

## Appendix C: Event Log for Unladen Fatigue Data Collection and Filling Tanker

### 1 Overview

The unladen data collection exercise was carried out on Tuesday, 13 May and Wednesday 14 May 2014. In total, the unladen data collection exercise comprised 11 separate tests. In order to prevent strain gauge drift, before each test began, the strain gauges and accelerometers were zeroed. In this appendix, detailed descriptions of events and incidents that occurred during the test are recorded.

A summary of the key events are as follows:

- Number of recorded speed humps: 20
- Number of recorded pot hole events: 6
- Number of roundabout encounters: 92

Tables C1-C11 present the event logs for each of the eleven unladen tests. When applicable, each event is associated with a time from zero (start) time in both minutes and seconds as well as the clock time. The duration from start time can be used to analyse the strain and accelerometer data to identify the response of the tanker to the particular event.

Following the unladen data collection exercise, the tanker was filled with water at PCL on 12 June 2014. The compartments were filled sequentially from compartment (pot) 1 to compartment (pot) 6, with compartment 1 at the rear of the tanker and compartment 6 at the front of the tanker. The instrumentation on the tanker logged the strains associated with filling the tanker, and the times for each compartment are shown in Table C12.

**Table C1** Event log for Test 1 – Verification of instrumentation activity

Date	13 May 2014		
Start time	-		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Technician generating signals by vibrating tanker	-	-	-

**Table C2** Event log for Test 2 – Figure-of-eight manoeuvre

Date	13 May 2014		
Start time	4:38:00 PM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Figure of 8	00:00:00	-	04:38:00 PM
Reverse into Bay	-	-	-
Finish	00:07:00	-	04:45:00 PM

**Table C3** Event log for Test 3: Driving from Wincanton Yard to Coryton

Date	14 May 2014		
Start time	10:22:00 AM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Leave yard	00:00:00	0.00	10:22:00 AM
Turn right	00:01:40	100.00	10:23:40 AM
Speed hump	00:02:30	150.00	10:24:30 AM
Turn left	00:03:00	180.00	10:25:00 AM
Speed hump	00:03:40	220.00	10:25:40 AM
Speed hump	00:04:00	240.00	10:26:00 AM
Turn right	00:04:40	280.00	10:26:40 AM
Pot holes	00:05:10	310.00	10:27:10 AM
Turn right	00:07:00	420.00	10:29:00 AM
Roundabout, 2nd exit	00:07:50	470.00	10:29:50 AM
Roundabout, 3rd exit	00:09:20	560.00	10:31:20 AM
Join A13 Tilbury, Roundabout, 3rd exit	00:11:03	663.00	10:33:03 AM
S R Left (?)	00:20:40	1240.00	10:42:40 AM
Roundabout, 3rd exit	00:21:10	1270.00	10:43:10 AM
Speed hump	00:23:30	1410.00	10:45:30 AM
Diversion	00:24:40	1480.00	10:46:40 AM
Roundabout, 4th exit	00:26:20	1580.00	10:48:20 AM
Speed hump	00:29:00	1740.00	10:51:00 AM
Turn left	00:29:30	1770.00	10:51:30 AM
Speed hump	00:32:10	1930.00	10:54:10 AM
Roundabout, 4th exit	00:33:20	2000.00	10:55:20 AM
Speed hump	00:33:40	2020.00	10:55:40 AM
Stop at Coryton	00:35:11	2111.00	10:57:11 AM

**Table C4** Event log for Test 4: Figure-of-eight manoeuvre

Date	14 May 2014		
Start time	11:11:00 AM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Start test	00:00:00	0.00	11:11:00 AM
End test	00:02:33	153.00	11:13:33 AM

**Table C5** Event log for Test 5: Emergency Stop Test

Date	14 May 2014		
Start time	11:22:00 AM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Start test	00:00:00	0.00	11:22:00 AM
Turn left	00:01:40	100.00	11:23:40 AM
Speed hump	00:01:50	110.00	11:23:50 AM
Emergency Stop	00:03:10	190.00	11:25:10 AM
Emergency Stop	00:05:00	300.00	11:27:00 AM
Speed hump	00:07:10	430.00	11:29:10 AM
Stop Test	00:08:08	488.00	11:30:08 AM

**Table C6** Event log for Test 6: Coryton to A130 exit

Date	14 May 2014		
Start time	11:41:00 AM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Start test in Coryton	00:00:00	0.00	11:41:00 AM
Turn left	00:01:15	75.00	11:42:15 AM
Speed hump	00:01:26	86.00	11:42:26 AM
Turn left	00:01:30	90.00	11:42:30 AM
Turn left	00:06:30	390.00	11:47:30 AM
Roundabout, 4th exit	00:06:50	410.00	11:47:50 AM
Roundabout, 3rd exit (A1014)	00:08:55	535.00	11:49:55 AM
Join A13, Turn left	00:12:27	747.00	11:53:27 AM
Roundabout, 1st exit (Basildon); Roundabout 3rd exit (A176)	00:16:12	972.00	11:57:12 AM
Speed hump / Traffic lights	00:14:50	890.00	11:55:50 AM
Roundabout, 2nd exit	00:15:58	958.00	11:56:58 AM
Roundabout, 3rd exit	00:16:28	988.00	11:57:28 AM
Traffic lights	00:17:35	1055.00	11:58:35 AM
Roundabout, 2nd exit	00:19:43	1183.00	12:00:43 PM
Roundabout, 1st exit	00:20:30	1230.00	12:01:30 PM
Roundabout, 2nd exit	00:21:47	1307.00	12:02:47 PM
Roundabout, 2nd exit	00:22:45	1365.00	12:03:45 PM
Roundabout, 3rd exit	00:23:24	1404.00	12:04:24 PM
Roundabout, 2nd exit	00:24:16	1456.00	12:05:16 PM
Roundabout, 2nd exit	00:26:30	1590.00	12:07:30 PM
Roundabout, 2nd exit	00:27:56	1676.00	12:08:56 PM
Roundabout, 3rd exit	00:28:42	1722.00	12:09:42 PM
Left turn (A130)	00:32:15	1935.00	12:13:15 PM
Stop test	00:34:47	2087.00	12:15:47 PM

**Table C7** Event log for Test 7: A130 to A120 exit

Date	14 May 2014		
Start time	12:20:00 PM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Start test (A130)	00:00:00	0.00	12:20:00 PM
Roundabout, 2nd exit	00:05:00	300.00	12:25:00 PM
Roundabout 3rd exit (join A12 North)	00:06:20	380.00	12:26:20 PM
Leave A12, Roundabout, 1st exit	00:11:36	696.00	12:31:36 PM
Roundabout, 2nd exit	00:12:43	763.00	12:32:43 PM
A130, roundabout 2nd exit	00:13:35	815.00	12:33:35 PM
Roundabout, 2nd exit	00:14:17	857.00	12:34:17 PM
Roundabout, 3rd exit	00:15:25	925.00	12:35:25 PM
Speed hump	00:16:00	960.00	12:36:00 PM
Roundabout, 2nd exit	00:16:50	1010.00	12:36:50 PM
Roundabout, 2nd exit	00:17:44	1064.00	12:37:44 PM
Roundabout, 2nd exit	00:18:40	1120.00	12:38:40 PM
Roundabout, 3rd exit	00:19:45	1185.00	12:39:45 PM
Pot hole	00:20:10	1210.00	12:40:10 PM
Roundabout, 2nd exit	00:22:40	1360.00	12:42:40 PM
Roundabout, 2nd exit	00:24:25	1465.00	12:44:25 PM
Roundabout, 1st exit	00:25:55	1555.00	12:45:55 PM
Roundabout, 1st exit	00:26:50	1610.00	12:46:50 PM
Roundabout, 2nd exit	00:27:55	1675.00	12:47:55 PM
Roundabout, 1st exit	00:28:20	1700.00	12:48:20 PM
Roundabout 3rd exit (Join A120)	00:29:17	1757.00	12:49:17 PM
Roundabout, 4th exit (A120)	00:32:00	1920.00	12:52:00 PM
Stop test	00:34:04	2044.00	12:54:04 PM

