Quarterly Assessment of Construction Impacts on SS

Significant difference between the quarterly mean and 1.3 times of the ambient mean (Lower-tailed t-test)

Baseline Results (DA)						
STN	DATE	TIDE	SS	DATE	TIDE	SS
M01	06-Feb-03	Mid-Ebb	7	08-Feb-03	Mid-Flood	7
M01	14-Feb-03	Mid-Ebb	8	17-Feb-03	Mid-Flood	8
M01	21-Feb-03	Mid-Ebb	9	24-Feb-03	Mid-Flood	6
M01	03-Mar-03	Mid-Ebb	9	05-Mar-03	Mid-Flood	8
M01	10-Mar-03	Mid-Ebb	13	17-Mar-03	Mid-Flood	10
M01	22-Mar-03	Mid-Ebb	8	24-Mar-03	Mid-Flood	8
M01	31-Mar-03	Mid-Ebb	8	02-Apr-03	Mid-Flood	7
M01	07-Apr-03	Mid-Ebb	9	09-Apr-03	Mid-Flood	9
M01	16-Apr-03	Mid-Ebb	8	06-Feb-03	Mid-Flood	17
M04	06-Feb-03	Mid-Ebb	6	08-Feb-03	Mid-Flood	7
M04	14-Feb-03	Mid-Ebb	10	17-Feb-03	Mid-Flood	9
M04	21-Feb-03	Mid-Ebb	7	24-Feb-03	Mid-Flood	7
M04	03-Mar-03	Mid-Ebb	8	05-Mar-03	Mid-Flood	10
M04	10-Mar-03	Mid-Ebb	9	17-Mar-03	Mid-Flood	9
M04	22-Mar-03	Mid-Ebb	7	24-Mar-03	Mid-Flood	8
M04	31-Mar-03	Mid-Ebb	9	02-Apr-03	Mid-Flood	8
M04	07-Apr-03	Mid-Ebb	8	09-Apr-03	Mid-Flood	8
M04	16-Apr-03	Mid-Ebb	6	06-Feb-03	Mid-Flood	6
M05	10-Feb-03	Mid-Ebb	8	14-Feb-03	Mid-Flood	7
M05	19-Feb-03	Mid-Ebb	8	21-Feb-03	Mid-Flood	6
M05	28-Feb-03	Mid-Ebb	7	03-Mar-03	Mid-Flood	9
M05	07-Mar-03	Mid-Ebb	8	10-Mar-03	Mid-Flood	14
M05	19-Mar-03	Mid-Ebb	7	22-Mar-03	Mid-Flood	8
M05	26-Mar-03	Mid-Ebb	7	31-Mar-03	Mid-Flood	7
M05	04-Apr-03	Mid-Ebb	8	07-Apr-03	Mid-Flood	6
M05	14-Apr-03	Mid-Ebb	7	16-Apr-03	Mid-Flood	6
M06	08-Feb-03	Mid-Ebb	5	10-Feb-03	Mid-Flood	8
M06	18-Feb-03	Mid-Ebb	9	19-Feb-03	Mid-Flood	10
M06	24-Feb-03	Mid-Ebb	7	28-Feb-03	Mid-Flood	9
M06	05-Mar-03	Mid-Ebb	10	07-Mar-03	Mid-Flood	10
M06	17-Mar-03	Mid-Ebb	7	19-Mar-03	Mid-Flood	10
M06	24-Mar-03	Mid-Ebb	6	27-Mar-03	Mid-Flood	7
M06	02-Apr-03	Mid-Ebb	7	04-Apr-03	Mid-Flood	7
M06	09-Apr-03	Mid-Ebb	8	14-Apr-03	Mid-Flood	10
M07	06-Feb-03	Mid-Ebb	4	06-Feb-03	Mid-Flood	5
M07	08-Feb-03	Mid-Ebb	4	08-Feb-03	Mid-Flood	5
M07	10-Feb-03	Mid-Ebb	5	10-Feb-03	Mid-Flood	4
M07	14-Feb-03	Mid-Ebb	5	14-Feb-03	Mid-Flood	5
M07	18-Feb-03	Mid-Ebb	5	17-Feb-03	Mid-Flood	7
M07	19-Feb-03	Mid-Ebb	9	19-Feb-03	Mid-Flood	8
M07	21-Feb-03	Mid-Ebb	7	21-Feb-03	Mid-Flood	7
M07	24-Feb-03	Mid-Ebb	5	24-Feb-03	Mid-Flood	6
M07	28-Feb-03	Mid-Ebb	6	28-Feb-03	Mid-Flood	7
M07	03-Mar-03	Mid-Ebb	8	03-Mar-03	Mid-Flood	7
M07	05-Mar-03	Mid-Ebb	6	05-Mar-03	Mid-Flood	7
M07	07-Mar-03	Mid-Ebb	7	07-Mar-03	Mid-Flood	8
M07	10-Mar-03	Mid-Ebb	6	10-Mar-03	Mid-Flood	7
M07	17-Mar-03	Mid-Ebb	8	17-Mar-03	Mid-Flood	7
M07	19-Mar-03	Mid-Ebb	11	19-Mar-03	Mid-Flood	9
M07	22-Mar-03	Mid-Ebb	8	22-Mar-03	Mid-Flood	9
M07	24-Mar-03	Mid-Ebb	10	24-Mar-03	Mid-Flood	7
M07	26-Mar-03	Mid-Ebb	8	27-Mar-03	Mid-Flood	6
M07	31-Mar-03	Mid-Ebb	7	31-Mar-03	Mid-Flood	6
M07	02-Apr-03	Mid-Ebb	7	02-Apr-03	Mid-Flood	5
M07	04-Apr-03	Mid-Ebb	6	04-Apr-03	Mid-Flood	6
M07	07-Apr-03	Mid-Ebb	7	07-Apr-03	Mid-Flood	5
M07	09-Apr-03	Mid-Ebb	6	09-Apr-03	Mid-Flood	6
M07	14-Apr-03	Mid-Ebb	5	14-Apr-03	Mid-Flood	9
M07	16-Apr-03	Mid-Ebb	7	16-Apr-03	Mid-Flood	8
M08	06-Feb-03	Mid-Ebb	4	06-Feb-03	Mid-Flood	5
M08	08-Feb-03	Mid-Ebb	5	08-Feb-03	Mid-Flood	5
M08	10-Feb-03	Mid-Ebb	5	10-Feb-03	Mid-Flood	4
M08	14-Feb-03	Mid-Ebb	5	14-Feb-03	Mid-Flood	4
M08	18-Feb-03	Mid-Ebb	6	17-Feb-03	Mid-Flood	8
M08	19-Feb-03	Mid-Ebb	7	19-Feb-03	Mid-Flood	10
M08	21-Feb-03	Mid-Ebb	8	21-Feb-03	Mid-Flood	6
M08	24-Feb-03	Mid-Ebb	6	24-Feb-03	Mid-Flood	4
M08	28-Feb-03	Mid-Ebb	5	28-Feb-03	Mid-Flood	7
M08	03-Mar-03	Mid-Ebb	7	03-Mar-03	Mid-Flood	8
M08	05-Mar-03	Mid-Ebb	6	05-Mar-03	Mid-Flood	7
M08	07-Mar-03	Mid-Ebb	7	07-Mar-03	Mid-Flood	7
M08	10-Mar-03	Mid-Ebb	9	10-Mar-03	Mid-Flood	6
M08	17-Mar-03	Mid-Ebb	8	17-Mar-03	Mid-Flood	9
M08	19-Mar-03	Mid-Ebb	10	19-Mar-03	Mid-Flood	9
M08	22-Mar-03	Mid-Ebb	7	22-Mar-03	Mid-Flood	10
M08	24-Mar-03	Mid-Ebb	6	24-Mar-03	Mid-Flood	7
M08	26-Mar-03	Mid-Ebb	6	27-Mar-03	Mid-Flood	5
M08	31-Mar-03	Mid-Ebb	7	31-Mar-03	Mid-Flood	5
M08	02-Apr-03	Mid-Ebb	7	02-Apr-03	Mid-Flood	6
M08	04-Apr-03	Mid-Ebb	7	04-Apr-03	Mid-Flood	6
M08	07-Apr-03	Mid-Ebb	7	07-Apr-03	Mid-Flood	5
M08	09-Apr-03	Mid-Ebb	5	09-Apr-03	Mid-Flood	5
M08	14-Apr-03	Mid-Ebb	6	14-Apr-03	Mid-Flood	6
M08	16-Apr-03	Mid-Ebb	7	16-Apr-03	Mid-Flood	8
M09	06-Feb-03	Mid-Ebb	6	06-Feb-03	Mid-Flood	5
M09	08-Feb-03	Mid-Ebb	6	08-Feb-03	Mid-Flood	5
M09	10-Feb-03	Mid-Ebb	5	10-Feb-03	Mid-Flood	4
M09	14-Feb-03	Mid-Ebb	5	14-Feb-03	Mid-Flood	5
M09	18-Feb-03	Mid-Ebb	6	17-Feb-03	Mid-Flood	6
M09	19-Feb-03	Mid-Ebb	6	19-Feb-03	Mid-Flood	7
M09	21-Feb-03	Mid-Ebb	7	21-Feb-03	Mid-Flood	7
M09	24-Feb-03	Mid-Ebb	7	24-Feb-03	Mid-Flood	7
M09	28-Feb-03	Mid-Ebb	6	28-Feb-03	Mid-Flood	7
M09	03-Mar-03	Mid-Ebb	7	03-Mar-03	Mid-Flood	7
M09	05-Mar-03	Mid-Ebb	6	05-Mar-03	Mid-Flood	6
M09	07-Mar-03	Mid-Ebb	7	07-Mar-03	Mid-Flood	8
M09	10-Mar-03	Mid-Ebb	7	10-Mar-03	Mid-Flood	7

Impact Monitoring Results (DA)						
STN	DATE	TIDE	SS	DATE	TIDE	SS
M01A	3-May-10	MID-EBB	8.35	3-May-10	MID-FLOOD	4.55
M01A	5-May-10	MID-EBB	4.05	5-May-10	MID-FLOOD	3.75
M01A	7-May-10	MID-EBB	3.85	7-May-10	MID-FLOOD	4.75
M01A	10-May-10	MID-EBB	5.30	10-May-10	MID-FLOOD	5.15
M01A	12-May-10	MID-EBB	5.90	12-May-10	MID-FLOOD	6.55
M01A	14-May-10	MID-EBB	5.40	14-May-10	MID-FLOOD	8.75
M01A	17-May-10	MID-EBB	7.05	17-May-10	MID-FLOOD	8.35
M01A	19-May-10	MID-EBB	4.75	19-May-10	MID-FLOOD	4.95
M01A	21-May-10	MID-EBB	3.60	21-May-10	MID-FLOOD	3.75
M01A	24-May-10	MID-EBB	3.50	24-May-10	MID-FLOOD	5.15
M01A	26-May-10	MID-EBB	4.50	26-May-10	MID-FLOOD	7.90
M01A	28-May-10	MID-EBB	3.25	28-May-10	MID-FLOOD	6.15
M01A	31-May-10	MID-EBB	4.20	31-May-10	MID-FLOOD	6.85
M01A	3-Jun-10	MID-EBB	4.35	3-Jun-10	MID-FLOOD	3.75
M01A	4-Jun-10	MID-EBB	5.10	4-Jun-10	MID-FLOOD	4.15
M01A	7-Jun-10	MID-EBB	3.55	7-Jun-10	MID-FLOOD	5.15
M01A	9-Jun-10	MID-EBB	4.95	9-Jun-10	MID-FLOOD	5.75
M01A	11-Jun-10	MID-EBB	5.70	11-Jun-10	MID-FLOOD	6.15
M01A	15-Jun-10	MID-EBB	3.75	15-Jun-10	MID-FLOOD	6.55
M01A	17-Jun-10	MID-EBB	4.35	17-Jun-10	MID-FLOOD	3.75
M01A	19-Jun-10	MID-EBB	3.70	19-Jun-10	MID-FLOOD	3.55
M01A	21-Jun-10	MID-EBB	3.55	21-Jun-10	MID-FLOOD	3.75
M01A	23-Jun-10	MID-EBB	4.50	23-Jun-10	MID-FLOOD	6.20
M01A	25-Jun-10	MID-EBB	5.80	25-Jun-10	MID-FLOOD	7.00
M01A	28-Jun-10	MID-EBB	3.95	28-Jun-10	MID-FLOOD	5.95
M01A	30-Jun-10	MID-EBB	3.65	30-Jun-10	MID-FLOOD	4.55
M01A	2-Jul-10	MID-EBB	5.15	2-Jul-10	MID-FLOOD	4.75
M01A	5-Jul-10	MID-EBB	5.25	5-Jul-10	MID-FLOOD	5.00
M01A	7-Jul-10	MID-EBB	3.25	7-Jul-10	MID-FLOOD	4.15
M01A	9-Jul-10	MID-EBB	5.00	9-Jul-10	MID-FLOOD	8.35
M01A	12-Jul-10	MID-EBB	6.90	12-Jul-10	MID-FLOOD	11.15
M01A	14-Jul-10	MID-EBB	9.40	14-Jul-10	MID-FLOOD	9.55
M01A	16-Jul-10	MID-EBB	9.15	16-Jul-10	MID-FLOOD	6.70
M01A	19-Jul-10	MID-EBB	8.10	40378	MID-FLOOD	9.75
M01A	21-Jul-10	MID-EBB	7.15	21-Jul-10	MID-FLOOD	11.85
M01A	23-Jul-10	MID-EBB	5.10	23-Jul-10	MID-FLOOD	6.15
M01A	26-Jul-10	MID-EBB	8.95	26-Jul-10	MID-FLOOD	7.15
M01A	28-Jul-10	MID-EBB	6.15	28-Jul-10	MID-FLOOD	5.35
M01A	30-Jul-10	MID-EBB	5.90	30-Jul-10	MID-FLOOD	4.75
M04B	3-May-10	MID-EBB	10.45	3-May-10	MID-FLOOD	4.80
M04B	5-May-10	MID-EBB	3.85	5-May-10	MID-FLOOD	3.35
M04B	7-May-10	MID-EBB	4.20	7-May-10	MID-FLOOD	5.60
M04B	10-May-10	MID-EBB	4.35	10-May-10	MID-FLOOD	4.05
M04B	12-May-10	MID-EBB	5.20	12-May-10	MID-FLOOD	10.45
M04B	14-May-10	MID-EBB	5.30	14-May-10	MID-FLOOD	7.95
M04B	17-May-10	MID-EBB	4.95	17-May-10	MID-FLOOD	6.40
M04B	19-May-10	MID-EBB	5.30	19-May-10	MID-FLOOD	5.95
M04B	21-May-10	MID-EBB	3.05	21-May-10	MID-FLOOD	4.15
M04B	24-May-10	MID-EBB	4.90	24-May-10	MID-FLOOD	4.10
M04B	26-May-10	MID-EBB	3.60	26-May-10	MID-FLOOD	4.45
M04B	28-May-10	MID-EBB	5.70	28-May-10	MID-FLOOD	6.20
M04B	31-May-10	MID-EBB	3.70	31-May-10	MID-FLOOD	5.05
M04B	3-Jun-10	MID-EBB	4.25	3-Jun-10	MID-FLOOD	5.00
M04B	4-Jun-10	MID-EBB	3.10	4-Jun-10	MID-FLOOD	6.80
M04B	7-Jun-10	MID-EBB	3.45	7-Jun-10	MID-FLOOD	5.15
M04B	9-Jun-10	MID-EBB	4.10	9-Jun-10	MID-FLOOD	5.15
M04B	11-Jun-10	MID-EBB	4.75	11-Jun-10	MID-FLOOD	7.05
M04B	15-Jun-10	MID-EBB	4.75	15-Jun-10	MID-FLOOD	6.05
M04B	17-Jun-10	MID-EBB	4.10	17-Jun-10	MID-FLOOD	4.60
M04B	19-Jun-10	MID-EBB	3.40	19-Jun-10	MID-FLOOD	3.45
M04B	21-Jun-10	MID-EBB	3.75	21-Jun-10	MID-FLOOD	3.70
M04B	23-Jun-10	MID-EBB	4.95	23-Jun-10	MID-FLOOD	5.35
M04B	25-Jun-10	MID-EBB	5.85	25-Jun-10	MID-FLOOD	8.40
M04B	28-Jun-10	MID-EBB	3.80	28-Jun-10	MID-FLOOD	6.05
M04B	30-Jun-10	MID-EBB	3.85	30-Jun-10	MID-FLOOD	4.05
M04B	2-Jul-10	MID-EBB	5.35	2-Jul-10	MID-FLOOD	4.65
M04B	5-Jul-10	MID-EBB	4.90	5-Jul-10	MID-FLOOD	5.10
M04B	7-Jul-10	MID-EBB	3.25	7-Jul-10	MID-FLOOD	5.35
M04B	9-Jul-10	MID-EBB	4.85	9-Jul-10	MID-FLOOD	7.00
M04B	12-Jul-10	MID-EBB	12.20	12-Jul-10	MID-FLOOD	10.80
M04B	14-Jul-10	MID-EBB	8.15	14-Jul-10	MID-FLOOD	8.35
M04B	16-Jul-10	MID-EBB	8.30	40375	MID-FLOOD	7.7
M04B	19-Jul-10	MID-EBB	8.55	19-Jul-10	MID-FLOOD	8.85
M04B	21-Jul-10	MID-EBB	8.40	21-Jul-10	MID-FLOOD	10.45
M04B	23-Jul-10	MID-EBB	21.60	23-Jul-10	MID-FLOOD	6.10
M04B	26-Jul-10	MID-EBB	7.25	26-Jul-10	MID-FLOOD	10.50
M04B	28-Jul-10	MID-EBB	5.40	28-Jul-10	MID-FLOOD	5.25
M04B	30-Jul-10	MID-EBB	5.25	30-Jul-10	MID-FLOOD	4.10

$n_1 =$ 268

$\overline{X}_1 =$ 7.0

$\sigma_1 =$ 1.7

$\overline{X}_1 * 1.3 =$ 9.1

By applying the equation:

$$Z = \frac{\overline{X} - \mu_0}{\sigma / \sqrt{n}}$$

& testing $H_0 : \mu = \mu_0$

$Z_{0.05} =$ -1.645

$\overline{X} - \mu_0 =$ -3.26

$\sigma / \sqrt{n} =$ 0.11

234.00

$\overline{X}_2 =$ 5.8

$\sum (X_i - X_2)^2 =$ 875

$\sigma_2 =$ 2.4

Baseline Results (DA)						
STN	DATE	TIDE	SS	DATE	TIDE	SS
M09	17-Mar-03	Mid-Ebb	10	17-Mar-03	Mid-Flood	8
M09	19-Mar-03	Mid-Ebb	10	19-Mar-03	Mid-Flood	9
M09	22-Mar-03	Mid-Ebb	8	22-Mar-03	Mid-Flood	9
M09	24-Mar-03	Mid-Ebb	10	24-Mar-03	Mid-Flood	7
M09	26-Mar-03	Mid-Ebb	11	27-Mar-03	Mid-Flood	6
M09	31-Mar-03	Mid-Ebb	7	31-Mar-03	Mid-Flood	7
M09	02-Apr-03	Mid-Ebb	7	02-Apr-03	Mid-Flood	5
M09	04-Apr-03	Mid-Ebb	7	04-Apr-03	Mid-Flood	5
M09	07-Apr-03	Mid-Ebb	7	07-Apr-03	Mid-Flood	5
M09	09-Apr-03	Mid-Ebb	6	09-Apr-03	Mid-Flood	4
M09	14-Apr-03	Mid-Ebb	5	14-Apr-03	Mid-Flood	6
M09	16-Apr-03	Mid-Ebb	7	16-Apr-03	Mid-Flood	7
M10	06-Feb-03	Mid-Ebb	3	06-Feb-03	Mid-Flood	5
M10	08-Feb-03	Mid-Ebb	6	08-Feb-03	Mid-Flood	5
M10	10-Feb-03	Mid-Ebb	5	10-Feb-03	Mid-Flood	4
M10	14-Feb-03	Mid-Ebb	5	14-Feb-03	Mid-Flood	6
M10	18-Feb-03	Mid-Ebb	6	17-Feb-03	Mid-Flood	8
M10	19-Feb-03	Mid-Ebb	6	19-Feb-03	Mid-Flood	8
M10	21-Feb-03	Mid-Ebb	8	21-Feb-03	Mid-Flood	6
M10	24-Feb-03	Mid-Ebb	6	24-Feb-03	Mid-Flood	5
M10	28-Feb-03	Mid-Ebb	4	28-Feb-03	Mid-Flood	7
M10	03-Mar-03	Mid-Ebb	7	03-Mar-03	Mid-Flood	9
M10	05-Mar-03	Mid-Ebb	6	05-Mar-03	Mid-Flood	6
M10	07-Mar-03	Mid-Ebb	8	07-Mar-03	Mid-Flood	8
M10	10-Mar-03	Mid-Ebb	6	10-Mar-03	Mid-Flood	7
M10	17-Mar-03	Mid-Ebb	8	17-Mar-03	Mid-Flood	7
M10	19-Mar-03	Mid-Ebb	10	19-Mar-03	Mid-Flood	10
M10	22-Mar-03	Mid-Ebb	7	22-Mar-03	Mid-Flood	10
M10	24-Mar-03	Mid-Ebb	5	24-Mar-03	Mid-Flood	8
M10	26-Mar-03	Mid-Ebb	7	27-Mar-03	Mid-Flood	5
M10	31-Mar-03	Mid-Ebb	8	31-Mar-03	Mid-Flood	6
M10	02-Apr-03	Mid-Ebb	7	02-Apr-03	Mid-Flood	6
M10	04-Apr-03	Mid-Ebb	7	04-Apr-03	Mid-Flood	8
M10	07-Apr-03	Mid-Ebb	7	07-Apr-03	Mid-Flood	6
M10	09-Apr-03	Mid-Ebb	5	09-Apr-03	Mid-Flood	7
M10	14-Apr-03	Mid-Ebb	6	14-Apr-03	Mid-Flood	8
M10	16-Apr-03	Mid-Ebb	8	16-Apr-03	Mid-Flood	6

Impact Monitoring Results (DA)						
STN	DATE	TIDE	SS	DATE	TIDE	SS

Thus, $z =$ -29.30

Reject H_0?: YES ($z < -z_{0.05}$)

Therefore, the null hypothesis must be rejected in favor of the alternate hypothesis, i.e., the quarterly mean is significantly less than 1.3 times the ambient mean recorded during baseline monitoring.