

11-5-2008

Ex. 280-US-433

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Stream: Sprague  
 Site: 644  
 Date: 9/23/1990  
 Habitat: Run

Flow: Low

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	4.77	104.77		
HP1			5.03	99.74
HP2			5.36	99.41
HP3			5.70	99.07
TP				
HP3	5.53	104.60		
HP2			5.19	99.41
HP1			4.86	99.74
BM			4.60	100.00

Comment:

Date: 4/8/1991  
 Habitat: Run

Flow: Mid

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	4.50	104.50		
HP1			4.76	99.74
HP2			5.08	99.42
HP3			5.43	99.07
TP				
HP3	5.58	104.65		
HP2			5.23	99.42
HP1			4.91	99.74
BM			4.65	100.00

Comment:

Date: 6/28/1993  
 Habitat: Run

Flow: High

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM-2	4.19	104.19		
HP-				
HP2			5.49	98.70
HP1			2.19	102.00
TP				
HP1	2.21	104.21		
HP2			5.51	98.70
HP-				
BM-2			4.21	100.00

Comment: TP on HP1. BM lost so new BM placed. RHP can not be used to tie new and old BMs, RHP's appear stable, but are not.

(2) Water Surface Elevation (WSE) Survey

	L/R WSE (ft)	Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
TR1	LWSE 0 RWSE 0	0	103.31 10.21	10.18 10.21	0.00 0.00	93.13 93.10	93.12	100.47
TR2	LWSE 245 RWSE 300	245 300	103.59 101.49	10.40 8.22	0.00 0.00	93.19 93.15	93.17	97.99
TR3	LWSE 665 RWSE 640	665 640	101.49	8.24	0.00	93.27 93.25	93.26	113.59

Note: WSE slope = 0.022%

Ave Q= 104.02

(2) Water Surface Elevation (WSE) Survey

	L/R WSE (ft)	Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
TR1	LWSE 0 RWSE 0	0	104.65 10.50	10.50 10.50	0.00 0.00	94.15 94.15	94.15	365.72
TR2	LWSE 245 RWSE 300	245 300	104.65 10.38	10.40 10.38	0.00 0.00	94.25 94.27	94.26	341.68
TR3	LWSE 665 RWSE 640	665 640	104.65	10.32 10.30	0.00 0.00	94.33 94.35	94.34	358.49

Note: WSE slope = 0.029%

Ave Q= 355.30

(2) Water Surface Elevation (WSE) Survey

	L/R WSE (ft)	Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
TR1	LWSE 0 RWSE 0	0	104.21 10.58	10.60 10.52	0.00 0.00	93.61 93.63	93.62	
TR2	LWSE 245 RWSE 300	245 300	104.21 10.52	10.52 10.52	0.00 0.00	93.69 93.69	93.69	340.97
TR3	LWSE 665 RWSE 640	665 640	104.21	10.50 10.50	0.00 0.00	93.71 93.71	93.71	

Note: WSE slope = 0.014%

Ave Q= 340.97







Sprague River SP\_4 04/08/91

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RUN                                MID                                TRANSECT 1
IOC      1101100100001000101000
QARD 25.0
QARD 50.0
QARD 60.0
QARD 70.0
QARD 80.0
QARD 90.0
QARD 104.0
QARD 120.0
QARD 140.0
QARD 160.0
QARD 180.0
QARD 200.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 355.3
QARD 380.0
QARD 400.0
QARD 430.0
QARD 460.0
QARD 500.0
QARD 550.0
QARD 600.0
QARD 650.0
QARD 700.0
QARD 750.0
XSEC1000.0      0.00 1.0      89.32      0.00029
      1000.0  0.096.45 11.096.04 21.094.49 23.094.15 32.091.75 36.091.05
      1000.0 40.090.75 44.090.25 48.089.65 52.089.55 56.090.05 60.089.65
      1000.0 64.089.55 68.089.45 72.089.35 76.089.35 80.089.55 84.089.85
      1000.0 88.089.85 92.090.75 96.090.35100.091.15103.393.55106.094.05
      1000.0106.894.15114.098.05121.098.58126.999.23
NS 1000.0      1.2      1.2      1.2      1.2 0.20 2.2      2.2
NS 1000.0      2.2      2.2      2.2      2.4      2.4      2.4
NS 1000.0      2.4      2.4      2.4      2.9      2.9      2.9
NS 1000.0      2.9      2.9      2.9      2.9 0.40 2.9      2.2
NS 1000.0      2.2      2.2      2.2      2.2
WSL 1000.0     92.27     92.65     92.76     92.85     92.94     93.02
WSL 1000.0     93.12     93.23     93.35     93.47     93.56     93.65
WSL 1000.0     93.73     93.81     93.88     93.94     94.00     94.05
WSL 1000.0     94.11     94.15     94.21     94.26     94.33     94.40
WSL 1000.0     94.49     94.59     94.68     94.77     94.85     94.93
CAL11000.0     94.15     355.30
VEL11000.0      0.01 0.02 0.45 1.47 1.45 1.85 1.66 1.59 1.63
VEL11000.0 1.83 1.58 1.43 1.56 1.28 1.26 0.78 1.23 0.15 0.01 0.01 0.01
VEL11000.0 0.01
CAL21000.0     93.12     104.00
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0     94.15     355.20
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ

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Sprague River SP\_4 04/08/90

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RUN                                MID                                TRANSECT 2
IOC      1101100100001000101000
QARD 25.0
QARD 50.0
QARD 60.0
QARD 70.0
QARD 80.0
QARD 90.0
QARD 104.0
QARD 120.0
QARD 140.0
QARD 160.0
QARD 180.0
QARD 200.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 355.3
QARD 380.0
QARD 400.0
QARD 430.0
QARD 460.0
QARD 500.0
QARD 550.0
QARD 600.0
QARD 650.0
QARD 700.0
QARD 750.0
XSEC1000.0      0.00 1.0      89.32      0.00029
      1000.0  0.097.39  7.096.71  12.794.25  16.493.19  22.092.16  28.091.26
      1000.0  34.091.36  40.091.26  46.091.26  52.091.16  58.090.76  64.090.46
      1000.0  70.089.76  76.089.46  82.089.26  88.089.56  94.090.76  100.091.46
      1000.0  106.092.06  112.092.06  118.092.26  124.091.86  130.092.46  134.093.16
      1000.0  136.094.27  140.198.90  146.199.07
NS 1000.0      1.2 .020  1.2 .020  2.2      2.9      2.9      2.9
NS 1000.0      2.9      2.9      2.9      2.9      2.9      2.9
NS 1000.0      2.9      2.9      2.9      2.9      2.9 .6      2.9
NS 1000.0 .6      2.9 .6      2.9 .6      2.9 .6      2.9 .6      2.9      2.2
NS 1000.0      2.2      2.2      2.2
WSL 1000.0     92.30     92.67     92.78     92.88     92.97     93.06
WSL 1000.0     93.17     93.27     93.39     93.50     93.60     93.69
WSL 1000.0     93.78     93.86     93.94     94.01     94.08     94.15
WSL 1000.0     94.21     94.26     94.33     94.39     94.47     94.55
WSL 1000.0     94.64     94.76     94.87     94.97     95.07     95.16
CAL11000.0     94.26     355.30
VEL11000.0      0.00 0.77 0.69 0.66 1.06 1.10 1.26 1.43 1.54 1.34 1.66
VEL11000.0  1.68 1.10 0.44 0.16 0.08 0.01 0.01 0.01 0.01 0.01 0.01
VEL11000.0
CAL21000.0     93.17     104.00
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0     94.26     355.20
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ

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Sprague River SP\_4 09/23/90

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RUN                               Low                               TRANSECT 3
IOC      1101100100001000101000
QARD 25.0
QARD 50.0
QARD 60.0
QARD 70.0
QARD 80.0
QARD 90.0
QARD 104.0
QARD 120.0
QARD 140.0
QARD 160.0
QARD 180.0
QARD 200.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 355.3
QARD 380.0
QARD 400.0
QARD 430.0
QARD 460.0
QARD 500.0
QARD 550.0
QARD 600.0
QARD 650.0
QARD 700.0
QARD 750.0
XSEC1000.0      0.00 1.0      90.86      0.00029
      1000.0  0.099.04 10.097.53 11.095.49 19.094.33 25.092.04 30.091.74
      1000.0 35.092.54 41.094.14 54.096.34 70.493.44 74.093.04 77.592.54
      1000.0 81.091.74 84.591.24 88.091.14 91.590.94 94.090.94 97.591.54
      1000.0101.091.94104.592.24108.092.04111.591.94114.092.04117.592.14
      1000.0121.091.74124.591.74128.092.24131.592.64134.093.14137.093.24
      1000.0140.593.84141.694.35146.095.67149.097.18149.498.85151.598.99
NS 1000.0      1.2      1.2      1.2      2.2  .15  2.9  .10  2.9
NS 1000.0      2.9      3.4      3.4      2.4      4.4      4.4
NS 1000.0      4.4      4.4      4.4      4.4      4.4      4.4
NS 1000.0      4.4      4.4      4.4      4.4      4.4      4.4
NS 1000.0      4.4      2.2      2.2      2.2      2.2      2.2
NS 1000.0      2.2      2.2      2.2      2.2      2.2      2.2
WSL 1000.0     92.50     92.80     92.89     92.98     93.06     93.14
WSL 1000.0     93.26     93.36     93.48     93.58     93.68     93.77
WSL 1000.0     93.86     93.94     94.01     94.09     94.15     94.22
WSL 1000.0     94.29     94.34     94.42     94.49     94.58     94.67
WSL 1000.0     94.78     94.91     95.04     95.16     95.27     95.38
CAL11000.0     94.34     355.30
VEL11000.0              0.01 0.01 0.01 0.92 0.44      0.01 0.01 0.01
VEL11000.0  1.16 2.46 2.99 2.88 2.19 3.06 3.11 2.82 2.85 2.67 2.51 2.20
VEL11000.0  2.33 1.70 2.14 1.79 1.83 1.44 0.39 0.01
CAL11000.0     93.26     104.00
VEL11000.0
VEL11000.0
VEL11000.0
CAL11000.0     94.34     355.20
VEL11000.0
VEL11000.0
VEL11000.0
ENDJ

