8-30-2008

Ex. 277-US-432

Unknown

Stream: Williamson
Site: 628 (End of Kirk Canyon to Spring Creek)
Date: 9/22/1990
Habitat: Run **Flow:** Low

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.41	105.41		
HP1			5.36	100.05
HP2			6.40	99.01
HP3			6.00	99.41
TP HP3	6.10	105.51		
HP2			6.50	99.01
HP1			5.47	100.04
BM			5.51	100.00

Comment: on the tape is on the LWP (looking upstream)

(2) Water Surface Elevation (WSE) Survey

	L/R WSE	Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
TR1	LWSE	66.6	104.56	7.55	0.00	97.01	96.99	22.52
	RWSE			7.60	0.00	96.96		
TR2	LWSE	44.4	102.84	5.83	0.00	97.01	97.01	15.65
	RWSE			5.83	0.00	97.01		
TR3	LWSE	14.8	102.80	5.76	0.00	97.04	97.18	20.85
	RWSE			5.49	0.00	97.31		
						Ave Q=		19.67

Note:
WSE slope = 0.367%

Date: 4/10/1991
Habitat: Run **Flow:** Mid

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	11.00	111.00		100.00
HP1			10.96	100.04
HP2			12.00	99.00
HP3			11.60	99.40
TP HP3	11.26	110.66		
HP2			11.67	98.99
HP1			10.62	100.04
BM			10.66	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

	L/R WSE	Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
TR1	LWSE	66.6	110.66	12.92	0.00	97.74	97.73	173.80
	RWSE			12.94	0.00	97.72		
TR2	LWSE	44.4	110.66	12.83	0.00	97.83	97.80	154.59
	RWSE			12.89	0.00	97.77		
TR3	LWSE	14.8	110.66	12.45	0.00	98.21	98.26	170.07
	RWSE			12.36	0.00	98.30		
						Ave Q=		166.15

Note:
WSE slope = 1.014%

Date: 5/27/1993
Habitat: Run **Flow:** High

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	8.67	108.67		100.00
HP1			8.64	100.03
HP2			9.68	98.99
HP3			9.26	99.41
TP HP3	9.35	108.76		
HP2			9.76	99.00
HP1			8.78	99.98
BM			8.76	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

	L/R WSE	Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
TR1	LWSE	66.6	108.76	11.01	0.00	97.75	97.73	
	RWSE			11.05	0.00	97.71		
TR2	LWSE	44.4	108.76	10.93	0.00	97.83	97.81	151.64
	RWSE			10.98	0.00	97.78		
TR3	LWSE	14.8	108.76	10.55	0.00	98.21	98.27	
	RWSE			10.43	0.00	98.33		
						Ave Q=		151.64

Note:
WSE slope = 1.042%

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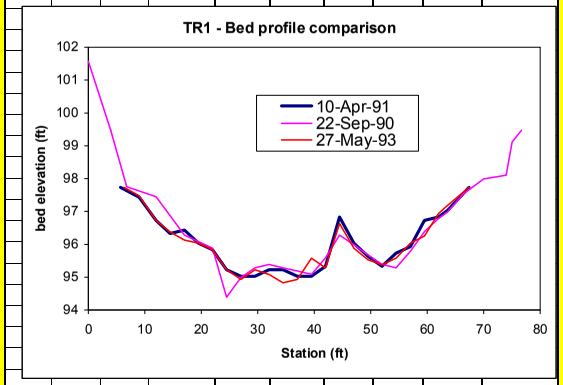
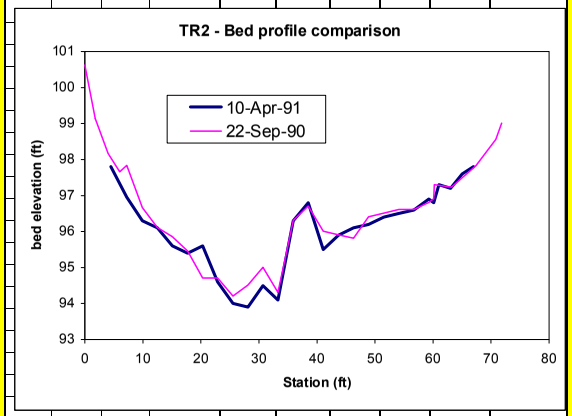
Stream:	Williamson		22-Sep-90									10-Apr-91										27-May-93									
Site:	628			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	1			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Run																														
			LWP	0.0	2.99	101.57						1.1	LWP	0.0									LWP	0.0								
Survey	HI	Q		4.0	5.10	99.46						7.7	LWE	5.7		97.73	0.00	0.00		0.00	0.00	6.7	LWE	6.3		97.73	0.00					
Date	(ft)	(cfs)		6.8	6.81	97.75						6.7		9.0		97.43	0.30	0.20		0.20	0.19	6.7		9.0		97.48	0.25					
9/22/1990	104.56	22.5	LWE	12.0	7.11	97.45	0.50	0.19		0.19	0.24	7.5		12.0		96.73	1.00	1.20		1.20	3.30	7.5		12.0		96.73	1.00					
4/10/1991	110.66	173.8		17.0		96.29	0.70	0.71		0.71	1.86	7.5		14.5		96.33	1.40	0.01		0.01	0.04	7.5		14.5		96.38	1.35					
5/27/1993	108.76			19.5		96.09	0.90	0.55		0.55	1.24	6.5		17.0		96.43	1.30	2.40		2.40	7.80	7.5		17.0		96.13	1.60					
				22.0		95.89	1.10	0.37		0.37	1.02	6.7		19.5		96.03	1.70	2.10		2.10	8.93	6.5		19.5		96.03	1.70					
				24.5		94.39	2.60	-0.06	0.28	0.11	0.72	6.7		22.0		95.83	1.90	2.40		2.40	11.40	6.7		22.0		95.83	1.90					
				27.0		94.99	2.00	0.59		0.59	2.95	6.7		24.5		95.23	2.50	2.40	1.20	1.80	11.25	6.7		24.5		95.23	2.50					
				29.5		95.29	1.70	0.71		0.71	3.02	6.7		27.0		95.03	2.70	2.90	1.60	2.25	15.19	6.7		27.0		94.93	2.80					
				32.0		95.39	1.60	-0.03		-0.03	-0.12	7.5		29.5		95.03	2.70	2.60	2.00	2.30	15.53	6.7		29.5		95.23	2.50					
				34.5		95.29	1.70	0.15		0.15	0.64	7.6		32.0		95.23	2.50	2.90	-0.40	1.25	7.81	7.5		32.0		95.08	2.65					
				37.0		95.19	1.80	0.45		0.45	2.03	6.7		34.5		95.23	2.50	4.20	1.90	3.05	19.06	7.6		34.5		94.83	2.90					
				39.5		95.09	1.90	0.64		0.64	3.04	6.7		37.0		95.03	2.70	3.40	1.30	2.35	15.86	6.7		37.0		94.93	2.80					
				42.0		95.59	1.40	0.94		0.94	3.29	6.7		39.5		95.03	2.70	3.40	2.10	2.75	18.56	6.7		39.5		95.58	2.15					
				44.5		96.29	0.70	0.08		0.08	0.14	7.6		42.0		95.33	2.40	2.00		2.00	12.00	6.7		42.0		95.28	2.45					
				47.0		95.99	1.00	0.20		0.20	0.50	7.4		44.5		96.83	0.90	2.00		2.00	4.50	7.6		44.5		96.63	1.10					
				49.5		95.69	1.30	0.07		0.07	0.23	7.4		47.0		96.03	1.70	0.80		0.80	3.40	7.4		47.0		95.88	1.85					
				52.0		95.39	1.60	0.20		0.20	0.80	6.4		49.5		95.63	2.10	0.01		0.01	0.05	7.4		49.5		95.53	2.20					
				54.5		95.29	1.70	0.19		0.19	0.81	6.4		52.0		95.33	2.40	0.70		0.70	4.20	6.4		52.0		95.38	2.35					
				57.0		95.79	1.20	0.03		0.03	0.09	6.1		54.5		95.73	2.00	1.10		1.10	5.50	6.4		54.5		95.58	2.15					
				59.5		96.39	0.60	0.04		0.04	0.06	5.6		57.0		95.93	1.80	1.20		1.20	5.40	6.1		57.0		96.03	1.70					
				62.0		96.79	0.20	-0.04		-0.04	-0.02	5.4		59.5		96.73	1.00	0.90		0.90	2.25	5.6		59.5		96.25	1.48					
			RWE	63.6		96.99	0.00	0.00		0.00	0.00	5.4		62.0		96.83	0.90	0.50		0.50	0.92	5.4		62.0		96.94	0.79					
				66.4	7.03	97.53						1.5		63.6		97.03	0.70	0.35		0.35	0.66	5.4		63.6		97.18	0.55					
				70.0	6.57	97.99						1.1	RWE	67.4		97.73	0.00	0.00		0.00	0.00	1.5	RWE	67.4		97.73	0.00					
				74.0	6.46	98.10						1.1																				
				75.0	5.45	99.11						1.1																				
			RWP	76.7	5.09	99.47						1.1																				



