Appendix A
Suite of Tests by Laboratory

Appendix A
Suite of Tests by Laboratory

Staveley Services Fluids Analysis (formerly CTC Analytical Services Laboratory checks for:

Spectrochemical Analysis (ppm)	Physical Properties
Iron	Fuel, % volume
Chromium	Viscosity at 100ºC
Lead	Water, % volume
Copper	Soot, % weight
Tin	Glycol, % volume
Aluminum	Nitration, Abs
Nickel	Oxidation, Abs
Silver	Total Base Number
Silicon	
Boron	
Sodium	
Magnesium	
Calcium	
Barium	
Phosphorous	
Zinc	
Molybdenum	
Titanium	
Vanadium	
Potassium	

National Tribology Services Laboratory has essentially the same suite of tests (above) as CTC, but has additional tests, which include:

Rotrode Filter Spectroscopy (ppm)	Sulfation, Abs
Iron	Zinc depletion, Abs
Chromium	Particle size analysis (microns)
Lead	>4
Copper	>6
Tin	>14
Aluminum	>21
Nickel	>38
Silver	>70
Molybdenum	ISO>4
Titanium	ISO>6
Silicon	ISO>14
Boron	ISO Code
Sodium	SAE Code

National Tribology Services Laboratory destructive filter analysis tests include:

Filter media/canister separation	Analytical ferrography and photographs
Filter media ultrasonic cleaning	X-Ray florescence alloy analysis
Spectroscopy analysis	Heptane/Pentane insoluble analysis
Rotrode Filter spectroscopy analysis	

Appendix B

Manual Log Sheet

Appendix B

Manual Log Sheet

	Date	Date	Date	Date	Date	Date	Notes
Date							Record date
Mileage							Record bus mileage at beginning of day
Coolant check							Look at sight glass and verify coolant level is OK. Initial and record time of day done.
Oil check							Check oil and verify oil level is OK. Initial and record time of day done.
Oil added							Estimate in quarts, the amount added. Use only the Shell Rotella-T 15W-40 found in cargo bay.
Fuel added							Record gallons of fuel added
Idle start time							Initial and record time idling started.
Mid day oil pres. check							Record oil pressure. Initial and record time of day done.
Mid day water temp. check							Record water temperature. Initial and record time of day done.
Fuel added							Fill with fuel before shuttle run to track fuel usage.
Shuttle run start time							Initial and record time of day shuttle started.
Shuttle run mileage start							Record start mileage

	Date	Date	Date	Date	Date	Date	Notes
Date							Record date
Shuttle run end mileage							Record finish mileage
Fuel added							Fill with fuel after shuttle run to track fuel usage.
Time shuttle ended							Initial and record time of day shuttle ended. This corresponds to re-start of idling time.
End-of-day oil pressure check							Record oil pressure. Initial and record time of day done.
End-of-day water temp. check							Record water temperature. Initial and record time of day done.
Shut-off time							Record time shut off. Initial and record time of day done.

Appendix C
Oil Analysis Report

staveleyservices FLUIDS ANALYSIS

3319 WEST EARLL DRIVE
PHOENIX, AZ 85017-5242
(800) 445-7930, FAX (602) 252-4639

CUSTOMER NO.: 15505
UNIT NO.: 73432
DESCRIPTION: ENGINE
END USER: LARRY ZIRKER
BATTELE ENERGY ALLIANCE
END USER LOCATION: IDAHO FALLS, ID 83415-3830

MAKE: DETROIT DIESEL
MODEL SERIES 50
OIL BRAND: SHELL
OIL TYPE: ROTELLA T 15W40
SERIAL NO.:
FUEL TYPE: DIESEL

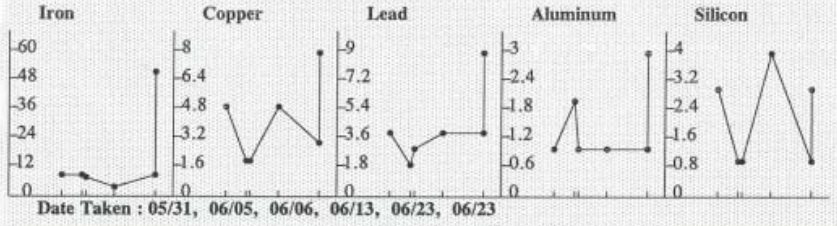
NO. COPIES 1

SAMPLE DATA			SPECTROCHEMICAL ANALYSIS (ppm)																			PHYSICAL PROPERTIES					
LAB#	SAMPLE DATE / RECEIPT DATE	TIME ON OIL / TIME ON UNIT	IRON	CHROMIUM	LEAD	COPPER	TIN	ALUMINUM	NICKEL	SILVER	SILICON	BORON	SODIUM	MAGNESIUM	CALCIUM	BARIUM	PHOSPHORUS	ZINC	MOLYBDENUM	TITANIUM	VANADIUM	POTASSIUM	FUEL (%VOL)	VIS @ 40 C cSt	VIS @ 100 C cSt	WATER (%VOL)	SOOT/SOLIDS (%WT)	GLYCOL
148465 NORMAL	06/23/2005 07/13/2005	800	52	2	9	8	2	3	0	0	3	62	12	16	3779	1	1269	1526	206	0	0	0	<1	N/A	14.25	0	0.1	NEG
136187 NORMAL	06/23/2005 06/23/2005		9	1	4	3	0	1	0	0	1	1	3	16	2521	0	1008	1129	1	0	0	0	<1	N/A	13.57	0	0.2	NEG
119041 NORMAL	06/13/2005 06/14/2005	600	4	0	4	5	3	1	0	0	4	0	0	14	2478	0	1123	1270	0	0	0	0	<1	N/A	13.72	0	0.2	NEG
116193 NORMAL	06/06/2005 06/09/2005		8	0	3	2	0	1	0	0	1	0	3	13	2677	0	1032	1215	1	0	0	0	<1	N/A	13.72	0	0.2	NEG

LAB#	ADDITIONAL TESTS			
	TAN	TBN	OXID	NITR
148465	2.24	7.8	1	1
136187	2.13	7.9	6	7
119041	2.27	8.9	1	3
116193	2.24	8.8	2	8

Key
A: Abnormal *C:* Critical

GRAPHICAL ANALYSIS



LAB#	ANALYSIS RECOMMENDATIONS
148465	RESULTS OF TEST PERFORMED INDICATE NO CORRECTIVE ACTION REQUIRED. ANALYST-SAL
136187	RESULTS OF TEST PERFORMED INDICATE NO CORRECTIVE ACTION REQUIRED. ANALYST-PXK
119041	RESULTS OF TEST PERFORMED INDICATE NO CORRECTIVE ACTION REQUIRED. ANALYST-PXK
116193	RESULTS OF TESTS PERFORMED INDICATE NO CORRECTIVE ACTION REQUIRED. ANALYST-A.A

LARRY ZIRKER
BATTELE ENERGY ALLIANCE
P O BOX 1625
IDAHO FALLS, ID 83415-3830

Appendix D
Summary of Daily Logs

Appendix D: Summary of Daily Logs

Bus 73432							Bus 73433						
Date	Hours	Total	Miles	Gallons	Gallon	Notes	Date	Hours	Total	Miles	Gallons	Gallon	Notes
4/27/2005							4/27/2005	16	16				1st 400 Hours Begins
4/28/2005							4/28/2005	19.5	35.5	302681	30.4		
4/29/2005							4/29/2005	15	50.5				
4/30/2005							4/30/2005		50.5				
5/1/2005							5/1/2005		50.5				
5/2/2005							5/2/2005	21	71.5				
5/3/2005							5/3/2005	21	92.5				
5/4/2005							5/4/2005	21	113.5				
5/5/2005							5/5/2005	21	134.5	302433	101.1		
5/6/2005	16	16	140549			1st 400 Hours Begins	5/6/2005	15	149.5				
5/7/2005	15	31					5/7/2005	15	164.5				
5/8/2005	14.5	45.5			0.5		5/8/2005	14.5	179			1	
5/9/2005	21	66.5					5/9/2005	20	199				
5/10/2005	20.5	87					5/10/2005	20.5	219.5				
5/11/2005	20	107					5/11/2005	20	239.5				
5/12/2005	20.5	127.5	140549	139.1			5/12/2005	21	260.5	302892	114.9		
5/13/2005	15	142.5					5/13/2005	13	273.5			1	
5/14/2005	14.5	157					5/14/2005	14.5	288				
5/15/2005	11.5	168.5			1		5/15/2005	11.5	299.5			1	
5/16/2005	21	189.5					5/16/2005	21	320.5				
5/17/2005	20	209.5					5/17/2005	20	340.5				
5/18/2005	20	229.5					5/18/2005	20	360.5				
5/19/2005	21	250.5	140653	103.9			5/19/2005	21	381.5	302998	119.4		
5/20/2005	13	263.5					5/20/2005	10	391.5				
5/21/2005	15	278.5					5/21/2005	12.5	404				
5/22/2005	11.5	290					5/22/2005	6.5	410.5				2nd 400 Hours Begins
5/23/2005	21	311					5/23/2005	20	430.5	303143	53.8	3	
5/24/2005	20	331					5/24/2005	20	450.5				
5/25/2005	20	351			1		5/25/2005	21	471.5				
5/26/2005	21	372	140760	111.9			5/26/2005	16	487.5	303247	49.5	1	
5/27/2005	20	392					5/27/2005	15.5	503				
5/28/2005	12.5	404.5					5/28/2005	12	515				
5/29/2005	12	416.5					5/29/2005		515				
5/30/2005	20.5	437					5/30/2005	15	530				
5/31/2005	21	458	140932	60.9			5/31/2005	21	551				
6/1/2005	20.5	478.5				2nd 400 Hours Begins	6/1/2005	20.5	571.5			1	
6/2/2005	14.5	493	140998	51.7	1		6/2/2005	21	592.5	303354	111.0		
6/3/2005	8	501					6/3/2005	15	607.5				
6/4/2005	14	515					6/4/2005	14.5	622			1	
6/5/2005	14.5	529.5					6/5/2005	14.5	636.5				
6/6/2005	17	546.5					6/6/2005	17	653.5				
6/7/2005	13.5	560					6/7/2005	15.5	669				
6/8/2005	20.5	580.5					6/8/2005	20.5	689.5				
6/9/2005	21	601.5	141105	109.6			6/9/2005	21	710.5	303354	102.2	1	
6/10/2005	16	617.5					6/10/2005	16	726.5				
6/11/2005	14.5	632					6/11/2005	14.5	741				
6/12/2005	14.5	646.5					6/12/2005	14.5	755.5				
6/13/2005	20	666.5					6/13/2005	20	775.5				
6/14/2005	20.5	687		76.0	1		6/14/2005	20.5	796		86.1	1	
6/15/1900	21	708					6/15/1900	20.5	816.5				
6/16/2005	21	729					6/16/2005	21	837.5		47.8		Last 200 Hours Begins
6/17/2005	15	744					6/17/2005	15	852.5				
6/18/2005	14.5	758.5					6/18/2005	14.5	867			1	
6/19/2005	14.5	773					6/19/2005	14.5	881.5				
6/20/2005	21	794					6/20/2005	20	901.5				
6/21/2005	20.5	814.5					6/21/2005	20.5	922				
6/22/2005	20.5	835			1		6/22/2005	20.5	942.5			1	
6/23/2005	20.5	855.5		139.7		Last 200 Hours Begins	6/23/2005	20.5	963		104.7		
6/24/2005	14.5	870					6/24/2005	14.5	977.5				
6/25/2005	15	885					6/25/2005	15	992.5				
6/26/2005	14.5	899.5					6/26/2005	14.5	1007				
6/27/2005	20	919.5					6/27/2005	20	1027				
6/28/2005	20.5	940			1		6/28/2005	2	1029	303793	75.6	2	End Idling
6/29/2005	20.5	960.5											
6/30/2005	21	981.5		121.7									
7/1/2005	14	995.5											
7/2/2005	14.5	1010											
7/3/2005	20	1030											
7/4/2005	20	1050											
7/5/2005	6	1056	141756	83.0	2	End Idling							
Totals		**1056**	**1207**	**997.5**	**8.5**				**1029**	**1112**	**996.5**	**15**	

