

S-332B Pump Test on 3-4 May 2000

On Monday (5/1) and Tuesday (5/2) pumping at S-332B was conducted utilizing two pumps for an eight hour shift per day (250cfs). The pumps were run between 8am and 4pm. On Wednesday (5/3) we increased the pumping to 500cfs. The pumping was started at 8am. The detention area filled quickly and pumping had to be halted at 7pm. The detention area was approximately 0.2' below the crest of the weir at this point. Susan Sylvester, George Hwa, and I discussed the pumping and decided we would try to maintain the stage in the detention area overnight and start the percolation test at 6am on Thursday (5/4). This would allow Geotech to monitor the berm as well as giving us more data for the test. After leaving the pumps off for a couple of hours, we decided to run two pumps to maintain stage in the detention area. Between midnight and 6am the detention area stage increased from 7.52' to 7.70' according to staff gage measurements. The rise in stage over the period corresponds to an average of 58 cfs storage reduction in the area. Knowing we were pumping 250cfs during this time period, the corresponding percolation rate was calculated to be 192cfs during the night. At 6am all pumps were shutdown and the levels in the detention area were monitored at 30 minute and one hour intervals by the Corps and the contractor respectively. The following graphs and spreadsheets represent the measured changes observed during the test. According to the data, we obtained a percolation rate of 190cfs. I assumed initially the system would respond in a head driven manner. It did not. By looking at the graph of stage vs. time, one notices the linear relationship of the data during a 0.8' drop in stage in the detention area. The correlation in the data was higher than 99.9% and also matches the percolation rate during the night.

Included in the following graphs are the well data for the area. The pumping did positively effect groundwater wells at distances greater than 2 miles to the west. Wells were also effected to the north and south of the area. To the east, it appears the groundwater wells reflect the changes in the elevation of L-31N. It does not appear pumping impacts agricultural lands to the east of L-31N. The pumping does have a positive effect in the region. Marsh stages in the vicinity of the detention area obtained near surface saturation. Potholes in the marsh were filled with water. Measurements in one pothole obtained water depth increases of approximately 4" during the test. This pothole was approximately 500' west of the detention area in the marsh. The following is the list of figures and data collected for this document.

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Upon talking to Ron Mierau, George Hwa, and our operations people, it has been determined we need to be able to move 500cfs during a storm event. During the sparrow nesting season we are limited to 165cfs at S-332 and S-332D combined. If we utilize S-332D alone, we are further constrained. There are four 125cfs diesel pumps and one 75cfs pump. The configuration of these pumps only allows us 125cfs at S-332D. We need to be able to make up the difference between 125cfs and 500cfs at S-332B. At the present, we only have the capability of 190cfs at S-332B if we do not overflow the weir. We need to explore the possibility of expanding the area of the detention zone. If we could double the size of the area, we should have the capability of 500cfs for the combination of the two structures for flood control during the breeding season

Note: ENP and FWS have requested the data from the pump test. Should we send them the data or place it on our website for everyone?