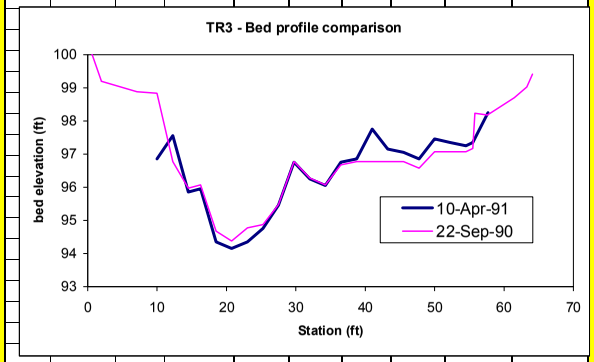
5/27/93 Surevy:
Bed Profile Check only.
No velocity or depth surveyed

Stream:	Williamson		22-Sep-90									10-Apr-91									27-May-93								
Site:	628			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	2			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Run												LWP	0.0																	
Survey	HI	Q											LWE	4.5		97.80	0.00	0.00		0.00	0.00	6.1									
Date	(ft)	(cfs)		0.0	2.21	100.63								7.2		96.95	0.85	0.01		0.01	0.02	7.7									
9/22/1990	102.84	15.7		1.8	3.70	99.14						1.1		9.9		96.30	1.50	0.01		0.01	0.04	6.2									
4/10/1991	110.66	154.6		4	4.67	98.17						6.1		12.5		96.10	1.70	0.30		0.30	1.33	6.2									
5/27/1993	108.76	151.6		6	5.18	97.66						6.7		15.1		95.60	2.20	0.40		0.40	2.29	5.2									
			LWE	7.2	5.00	97.84						7.7		17.7		95.40	2.40	0.20		0.20	1.25	6.2									
				9.9		96.66	0.35	0.01		0.01	0.00	6.2		20.3		95.60	2.20	0.40		0.40	2.29	6.2									
				12.5		96.11	0.90	0.01		0.01	0.02	6.2		22.9		94.60	3.20	0.80	0.00	0.40	3.33	7.2									
				15.1		95.86	1.15	0.01		0.01	0.03	5.2		25.5		94.00	3.80	1.20	0.20	0.70	6.92	6.2									
				17.7		95.46	1.55	0.01		0.01	0.04	6.2		28.1		93.90	3.90	2.00	1.00	1.50	15.21	7.2	LWE	4.5			0.00	0.00		0.00	0.00	
				20.3		94.71	2.30	0.26		0.26	1.55	6.2		30.7		94.50	3.30	1.60	1.40	1.50	12.87	6.2		5.0			0.60	0.33		0.33	0.15	
				22.9		94.71	2.30	0.22		0.22	1.32	7.2		33.3		94.10	3.70	3.40	0.50	1.95	18.76	7.2		6.0			0.70	0.40		0.40	0.42	
				25.5		94.21	2.80	0.10	0.10	0.10	0.73	6.2		35.9		96.30	1.50	4.10		4.10	15.99	7.7		8.0			0.85	1.75		1.75	2.98	
				28.1		94.51	2.50	-0.05	0.20	0.08	0.49	7.2		38.5		96.80	1.00	4.50		4.50	11.70	7.7		10.0			1.10	2.82		2.82	6.20	
				30.7		95.01	2.00	0.30		0.30	1.56	6.2		41.1		95.50	2.30	3.10		3.10	18.54	6.2		12.0			2.00	2.96		2.96	11.84	
				33.3		94.31	2.70	0.15	0.75	0.45	3.16	7.2		43.7		95.90	1.90	2.00		2.00	9.88	7.6		14.0			2.10	2.10		2.10	8.82	
				35.9		96.31	0.70	1.05		1.05	1.91	7.7		46.3		96.10	1.70	1.80		1.80	7.96	7.6		16.0			2.10	3.37		3.37	14.15	
				38.5		96.71	0.30	1.10		1.10	0.86	7.7		48.9		96.20	1.60	1.40		1.40	5.82	6.2		18.0			2.10	1.38		1.38	5.80	
				41.1		96.01	1.00	0.77		0.77	2.00	6.2		51.5		96.40	1.40	1.50		1.50	5.46	7.2		20.0			2.20	2.26		2.26	9.94	
				43.7		95.91	1.10	0.40		0.40	1.14	7.6		54.1		96.50	1.30	1.90		1.90	6.42	7.5		22.0			1.50	2.35		2.35	7.05	
				46.3		95.81	1.20	0.22		0.22	0.69	7.6		56.7		96.60	1.20	1.60		1.60	4.99	6.2		24.0			1.60	0.95		0.95	3.04	
				48.9		96.41	0.60	0.01		0.01	0.02	6.2		59.3		96.90	0.90	1.00		1.00	1.53	6.4		26.0			1.60	2.07		2.07	6.62	
				51.5		96.51	0.50	0.01		0.01	0.01	7.2		60.1		96.80	1.00	0.85		0.85	0.72	7.5		28.0			1.25	2.35		2.35	5.88	
				54.1		96.61	0.40	0.01		0.01	0.01	7.5		61.0		97.30	0.50	1.10		1.10	0.80	7.7		30.0			1.80	2.62		2.62	9.43	
				56.7		96.61	0.40	0.10		0.10	0.10	6.2		63.0		97.20	0.60	0.40		0.40	0.48	6.1		32.0			1.70	2.04		2.04	6.94	
				59.3		96.81	0.20	0.01		0.01	0.00	6.4		65.0		97.60	0.20	0.01		0.01	0.00	6.1		34.0			1.60	2.31		2.31	7.39	
				60.1		96.91	0.10	0.00		0.00	0.00	7.5	RWE	67.0		97.80	0.00	0.00		0.00	0.00	7.6		36.0			1.50	2.42		2.42	7.26	
			RWE	60.2	5.54	97.30						7.7												38.0			1.40	2.66		2.66	7.45	
				63.2	5.61	97.23						6.1												40.0			1.10	1.52		1.52	3.34	
				67.4	5.01	97.83						7.6												42.0			1.20	2.03		2.03	4.87	
			RWS	70.8	4.28	98.56						1.1												44.0			1.30	2.75		2.75	7.15	
			RHP	71.8	3.83	99.01																		46.0			1.25	2.15		2.15	5.38	
																								48.0			1.00	3.34		3.34	6.68	
																								50.0			0.50	1.67		1.67	1.67	
																								52.0			0.60	0.75		0.75	1.19	
																							RWE	55.3			0.00	0.00		0.00	0.00	