Appendix E

Data Logger Summary Sheets

Appendix E

Data Logger Summary Sheets

Bus 73432

bus 73432	432	432	432	432	432	432	432	TOTALS
filename	070551aa	062751aa	062051ac	061351aa	060651ac	052351aa	051651aa	
start date	6/27/2005	6/20/2005	6/13/2005	6/6/2005	5/23/2005	5/16/2005	05/05/105	05/05/105
end date	7/5/2005	6/27/2005	6/20/2005	6/13/2005	6/6/2005	5/23/2005	5/16/2005	7/5/2005
trip distance (mi)	161.3	111.3	119.6	108.7	348.8	107.8	310.4	1267.9
trip fuel (gal)	136.5	145.38	118.63	134.38	250.5	114.25	208.75	1108.39
fuel economy (mpg)	1.18	0.77	1.01	0.81	1.39	0.94	1.49	1.14
avg vehicle speed (mph)	45.6	42.2	48.8	44.4	45.9	44.9	49.4	
drive time (hh:mi:ss)	3:32:13	2:38:23	2:26:56	2:27:00	7:36:20	2:23:55	6:17:20	26:22:07
driving percent (%)	2.93	1.93	2.08	1.95	3.53	2.07	3.58	
driving fuel (gal)	21.5	15.25	16.75	13.75	45.88	14.63	42.38	170.14
driving economy (mpg)	7.5	7.3	7.14	7.91	7.6	7.37	7.33	
Cruise Time	1:19:39	00:53.1	0:51:32	1:04:50	2:31:51	0:56:47	1:32:45	
cruise percent (%)	37.53	33.58	35.07	44.1	33.28	39.46	24.58	
Cruise Distance (mi)	88.9	58.3	57.7	71.5	168.8	61.9	102.4	
Cruise Fuel (gal)	10.5	7.5	7.63	8.63	20.13	8.25	14	
trip time	120:43:58	136:57:00	117:49:40	125:45:11	215:43:53	115:59:41	175:43:30	1008:42:53
fuel consumption (gal/h)	1.13	1.06	1.01	1.07	1.16	0.98	1.19	
Idle time	117:11:45	134:18:37	115:22:44	123:18:11	208:07:33	113:35:46	169:26:10	981:20:46
idle percent (%)	97.07	98.07	97.92	98.05	96.47	97.93	96.42	
idle Fuel (gal)	115.00	130.13	101.88	120.63	204.63	99.63	166.38	938.28
VSG (PTO) time	116:35:12	133:27:20	104:59:19	123:05:21	206:28:17	113:08:16	167:32:17	
VSG(PTO) Percent (%)	96.57	97.45	89.1	97.88	95.71	97.54	95.34	
VSG (PTO) Fuel (gal)	114.63	129.88	101.38	120.38	204.13	99.38	165.88	
Stop idle time	116:40:54	134:00:15	115:04:24	123:05:51	207:00:05	113:14:22	168:45:29	
Stop idle percent (%)	96.64	97.85	97.66	97.89	95.95	97.62	96.04	
stop idle fuel (gal)	114.63	129.75	101.75	120.38	203.88	99.38	165.88	
Over Rev limit (rpm)	2100	2100	2100	2100	2100	2100	2100	
Brake Count	172	160	157	125	383	134	249	
Engine Utilization (%)	63.13	79.41	72.77	72.44	63.84	70.42	67.3	
Vehicle Utilization (%)	1.85	1.53	1.51	1.41	2.25	1.46	2.41	

Bus 73433

bus 73433	433	433	433	433	433	433	433	433	433	TOTALS
filename	062851aa	062751ac	062051aa	061351ac	060651aa	053151aa	052351ae	051651ac	050951aa	
start date	6/27/2005	6/20/2005	6/13/2005	6/6/2005	5/31/2005	5/23/2005	5/16/2005	5/9/2005	4/26/2005	4/26/2005
end date	6/28/2005	6/27/2005	6/20/2005	6/13/2005	6/6/2005	5/31/2005	5/23/2005	5/16/2005	5/9/2005	6/28/2005
trip distance (mi)	53.7	108.6	230.5	106	107.8	106.1	254.2	106.1	284.7	1357.7
trip fuel (gal)	25	149.75	142.38	137	113.38	134	120.63	128.88	224.13	1175.15
fuel economy (mpg)	2.15	0.73	1.62	0.77	0.95	0.79	2.11	0.82	1.27	1.16
avg vehicle speed (mph)	45.8	46.2	46.8	50	47.2	48.2	45.3	49	48.3	
drive time (hh:mi:ss)	1:10:20	2:21:00	4:55:27	2:07:18	2:17:07	2:12:04	5:36:25	2:10:02	5:53:37	28:43:20
driving percent (%)	6.22	1.7	4.3	1.69	2.24	1.76	5.87	1.83	3.03	
driving fuel (gal)	7.75	14.75	34.63	14.63	14.88	14.38	36.5	14.5	39.63	191.65
driving economy (mpg)	6.93	7.36	6.66	7.25	7.25	7.38	6.96	7.32	7.18	
Cruise Time	0:30:14	0:34:59	2:19:54	1:07:14	0:36:15	0:21:52	1:50:14	1:05:54	0:00:00	
cruise percent (%)	42.99	24.81	47.35	52.81	26.44	16.56	32.77	50.68	0	
Cruise Distance (mi)	33.2	38.3	153.4	74.1	39.6	23.9	120.2	71.1	0	
Cruise Fuel (gal)	4.5	5	21.75	9.75	5.25	2.88	15.25	9.25	0	
trip time	18:50:37	138:22:32	114:33:13	125:44:14	102:06:40	125:07:04	95:33:31	118:28:10	194:46:21	1033:32:22
fuel consumption (gal/h)	1.33	1.08	1.24	1.09	1.11	1.07	1.26	1.09	1.15	
Idle time	17:40:17	136:01:32	109:37:46	123:36:56	99:49:33	122:55:00	89:57:06	116:18:08	188:52:44	1004:49:02
idle percent (%)	93.78	98.3	95.7	98.31	97.76	98.24	94.13	98.17	96.97	
idle Fuel (gal)	17.25	135	107.75	122.38	98.5	119.63	84.13	114.38	184.5	983.52
VSG (PTO) time	17:29:44	135:43:26	108:14:10	123:20:50	99:24:35	121:32:40	87:20:02	116:02:07	186:33:07	
VSG(PTO) Percent (%)	92.85	98.08	94.49	98.1	97.35	97.14	91.39	97.95	95.78	
VSG (PTO) Fuel (gal)	17.13	134.88	107.38	122.25	98.38	119.5	83.75	114.25	183.88	
Stop idle time	17:29:27	135:49:22	109:03:10	123:27:50	99:32:17	122:41:19	89:04:00	116:04:30	188:15:47	
Stop idle percent (%)	92.82	98.16	95.2	98.19	97.48	98.06	93.21	97.98	96.66	
stop idle fuel (gal)	17.13	134.88	107.25	122.25	98.25	119.38	83.63	114.13	184.13	
Over Rev limit (rpm)	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Brake Count	51	106	236	80	103	83	266	94	234	
Engine Utilization (%)	83.66	80.17	70.77	72.38	70.21	69.27	54.18	71.73	61.51	
Vehicle Utilization %)	5.2	1.36	3.04	1.22	1.57	1.22	3.18	1.31	1.86	