Tracy Hendren

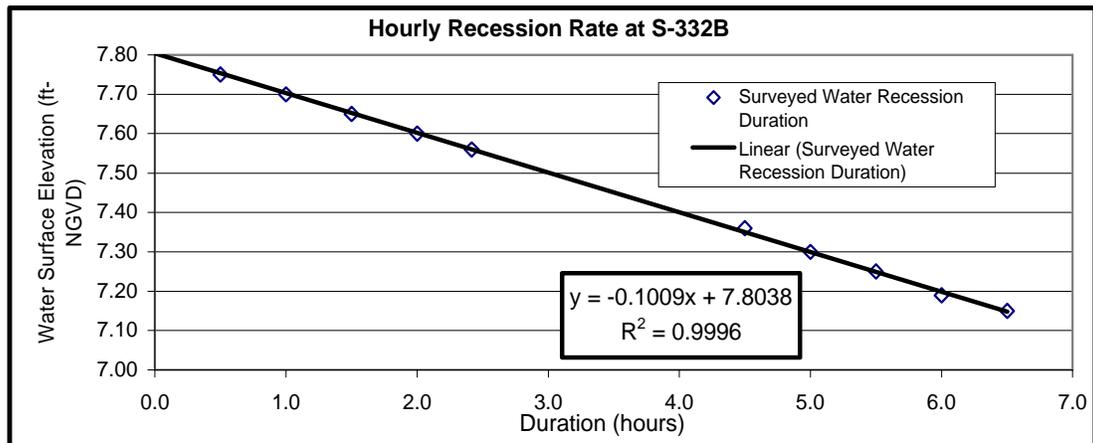
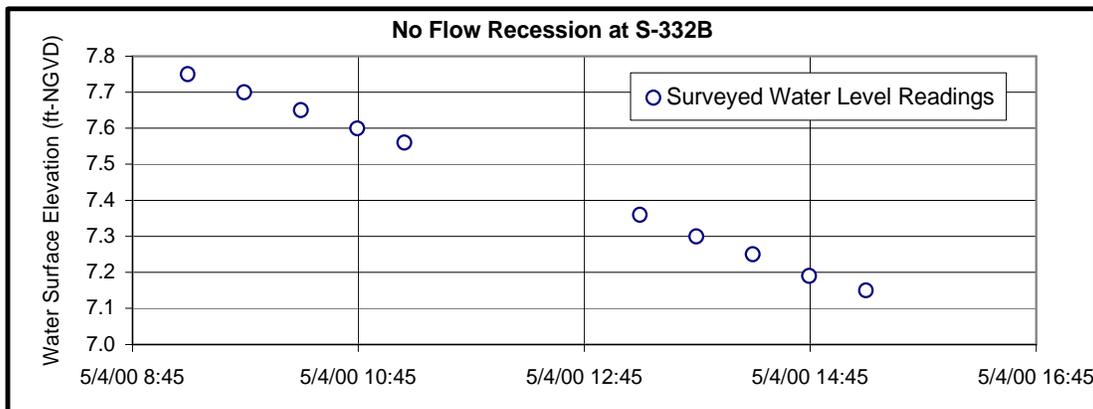


Figure 3. View of Weir at S-332B at highest stage obtained during test

S-332B Detention Area Test

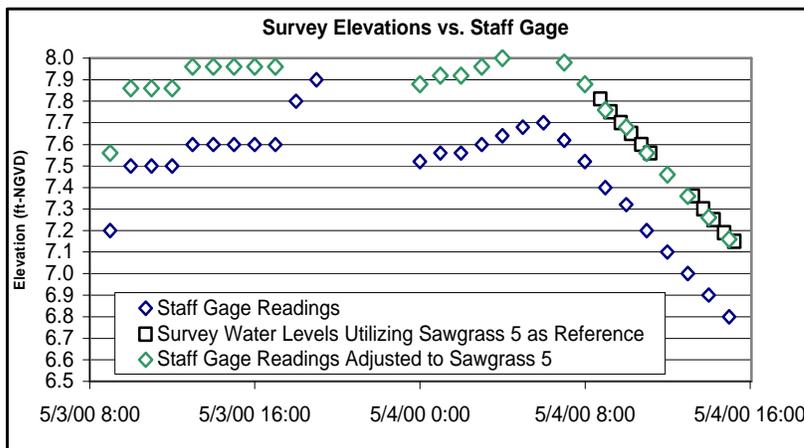
	Time		Survey Reading	Elevation
				ft-NGVD
	High Mark	Duration	3.38	8.2
	Low Mark	hrs	3.67	7.91
Reference	5/4/00 8:45	0.0	3.77	7.81
Reading	5/4/00 9:15	0.5	3.83	7.75
3.22	5/4/00 9:45	1.0	3.88	7.7
Reference	5/4/00 10:15	1.5	3.93	7.65
Elevation	5/4/00 10:45	2.0	3.98	7.6
8.36	5/4/00 11:10	2.4	4.02	7.56
Reference	5/4/00 13:15	4.5	4.25	7.36
Reading	5/4/00 13:45	5.0	4.31	7.3
3.25	5/4/00 14:15	5.5	4.36	7.25
Reference	5/4/00 14:45	6.0	4.42	7.19
Elevation	5/4/00 15:15	6.5	4.46	7.15
8.36				