This is discharge measurement at Q-transect located just upstream of TR-1 (of Riffle habitat). Surevy was on 5/27/1993.

Stream:	Williamson		22-Sep-90										10-Apr-91										27-May-93									
Site:	628			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	3			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Run																															
				0.0	2.41	100.39						1.1	LWP	0.00																		
Survey	HI	Q		2.00	3.60	99.20						1.6	LWE	10.00		96.86	1.40	-0.10		-0.10	-0.16	7.7										
Date	(ft)	(cfs)		7.10	3.92	98.88						7.7		12.25		97.56	0.70	-0.10		-0.10	-0.16	7.7										
9/22/1990	102.80	20.8	LWE	10.00	3.96	98.84	0.30	0.01		0.01	0.00	7.7		14.50		95.86	2.40	0.10		0.10	0.48	7.7										
4/10/1991	110.66	170.1		12.25		96.78	0.40	0.01		0.01	0.01	7.7		16.25		95.96	2.30	0.01		0.01	0.05	7.6										
5/27/1993	108.76			14.50		95.98	1.2	-0.12		-0.12	-0.29	7.6		18.50		94.36	3.90	0.80	0.20	0.50	4.39	7.7										
				16.25		96.08	1.10	0.85		0.85	1.87	7.7		20.75		94.16	4.10	2.60	-0.10	1.25	11.53	7.7										
				18.50		94.68	2.50	0.25	0.75	0.50	2.81	7.7		23.00		94.36	3.90	4.70	2.60	3.65	32.03	7.6										
				20.75		94.38	2.80	0.50	1.15	0.83	5.20	7.7		25.25		94.76	3.50	4.30	3.00	3.65	28.74	6.6										
				23.00		94.78	2.40	0.6		0.60	3.24	6.7		27.50		95.46	2.80	2.80	2.50	2.65	16.70	7.6										
				25.25		94.88	2.30	0.4		0.40	2.07	6.6		29.75		96.76	1.50	2.80		2.80	9.45	7.6										
				27.50		95.48	1.70	0.65		0.65	2.49	7.6		32.00		96.26	2.00	4.00		4.00	18.00	7.6										
				29.75		96.78	0.40	1.2		1.20	1.08	7.7		34.25		96.06	2.20	1.80		1.80	8.91	7.7										
				32.00		96.28	0.90	0.25		0.25	0.51	7.6		36.50		96.76	1.50	-0.20		-0.20	-0.68	7.7										
				34.25		96.08	1.10	0.01		0.01	0.02	7.7		38.75		96.86	1.40	1.10		1.10	3.47	7.6										
				36.50		96.68	0.50	-0.15		-0.15	-0.17	7.7		41.00		97.76	0.50	-0.20		-0.20	-0.23	6.5										
				38.75		96.78	0.40	0.00		0.00	0.00	7.6		43.25		97.16	1.10	0.01		0.01	0.02	6.5										
				43.25		96.78	0.40	-0.15		-0.15	-0.20	6.5		45.50		97.06	1.20	3.40		3.40	9.18	7.5										
				45.50		96.78	0.40	0.42		0.42	0.38	7.5		47.75		96.86	1.40	4.10		4.10	12.92	6.5										
				47.75		96.58	0.60	1.35		1.35	1.82	6.5		50.00		97.46	0.80	3.80		3.80	6.84	7.5										
				50.00		97.08	0.10	0.01		0.01	0.00	7.5		52.25		97.36	0.90	2.80		2.80	5.67	5.2										
				54.50		97.08	0.10	0.01		0.01	0.00	5.2		54.50		97.26	1.00	1.00		1.00	1.63	5.2										
			RWE	55.50		97.18	0.00	0.00		0.00	0.00	7.5		55.50		97.36	0.90	0.90		0.90	1.30	7.5										
				55.80	4.57	98.23						7.7	RWE	57.70		98.26	0.00	0.00		0.00	0.00	7.7										
				57.60	4.62	98.18						1.1																				
				61.50	4.10	98.70						1.7																				
			RWS	63.30	3.77	99.03																										
			RHP	64.10	3.39	99.41																										



```
        Williamson R. WM_4 04/10/91
RUN                          HIGH                                    TRANSECT 1
IOC       11011000000001000101000
QARD  19.7
QARD  30.0
QARD  40.0
QARD  50.0
QARD  60.0
QARD  70.0
QARD  80.0
QARD  90.0
QARD 104.0
QARD 110.0
QARD 120.0
QARD 130.0
QARD 140.0
QARD 151.6
QARD 166.2
QARD 170.0
QARD 180.0
QARD 190.0
QARD 200.0
QARD 210.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 360.0
QARD 380.0
QARD 400.0
XSEC1000.0      0.00 1.0     94.39    0.01014
    1000.0  0.0101.6  4.099.46  5.797.73  6.897.75  9.097.43 12.096.73
    1000.0 14.596.33 17.096.43 19.596.03 22.095.83 24.595.23 27.095.03
    1000.0 29.595.03 32.095.23 34.595.23 37.095.03 39.595.03 42.095.33
    1000.0 44.596.83 47.096.03 49.595.63 52.095.33 54.595.73 57.095.93
    1000.0 59.596.73 62.096.83 63.697.03 66.497.53 67.497.73 70.097.99
    1000.0 74.098.10 75.099.11 76.799.47
NS  1000.0       1.1       7.7       6.7       6.7       6.7       7.5
NS  1000.0 0.5   7.5       7.5       6.5       6.7       6.7       6.7
NS  1000.0       6.7 .15   7.5       7.6       6.7       6.7       6.7
NS  1000.0       7.6       7.4 .5    7.4       6.4       6.4       6.1
NS  1000.0       5.6       5.4       5.4  .4   1.5  .4   1.5       1.1
NS  1000.0       1.1       1.1       1.1
CAL11000.0     97.72     166.2
VEL11000.0           0.00 0.07 0.20 1.20 0.01 2.40 2.10 2.40 1.80 2.25
VEL11000.0 2.30 1.25 3.05 2.35 2.75 2.00 2.00 0.80 0.01 0.70 1.10 1.20
VEL11000.0 0.90 0.50 0.35 0.09 0.00
CAL21000.0     96.96      19.7
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0     97.71     151.6
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ
```