**Table C8** Event log for Test 8: A120 to truck stop

Date	14 May 2014		
Start time	1:00:00 PM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Start A120	00:00:00	0.00	01:00:00 PM
Roundabout, 2nd exit (A131)	00:02:27	147.00	01:02:27 PM
Speed hump	00:03:00	180.00	01:03:00 PM
Roundabout, 2nd exit	00:03:20	200.00	01:03:20 PM
Roundabout, 2nd exit	00:04:35	275.00	01:04:35 PM
Roundabout, 2nd exit	00:05:45	345.00	01:05:45 PM
Roundabout, 2nd exit	00:07:15	435.00	01:07:15 PM
Pot hole	00:07:20	440.00	01:07:20 PM
Roundabout, 2nd exit	00:09:10	550.00	01:09:10 PM
Roundabout, 1st exit	00:11:55	715.00	01:11:55 PM
Roundabout, 2nd exit	00:13:10	790.00	01:13:10 PM
Roundabout, 2nd exit	00:14:14	854.00	01:14:14 PM
Speed hump	00:14:30	870.00	01:14:30 PM
Roundabout, 2nd exit	00:15:10	910.00	01:15:10 PM
Roundabout, 1st exit	00:16:50	1010.00	01:16:50 PM
Roundabout, 2nd exit	00:18:00	1080.00	01:18:00 PM
Roundabout, 2nd exit	00:18:35	1115.00	01:18:35 PM
Roundabout, 1st exit	00:19:37	1177.00	01:19:37 PM
Roundabout, 2nd exit	00:20:50	1250.00	01:20:50 PM
Speed hump	00:20:58	1258.00	01:20:58 PM
Truck stop	00:22:18	1338.00	01:22:18 PM

**Table C9** Event log for Test 9: Truck stop to Coryton

Date	14 May 2014		
Start time	2:16:00 PM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Start truck stop	00:00:00	0.00	02:16:00 PM
Roundabout, 1st exit	00:02:00	120.00	02:18:00 PM
Roundabout, 3rd exit	00:02:50	170.00	02:18:50 PM
Roundabout, 3rd exit	00:03:19	199.00	02:19:19 PM
Roundabout, 3rd exit	00:09:15	555.00	02:25:15 PM
Speed hump	00:10:10	610.00	02:26:10 PM
Leave A130 onto A132	00:15:40	940.00	02:31:40 PM
Roundabout, 1st exit	00:16:10	970.00	02:32:10 PM
Roundabout, 1st exit	00:16:35	995.00	02:32:35 PM
Roundabout, 2nd exit	00:21:15	1275.00	02:37:15 PM
Roundabout, 2nd exit	00:22:18	1338.00	02:38:18 PM
Roundabout, 2nd exit	00:23:43	1423.00	02:39:43 PM
Roundabout, 2nd exit	00:26:26	1586.00	02:42:26 PM
Roundabout, 2nd exit	00:27:32	1652.00	02:43:32 PM
Roundabout, 2nd exit	00:28:30	1710.00	02:44:30 PM
Roundabout, 2nd exit	00:30:00	1800.00	02:46:00 PM
Roundabout, 2nd exit	00:31:25	1885.00	02:47:25 PM
Traffic lights	00:32:53	1973.00	02:48:53 PM
Roundabout, 1st exit	00:35:47	2147.00	02:51:47 PM
Roundabout, 2nd exit	00:36:09	2169.00	02:52:09 PM
Traffic lights	00:36:36	2196.00	02:52:36 PM
Traffic lights	00:38:07	2287.00	02:54:07 PM
Roundabout, 2nd exit	00:40:52	2452.00	02:56:52 PM
Roundabout, 3rd exit	00:41:10	2470.00	02:57:10 PM
Roundabout, 3rd exit	00:41:43	2503.00	02:57:43 PM
Onto A13 South	00:42:00	2520.00	02:58:00 PM
Onto A1014	00:44:52	2692.00	03:00:52 PM

**Table C10 Continued** Event log for Test 9: Truck stop to Coryton continued

Traffic lights	00:45:15	2715.00	03:01:15 PM
Roundabout, 1st exit	00:45:40	2740.00	03:01:40 PM
Turn left	00:49:00	2940.00	03:05:00 PM
Speed hump	00:51:00	3060.00	03:07:00 PM
Roundabout, 3rd exit	00:52:06	3126.00	03:08:06 PM
Speed hump	00:52:30	3150.00	03:08:30 PM
Turn right	00:52:40	3160.00	03:08:40 PM
Stop at Coryton	00:53:53	3233.00	03:09:53 PM