* Note: Survey corresponds to utilization of Sawgrass 5 monument as reference elevation



Water Budget for S-332B Retention Area

Time	Inflow cfs	Flow Over Weir cfs	Seepage cfh	Staff Gage	Staff CT Sawgrass 5	
5/3/00 8:00	500	0		5.5	5.86	Evap
5/3/00 9:00	500	0		7.2	7.56	not
5/3/00 10:00	500	0		7.5	7.86	deducted
5/3/00 11:00	500	0		7.5	7.86	in
5/3/00 12:00	400	0		7.5	7.86	seepage
5/3/00 13:00	500	0		7.6	7.96	calculation
5/3/00 14:00	500	0		7.6	7.96	
5/3/00 15:00	500	0		7.6	7.96	
5/3/00 16:00	500	0		7.6	7.96	
5/3/00 17:00	500	0		7.6	7.96	
5/3/00 18:00	500	0		7.8	8.16	
5/3/00 19:00	0	0		7.9	8.26	
5/3/00 20:00	0	0				
5/3/00 21:00	250	0				
5/3/00 22:00	250	0				
5/3/00 23:00	250	0				
5/4/00 0:00	250	0		7.52	7.88	
5/4/00 1:00	250	0		7.56	7.92	
5/4/00 2:00	250	0		7.56	7.92	
5/4/00 3:00	250	0		7.6	7.96	
5/4/00 4:00	250	0		7.64	8	
5/4/00 5:00	250	0		7.68	8.04	
5/4/00 6:00	0	0		7.7	8.06	
5/4/00 7:00	0	0	543629	7.62	7.98	
5/4/00 8:00	0	0	679536	7.52	7.88	
5/4/00 9:00	0	0	815443	7.4	7.76	
5/4/00 10:00	0	0	543629	7.32	7.68	
5/4/00 11:00	0	0	815443	7.2	7.56	
5/4/00 12:00	0	0	679536	7.1	7.46	
5/4/00 13:00	0	0	679536	7	7.36	
5/4/00 14:00	0	0	679536	6.9	7.26	
5/4/00 15:00	0	0	679536	6.8	7.16	