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        Williamson R. WM_4 04/10/91
RUN                          HIGH                                    TRANSECT 2
IOC       1101100000001000101000
QARD  19.7
QARD  30.0
QARD  40.0
QARD  50.0
QARD  60.0
QARD  70.0
QARD  80.0
QARD  90.0
QARD 104.0
QARD 110.0
QARD 120.0
QARD 130.0
QARD 140.0
QARD 151.6
QARD 166.2
QARD 170.0
QARD 180.0
QARD 190.0
QARD 200.0
QARD 210.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 360.0
QARD 380.0
QARD 400.0
XSEC1000.0      0.00 1.0     94.39    0.01014
    1000.0  0.0100.0  1.899.14  4.098.17  4.597.80  6.097.66  7.296.95
    1000.0  9.996.30 12.596.10 15.195.60 17.795.40 20.395.60 22.994.60
    1000.0 25.594.00 28.193.90 30.794.50 33.394.10 35.996.30 38.596.80
    1000.0 41.195.50 43.795.90 46.396.10 48.996.20 51.596.40 54.196.50
    1000.0 56.796.60 59.396.90 60.196.80 61.097.30 63.097.20 65.097.60
    1000.0 67.097.80 70.898.56 71.899.01
NS  1000.0       1.1       1.1       6.1 .5    6.1 .5    6.7 .5    7.7
NS  1000.0  .5   6.2       6.2       5.2 .7    6.2       6.2       7.2
NS  1000.0       6.2       7.2       6.2       7.2       7.7       7.7
NS  1000.0       6.2       7.6       7.6       6.2       7.2       7.5
NS  1000.0       6.2       6.4       7.5       7.7       6.1       6.1
NS  1000.0       7.6       1.1       1.1
CAL11000.0     97.77     166.2
VEL11000.0                0.00 0.01 0.01 0.01 0.30 0.40 0.20 0.40 0.40
VEL11000.0 0.70 1.50 1.50 1.95 4.10 4.50 3.10 2.00 1.80 1.40 1.50 1.90
VEL11000.0 1.60 1.00 0.85 1.10 0.40 0.01 0.00
CAL21000.0     97.01      19.7
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0     97.78     151.6
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ
```