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Sprague River SP\_4 09/23/90

RUN LOW TRANSECT 1  
 IOC 1101100100001000101000  
 QARD 25.0  
 QARD 50.0  
 QARD 60.0  
 QARD 70.0  
 QARD 80.0  
 QARD 90.0  
 QARD 104.0  
 QARD 120.0  
 QARD 140.0  
 QARD 160.0  
 QARD 180.0  
 QARD 200.0  
 QARD 220.0  
 QARD 240.0  
 QARD 260.0  
 QARD 280.0  
 QARD 300.0  
 QARD 320.0  
 QARD 340.0  
 QARD 355.3  
 QARD 380.0  
 QARD 400.0  
 QARD 430.0  
 QARD 460.0  
 QARD 500.0  
 QARD 550.0  
 QARD 600.0  
 QARD 650.0  
 QARD 700.0  
 QARD 750.0  
 XSEC1000.0 0.00 1.0 89.32 0.00029  
 1000.0 0.096.45 11.096.04 21.094.49 27.993.13 32.091.12 36.091.02  
 1000.0 40.090.82 44.090.52 48.090.12 52.089.82 56.089.72 60.089.52  
 1000.0 64.089.52 68.089.32 72.089.32 76.089.42 80.089.62 84.089.82  
 1000.0 88.090.12 92.090.12 96.090.72100.090.82103.393.10104.293.64  
 1000.0111.595.51114.098.05121.098.58127.099.23  
 NS 1000.0 1.2 1.2 1.2 .6 1.2 .5 2.2 .4 2.2  
 NS 1000.0 .3 2.2 .2 2.2 2.2 2.4 2.4 2.4  
 NS 1000.0 2.4 2.4 2.4 2.9 2.9 .4 2.9  
 NS 1000.0 .4 2.9 2.9 .5 2.9 .5 2.9 2.9 2.2  
 NS 1000.0 2.2 2.2 2.2 2.2  
 WSL 1000.0 92.27 92.65 92.76 92.85 92.94 93.02  
 WSL 1000.0 93.12 93.23 93.35 93.47 93.56 93.65  
 WSL 1000.0 93.73 93.81 93.88 93.94 94.00 94.05  
 WSL 1000.0 94.11 94.15 94.21 94.26 94.33 94.40  
 WSL 1000.0 94.49 94.59 94.68 94.77 94.85 94.93  
 CAL11000.0 93.12 104.00  
 VEL11000.0 0.00 0.01 0.01 0.01 0.01 0.39 0.89 1.17 0.93  
 VEL11000.0 1.09 1.18 0.64 0.51 0.17 0.01 0.03 0.08 0.01 0.01 0.01  
 VEL11000.0  
 CAL21000.0 94.15 355.30  
 VEL21000.0  
 VEL21000.0  
 VEL21000.0  
 CAL31000.0 93.12 104.01  
 VEL31000.0  
 VEL31000.0  
 VEL31000.0  
 ENDJ

Sprague River SP\_4 09/23/90

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RUN                               Low                               TRANSECT 2
IOC      1101100100001000101000
QARD 25.0
QARD 50.0
QARD 60.0
QARD 70.0
QARD 80.0
QARD 90.0
QARD 104.0
QARD 120.0
QARD 140.0
QARD 160.0
QARD 180.0
QARD 200.0
QARD 220.0
QARD 240.0
QARD 260.0
QARD 280.0
QARD 300.0
QARD 320.0
QARD 340.0
QARD 355.3
QARD 380.0
QARD 400.0
QARD 430.0
QARD 460.0
QARD 500.0
QARD 550.0
QARD 600.0
QARD 650.0
QARD 700.0
QARD 750.0
XSEC1000.0      0.00 1.0      89.32      0.00029
      1000.0  0.097.49  7.096.71 12.094.51 16.493.19 22.092.17 28.091.57
      1000.0 34.091.57 40.091.17 46.091.17 52.091.17 58.090.77 64.090.37
      1000.0 70.089.97 76.089.37 82.089.17 88.089.37 94.090.57100.091.57
      1000.0106.091.67112.091.87118.091.67124.091.17130.092.17134.093.15
      1000.0139.095.54140.198.88146.299.05
NS 1000.0      1.2      1.2      1.2      2.9      2.9      2.9
NS 1000.0      2.9      2.9      2.9      2.9      2.9      2.9
NS 1000.0      2.9      2.9      2.9      2.9      2.9 .25 2.9
NS 1000.0 .3      2.9 .3      2.9 .35 2.9 .4      2.9 .45 2.9      2.9
NS 1000.0      2.2      2.2      2.2
WSL 1000.0      92.31      92.68      92.79      92.89      92.98      93.06
WSL 1000.0      93.17      93.28      93.40      93.50      93.60      93.70
WSL 1000.0      93.78      93.86      93.94      94.01      94.08      94.15
WSL 1000.0      94.21      94.26      94.33      94.39      94.47      94.55
WSL 1000.0      94.65      94.76      94.87      94.97      95.07      95.16
CAL11000.0      93.17      104.00
VEL11000.0                                0.47 0.19 0.44 0.52 0.68 0.66 0.61 0.61
VEL11000.0 0.63 0.52 0.57 0.35 0.20 0.01 0.01 0.01 0.01 0.01 0.01 0.00
VEL11000.0
CAL21000.0      94.26      355.30
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0      93.17      104.01
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ

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Sprague River SP\_4 09/23/90

RUN Low TRANSECT 3  
 IOC 1101100100001000101000  
 QARD 25.0  
 QARD 50.0  
 QARD 60.0  
 QARD 70.0  
 QARD 80.0  
 QARD 90.0  
 QARD 104.0  
 QARD 120.0  
 QARD 140.0  
 QARD 160.0  
 QARD 180.0  
 QARD 200.0  
 QARD 220.0  
 QARD 240.0  
 QARD 260.0  
 QARD 280.0  
 QARD 300.0  
 QARD 320.0  
 QARD 340.0  
 QARD 355.3  
 QARD 380.0  
 QARD 400.0  
 QARD 430.0  
 QARD 460.0  
 QARD 500.0  
 QARD 550.0  
 QARD 600.0  
 QARD 650.0  
 QARD 700.0  
 QARD 750.0  
 XSEC1000.0 0.00 1.0 89.32 0.00029  
 1000.0 0.099.14 10.097.53 11.095.49 22.094.01 25.093.27 30.090.66  
 1000.0 35.090.96 40.193.28 54.094.49 70.493.27 74.092.96 77.592.36  
 1000.0 81.091.76 84.590.96 88.090.86 91.590.86 94.091.16 97.591.56  
 1000.0101.091.76104.592.16108.092.36111.592.26114.092.16117.592.16  
 1000.0121.091.66124.592.26128.092.76131.592.66134.093.16137.093.25  
 1000.0142.094.95146.095.67149.097.18149.498.85151.598.97  
 NS 1000.0 1.2 1.2 1.2 1.2 2.9 .15 2.9  
 NS 1000.0 .15 2.9 3.4 3.4 2.4 .3 4.4 .3 4.4  
 NS 1000.0 4.4 4.4 4.4 4.4 4.4 4.4 4.4  
 NS 1000.0 4.4 4.4 4.4 4.4 4.4 4.4 4.4  
 NS 1000.0 4.4 2.2 2.2 2.2 .2 2.2 2.2  
 NS 1000.0 2.2 2.2 2.2 2.2 2.2 2.2  
 WSL 1000.0 92.49 92.82 92.91 92.99 93.07 93.14  
 WSL 1000.0 93.26 93.36 93.48 93.59 93.69 93.78  
 WSL 1000.0 93.87 93.95 94.02 94.09 94.16 94.23  
 WSL 1000.0 94.29 94.34 94.41 94.47 94.53 94.59  
 WSL 1000.0 94.66 94.75 94.83 94.91 94.98 95.06  
 CAL11000.0 93.26 104.00  
 VEL11000.0 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01  
 VEL11000.0 0.19 0.17 1.94 2.51 2.13 2.27 1.69 1.87 2.16 2.04 1.92 1.30  
 VEL11000.0 0.98 0.84 0.32 0.14 0.01 0.01  
 CAL21000.0 94.34 355.30  
 VEL21000.0  
 VEL21000.0  
 VEL21000.0  
 CAL31000.0 93.26 104.01  
 VEL31000.0  
 VEL31000.0  
 VEL31000.0  
 ENDJ