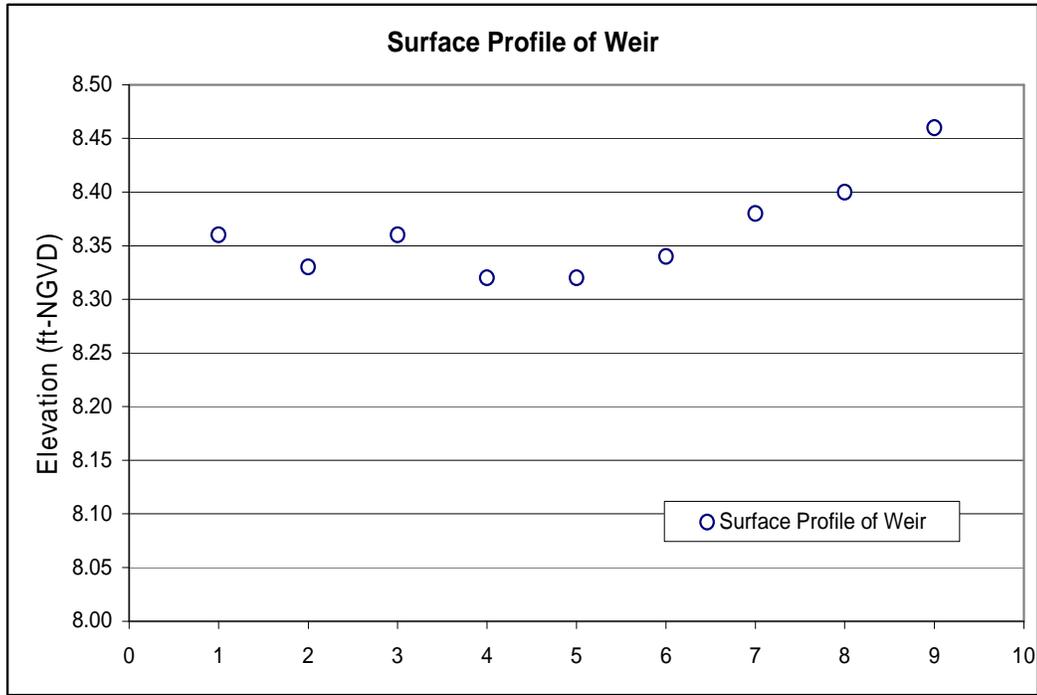


Staff Gage	Survey Reading
Average Seepage (cfh)	Average Seepage (cfh)
679536	685652
Average Seepage (cfs)	Average Seepage (cfs)
189	190

Weir Height Measured @ Expansion Joints (Approx. 150' Intervals) - Measured from North End to South End

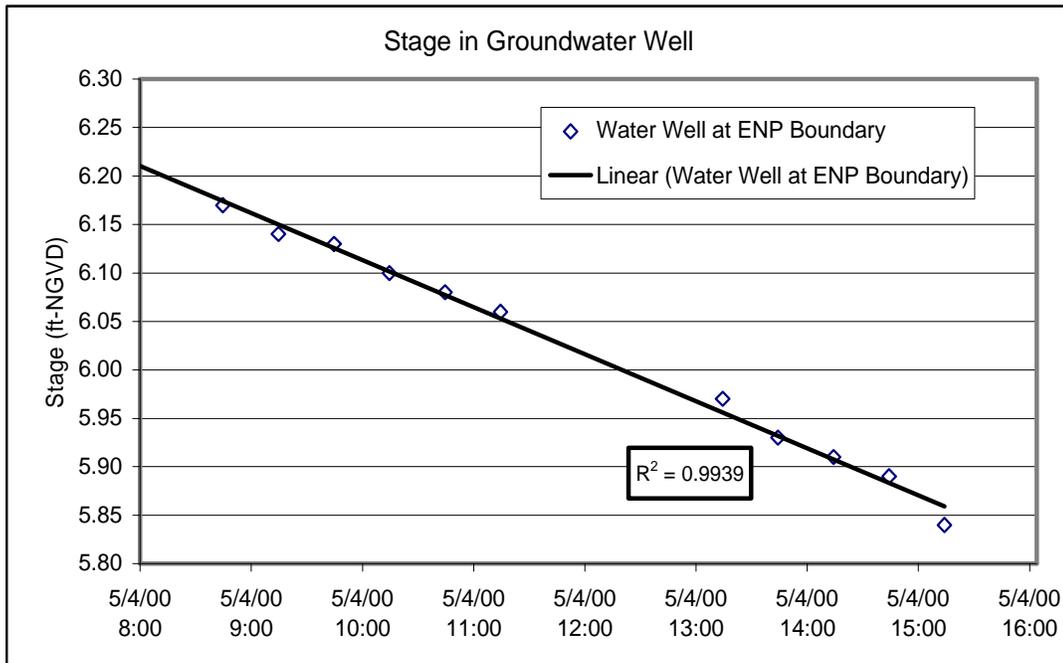
	Point	Rod Meas.	Elev
Reference 3.22	1	3.22	8.36
	2	3.25	8.33
Reference Elevation 8.36	3	3.22	8.36
	4	3.26	8.32
	5	3.26	8.32
	6	3.24	8.34
	7	3.2	8.38
	8	3.18	8.4
	9	3.12	8.46