```
        Williamson R. WM_4 04/10/91
RUN                          HIGH                                    TRANSECT 4
IOC       1101100000001000101000
QARD  19.7
QARD  30.0
QARD  40.0
QARD  50.0
QARD  60.0
QARD  70.0
QARD  80.0
QARD  90.0
QARD 104.0
QARD 110.0
QARD 120.0
QARD 130.0
QARD 140.0
QARD 151.6
QARD 166.2
QARD 170.0
QARD 180.0
QARD 190.0
QARD 200.0
QARD 210.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 360.0
QARD 380.0
QARD 400.0
XSEC1000.0      0.00 1.0     94.39    0.01014
    1000.0  0.0100.4  2.099.20  7.198.88 10.096.86 12.397.56 14.595.86
    1000.0 16.395.96 18.594.36 20.894.16 23.094.36 25.394.76 27.595.46
    1000.0 29.896.76 32.096.26 34.396.06 36.596.76 38.896.86 41.097.76
    1000.0 43.397.16 45.597.06 47.896.86 50.097.46 52.397.36 54.597.26
    1000.0 55.597.36 55.898.23 57.798.26 61.598.70 63.399.03 64.199.41
NS  1000.0       1.1       1.6       7.7       7.7       7.7 .5    7.7
NS  1000.0 .70   7.6       7.7       7.7       7.6       6.6       7.6
NS  1000.0       7.6       7.6       7.7       7.7       7.6       6.5
NS  1000.0       6.5       7.5       6.5       7.5       5.2       5.2
NS  1000.0 .15   7.5       7.7       7.7       1.7       1.7       1.7
CAL11000.0     98.30     166.2
VEL11000.0                -.10 -.10 0.10 0.01 0.50 1.25 3.65 3.65 2.65
VEL11000.0 2.80 4.00 1.80 -.20 1.10 -.20 0.01 3.40 4.10 3.80 2.80 1.00
VEL11000.0 0.90 0.00
CAL21000.0     97.31      19.7
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0     98.33     151.6
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ
```

Stream: Williamson River
Site: 628 (End of Kirk Canyon to Spring Creek)
Date: 9/22/1990
Habitat: Riffle **Flow:** Low

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	11.38	111.38		
HP1			14.35	97.03
HP2			11.37	100.01
HP3			11.45	99.93
TP HP3	11.52	111.45		
HP2			11.45	100.00
HP1			14.43	97.02
BM			11.45	100.00

Comment: Head pins on right bank, but zero on the tape is on the LWP (looking upstream)

(2) Water Surface Elevation (WSE) Survey

	L/R WSE	Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
TR1	LWSE	243	103.98	9.06	0.00	94.92	94.90	25.65
	RWSE			9.11	0.00	94.87		
TR2	LWSE	162	111.45	15.51	0.00	95.94	95.86	25.81
	RWSE			15.68	0.00	95.77		
TR3	LWSE	54	111.45	14.24	0.00	97.21	97.24	20.24
	RWSE			14.18	0.00	97.27		
						Ave Q=		23.90

Note:
WSE slope = 1.241%

Date: 4/10/1991
Habitat: Riffle **Flow:** High

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	14.19	114.19		100.00
HP1			17.18	97.01
HP2			14.19	100.00
HP3			14.25	99.94
TP HP3	14.30	114.24		
HP2			14.24	100.00
HP1			17.23	97.01
BM			14.24	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

	L/R WSE	Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
TR1	LWSE	243	114.24	18.44	0.00	95.80	95.85	154.50
	RWSE			18.35	0.00	95.89		
TR2	LWSE	162	114.24	17.50	0.00	96.74	96.69	176.97
	RWSE			17.61	0.00	96.63		
TR3	LWSE	54	114.24	15.95	0.00	98.29	98.24	153.25
	RWSE			16.06	0.00	98.18		
						Ave Q=		161.57

Note:
WSE slope = 1.265%

Date: 5/27/1993
Habitat: Riffle **Flow:** Mid

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	13.70	113.70		100.00
HP1			16.69	97.01
HP2			13.70	100.00
HP3			13.75	99.95
TP HP3	14.03	113.98		
HP2			13.98	100.00
HP1			16.98	97.00
BM			13.98	100.00

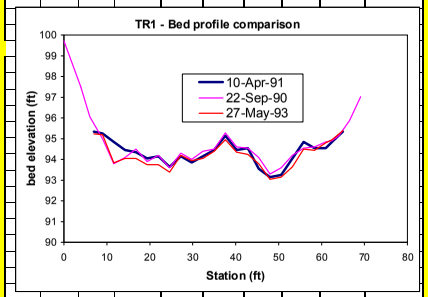
Comment:

(2) Water Surface Elevation (WSE) Survey

	L/R WSE	Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
TR1	LWSE	243	113.98	18.06	0.00	95.92	95.94	151.64
	RWSE			18.02	0.00	95.96		
TR2	LWSE	162	113.98	17.21	0.00	96.77	96.72	
	RWSE			17.32	0.00	96.66		
TR3	LWSE	54	113.98	15.71	0.00	98.27	98.22	
	RWSE			15.82	0.00	98.16		
						Ave Q=		151.64

Note:
WSE slope = 1.204%

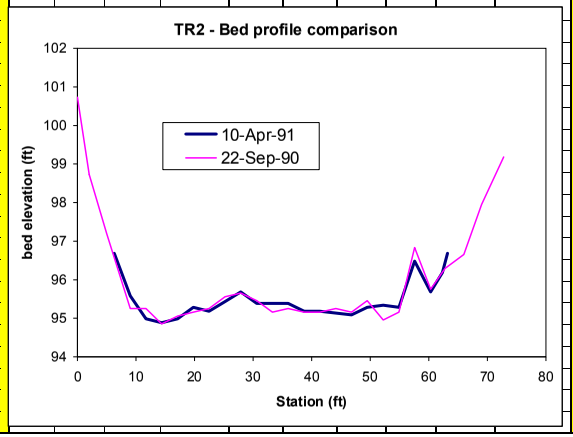
Stream:	Williamson River		22-Sep-90									10-Apr-91									27-May-93									27-May-93								
Site:	628			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	1			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	V0.2/0.6	V0.8	Ave	(cfs)	substrate
Habitat:	Riffle																																								
			LWP	0.0	4.26	99.72						1.1	LWP	0.0								1.1		0.0										4.5			0.00	0.00		0.00	0.00	
Survey	HI	Q		3.9	6.47	97.51						6.1	LWE	7.0		95.35	0.50	0.00		0.00	0.00	1.7		7.0		95.24	0.70							5.0			0.60	0.33		0.33	0.15	
Date	(ft)	(cfs)		6.0	7.92	96.06						1.7		9.0		95.25	0.60	0.01		0.01	0.01	7.7		9.0		95.19	0.75							6.0			0.70	0.40		0.40	0.42	
9/22/1990	103.98	25.7	LWE	9.0	8.99	94.99	0.10	0.00		0.00	0.00	7.7		11.6		94.85	1.00	0.50		0.50	1.30	7.7		11.6		93.84	2.10							8.0			0.85	1.75		1.75	2.98	
4/10/1991	114.24	154.5		11.6		93.80	1.10	0.01				7.7		14.2		94.45	1.40	-0.10		-0.10	-0.36	7.7		14.2		94.04	1.90							10.0			1.10	2.82		2.82	6.20	