**Table C11** Event log for Test 10: Coryton to M25 and back to Coryton

Date	14 May 2014		
Start time	3:21:00 PM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Start at Coryton	00:00:00	0.00	03:21:00 PM
Turn left and bump	00:01:00	60.00	03:22:00 PM
Roundabout 1st exit	00:01:38	98.00	03:22:38 PM
Pot hole	00:04:21	261.00	03:25:21 PM
Turn left	00:06:20	380.00	03:27:20 PM
Roundabout, 4th exit	00:07:20	440.00	03:28:20 PM
Roundabout 2nd exit (A13)	00:09:00	540.00	03:30:00 PM
Off A13 onto M25 anticlockwise	00:17:47	1067.00	03:38:47 PM
Roundabout 3rd exit	00:18:16	1096.00	03:39:16 PM
Traffic lights on roundabout (M25 J29)	00:18:47	1127.00	03:39:47 PM
Roundabout turn left?	00:26:40	1600.00	03:47:40 PM
Turn left	00:27:25	1645.00	03:48:25 PM
Back onto M25?	00:29:40	1780.00	03:50:40 PM
Off M25 at J28	00:33:06	1986.00	03:54:06 PM
Traffic lights	00:33:35	2015.00	03:54:35 PM
Traffic lights	00:33:42	2022.00	03:54:42 PM
Traffic lights	00:34:15	2055.00	03:55:15 PM
Re-join M25 clockwise (off J29 360° back onto M25)	00:34:56	2096.00	03:55:56 PM
Traffic lights	00:38:24	2304.00	03:59:24 PM
Traffic lights	00:40:18	2418.00	04:01:18 PM
Re-join (off M25 J30 onto A13)	00:40:55	2455.00	04:01:55 PM
Turn left	00:47:00	2820.00	04:08:00 PM
Off A13 roundabout 3rd exit (A1014)	00:56:40	3400.00	04:17:40 PM
Turn left	00:59:00	3540.00	04:20:00 PM
Roundabout third exit	01:03:46	-	04:24:46 PM
Speed hump and turn right	01:04:09	-	04:25:09 PM
Stop at Coryton	01:05:18	-	04:26:18 PM

**Table C12** Event log for Test 11: Start at Coryton and return to Wincanton

Date	14 May 2014		
Start time	4:31:00 PM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Start at Coryton	00:00:00	0.00	04:31:00 PM
Pot hole and turn left	00:01:30	90.00	04:32:30 PM
Roundabout 1st exit	00:01:50	110.00	04:32:50 PM
Turn left	00:05:42	342.00	04:36:42 PM
Roundabout 4th exit	00:07:20	440.00	04:38:20 PM
Roundabout 2nd exit (A13) roundabout 1st exit (off A13)	00:19:25	1165.00	04:50:25 PM
Roundabout 3rd exit	00:21:05	1265.00	04:52:05 PM
Roundabout 2nd exit	00:22:30	1350.00	04:53:30 PM
Roundabout 1st exit	00:23:30	1410.00	04:54:30 PM
Pot hole	00:24:50	1490.00	04:55:50 PM
Turn left	00:25:33	1533.00	04:56:33 PM
Roundabout 3rd exit	00:26:31	1591.00	04:57:31 PM
Speed hump	00:26:50	1610.00	04:57:50 PM
Arrive at yard, reverse into bay	00:31:20	1880.00	05:02:20 PM
Finish	00:31:50	1910.00	05:02:50 PM

**Table C13** Event log for Test 12: Filling the tanker

Date	12 June 2014		
Start time	8:57:00 PM		
Event/Incident	Duration from zero time (min)	Duration from zero time (s)	Clock time
Start filling Pot 1	00:00:00	0.00	08:57:00 AM
Finish filling Pot 1	00:17:30	1050.00	09:14:30 AM
Start filling Pot 2	00:17:30	1050.00	09:14:30 AM
Finish filling Pot 2	00:35:45	2145.00	09:32:45 AM
Start filling Pot 3	00:35:45	2145.00	09:32:45 AM
Finish filling Pot 3	00:52:10	3130.00	09:49:10 AM
Start filling Pot 4	00:52:10	3130.00	09:49:10 AM
Finish filling Pot 4	01:10:10	-	10:07:10 AM
Start filling Pot 5	01:10:10	-	10:07:10 AM
Finish filling Pot 5	01:40:30	-	10:37:30 AM
Start filling Pot 6	01:40:30	-	10:37:30 AM
Finish filling Pot 6	01:57:05	-	10:54:05 AM