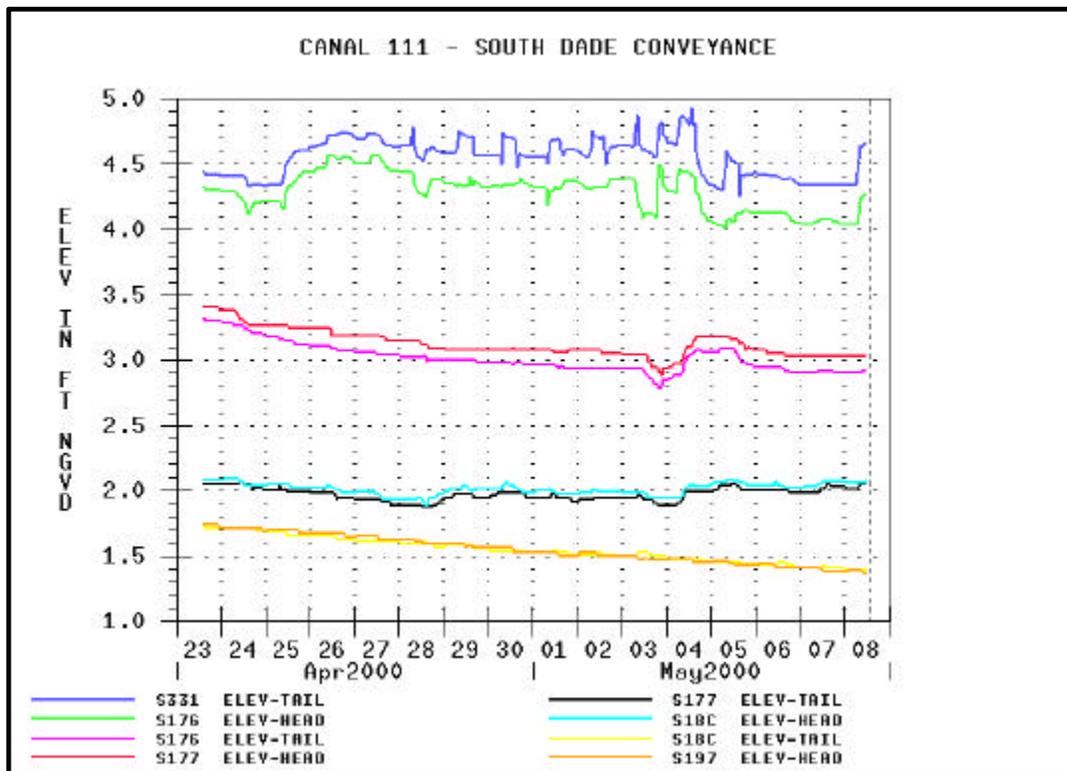
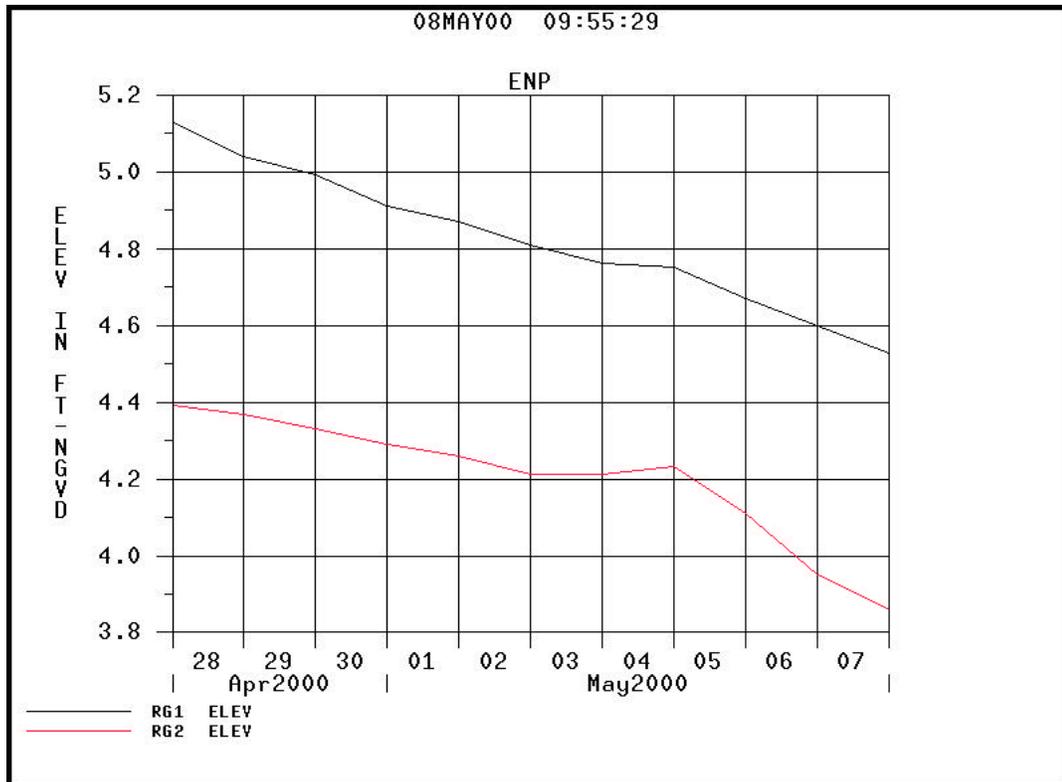
Note: Point 9 corresponds to upward curvature at end of Weir
All Elevations referenced to Sawgrass 5 monument