5/27/1993	113.98	151.6		14.2		94.10	0.80	0.10		0.10	0.10	7.7		16.8		94.35	1.50	0.80		0.80	3.12	6.5		16.8		94.04	1.90							12.0			2.00	2.96		2.96	11.84	
				16.8		94.50	0.40	0.23		0.23	0.24	6.5		19.4		94.05	1.80	4.20		4.20	19.66	6.5		19.4		93.74	2.20							14.0			2.10	2.10		2.10	8.82	
				19.4		93.90	1.00	1.60		1.60	4.16	6.5		22.0		94.15	1.70	4.10		4.10	18.12	6.5		22.0		93.74	2.20							16.0			2.10	3.37		3.37	14.15	
				22.0		94.20	0.70	2.21		2.21	4.02	6.5		24.6		93.65	2.20	3.70		3.70	21.16	6.5		24.6		93.39	2.55							18.0			2.10	1.38		1.38	5.80	
				24.6		93.60	1.30	1.95		1.95	6.59	6.5		27.2		94.15	1.70	2.10		2.10	9.28	6.5		27.2		94.19	1.75							20.0			2.20	2.26		2.26	9.94	
				27.2		94.30	0.60	0.65		0.65	1.01	6.5		29.8		93.85	2.00	3.40		3.40	17.68	5.6		29.8		93.94	2.00							22.0			1.50	2.35		2.35	7.05	
				29.8		94.00	0.90	1.50		1.50	3.51	5.6		32.4		94.15	1.70	2.50		2.50	11.05	5.6		32.4		94.04	1.90							24.0			1.60	0.95		0.95	3.04	
				32.4		94.40	0.50	1.40		1.40	1.82	5.6		35.0		94.45	1.40	1.00		1.00	3.64	5.8		35.0		94.39	1.55							26.0			1.60	2.07		2.07	6.62	
				35.0		94.50	0.40	0.56		0.56	0.29	5.8		37.6		95.15	0.70	2.50		2.50	4.55	8.8		37.6		94.94	1.00							28.0			1.25	2.35		2.35	5.88	
				37.6	8.70	95.28						8.8		40.2		94.45	1.40	2.30		2.30	8.37	8.6		40.2		94.34	1.60							30.0			1.80	2.62		2.62	9.43	
				40.2		94.60	0.30	0.75		0.75	0.29	8.6		42.8		94.55	1.30	3.70		3.70	12.51	7.6		42.8		94.24	1.70							32.0			1.70	2.04		2.04	6.94	
				42.8		94.55	0.35	1.36		1.36	1.24	7.6		45.4		93.55	2.30	0.20		0.20	1.20	7.5		45.4		93.79	2.15							34.0			1.60	2.31		2.31	7.39	
				45.4		94.10	0.80	0.38		0.38	0.79	7.5		48.0		93.15	2.70	1.60	-0.40	0.60	4.21	8.5		48.0		93.04	2.90							36.0			1.50	2.42		2.42	7.26	
				48.0		93.30	1.60	0.00		0.00	0.00	8.5		50.6		93.25	2.60	0.80	-0.30	0.25	1.69	8.5		50.6		93.14	2.80							38.0			1.40	2.66		2.66	7.45	
				50.6		93.60	1.30	0.22		0.22	0.74	8.5		53.2		94.05	1.80	1.60		1.60	7.49	7.5		53.2		93.64	2.30							40.0			1.10	1.52		1.52	3.34	
				53.2		94.20	0.70	0.45		0.45	0.82	7.5		55.8		94.85	1.00	2.30		2.30	5.98	7.7		55.8		94.49	1.45							42.0			1.20	2.03		2.03	4.87	
				55.8		94.55	0.35	0.01		0.01	0.01	7.7		58.4		94.55	1.30	0.90		0.90	3.04	5.2		58.4		94.44	1.50							44.0			1.30	2.75		2.75	7.15	
				58.4		94.60	0.30	0.01		0.01	0.01	5.2		61.0		94.55	1.30	0.30		0.30	0.78	5.2		61.0		94.79	1.15							46.0			1.25	2.15		2.15	5.38	
				61.0		94.85	0.05	0.01		0.01	0.00	5.2		62.4		94.85	1.00	0.01		0.01	0.02	2.5		62.4		94.94	1.00							48.0			1.00	3.34		3.34	6.68	
			RWE	62.4		94.90	0.00	0.00		0.00	0.00	2.5	RWE	65.0		95.35	0.50	0.00		0.00	0.00	2.6		65.0		95.39	0.55							50.0			0.50	1.67		1.67	1.67	
				64.0	8.84	95.14						2.6	RWP		17.23	97.01		0.00		0.00														52.0			0.60	0.75		0.75	1.19	
				66.5	8.12	95.86						1.1																						55.3			0.00	0.00		0.00	0.00	
			RWP	69.1	6.96	97.02																																			



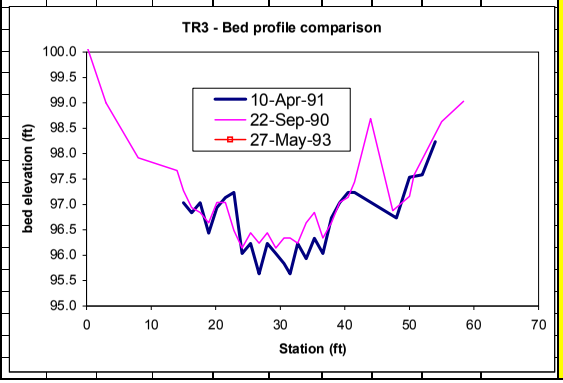
Bed profile Check for Riffle
No velocity or depth surveyed

Q-Transect
Just upstream of TR-1

Stream:	Williamson River		22-Sep-90										10-Apr-91										27-May-93									
Site:	628			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	2			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Riffle																														
													LWP	0.0								1.1									
Survey	HI	Q											LWE	6.3		96.69	0.00	0.00		0.00	0.00	1.1									
Date	(ft)	(cfs)	LWP	0	10.72	100.73						1.1		9.0		95.59	1.10	2.40		2.40	7.13	6.7									
9/22/1990	111.45	25.8		2	12.72	98.73						1.1		11.7		94.99	1.70	3.10		3.10	14.23	6.5									
4/10/1991	114.24	177.0		5	14.26	97.19						1.1		14.4		94.89	1.80	2.50		2.50	12.15	6.6									
5/27/1993	113.98			9		95.26	0.60	0.00		0.00	0.00	6.7		17.1		94.99	1.70	3.20		3.20	14.69	6.6									
				11.7		95.26	0.60	1.40		1.40	2.27	6.5		19.8		95.29	1.40	3.10		3.10	11.72	6.5									
				14.4		94.86	1.00	0.79		0.79	2.13	6.6		22.5		95.19	1.50	1.70		1.70	6.89	6.5									
				17.1		95.06	0.80	1.53		1.53	3.30	6.6		25.2		95.44	1.25	2.40		2.40	8.10	6.5									
				19.8		95.16	0.70	1.61		1.61	3.04	6.5		27.9		95.69	1.00	2.50		2.50	6.75	6.5									
				22.5		95.26	0.60	0.59		0.59	0.96	6.5		30.6		95.39	1.30	1.00		1.00	3.51	6.5									
				25.2		95.56	0.30	1.02		1.02	0.83	6.5		33.3		95.39	1.30	1.10		1.10	3.86	6.7									
				27.9		95.66	0.20	0.68		0.68	0.37	6.5		36.0		95.39	1.30	1.20		1.20	4.21	6.7									
				30.6		95.46	0.40	0.27		0.27	0.29	6.5		38.7		95.19	1.50	1.50		1.50	6.08	6.7									
				33.3		95.16	0.70	0.21		0.21	0.40	6.7		41.4		95.19	1.50	4.20		4.20	25.52	6.5									
				36		95.26	0.60	0.01		0.01	0.02	6.7		46.8		95.09	1.60	0.40		0.40	2.59	6.5									
