary

Averaging Int.	40	# Stations	26
Start Edge	REW	Total Width	13.295
Mean SNR	32.2 dB	Total Area	11.643
Mean Temp	41.87 °F	Mean Depth	0.876
Disch. Equation	Mid-Section	Mean Velocity	1.1333
		Total Discharge	**13.1940**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:24	4.70	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:24	6.00	0.6	1.130	0.6	0.452	0.0449	1.00	0.0449	1.299	0.0584	0.4
2	12:26	7.00	0.6	1.270	0.6	0.508	0.4888	1.00	0.4888	0.889	0.4346	3.3
3	12:27	7.40	0.6	1.200	0.6	0.480	0.5978	1.00	0.5978	0.480	0.2869	2.2
4	12:28	7.80	0.6	1.270	0.6	0.508	0.8504	1.00	0.8504	0.508	0.4319	3.3
5	12:29	8.20	0.6	1.180	0.6	0.472	0.9741	1.00	0.9741	0.472	0.4597	3.5
6	12:30	8.60	0.6	1.110	0.6	0.444	1.1099	1.00	1.1099	0.444	0.4927	3.7
7	12:31	9.00	0.6	1.200	0.6	0.480	1.3770	1.00	1.3770	0.480	0.6609	5.0
8	12:32	9.40	0.6	1.300	0.6	0.520	1.6759	1.00	1.6759	0.520	0.8712	6.6
9	12:33	9.80	0.6	1.320	0.6	0.528	1.9879	1.00	1.9879	0.528	1.0493	8.0
10	12:34	10.20	0.6	1.300	0.6	0.520	2.1969	1.00	2.1969	0.520	1.1421	8.7
11	12:35	10.60	0.6	1.320	0.6	0.528	2.0417	1.00	2.0417	0.528	1.0777	8.2
12	12:36	11.00	0.6	1.120	0.6	0.448	1.7684	1.00	1.7684	0.448	0.7922	6.0
13	12:37	11.40	0.6	1.200	0.6	0.480	1.6004	1.00	1.6004	0.480	0.7681	5.8
14	*12:38*	*11.80*	*0.6*	*1.100*	*0.6*	*0.440*	*1.4085*	*1.00*	*1.4085*	*0.440*	*0.6197*	*4.7*
15	*12:39*	*12.20*	*0.6*	*1.000*	*0.6*	*0.400*	*1.4068*	*1.00*	*1.4068*	*0.400*	*0.5626*	*4.3*
16	12:41	12.60	0.6	0.900	0.6	0.360	1.5584	1.00	1.5584	0.360	0.5609	4.3
17	12:41	13.00	0.6	0.800	0.6	0.320	1.4085	1.00	1.4085	0.360	0.5075	3.8
18	12:43	13.50	0.6	0.650	0.6	0.260	1.5279	1.00	1.5279	0.326	0.4975	3.8
19	12:44	14.00	0.6	0.600	0.6	0.240	1.7024	1.00	1.7024	0.301	0.5118	3.9
20	*12:45*	*14.50*	*0.6*	*0.580*	*0.6*	*0.232*	*1.2139*	*1.00*	*1.2139*	*0.291*	*0.3528*	*2.7*
21	12:46	15.00	0.6	0.580	0.6	0.232	1.3448	1.00	1.3448	0.291	0.3908	3.0
22	12:47	15.50	0.6	0.620	0.6	0.248	1.3097	1.00	1.3097	0.311	0.4069	3.1
23	12:48	16.00	0.6	0.670	0.6	0.268	0.5118	1.00	0.5118	0.501	0.2565	1.9
24	*12:49*	*17.00*	*0.6*	*0.470*	*0.6*	*0.188*	*0.0030*	*1.00*	*0.0030*	*0.468*	*0.0014*	*0.0*
25	12:49	18.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