Water Well Located approximately 60' south of Weir

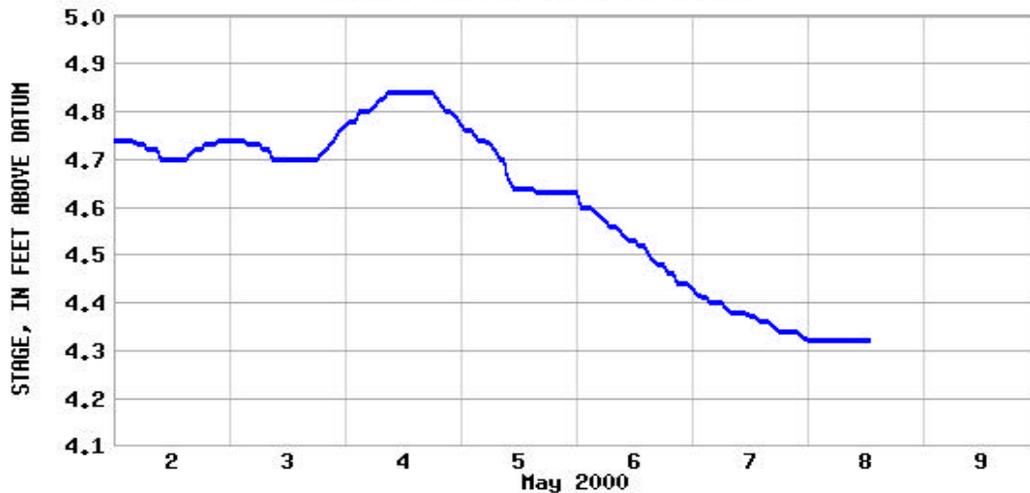
	Time	Duration	Rod Meas.	Elevation
Reference		hours	ft	ft-NGVD
Reading	5/4/00 8:45	2.75	5.41	6.17
2.2	5/4/00 9:15	3.25	5.44	6.14
Reference	5/4/00 9:45	3.75	5.45	6.13
Elevation	5/4/00 10:15	4.25	5.48	6.1
9.38	5/4/00 10:45	4.75	5.5	6.08
	5/4/00 11:15	5.25	5.52	6.06
Reference	5/4/00 13:15	7.25	5.64	5.97
Reading	5/4/00 13:45	7.75	5.68	5.93
2.23	5/4/00 14:15	8.25	5.7	5.91
Reference	5/4/00 14:45	8.75	5.72	5.89
Elevation	5/4/00 15:15	9.25	5.77	5.84
9.38				







253400080340401 G 3437



Mon May 8 13:00 2000

— STAGE, in feet above datum

Provisional Data Subject To Revision



252928080332401 G 789



Mon May 8 13:00 2000

— STAGE, in feet above datum

Provisional Data Subject To Revision