Appendix F

Filter Change-Out History

Appendix F
Filter Change-Out History

History of 73432 and 73433 Filter Change-outs							
Filter Change		Bus 73432	Miles on Filter	Months on Filter	Bus 73433	Miles on Filter	Months on Filter
	Start Test Date	2/11/2003			12/4/2002		
	Start Test Mileage	47612	0	0	198671	0	0
1	Filter Change Date	3/11/2003			2/12/2003		
	Mileage	53956			204904		
	Miles on Filter		6344	1.0		6233	2.4
	Miles on Oil	6344			6233		
2	Filter Change Date	4/14/2003			4/22/2003		
	Mileage	59923			211911		
	Miles on Filter		5967	0.9		7007	2.3
	Miles on Oil	12311			13240		
3	Filter Change Date	8/11/2003			7/28/2003		
	Mileage	72547			224199		
	Miles on Filter		12624	4.0		12288	3.2
	Miles on Oil	18591			19295		
4	Filter Change Date	12/17/2003			12/18/2003		
	Mileage	86666			236694		
	Miles on Filter		14119	4.3		12495	4.8
	Miles on Oil	32710			31790		
5	Filter Change Date	4/22/2004			3/3/2004		
	Mileage	100761			248347		
	Miles on Filter		14095	4.2		11653	2.5
	Miles on Oil	46805			43443		
6	Filter Change Date	8/5/2004			6/7/2004		
	Mileage	113342			261694		
	Miles on Filter		12581	3.5		13347	3.2
	Miles on Oil	65730			56790		
7	Filter Change Date	12/14/2004			9/22/2004		
	Mileage	125973			275738		
	Miles on Filter		12631	4.4		14044	3.6
	Miles on Oil	84601			77067		
8	Filter Change Date	2/22/2005			1/24/2005		
	Mileage	132213			289476		
	Miles on Filter		6240	2.3		13738	4.2
	Miles on Oil	86340			92335		
9	Filter Change Date	3/10/2005			2/22/2005		
	Mileage	133952			291006		
	Miles on Filter		1739	0.6		1530	1
	Miles on Oil				97152		
10	Filter Change Date				3/10/2005		
	Mileage				295823		
	Miles on Filter					4817	0.6
	Miles on Oil						

Appendix G

Laboratory Engine Oil Reports

Appendix G

Laboratory Engine Oil Reports

ANA Laboratory Oil Analysis Reports

New Oil Baseline Test for Shell Rotella-T 15W-40 oil																																							
				Test Date	Report No.	Oxidation	Nitration	Status	Sev. Code	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Silicon	Boron ppm	Sodium ppm	Magnes.	Calcium	Barium	Phospho.	Zinc	Titanium	Vanadium	Potassium	Fuel	Vis @100C	Water(%)	%Soot	Glycol	TBN	Antimony	Cadmium	Molybd.	Grade	Notes
				10/23/2002	RO2K017508	N/G	N/G	Ref	N/A	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	17	2209	<1	1129	1299	<1	<1	<1	<0.5	15.5	<0.05	<0.2	N	10.5	<1	<1	<1	1540	Shell oil
				12/24/2002	RO3A007731	N/G	N/G	Ref	N/A	<1	<1	<1	<1	<1	<1	<1	<1	3	<1	<1	27	2658	<1	1242	1342	<1	<1	<1	<0.5	15.5	<0.05	<0.2	N	12.1	<1	<1	<1	1540	Shell oil
				1/6/2003	RO3A013799	N/G	N/G	satisfactory	1	1	1	1	5	9	4	<1	<1	7	<1	<1	20	2911	<1	1089	1187	<1	<1	11	<0.5	16.07	<0.05	<0.2	N	11.2	<1	<1	<1	1540	Shell oil
				9/24/2003	S03J015128	0.1 Abs/cm	0.1 Abs/cm	satisfactory	1	2	<1	<1	<1	<1	2	<1	<1	6	<1	7	17	3494	<1	1397	1523	<1	<1	9	<0.5	15.49	<0.05	<0.2	N	7.3	<1	<1	<1		Shell oil
				9/24/2003	S03J015129	0.1 Abs/cm	0.1 Abs/cm	satisfactory	1	3	<1	<1	<1	<1	2	<1	<1	7	<1	7	18	3575	<1	1446	1576	<1	<1	8	<0.5	15.61	<0.05	<0.2	N	6.9	<1	<1	<1		Shell oil
				9/24/2003	S03J015130	0.1 Abs/cm	0.1 Abs/cm	satisfactory	1	3	<1	<1	<1	<1	3	<1	<1	8	<1	7	19	3658	<1	1441	1571	<1	<1	8	<0.5	16.17	<0.05	<0.2	N	7.4	<1	<1	1		Shell oil
				9/24/2003	R03J015125	N/G	N/G	N/G	N/G	2	<1	<1	<1	<1	<1	<1	<1	4	8	134	183	1610	<1	972	1278	<1	<1	<1	<0.5	11.37	<0.05	<0.2	N	8.5	<1	<1	<1	1030	Shell oil
				9/24/2003	R03J015127	N/G	N/G	N/G	N/G	1	<1	<1	<1	<1	<1	<1	<1	4	8	94	149	1486	<1	1084	1270	<1	<1	<1	<0.5	11.41	<0.05	<0.2	N	8.2	<1	<1	<1	1030	Shell oil
Bus No. 73432, , Detroit Series 50																																								
New Oil Date	Start Miles	Miles on Unit	Mile on Oil	Test Date	Report No.	Oxidation	Nitration	Status	Sev. Code	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Silicon	Boron	Sodium	Magnes.	Calcium	Barium	Phospho.	Zinc	Titanium	Vanadium	Potassium	Fuel	Vis @100C	Water(%)	%Soot	Glycol	TBN	Antimony	Cadmium	Molybd.	Grade	Notes
2/11/2003	47612	47612	12500	2/11/2003	R03B011041	N/G	N/G	satisfactory	1	43	<1	6	7	6	<1	<1	<1	5	14	18	120	2033	<1	962	1068	<1	<1	<1	<0.5	12.05	<.05	0.5	N	7.1	<1	<1	<1	1540	ericas Choice
	47612	52555	4943	3/11/2003	R03C009287	N/G	N/G	satisfactory	1	17	<1	1	1	7	4	<1	<1	1	<1	<1	23	2585	<1	1045	1139	<1	<1	9	<0.5	15.03	<.05	0.3	N	10.1	<1	<1	<1	1540	Shell oil
	47612	59923	12311	4/14/2003	R03D015007	N/G	N/G	satisfactory	1	29	<1	1	1	6	4	<1	<1	3	1	<1	16	2553	<1	993	1082	<1	<1	7	<0.5	15.68	<.05	0.6	N	9.9	<1	<1	<1	1540	Shell oil
	47612	72547	24935	8/11/2003	R03H012693	N/G	N/G	satisfactory	1	41	2	7	7	<1	3	<1	<1	4	1	5	22	3954	<1	700	763	<1	<1	12	<0.5	17.27	<.05	1.3	N	7.5	<1	<1	<1	1540	Shell oil
	47612	81238	33626	11/4/2003	R03M000435	9	1.5	satisfactory	1	79	3	13	10	<1	4	1	<1	9	1	8	34	3626	1	1393	1487	<1	<1	28	<0.5	16.29	<.05	0<0.2	N	7.6	<1	<1	<1	not given	Shell oil
	47612	86666	39054	12/17/2003	R03M016276	9	1.7	satisfactory	1	65	<1	7	5	5	3	<1	<1	5	1	<1	14	2673	<1	1243	1355	<1	<1	4	<0.5	15.34	<.05	0.8	N	6.7	<1	<1	<1	1540	Shell oil
Bus No. 73433, Detroit Series 50																																								
New Oil Date	Start Miles	Miles on Unit	Mile on Oil	Test Date	Report No.	Oxidation	Nitration	Status	Sev. Code	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Silicon	Boron	Sodium	Magnes.	Calcium	Barium	Phospho.	Zinc	Titanium	Vanadium	Potassium	Fuel	Vis @100C	Water(%)	%Soot	Glycol	TBN	Antimony	Cadmium	Molybd.	Grade	Notes
12/4/2002	198671	198671	3000	12/4/2002	RO2M008198	N/G	N/G	satisfactory	1	25	<1	1	1	6	4	<1	<1	5	27	<1	92	1711	<1	928	1012	<1	<1	<1	<0.5	11.88	<.05	0.8	N	7.8	<1	<1	<1	1540	ericas Choice
	198671	204903	6232	2/12/2003	RO3B011040	N/G	N/G	satisfactory	1	30	<1	2	2	7	<1	<1	<1	5	4	<1	44	2507	<1	1168	1268	<1	<1	<1	<0.5	14.13	<.05	0.04	N	8.9	<1	<1	<1	1540	Shell oil
	198671	211911	13240	4/22/2003	RO3D017962	N/G	N/G	satisfactory	1	53	2	3	6	9	4	<1	<1	3	3	<1	30	3313	<1	1227	1337	<1	<1	9	<0.5	15.16	<.05	0.9	N	8.4	<1	<1	<1	na	Shell oil
	198671	224199	25528	7/29/2003	R03H011211	N/G	N/G	satisfactory	1	83	3	7	4	<1	2	<1	<1	7	2	7	30	3493	<1	978	1066	<1	1	12	<0.5	15.37	<.05	1	N	7.4	<1	<1	1	1540	Shell oil
	198671	236694	38023	12/18/2003	R04A004671	10.1	2.2	satisfactory	1	137	4	12	6	<1	5	<1	<1	11	2	8	35	4025	<1	1202	1310	<1	<1	16	<0.5	16.18	<.05	1.1	N	6.9	<1	<1	1	1540	Shell oil