				38.7		95.16	0.70	0.36		0.36	0.68	6.7		49.5		95.29	1.40	2.70		2.70	10.21	7.5									
				41.4		95.16	0.70	0.54		0.54	1.02	6.6		52.2		95.34	1.35	4.40		4.40	16.04	5.7									
				44.1		95.26	0.60	0.29		0.29	0.47	6.6		54.9		95.29	1.40	4.20		4.20	15.88	7.6									
				46.8		95.16	0.70	0.89		0.89	1.68	6.5		57.6		96.49	0.20	0.01		0.01	0.01	6.5									
				49.5		95.46	0.40	1.97		1.97	2.13	7.5		60.3		95.69	1.00	3.10		3.10	7.28	6.5									
				52.2		94.96	0.90	2.55		2.55	6.20	5.7		62.3		96.19	0.50	0.20		0.20	0.15	7.7									
				54.9		95.16	0.70	0.03		0.03	0.03	7.6	RWE	63.2		96.69	0.00	0.00		0.00	0.00	7.7									
				57.6	14.62	96.83						6.5	RHP		14.24	100.00																
				60.3		95.76	0.10	0.00		0.00	0.00	6.5																				
			RWE	62.8	15.16	96.29						7.7																				
				66.0	14.80	96.65						7.7																				
				69.0	13.50	97.95						1.1																				
			RWP	72.8	12.27	99.18						1.1																				
			RHP		11.46	99.99																										



Stream:	Williamson River		22-Sep-90										10-Apr-91										27-May-93									
Site:	628			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	3			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Riffle																															
													LWP	0.0								1.1									
Survey	HI	Q	LWP	0.0	11.31	100.14						1.1	LWE	15.0		97.04	1.20	0.10		0.10	0.08	7.6									
Date	(ft)	(cfs)		3	12.45	99.00						7.1		16.3		96.84	1.40	0.60		0.60	1.09	6.6									
9/22/1990	111.45	20.2		8	13.53	97.92						7.7		17.6		97.04	1.20	3.30		3.30	5.15	6.6									
4/10/1991	114.24	153.3		14	13.78	97.67						7.7		18.9		96.44	1.80	2.40		2.40	5.62	7.7									
5/27/1993	113.98		LWE	15	14.18	97.27	0.30	0.00				7.6		20.2		96.94	1.30	4.10		4.10	6.93	7.7									
				16.3		96.94	0.30	0.01		0.01	0.00	6.6		21.5		97.14	1.10	4.50		4.50	6.44	7.7									
				17.6		96.84	0.40	0.01		0.01	0.01	6.6		22.8		97.24	1.00	2.50		2.50	3.25	7.7									
				18.9		96.64	0.60	1.00		1.00	0.78	7.7		24.1		96.04	2.20	3.90		3.90	11.15	6.5									
				20.2		97.04	0.20	1.10		1.10	0.29	7.7		25.4		96.24	2.00	5.90		5.90	15.34	6.5									
				21.5		97.04	0.20	0.6		0.60	0.16	7.7		26.7		95.64	2.60	7.00	1.10	4.05	13.69	6.5									
				22.8		96.49	0.75	1.7		1.70	1.66	7.7		28.0		96.24	2.00	6.00		6.00	15.60	6.5									
				24.1		96.14	1.10	1.02		1.02	1.46	6.5		29.3		96.04	2.20	2.70		2.70	7.72	6.5									
				25.4		96.44	0.80	1.89		1.89	1.97	6.5		30.6		95.84	2.40	3.00		3.00	7.92	6.5									
				26.7		96.24	1.00	3.10		3.10	4.03	6.5		31.5		95.64	2.60	3.60	2.20	2.90	7.92	6.5									
				28		96.44	0.80	2.75		2.75	2.86	6.5		32.7		96.24	2.00	2.50		2.50	6.25	6.5									
				29.3		96.14	1.10	1.35		1.35	1.93	6.5		34.0		95.94	2.30	2.10		2.10	6.28	7.6									
				30.6		96.34	0.90	1.35		1.35	1.34	6.5		35.3		96.34	1.90	3.80		3.80	9.39	7.6									
				31.5		96.34	0.90	0.20		0.20	0.19	6.5		36.6		96.04	2.20	2.70		2.70	7.72	7.6									
				32.7		96.24	1.00	0.30		0.30	0.38	6.5		37.9		96.74	1.50	2.60		2.60	5.07	7.6									
				34		96.64	0.60	1.31		1.31	1.02	7.6		39.2		97.04	1.20	1.40		1.40	2.18	7.6									
				35.3		96.84	0.40	1.65		1.65	0.86	7.6		40.5		97.24	1.00	1.80		1.80	2.07	6.5									
				36.6		96.34	0.90	0.85		0.85	0.99	7.6		41.5		97.24	1.00	0.90		0.90	3.38	6.5									
				37.9		96.64	0.60	0.42		0.42	0.33	7.6		48.0		96.74	1.50	0.20		0.20	1.28	7.7									
				39.2		97.04	0.20	0.01		0.01	0.00	7.6		50.0		97.54	0.70	0.60		0.60	0.84	7.7									
				40.5		97.14	0.10	0.01		0.01	0.00	6.5		52.0		97.59	0.65	0.70		0.70	0.91	6.6									
			RWE	41.5	14.01	97.44	0.20	0.00		0.00	0.00	6.5	RWE	54.0		98.24	0.00	0.00		0.00	0.00	7.1									
				44.0	12.76	98.69						7.7																				
				47.4	14.57	96.88						7.7																				
				50.0	14.29	97.16						7.7																				
				50.7	13.87	97.58						6.6																				
				55.0	12.82	98.63						7.1																				
			RWS	58.4	12.42	99.03						1.1																				
			RHP		11.52	99.93																										



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Riffle                      HIGH                                    TRANSECT 1
IOC       11011001000010001010 00
QARD  23.9
QARD  30.0
QARD  40.0
QARD  50.0
QARD  60.0
QARD  70.0
QARD  80.0
QARD  90.0
QARD 104.0
QARD 110.0
QARD 120.0
QARD 130.0
QARD 140.0
QARD 151.6
QARD 161.6
QARD 170.0
QARD 180.0
QARD 190.0
QARD 200.0
QARD 210.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 360.0
QARD 380.0
QARD 400.0
XSEC1000.0      0.00 1.0     93.15    0.01265
    1000.0  0.099.72  3.997.51  6.096.06  7.095.35  9.095.25 11.694.85
    1000.0 14.294.45 16.894.35 19.494.05 22.094.15 24.693.65 27.294.15
    1000.0 29.893.85 32.494.15 35.094.45 37.695.15 40.294.45 42.894.55
    1000.0 45.493.55 48.093.15 50.693.25 53.294.05 55.894.85 58.494.55
    1000.0 61.094.55 62.494.85 64.095.14 65.095.35 66.595.86 69.197.02
NS  1000.0       1.1       6.1       1.7       1.7 .4    7.7       7.7
NS  1000.0       7.7       6.5       6.5       6.5       6.5       6.5
NS  1000.0       5.6       5.6       5.8       8.8       8.6       7.6
NS  1000.0       7.5       8.5       8.5       7.5       7.7       5.2
NS  1000.0       5.2 .6    2.5 .6    2.6       2.6       1.1       1.1
WSL 1000.0     94.90     94.98     95.10     95.20     95.29     95.38
WSL 1000.0     95.44     95.50     95.58     95.61     95.66     95.71
WSL 1000.0     95.76     95.81     95.85     95.88     95.92     95.96
WSL 1000.0     96.00     96.04     96.07     96.14     96.20     96.26
WSL 1000.0     96.32     96.38     96.44     96.49     96.54     96.59
CAL11000.0     95.85     161.6
VEL11000.0                0.00 0.01 0.50 -.10 0.80 4.20 4.10 3.70 2.10
VEL11000.0 3.40 2.50 1.00 2.50 2.30 3.70 0.20 0.60 0.25 1.60 2.30 0.90
VEL11000.0 0.30 0.01 0.01 0.00
CAL21000.0     94.90      23.9
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0     95.94     151.6
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ
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        Williamson R. WM_4 04/10/91
Riffle                    HIGH                                    TRANSECT 2
IOC       11011000000001000101000
QARD  23.9
QARD  30.0
QARD  40.0
QARD  50.0
QARD  60.0
QARD  70.0
QARD  80.0
QARD  90.0
QARD 104.0
QARD 110.0
QARD 120.0
QARD 130.0
QARD 140.0
QARD 151.6
QARD 161.6
QARD 170.0
QARD 180.0
QARD 190.0
QARD 200.0
QARD 210.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 360.0
QARD 380.0
QARD 400.0
XSEC1000.0      0.00 1.0     94.86    0.01265
    1000.0  0.0100.7  2.098.73  5.097.19  6.396.69  9.095.59 11.794.99
    1000.0 14.494.89 17.194.99 19.895.29 22.595.19 25.295.44 27.995.69
    1000.0 30.695.39 33.395.39 36.095.39 38.795.19 41.495.19 44.195.26
    1000.0 46.895.09 49.595.29 52.295.34 54.995.29 57.696.49 60.395.69
    1000.0 62.396.19 63.296.69 66.096.65 69.097.95 72.899.18
NS  1000.0       1.1       1.1       1.1       1.1       6.7       6.5
NS  1000.0       6.6       6.6       6.5       6.5       6.5       6.5
NS  1000.0       6.5       6.7       6.7       6.7       6.5       6.6
NS  1000.0 .4    6.5       7.5       5.7       7.6 0.2   6.5       6.5
NS  1000.0 .2    7.7       7.7       7.7       1.1       1.1
CAL11000.0     96.69     161.6
VEL11000.0                0.00 2.40 3.10 2.50 3.20 3.10 1.70 2.40 2.50
VEL11000.0 1.00 1.10 1.20 1.50 4.20 2.30 0.40 2.70 4.40 4.20 0.01 3.10
VEL11000.0 0.20 0.00
CAL21000.0     95.86      23.9
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0     96.72     151.6
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ
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        Williamson R. WM_4 04/10/91
Riffle                      HIGH                                    TRANSECT 3
IOC       11011000000001000101000
QARD  23.9
QARD  30.0
QARD  40.0
QARD  50.0
QARD  60.0
QARD  70.0
QARD  80.0
QARD  90.0
QARD 104.0
QARD 110.0
QARD 120.0
QARD 130.0
QARD 140.0
QARD 151.6
QARD 161.6
QARD 170.0
QARD 180.0
QARD 190.0
QARD 200.0
QARD 210.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 360.0
QARD 380.0
QARD 400.0
XSEC1000.0      0.00 1.0     96.64    0.01265
    1000.0  0.0100.1  3.099.00  8.097.92 14.097.67 15.097.04 16.396.84
    1000.0 17.697.04 18.996.44 20.296.94 21.597.14 22.897.24 24.196.04
    1000.0 25.496.24 26.795.64 28.096.24 29.396.04 30.695.84 31.595.64
    1000.0 32.796.24 34.095.94 35.396.34 36.696.04 37.996.74 39.297.04
    1000.0 40.597.24 41.597.24 44.098.69 48.096.74 50.097.54 50.797.58
    1000.0 52.097.59 54.098.24 55.098.63 58.499.03
NS  1000.0       1.1       7.1       7.7       7.7 0.50  7.6 .30   6.6
NS  1000.0       6.6       7.7       7.7       7.7       7.7       6.5
NS  1000.0       6.5       6.5       6.5       6.5       6.5       6.5
NS  1000.0       6.5       7.6       7.6       7.6       7.6       7.6
NS  1000.0       6.5       6.5       7.7       7.7       7.7       6.6
NS  1000.0       6.6       7.1       7.1       1.1
CAL11000.0     98.24     161.6
VEL11000.0                     0.10 0.60 3.30 2.40 4.10 4.50 2.50 3.90
VEL11000.0 5.90 4.05 6.00 2.70 3.00 2.90 2.50 2.10 3.80 2.70 2.60 1.40
VEL11000.0 1.80 0.90 0.63 0.20 0.60 0.64 0.70 0.00
CAL21000.0     97.24      23.9
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0     98.22     151.6
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ
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