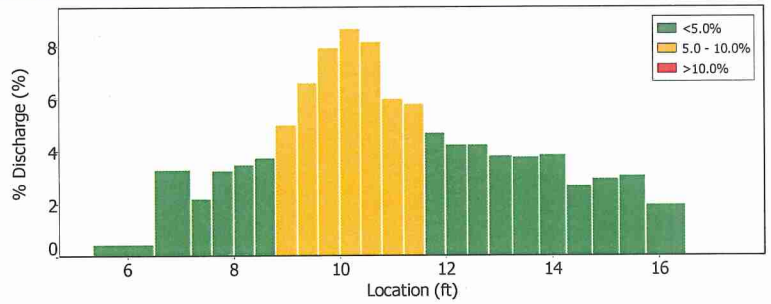
WASHINGTON STATE DEPARTMENT OF ECOLOGY

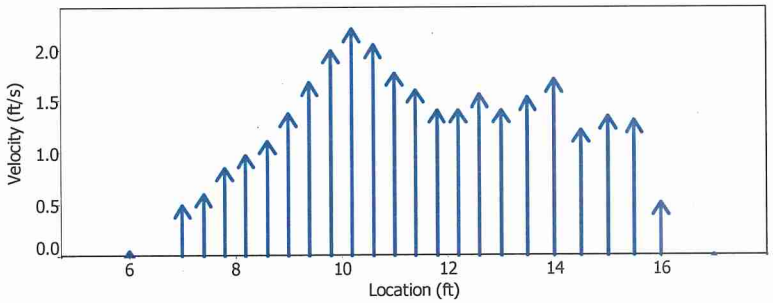
Discharge Measurement Summary

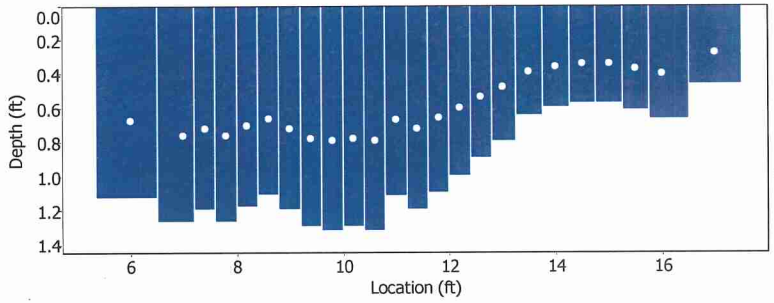
Date Generated: Tue Feb 2 2010

File Information
File Name HC5.WAD
Start Date and Time 2010/01/11 12:24:57

Site Details
Site Name HC5
Operator(s) MGW







WASHINGTON STATE DEPARTMENT OF ECOLOGY

Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information	
File Name	HC5.WAD
Start Date and Time	2010/01/11 12:24:57

Site Details	
Site Name	HC5
Operator(s)	MGW

Quality Control

St	Loc	%Dep	Message
14	11.80	0.6	High standard error: 0.075
15	12.20	0.6	High number of spikes: 5
20	14.50	0.6	High number of spikes: 5
24	17.00	0.6	High number of spikes: 6
		0.6	SNR (51.4) is different from typical SNR (32.2)
		0.6	High SNR variation during measurement: 7.3,9.9

WASHINGTON STATE DEPARTMENT OF ECOLOGY

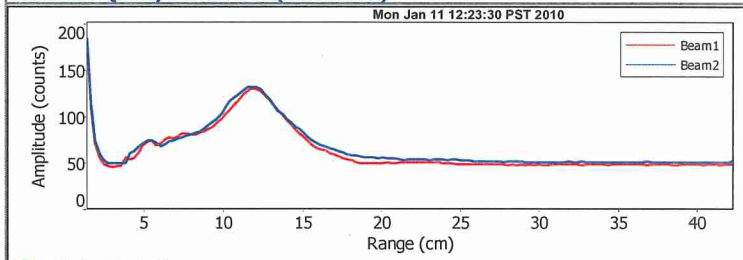
Discharge Measurement Summary

Date Generated: Tue Feb 2 2010

File Information
File Name HC5.WAD
Start Date and Time 2010/01/11 12:24:57

Site Details
Site Name HC5
Operator(s) MGW

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass