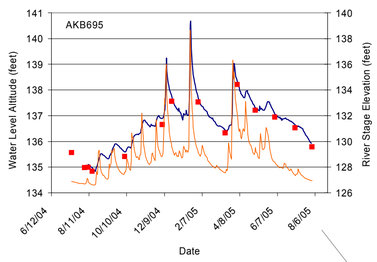
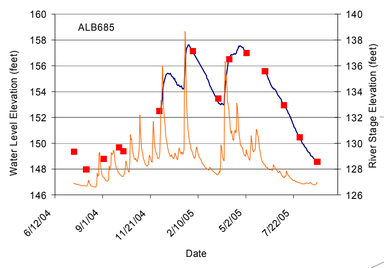
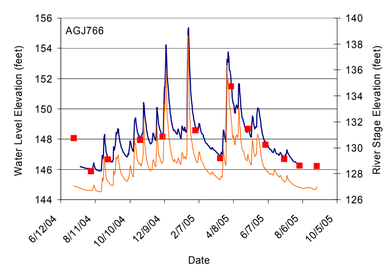






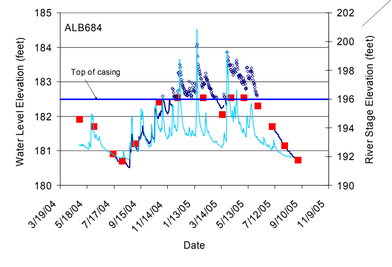


Figure C–1
Water-level altitude (2004), general groundwater flow direction, and well hydrographs

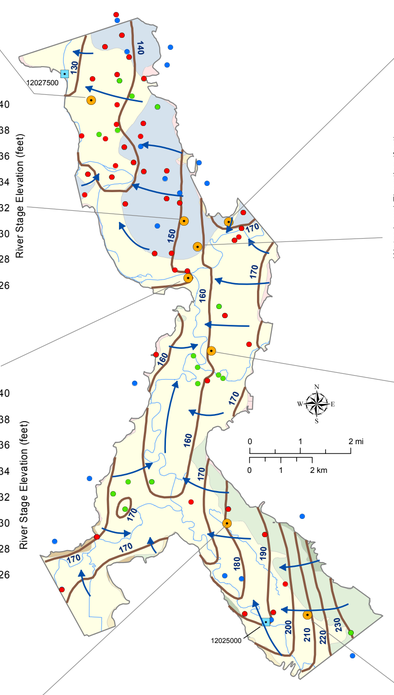


Figure Explanation

Map Legend

Water level data point used for contour development

- April 2004
- May 2004
- October 2004

130 Potentiometric Contour Altitude in Feet above NAVD88

Approximate Groundwater Flow Direction

Transducer

USGS Gaging Station

Hydrograph Legend

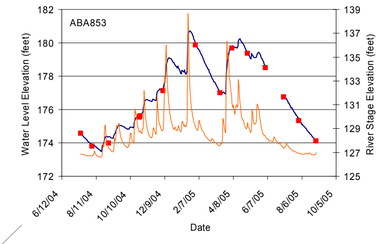
Hand Measurement

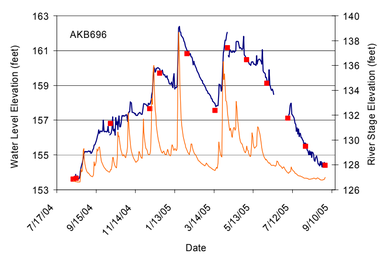
Transducer Measurement

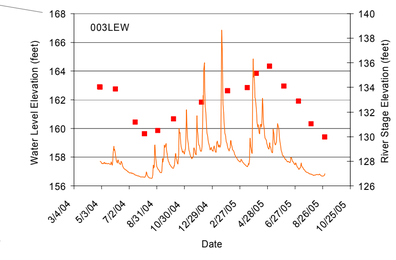
Transducer measurement indicating water level above top of well casing

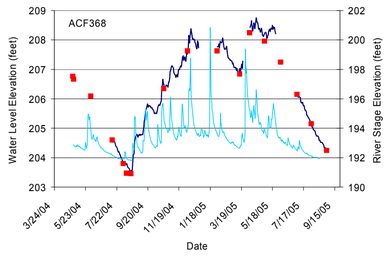
Chehalis River Stage (12027500)

Newaukum River stage (12025000)









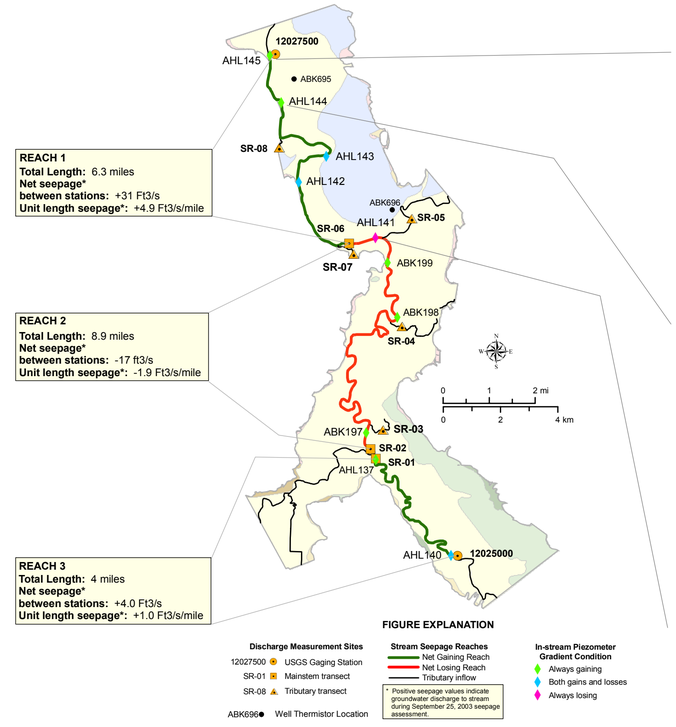
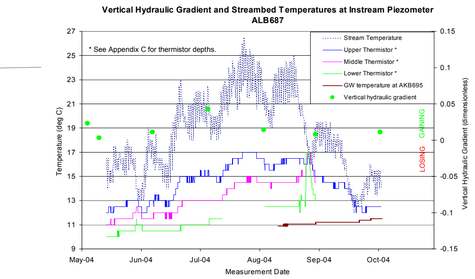
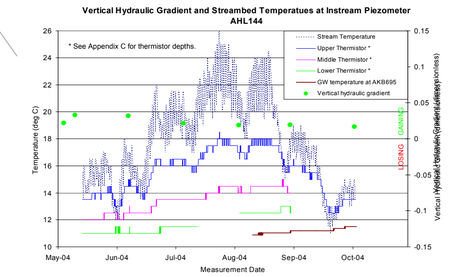


Figure C-2
Seepage Evaluation and Thermistor Results





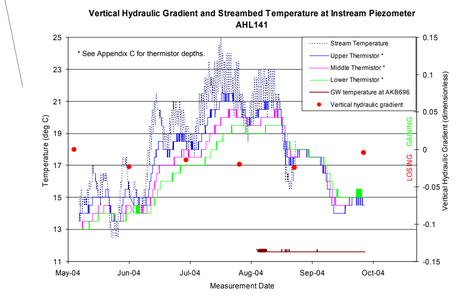
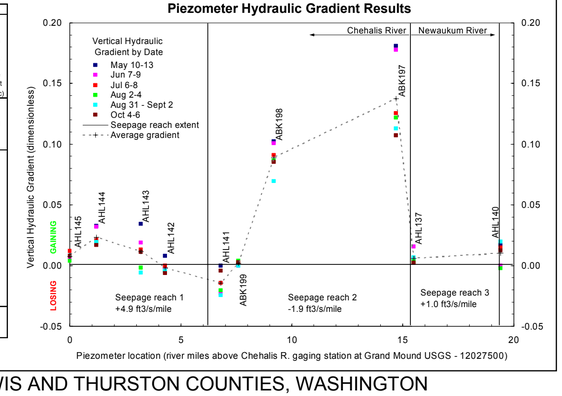


Table C-1
Seepage Evaluation Water Budget – September 25, 2003

Reach name & length	Measurement station	River miles above USGS gage 12027500	Description	A: Measured discharge (ft^3/sec)	B: Net gain or loss between stations (ft^3/sec)	C: Unit length seepage gain or loss (ft^3/sec/mi)	D: Certificated diversions (ft^3/sec)[B]	E: Corrected net gain or loss between stations (accounting for certificated diversions) (ft^3/sec)	F: Assumed measurement error (%)	G: Error adjusted minimum discharge (ft^3/sec)	H: Error adjusted maximum discharge (ft^3/sec)	I: Net gain or loss uncertainty range (cumulative measurment error) (ft^3/sec)
Reach 1 - 6.3 mi	12027500	0.0	USGS Gage Station 12027500	211[A]	+31	+4.9		+37	±5	200	222	+11 to +51
			Certificated diversions (4 total)				2.5					
	SR-08	1.9	Lincoln Creek near mouth	0.75					±8	0.69	0.81	
			Certificated diversions (9 total)				3.6					
	SR-07	5.9	Scammon Creek at Cooks Hill Road	0.23					±5	0.22	0.24	
	SR-06	6.3	Chehalis R. below Borst Pk.	179					±5	170	188	
Reach 2 - 8.9 mi			*Certificated diversion (1 total)*		-17	-1.9	0.01	-8.7				-36 to +2
	SR-05	7.0	Skookumchuck R. at Riverside Park	93					±5	88	98	
			(Replicate)	94					-	-	-	
			Certificated diversions (2 total)				0.07					
	Discharge 1	7.4	Permitted discharge to surface water	1.8					±2	1.8	1.8	
			Certificated diversions (8 total)				2.1					
	SR-04	9.3	Salzer Creek below I-5	0.38					±8	0.35	0.41	
			Certificated diversions (14 total)				6.0					
	Discharge 2	14.4	Permitted discharge to surface water	0.45					±2	0.44	0.46	
	Discharge 3	14.5	Permitted discharge to surface water	1.3					±2	1.3	1.3	
	SR-03	14.5	Dillenbaugh Creek below I-5	0.90					±8	0.83	0.97	
			Certificated diversion (1 total)				0.15					
	SR-02	15.2	Chehalis River at BSA Camp	98					±5	93	103	
			(Replicate)	97					-	-	-	
Reach 3 - 4.0 mi	SR-01	15.4	Newaukum R. at Shorey Road Bridge	35	+4.0	+1.0	7.6	+12	±5	33	37	0 to +8
			Certificated diversions (20 total)						±8	29	33	
	12025000	19.4	USGS Gage Station 12025000	31[A]								

[A] Discharge estimate derived from U.S. Geological Survey Data
[B] Diversion data derived from WDOE Water Resources Program WRATS database

Figure C-3
Piezometer Hydraulic Gradient Results



WATER-LEVEL CONTOURS, GROUNDWATER FLOW DIRECTIONS, WELL HYDROGRAPHS, and GROUNDWATER/SURFACE WATER INTERACTIONS, CENTRALIA-CHEHALIS AREA, LEWIS AND THURSTON COUNTIES, WASHINGTON

By
Charles F. Pitz, Kirk A. Sinclair, and Adam J. Oestreich