CTC Oil Analysis Reports

Bus No. 73432, Detroit Series 50																																		
Install Date	Start Miles	Sample Date	Miles on Unit	Miles on Oil	Report No.	Status	TBN	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Silicon	Boron	Sodium	Magnesium	Calcium	Barium	Phosphor.	Zink	Molybden.	Titanium	Vanadium	Potassium	Fuel	Vis @100C	Water(%)	Soot (%vol)	Glycol	Nitration	Oxidation	ericas Choice oil
		4/13/1997		Not Given	62410	Normal	N/G	31	3	59	7	2	2	0	3	8	39	19	885	1284	1	1013	1401	0	0	0	0	N/G	12.41	N/G	N/G	N/G	N/G	N/G	ericas Choice oil
		9/16/1997		12000	150315	Normal	N/G	34	2	15	6	4	2	0	2	8	47	2	1040	357	0	1170	1281	0	0	0	0	<1	12.31	0	0.3	NEG	N/G	N/G	ericas Choice oil
		3/24/1999		12000	69011	Normal	N/G	51	3	21	6	1	2	0	0	6	68	6	1003	233	1	1032	1164	0	0	0	0	<1	12.91	0	0.2	NEG	N/G	N/G	ericas Choice oil
2/11/2003	47612	2/11/2003	47612	12500	39451	Normal	6.1	44	1	4	3	0	2	0	0	7	12	11	126	3057	0	1224	1333	1	0	0	0	<1	12.13	0	0.5	NEG	N/G	N/G	ericas Choice oil
	47612	3/11/2003	52555	4943	60921	Normal	8	24	1	4	2	0	3	0	0	4	2	6	35	3056	6	1353	1458	0	0	0	0	<1	15.04	0	1	NEG	N/G	N/G	Shell oil
	47612	4/14/2003	59923	12311	89091	Normal	9.2	28	2	3	3	0	3	0	0	5	1	5	25	3036	0	1201	1278	0	0	0	0	<1	15.46	0	1	NEG	N/G	N/G	Shell oil
	47612	8/11/2003	72547	24935	178921	Normal	7	60	2	9	8	0	3	0	0	6	1	5	28	3328	0	1040	1227	0	0	0	0	<1	15.91	0	2.1	NEG	N/G	N/G	Shell oil
	47612	12/17/2003	86666	39054	275447	Normal	6.8	76	3	13	9	0	4	0	0	11	1	0	27	3676	0	1196	1292	0	0	0	0	<1	15.95	0	1.4	NEG	N/G	N/G	Shell oil
	47612	8/5/2004	113342	65730	163385	Normal	7.1	41	2	8	6	0	3	0	0	1	0	8	21	3541	0	1112	1263	0	0	0	0	<1	15.28	0	0.7	NEG	1	1	Shell oil
	47612	12/20/2004	126665	79053	1671	Normal	6.5	39	3	10	9	0	4	0	0	1	1	11	19	3441	0	1041	1345	0	0	0	0	<1	15.00	0	0.8	NEG	8	6	
2/22/2005	47612	2/22/2005	132446	84834	40070	Normal	6.9	41	3	8	9	0	5	0	0	1	1	11	18	3546	0	1086	1322	0	0	0	0	<1	14.54	0	0.7	NEG	8	5	
Bus No. 73433, Detroit Series 50																																		
Install Date	Start Miles	Sample Date	Miles on Unit	Miles on Oil	Report No.	Status	TBN	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Silicon	Boron	Sodium	Magnesium	Calcium	Barium	Phosphor.	Zink	Molybden.	Titanium	Vanadium	Potassium	Fuel	Vis @100C	Water(%)	Soot (%vol)	Glycol	Nitration	Oxidation	
		8/21/1997		12000	138011	Normal	N/G	32	1	5	2	3	4	0	0	9	96	3	729	922	0	1089	1183	12	0	0	0	<1	11.71	0	0.2	NEG	N/G	N/G	ericas Choice oil
		9/13/1999		12000	192923	Normal	N/G	28	1	8	2	0	1	0	0	1	69	2	971	457	0	1177	1237	0	0	0	0	<1	11.84	0	0.1	NEG	N/G	N/G	ericas Choice oil
		9/3/2002		12000	179506	Normal	N/G	49	2	4	3	0	3	0	0	16	23	8	234	2398	0	1027	1126	12	0	0	0	<1	11.39	0	0.3	NEG	N/G	N/G	ericas Choice oil
12/4/2002	198671	12/4/2002	198671	3000	251181	Normal	7.7	30	1	7	1	1	1	0	0	4	19	13	129	2629	1	1224	1213	4	0	0	0	<1	11.94 A	0	0.6	NEG	N/G	N/G	ericas Choice oil
	198671	2/12/2003	204903	6232	39453	Normal	8.9	30	2	4	1	0	3	0	0	7	2	0	41	3738	0	1308	1424	1	0	0	31	<1	14.21	0	0.6	NEG	N/G	N/G	Shell oil
	198671	5/1/2003	212185	13514	94451	Normal	8.7	49	2	3	2	0	2	0	0	7	2	5	28	3078	0	1174	1222	0	0	0	0	<1	14.82	0	1.2	NEG	N/G	N/G	Shell oil
	198671	7/29/2003	224199	25528	173441	Abnormal	6	124	3	10	4	0	3	0	0	10	2	1	41	3432	0	1280	1304	0	0	0	0	<1	14.66	0	2.8	NEG	N/G	N/G	Shell oil
	198671	12/18/2003	236694	38023	274840	Abnormal	7	130	3	11	5	0	4	0	0	4	1	0	32	3544	0	1184	1386	0	0	0	0	<1	14.89	0	1.2	NEG	N/G	N/G	Shell oil
	198671	3/4/2004	248347	49676	49357	Abnormal	7	112	3	8	4	0	5	0	0	7	1	3	27	3582	0	1327	1406	0	0	0	0	<1	14.32	0	0.7	NEG	0	2	Shell oil
	198671	6/7/2004	261694	63023	119614	Normal	9.6	85	3	0	4	0	4	0	0	9	0	5	20	3503	0	1305	1311	0	0	0	0	<1	14.96	0	0.8	NEG	8	4	Shell oil
	198671	9/22/2004	275738	77067	194772	Normal	8.3	92	3	21	5	0	4	0	0	5	1	11	23	3750	0	1125	1358	0	0	0	0	<1	15.41	0	1.2	NEG	7	5	Shell oil
2/22/2005	198671	2/22/2005	291006	92335	39127	Normal	8.6	17	1	6	1	0	2	0	0	1	0	6	13	3593	0	1132	1377	1	0	0	0	<1	14.61	0	0.3	NEG	8	6	

NTS Oil Analysis Reports first half

Bus No. 73432, Detroit Series 50																														Bus No. 73432, Detroit Series 50			
Sample No.	Install Date	Sample Date	Start Miles	Miles/unit	Miles/oil	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Molybde	Titanium	Silicon	Boron	Sodium	Magnesium	Calcium	Barium	Phosphor.	Zinc	Vanadium	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Molybden.	Titanium	Silicon
	2/11/2003		47612																														
86550		8/5/2004	47612	113342	65730	32	1	5	3	2	2	0	0	0	1	3	0	5	15	3288	0	975	953	N/G	8	1	0	1	0	1	1	0	0	0	1
87713		12/20/2004	47612	126665	79053	46	1	8	5	2	0	0	0	0	0	4	0	6	17	3870	0	1190	1150	N/G	6	0	0	0	0	1	0	0	0	0	1
88277	2/22/2005	2/22/2005	47612	132446	84834	44	0	5	5	1	0	0	0	0	0	3	0	7	16	3799	0	1207	1239	N/G	3	0	0	0	0	1	0	0	0	0	1
				Total Miles on Oil	84834																														
Bus No. 73433, Detroit Series 50																														Bus No. 73433, Detroit Series 50			
Sample No.	Install Date	Sample Date	Start Miles	Miles/unit	Miles/oil	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Molybde	Titanium	Silicon	Boron	Sodium	Magnesium	Calcium	Barium	Phosphor.	Zinc	Vanadium	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Molybden.	Titanium	Silicon
85242	12/4/2002	3/4/2004	198671	248347	49676	79	2	6	3	3	4	1	0	0	0	6	2	7	18	3460	1	1160	1090	N/G	6	1	0	0	0	1	0	0	0	0	1
86194		6/7/2004	198671	261694	63023	82	2	7	3	3	3	0	0	0	1	6	2	8	18	3749	1	1232	1226	N/G	3	1	0	0	0	0	0	0	0	0	0
86976		9/22/2004	198671	275738	77067	77	1	15	2	2	2	0	0	0	0	5	0	6	18	3507	0	1063	1064	N/G	7	0	0	0	0	0	1	0	0	0	1
87940		1/25/2005	198671	289476	90805	67	1	10	2	1	0	0	0	0	0	5	0	9	15	3873	0	1142	1144	N/G	9	0	0	0	0	1	0	0	0	0	2
88039		1/31/2005	198671	290484	91813	71	2	10	2	2	0	0	0	0	0	6	1	9	16	3820	0	1190	1200	N/G	8	0	0	0	0	0	0	0	0	0	1
88278	2/22/2005	2/2/2005	198671	291006	92335	15	0	2	0	0	0	0	0	0	0	1	0	3	10	3883	0	1260	1259	N/G	2	0	0	0	0	1	0	0	0	0	2

NTS Oil Analysis Reports second half

Bus No. 73432, Detroit Series 50																								
Boron	Sodium	Viscosity	Ox (Abs)	Sulf (Abs)	Nit (Abs)	Water(%)	Fuel (%)	Glycol(%)	Soot (Abs)	Depl (Ab	TAN	TBN	>4	>6	>14	>21	>38	>70	ISO>4	ISO>6	ISO>14	ISO Code	SAE Code		Notes
0	1	15.28	0.07	0.12	0.08	<.05	N/G	<.05	1.07	-0.07	N/G	7.52	1442300	8E+05	133800	45100	6900	700	14423	7857	1338	21/20/18	12		
0	0	14.68	0.09	0.19	0.11	<.05	N/G	<.05	0.46	-0.13	N/G	7.54	374300	2E+05	34700	11700	1800	100	3743	2039	347	19/18/16	11		
0	0	14.67	0.11	0.19	0.13	<.05	N/G	<.05	0.35	-0.09	N/G	7.46	284600	2E+05	26400	8900	1300	100	2846	1550	264	19/18/15	10		
Bus No. 73433, Detroit Series 50																									
Boron	Sodium	Viscosity	Ox (Abs)	Sulf (Abs)	Nit (Abs)	Water(%)	Fuel (%)	Glycol(%)	Soot (Abs)	Depl (Ab	TAN	TBN	>4	>6	>14	>21	>38	>70	ISO>4	ISO>6	ISO>14	ISO Code	SAE Code		Notes
0	0	14.33	0.17	0.23	0.2	<.05	<2	<.05	0.28	-0.1	N/G	8.33	1530800	8E+05	142000	47900	7400	700	15308	8339	1420	21/20/18	12		
0	0	14.88	0.12	0.16	0.17	<.05	<2	0.48	0.23	-0.17	N/G	9	361500	2E+05	33500	11300	1700	100	3615	1969	335	19/18/16	11		
0	1	16.9	0.11	0.22	0.14	<.05	N/G	<.05	0.51	-0.09	N/G	7.57	116600	63500	10800	3600	500	0	1166	635	108	17/16/14	12		
0	1	14.67	0.1	0.17	0.12	<.05	<2.00	<.05	0.39	-0.09	N/G	7.72	1775700	1E+06	164800	55600	8500	800	17757	9673	1648	21/20/18	12		
0	2	14.08	0.1	0.17	0.12	<.05	N/G	<.05	0.39	-0.09	N/G	7.69	1779500	1E+06	165100	55700	8600	800	17795	9694	1651	21/20/18	12		
0	1	14.48	0.05	0.07	0.05	<.05	N/G	<.05	0.11	-0.05	N/G	9.73	451300	2E+05	41800	14100	2100	200	4513	2458	418	19/18/16	11		

NTS New Oil Baseline Test for Shell Rotella-T 15W first half

Sample No.		Sample Date	Start Miles	Miles/unit	Miles/oil	Iron	Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	lolybde	Titanium	Silicon	Boron	Sodium	Magnesium	Calcium	Barium	Phosphor.	Zinc	Vanadium	Iron
85389		3/15/2004				2	0	0	0	0	1	0	0	0	0	4	1	2	10	3357	0	1108	1009	N/G	1
88807		4/5/2005				0	0	0	0	0	0	0	0	0	0	0	0	0	10	1491	0	800	908	N/G	1
89125		4/20/2005				1	0	0	0	0	0	0	0	0	0	2	2	4	14	3182	0	1075	1082	N/G	0
89324		5/5/2005				2	0	0	0	0	0	0	0	0	0	4	1	0	9	3729	0	1239	1207	N/G	N/G
89325		5/5/2005				2	0	0	0	0	0	0	0	0	0	4	1	0	9	3683	0	1221	1193	N/G	N/G

NTS New Oil Baseline Test for Shell Rotella-T 15W second half

Chromium	Lead	Copper	Tin	Aluminum	Nickel	Silver	Molybden.	Titanium	Silicon	Boron	Sodium	Viscosity	Ox (Abs)	ulf (Ab	Nit (Abs)	Water(%)	Fuel (%)	Glycol(%	Soot (Abs)	Zn Depl (Abs	TAN	TBN	>4	>6	>14	>21	>38	>70	ISO>4	ISO>6	ISO>14	ISO Code	SAE Code	Notes
0	0	0	1	1	1	0	0	0	2	0	0	14.75	0.01	0.01	0.01	<.05	N/G	<.05	0.01	-0.29	N/G	10.35	24300	13200	2200	700	100	0	243	132	22	15/14/12	6	
0	0	0	0	0	0	0	0	0	1	0	0	14.6	0.05	0.08	0.04	<0.05	N/G	<0.05	0	0	N/G	4.79	50000	27200	4600	1500	200	0	500	272	46	16/15/13	N/G	
0	0	0	0	1	0	0	0	0	0	0	0	14.39	0.01	0.01	0.01	<0.05	<2.00	<0.05	0	0	N/G	8.91	60200	32800	5500	1800	200	0	602	328	55	16/16/13	N/G	
N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	9.42	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	
N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	9.41	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	
N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	8.54	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	

Appendix H
Three Destructive Filter Analysis Events

Appendix H: Three Destructive Filter Analysis Events

NTS BUS DATA – Bus 73432

Batch #	2852	2869	2863	2867	2871	2666
Sample #	87713 (Used Oil)	87761 (By-Pass Residual Oil)	87754 (By-Pass Filter)	87759 (Full-Flow Filter)	87784 (Full Flow Residual)	August Baseline Sample
Date	12/20/2004	12/20/2004	12/20/2004	12/20/2004	12/20/2004	8/5/2004
Miles on Oil	79053	79053	79053	79053	79053	65730
FINE Spectrometric Results (ppm) ASTM D 6595						
Wear Metals						
Iron	46	47	18	14	48	32
Chromium	1	1	0	0	2	1
Lead	8	9	1	2	8	5
Copper	5	6	1	2	6	3
Tin	2	3	1	0	3	2
Aluminum	0	0	0	0	0	2
Nickel	0	0	0	1	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	1
Additives/Contaminants						
Silicon	4	5	3	4	5	3
Boron	0	0	0	0	0	0
Sodium	6	7	2	2	7	5
Magnesium	17	19	4	4	19	15
Calcium	3870	3860	889	879	3820	3288
Barium	0	0	0	0	0	0
Phosphorous	1190	1200	262	283	1170	975
Zinc	1150	1260	301	323	1260	953
Vanadium						
RFS COARSE Spectrometric Results (ppm)						
Wear Metals						
Iron	6	23	9	9	25	8
Chromium	0	0	0	0	1	1
Lead	0	0	0	0	1	0
Copper	0	0	0	0	0	1
Tin	0	2	1	1	2	0
Aluminum	1	3	1	1	2	1
Nickel	0	0	0	0	1	1
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	1	0
Titanium	0	0	0	0	0	0
Contaminants						
Silicon	1	10	2	3	4	1
Boron	0	1	0	0	0	0
Sodium	0	3	1	1	1	1
Viscosity Results (cSt)						
Viscosity	14.68	14.53	4.15	5.6	14.2	15.28
FT-IR Results (Abs/. 1mm or Percent)						
Oxidation	0.09	0.06	0.02	0.01	0.08	0.07
Sulfation	0.19	0.07	0.05	0.05	0.11	0.12
Nitration	0.11	0.08	0.04	0.03	0.09	0.08
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution						
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.46	0.27	0.23	0.28	0.32	1.07
Zinc Depl	-0.13	-0.19	-0.18	-0.17	-0.15	-0.07
Titration Results						
TBN	7.54	7.71	2.03	1.88	7.94	7.52
Particle Count Results (mew/average m(c))						
>4	374300	556600	7085000	11395400	3800200	1442300
>6	203900	303200	3859400	6207600	2070000	785700
>14	34700	51600	657600	1057600	352600	133800
>21	11700	17400	222000	357000	119000	45100
>38	1800	2600	34200	55000	18200	6900
>70	100	200	3400	5600	1800	700
ISO >4	3743	5566	113954	113954	38002	14423
ISO > 6	2039	3032	62076	62076	20700	7857
ISO >14	347	516	10576	10576	3526	1338
ISO Code	19/18/16	20/19/16	23/22/20	24/23/21	22/22/19	21/20/18
SAE Code	11	11	12	12	12	12
Extra/ Special Test Results						
XRF-Fe	N/G	0	1	3	0	N/G
XRF-Pb	N/G	4	4	7	0	N/G
XRF-Zn	N/G	96	95	90	100	N/G
HPI	N/G	0.3	0.1	0.3	0.5	N/G

NTS BUS DATA – Bus 73433

Batch #	2937	2936	2935	2934	3919	2729	2756	2719	2719
Sample #	88039 (Full Flow Residual)	88038 (Full-Flow Filter	88037 (Bypass Residual)	88036 (By-Pass Filter)	87940 January Used Oil	86976 (Used Oil)	87160 (By-Pass Residual Oil)	86905 (By-Pass Filter)	86906 (Full-Flow Filter)
Date	1/31/2005	1/31/2005	1/31/2005	1/31/2005	1/25/2005	9/22/2004	9/22/2004	9/22/2004	9/22/2004
Miles on Oil	96169	96169	96169	96169	90805	77067	77067	77067	77067
FINE Spectrometric Results (ppm) ASTM D 6595									
Wear Metals									
Iron	71	24	36	19	67	77	77	31	41
Chromium	2	0	1	0	1	1	1	0	0
Lead	10	2	4	2	10	15	15	5	4
Copper	2	0	2	0	2	2	2	1	1
Tin	2	0	1	0	1	2	2	1	0
Aluminum	0	0	0	0	0	2	3	0	1
Nickel	0	0	0	0	0	0	0	0	0
Silver	0	0	0	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0	0	0	0
Titanium	0	0	0	0	0	0	0	0	0
Additives/Contaminants									
Silicon	6	2	4	2	5	5	6	4	6
Boron	1	0	0	0	0	0	0	0	0
Sodium	9	2	3	2	9	6	5	2	1
Magnesium	16	4	8	5	15	18	19	7	5
Calcium	3820	1020	1750	952	3873	3507	3450	1230	1010
Barium	0	0	0	0	0	0	0	0	0
Phosphorous	1190	326	528	294	1142	1063	1060	359	320
Zinc	1200	366	592	339	1144	1064	1070	408	385
Vanadium	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	9999
RFS COARSE Spectrometric Results (ppm)									
Wear Metals									
Iron	8	8	47	35	9	7	43	90	18
Chromium	0	0	1	0	0	0	1	0	0
Lead	0	0	1	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0
Tin	0	1	3	2	0	0	3	1	1
Aluminum	0	2	4	3	1	0	2	0	1
Nickel	0	0	0	1	0	1	1	0	1
Silver	0	0	0	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0	0	0	0
Titanium	0	0	0	0	0	0	0	0	0
Contaminants									
Silicon	1	2	11	4	2	1	10	0	3
Boron	0	0	1	0	0	0	2	0	3
Sodium	2	1	4	1	1	1	4	1	1
Viscosity Results (cSt)									
Viscosity	14.08	N/G	7.41	N/G	14.67	16.9	17.82	6.41	7.17
FT-IR Results (Abs/. 1mm or Percent)									
Oxidation	0.1	0.01	0.04	0.01	0.1	0.11	0.11	0.03	0.03
Sulfation	0.17	0.01	0.04	0.01	0.17	0.22	0.22	0.05	0.05
Nitration	0.12	0.01	0.04	0.01	0.12	0.14	0.14	0.04	0.04
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	N/G	N/G	N/G	N/G	<2.00	N/G	N/G	N/G	N/G
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.39	0.1	0.24	0.09	0.39	0.51	0.52	0.2	0.23
Zinc Depl	-0.09	-0.18	-0.16	-0.18	-0.09	-0.09	-0.09	-0.16	-0.17
Titration Results									
TBN	7.69	2.13	3.66	1.92	7.72	7.57	7.89	3.22	2.57
Particle Count Results (mew/average m(c))									
>4	1779500	N/G	1420500	N/G	1775700	116600	289700	10290100	35898800
>6	969400	N/G	773800	N/G	967300	63500	157800	5605400	19555600
>14	165100	N/G	131800	N/G	164800	10800	26800	955000	3331800
>21	55700	N/G	44400	N/G	55600	3600	9000	322200	1124300
>38	8600	N/G	6800	N/G	8500	500	1400	49700	173600
>70	800	N/G	700	N/G	800	0	100	5100	17900
ISO >4	17795	N/G	14205	N/G	17757	1166	2897	102901	358988
ISO > 6	9694	N/G	7738	N/G	9673	635	1578	56054	195556
ISO >14	1651	N/G	1318	N/G	1648	108	268	9550	33318
ISO Code	21/20/18	N/G	21/20/18	N/G	21/20/18	17/16/14	19/18/15	24/23/20	26/25/22
SAE Code	12	N/G	12	N/G	12	9	10	12	12
Extra/ Special Test Results									
XRF-Fe	N/G	4	N/G	2	N/G	N/G	2	7	2
XRF-Pb	N/G	5	N/G	5	N/G	N/G	5	7	9
XRF-Zn	N/G	91	N/G	93	N/G	N/G	93	86	89
HPI	N/G	0.3	N/G	0.3	N/G	0.7	1	1.6	0.6

Appendix I

Weekly Oil Analysis Reports

(Four Sheets)

Appendix I

Weekly Oil Analysis Reports

(Four Sheets)

NTS BUS DATA – Bus 73432

Sample #	89107	89414	89435	89592	89664	89669	89801	89996	90012	90155
Sample Type	Mid 5000 K	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly
Date	4/11/2005	5/9/2005	5/16/2005	5/23/2005	5/31/2005	6/6/2005	6/13/2005	6/20/2005	6/27/2005	7/5/2005
Mileage	137125	140549	140653	140760	140932	141105	141331	141442	141549	141756
FINE Spectrometric Results (ppm) ASTM D 6595										
Wear Metals										
Iron	7	7	8	8	8	7	7	8	7	6
Chromium	0	0	0	0	0	0	0	0	0	0
Lead	6	6	1	4	2	1	2	3	1	1
Copper	1	1	2	2	2	2	2	2	1	1
Tin	0	0	0	0	0	0	0	0	0	0
Aluminum	0	0	0	0	0	0	0	0	0	0
Nickel	0	0	0	0	0	0	0	0	0	0
Silver	0	0	0	0	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	1	0	0	1	0
Titanium	0	0	0	0	0	1	0	0	0	0
Additives/Contaminants										
Silicon	1	1	1	2	1	2	1	2	2	1
Boron	1	0	1	1	0	1	0	1	0	2
Sodium	2	4	0	3	0	4	2	2	3	2
Magnesium	9	12	8	10	9	9	11	13	12	12
Calcium	1284	2478	2493	2420	2568	3092	3049	3095	3292	3187
Barium	0	0	0	0	0	0	1	0	0	0
Phosphorous	649	939	936	850	912	1141	1039	1105	1112	1090
Zinc	720	1002	989	909	960	1247	1100	1079	1110	1058
Vanadium	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G
RFS COARSE Spectrometric Results (ppm)										
Wear Metals										
Iron	0	1	1	0	1	0	0	N/G	0	0
Chromium	0	0	0	1	0	0	1	N/G	0	0
Lead	0	0	0	0	0	0	0	N/G	0	0
Copper	0	1	0	0	0	0	0	N/G	0	0
Tin	0	1	0	2	1	0	0	N/G	1	0
Aluminum	0	9	0	0	0	0	0	N/G	1	0
Nickel	0	0	0	0	0	0	0	N/G	0	0
Silver	0	0	0	0	0	0	0	N/G	0	0
Molybdenum	0	0	0	0	0	0	0	N/G	0	0
Titanium	0	0	0	0	0	0	0	N/G	0	0
Contaminants										
Silicon	1	2	0	0	0	0	0	N/G	1	0
Boron	0	0	0	0	0	0	0	N/G	0	0
Sodium	0	0	0	0	0	0	0	N/G	0	0
Viscosity Results (cSt)										
Viscosity	11.12	12.51	13.55	13.45	13.68	14.54	13.79	14.88	14.89	15.85
FT-IR Results (Abs/. 1mm or Percent)										
Oxidation	0.05	0.05	0.15	0.06	0.06	0.03	0.05	0.06	0.05	0.04
Sulfation	0.01	0.03	0.15	0.06	0.06	0.01	0.05	0.06	0.06	0.03
Nitration	0.05	0.05	0.07	0.07	0.06	0.03	0.05	0.06	0.05	0.04
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	3.81	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.06	0.07	0.07	0.07	0.07	0.07	0.04	0.04	0.03	0.04
Zinc Depl	-0.15	-0.08	0.00	-0.09	-0.09	-0.13	-0.09	-0.09	-0.07	-0.11
Titration Results										
TBN	3.93	6.29	6.64	6.63	6.76	8.31	8.06	8.23	8.88	8.42
Particle Count Results (mew/average m(c))										
>4	8.25	58900	56400	21700	79400	79400	66600	110200	76900	71700
>6	437200	32100	30700	11800	43300	43300	36300	60000	41900	39100
>14	7400	5400	5200	2000	7300	7300	6100	10200	7100	6600
>21	25100	1800	1700	600	2400	2400	2000	3400	2400	2200
>38	3800	200	200	100	300	300	300	400	300	300
>70	400	0	0	0	0	0	0	0	0	0
ISO >4	8025	589	564	217	794	794	666	1102	769	717
ISO > 6	4372	321	307	118	433	433	363	600	419	391
ISO >14	744	54	52	20	73	73	61	102	71	66
ISO Code	20/19/17	16/16/13	16/15/13	15/14/11	17/16/13	17/16/13	17/16/13	17/16/14	17/16/13	17/16/13
SAE Code	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G

CTC BUS DATA – Bus 73432

Sample #	72753	90604	94202	100365	104085	116193	119041	136187	140472	145127
Sample Type	Mid 5000 K	Start	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly
Date	4/11/2005	5/9/2005	5/16/2005	5/23/2005	5/31/2005	6/6/2005	6/13/2005	6/23/2005	6/27/2005	7/5/2005
Mileage	137125	140549	140653	140760	140932	141105	141331	141442	141549	141928
Spectrochemical Analysis (ppm)										
Iron	4	3	10	5	9	8	4	9	2	9
Chromium	0	0	1	0	0	0	0	1	0	1
Lead	6	5	5	5	4	3	4	4	0	2
Copper	2	3	2	4	5	2	5	3	4	2
Tin	0	1	0	2	4	0	3	0	8	0
Aluminum	1	1	2	2	1	1	1	1	1	2
Nickel	0	0	0	0	0	0	0	0	0	0
Silver	0	0	0	0	0	0	0	0	0	0
Silicon	3	1	2	3	3	1	4	1	2	1
Boron	0	0	0	0	1	0	0	1	0	1
Sodium	0	0	3	0	0	3	0	3	0	3
Magnesium	9	10	13	11	12	13	14	16	14	15
Calcium	1579	2092	2225	2073	2938	2677	2478	2521	2413	2938
Barium	0	0	0	0	0	0	0	0	0	0
Phosphorous	876	974	971	1016	1154	1032	1123	1008	1090	1154
Zinc	978	1098	1016	1022	1303	1215	1270	1129	1184	1303
Molybdenum	1	0	0	0	0	1	0	1	0	0
Titanium	0	0	0	0	0	0	0	0	0	0
Vanadium	0	0	0	0	0	0	0	0	0	0
Potassium	0	0	0	0	0	0	0	0	0	0
Physical Properties										
Fuel	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Viscosity	11.58	12.58	12.60	12.44	13.44	13.72	13.72	13.57	14.29	14.82
Water	0	0	0	0	0	0	0	0	0	0
Soot	0.2	0.4	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2
Glycol	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG
Additional Tests										
TAN	2.40	2.45	2.34	3.37	2.81	2.24	2.27	2.13	2.24	2.49
TBN	7.60	7.10	6.10	5.90	6.90	8.80	8.90	7.90	8.80	8.70
Oxidation	3	6	6	6	6	2	1	6	7	6
Nitration	7	8	6	6	6	8	3	7	3	6

NTS BUS DATA – Bus 73433

Sample #	88946	89304	89284	89415	89436	89593	89665	89700	89802	89997	90013
Sample Type	Mid 5000 K	Start	Weekly	Weekly	Weekly	Used Oil	Weekly	Weekly	Weekly	Weekly	Weekly
Date	4/11/2005	4/26/2005	5/2/2005	5/9/2005	5/17/2005	5/23/2005	5/30/2005	6/6/2005	6/13/2005	6/20/2005	6/27/2005
Mileage	299548	302557	302728	302773	302892	303143	303247	303354	303576	303686	303793
FINE Spectrometric Results (ppm) ASTM D 6595											
Wear Metals											
Iron	7	10	8	8	7	8	5	6	6	5	6
Chromium	0	0	0	0	0	0	0	0	0	0	0
Lead	5	6	4	5	0	3	0	0	1	1	0
Copper	0	1	1	0	1	0	0	1	0	0	1
Tin	0	0	0	0	0	0	0	0	0	0	0
Aluminum	0	0	0	0	0	0	0	0	0	0	0
Nickel	0	0	0	0	0	0	0	0	0	0	0
Silver	0	0	0	0	0	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0	0	1	0	0	1
Titanium	0	0	0	0	0	0	0	1	0	0	0
Additives/Contaminants											
Silicon	1	2	2	2	1	1	1	2	1	2	2
Boron	0	1	1	1	1	1	0	1	0	0	0
Sodium	0	0	0	4	0	3	0	4	3	2	3
Magnesium	8	8	9	13	8	10	9	9	11	11	11
Calcium	1625	1908	2400	2779	2964	2810	3198	3474	3498	3522	3580
Barium	0	0	0	0	0	0	0	0	0	0	0
Phosphorous	740	822	924	1009	1055	920	1042	1222	1115	1204	1168
Zinc	828	883	953	1056	1084	982	1066	1307	1171	1140	1151
Vanadium	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G
RFS COARSE Spectrometric Results (ppm)											
Wear Metals											
Iron	1	1	1	0	1	0	0	1	0	0	0
Chromium	0	0	0	0	0	0	0	1	0	0	1
Lead	0	0	0	0	0	0	0	0	0	0	0
Copper	0	1	0	0	0	0	0	0	0	0	0
Tin	1	0	1	0	0	0	0	0	0	0	1
Aluminum	0	0	0	4	1	0	0	0	0	0	1
Nickel	0	0	0	0	0	0	0	0	1	0	0
Silver	0	0	0	0	0	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0	0	0	1	0	0
Titanium	0	0	0	0	0	0	0	0	0	0	0
Contaminants											
Silicon	1	2	1	0	0	0	0	0	0	0	1
Boron	0	0	0	0	0	0	0	0	0	0	0
Sodium	0	0	0	0	0	0	0	0	0	0	0
Viscosity Results (cSt)											
Viscosity	11.77	12.29	11.87	13.24	13.3	14.01	13.96	14.55	14.61	15.08	15.12
FT-IR Results (Abs/. 1mm or Percent)											
Oxidation	0.05	0.05	0.04	0.04	0.15	0.06	0.04	0.03	0.04	<0.01	0.01
Sulfation	0.02	0.01	0.02	0.02	0.14	0.05	0.05	0.01	0.05	<0.01	0.01
Nitration	0.05	0.05	0.04	0.04	0.07	0.06	0.05	0.03	0.05	<0.01	0.01
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	2.79	2.11	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	N/G	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.07	0.09	0.07	0.07	0.06	0.07	0.05	0.06	0.02	0.04	0
Zinc Depl	-0.13	-0.11	-0.08	-0.08	0	-0.07	-0.06	-0.1	-0.07	-0.05	-0.29
Titration Results											
TBN	4.79	4.77	6.82	7.35	7.99	7.74	8.94	9.65	9.19	9.22	9.71
Particle Count Results (mew/average m(c))											
>4	564100	951300	228200	93500	56400	44800	38400	33300	344600	58900	19200
>6	307300	518200	124300	50900	30700	24400	20900	18100	18800	32100	10400
>14	52300	88200	21100	8600	5200	4100	3500	3000	3200	5400	1700
>21	17600	29700	7100	2900	1700	1400	1200	1000	1000	1800	600
>38	2700	4600	1100	400	200	200	100	100	100	200	0
>70	200	400	100	0	0	0	0	0	0	0	0
ISO >4	5641	9513	2282	935	564	448	384	333	346	589	192
ISO > 6	3073	5182	1243	509	307	224	209	181	188	321	104
ISO >14	523	882	211	86	52	41	35	30	32	54	17
ISO Code	20/19/16	20/20/17	18/17/15	17/16/14	16/15/13	16/15/13	16/15/12	16/15/12	16/15/12	16/16/13	15/14/11
SAE Code	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G	N/G

CTC BUS DATA – Bus 73433

Sample #	70778	1/8/2131	90606	90605	94201	100364	104086	116194	119040	136188	140473
Sample Type	Mid 5000 K	Start	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly
Date	4/11/2005	4/26/2005	5/2/2005	5/9/2005	5/16/2005	5/26/2005	5/30/2005	6/6/2005	6/13/2005	6/20/2005	6/27/2005
Mileage	299548	302557	302728	302773	302892	303143	303247	303354	303576	303686	303793
Spectrochemical Analysis (ppm)											
Iron	10	9	10	3	9	4	1	7	3	5	2
Chromium	0	0	2	0	1	0	0	0	0	0	0
Lead	10	11	1	5	5	5	2	3	2	2	1
Copper	1	1	5	1	1	2	1	1	2	1	1
Tin	0	0	0	3	0	4	5	0	2	0	12
Aluminum	1	1	3	1	2	1	1	1	1	1	1
Nickel	0	0	0	0	0	0	0	0	0	0	0
Silver	0	0	0	0	0	0	0	0	0	0	0
Silicon	2	3	3	1	2	3	2	1	3	1	3
Boron	0	0	95 see 1	1	1	0	0	0	0	0	0
Sodium	2	0	1	0	3	0	0	4	0	4	0
Magnesium	12	12	11	10	13	12	10	13	14	9	13
Calcium	1566	1689	3051	2282	2512	2419	2461	3090	2698	2572	2493
Barium	0	0	0	0	0	0	0	0	0	0	0
Phosphorous	864	865	1193	1019	1053	1085	1141	1080	1182	1010	1157
Zinc	877	897	1394	1190	1096	1135	1231	1342	1277	1158	1176
Molybdenum	0	0	187 see 2	0	2	0	0	0	0	0	0
Titanium	0	0	0	0	0	0	0	0	0	0	0
Vanadium	0	0	0	0	0	0	0	0	0	0	0
Potassium	0	0	25 see 3	0	0	0	0	0	0	0	0
Physical Properties											
Fuel	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Viscosity	11.95	11.65	15.10	13.12	13.38	13.31	14.61	14.19	14.42	14.54	13.6
Water	0	0	0	0	0	0	0	0	0	0	0
Soot	0.3	0.4	1.2	0.3	0.1	0.1	0.2	0.1	0.2	0.1	0.1
Glycol	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG
Additional Tests											
TAN	2.66	1.12	2.62	2.05	1.68	2.24	2.34	2.81	2.42	2.52	3.21
TBN	5.40	5.00	5.60	6.50	8.20	6.90	8.90	9.50	8.30	9.10	8.70
Oxidation	8	1	7	3	5	5	5	1	1	5	6
Nitration	9	6	9	6	5	5	5	7	3	5	3

1: The test laboratory suggested an improper burn on the test which gave an unusually high value for boron.

2. The test laboratory suggested an improper burn on the test which gave an unusually high value for molybdenum.

3. The test laboratory suggested an improper burn on the test which gave an unusually high value for potassium.

Appendix J

Oil Analysis Reports

Appendix J: Oil Analysis Reports

NTS Bus Data: Bus 73432

Oil Type	Used Oil	Used Oil	FF Residual	FF Filter	Bypass Resid.	Bypass Filter
Sample No.	89592	89517	89521	89520	89519	89518
Date	5/23/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005	5/5/2005
Miles on Oil	140760	139656	139656	139656	139656	139656
Fine Spectrometric Results (ppm) ASTM D 6595						
Wear Metals						
Iron	8	9	8	2	9	3
Chromium	0	0	0	0	0	0
Lead	4	4	4	0	4	0
Copper	2	1	1	0	1	0
Tin	0	0	0	0	0	0
Aluminum	0	0	0	0	0	0
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0
Additives/Contaminants						
Silicon	2	1	1	0	1	0
Boron	1	0	0	0	0	0
Sodium	3	1	1	0	1	0
Magnesium	10	8	8	2	8	2
Calcium	2420	1701	1682	423	1694	451
Barium	0	0	0	0	0	0
Phosphorous	850	769	777	192	773	202
Zinc	909	756	758	206	752	217
RFS Coarse Spectrometric Results (ppm)						
Wear Metals						
Iron	0	1	1	2	1	2
Chromium	1	0	0	0	0	0
Lead	0	0	0	0	0	0
Copper	0	0	0	0	0	0
Tin	2	0	1	0	2	2
Aluminum	0	0	0	2	0	0
Nickel	0	0	0	0	0	1
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0

Contaminants						
Silicon	0	1	1	2	1	1
Boron	0	0	0	0	0	0
Sodium	0	0	0	1	0	0
Viscosity Results (cSt)						
Viscosity	13.45	11.65	11.58	N/G	11.92	N/G
FT-IR Results (Abs/.1 mm or Percent)						
Oxidation	0.06	0.06	0.06	0.01	0.06	0.01
Sulfation	0.06	0.03	0.03	0.01	0.03	0.01
Nitration	0.07	0.06	0.06	0.01	0.06	0.01
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	<2.00	2.34	2.15	<2.00	2.28	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.07	0.08	0.08	0.05	0.08	0.05
Zinc Depl	-0.09	-0.12	-0.12	-0.16	-0.12	-0.16
Titration Results						
TBN	6.63	4.70	4.54	N/G	4.61	N/G
Particle Count Results (mew/average m(c))						
>4	21700	1192300	134600	N/G	237100	N/G
>6	11800	649500	73300	N/G	129200	N/G
>14	2000	110600	12400	N/G	22000	N/G
>21	600	37300	4200	N/G	7400	N/G
>38	100	5700	600	N/G	1100	N/G
>70	0	500	0	N/G	100	N/G
ISO >4	217	11923	1346	N/G	2371	N/G
ISO > 6	118	6495	733	N/G	1292	N/G
ISO >14	20	1106	124	N/G	220	N/G
ISO Code	15/14/11	21/20/17	18/17/14	N/G	18/17/15	N/G
Extra/ Special Test Results						
XRF-Fe	N/G	N/G	N/G	N/G	N/G	5
XRF-Pb	N/G	N/G	N/G	N/G	N/G	N/G
XRF-Zn	N/G	N/G	N/G	100	N/G	95
HPI	N/G	0.1	0	0.1	0.1	0.1

NTS Bus Data: Bus 73432

Oil Type	Used Oil	Used oil	Full Flow Residual	Full Flow Filter	Bypass Residual	Bypass Filter
Sample #	89801	89664	89813	89812	89811	89810
Date	6/13/2005	5/31/2005	5/31/2005	5/31/2005	5/31/2005	5/31/2005
Miles on Oil	141145	140932	140932	140932	140932	140932
Fine Spectrometric Results (ppm) ASTM D 6595						
Wear Metals						
Iron	7	8	8	3	8	2
Chromium	0	0	0	0	0	0
Lead	2	2	3	1	3	0
Copper	2	2	2	0	2	0
Tin	0	0	0	0	0	0
Aluminum	0	0	0	0	0	0
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0
Additives/Contaminants						
Silicon	1	1	0	1	1	0
Boron	0	0	0	0	0	0
Sodium	2	0	2	1	1	1
Magnesium	11	9	10	3	11	3
Calcium	3049	2568	2666	717	2678	697
Barium	1	0	0	0	0	0
Phosphorous	1039	912	900	250	926	243
Zinc	1100	960	1000	296	1007	286
RFS Coarse Spectrometric Results (ppm)						
Wear Metals						
Iron	0	1	1	5	1	1
Chromium	1	0	0	1	0	0
Lead	0	0	0	0	0	0
Copper	0	0	0	1	0	0
Tin	0	1	0	0	2	0
Aluminum	0	0	0	1	1	0
Nickel	0	0	0	0	1	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0

Contaminants						
Silicon	0	0	1	4	2	0
Boron	0	0	0	0	0	0
Sodium	0	0	0	2	0	0
Viscosity Results (cSt)						
Viscosity	13.79	13.68	13.54	N/G	13.60	N/G
FT-IR Results (Abs/.1 mm or Percent)						
Oxidation	0.05	0.06	0.03	0.01	0.06	0.01
Sulfation	0.05	0.06	0.01	0.01	0.05	0.01
Nitration	0.05	0.06	0.03	0.01	0.06	0.01
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	2.34	<2.00	2.15	<2.00	2.28	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.04	0.07	0.03	0.00	0.05	0.00
Zinc Depl	-0.09	-0.09	-0.16	-0.17	-0.09	-0.16
Titration Results						
TBN	8.06	6.76	6.99	N/G	6.97	N/G
Particle Count Results (mew/average m(c))						
>4	66600	79400	198700	N/G	584600	N/G
>6	36300	43300	108200	N/G	318400	N/G
>14	6100	7300	18400	N/G	54200	N/G
>21	2000	2400	6200	N/G	18300	N/G
>38	300	300	900	N/G	2800	N/G
>70	0	0	0	N/G	200	N/G
ISO >4	666	794	1987	N/G	5846	N/G
ISO > 6	363	433	1082	N/G	3184	N/G
ISO >14	61	73	184	N/G	542	N/G
ISO Code	17/16/13	17/16/13	18/17/15	N/G	20/19/16	N/G
Extra/ Special Test Results						
XRF-Fe	N/G	N/G	N/G	0.61	N/G	0.89
XRF-Pb	N/G	N/G	N/G	0.01	N/G	0
XRF-Zn	N/G	N/G	N/G	0.07	N/G	0
HPI	N/G	N/G	0	0	0.01	0

NTS BUS DATA: Bus 73432

Oil Type	Used Oil	Full Flow Residual	Full Flow Filter	Bypass Filter Residual	Bypass Filter	Used Oil
Sample #	90114	90118	90117	90116	90115	90012
Date	6/23/2005	6/23/2005	6/23/2005	6/23/2005	6/23/2005	6/27/2005
Miles	141442	141442	141442	141442	141442	141549
Fine Spectrometric Results (ppm) ASTM D 6595						
Wear Metals						
Iron	8	7	1	7	2	7
Chromium	0	0	0	0	0	0
Lead	2	2	0	2	0	1
Copper	2	2	0	2	0	1
Tin	0	0	0	0	0	0
Aluminum	0	0	0	0	0	0
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	1
Titanium	0	0	0	0	0	0
Additives/Contaminants						
Silicon	1	0	0	1	0	2
Boron	2	2	2	2	2	0
Sodium	2	2	1	2	1	3
Magnesium	12	12	2	12	3	12
Calcium	3126	3043	669	3118	840	3292
Barium	0	0	0	0	0	0
Phosphorous	1090	1069	233	1090	189	1112
Zinc	1103	1063	259	1089	323	1110
RFS Coarse Spectrometric Results (ppm)						
Wear Metals						
Iron	0	0	1	0	0	0
Chromium	0	0	0	1	1	0
Lead	0	0	0	0	0	0
Copper	0	0	0	0	0	0
Tin	1	0	0	2	1	1
Aluminum	0	0	0	1	1	1
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0
Contaminants						
Silicon	0	0	1	0	0	1
Boron	0	0	0	0	0	0
Sodium	0	0	0	0	0	0

Viscosity Results (cSt)						
Viscosity	12.13	14.36	N/G	14.64	N/G	14.89
FT-IR Results (Abs/.1 mm or Percent)						
Oxidation	0.01	0.01	0.01	0.01	0.01	0.05
Sulfation	0.01	0.01	0.01	0.01	0.01	0.06
Nitration	0.01	0.01	0.01	0.01	0.01	0.05
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.02	0.02	0.04	0.02	0.02	0.03
Zinc Depl	-0.29	-0.29	-0.16	-0.26	-0.27	-0.07
Titration Results						
TBN	8.29	8.27	N/G	8.60	N/G	8.88
Particle Count Results (mew/average m(c))						
>4	92400	79600	N/G	74400	N/G	76900
>6	50400	43400	N/G	40600	N/G	41900
>14	8600	7400	N/G	7000	N/G	7100
>21	2800	2400	N/G	2200	N/G	2400
>38	400	400	N/G	400	N/G	300
>70	0	0	N/G	0	N/G	0
ISO >4	924	796	N/G	744	N/G	769
ISO > 6	504	434	N/G	406	N/G	419
ISO >14	86	74	N/G	70	N/G	71
ISO Code	17/16/14	17/16/13	N/G	17/16/13	N/G	17/16/13
Extra/ Special Test Results						
XRF-Fe	N/G	N/G	96	N/G	94	N/G
XRF-Pb	N/G	N/G	0	N/G	0	N/G
XRF-Zn	N/G	N/G	0	N/G	0	N/G
HPI	0	0	0	0	0	0

NTS Bus Data: Bus 73432

Oil Type	Full Flow Residual	Full Flow Filter	Bypass Residual	Bypass Filter	Used Oil	Used Oil
Sample #	90159	90158	90157	90156	90155	90114
Date	7/5/2005	7/5/2005	7/5/2005	7/5/2005	7/5/2005	6/23/2005
Miles	141756	141756	141756	141756	141756	141332
Fine Spectrometric Results (ppm) ASTM D 6595						
Wear Metals						
Iron	7	2	7	2	6	8
Chromium	0	0	0	0	0	0
Lead	1	0	2	0	1	2
Copper	2	0	2	0	1	2
Tin	0	0	0	0	0	0
Aluminum	0	0	0	0	0	0
Nickel	1	0	1	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0
Additives/Contaminants						
Silicon	1	1	1	0	1	1
Boron	2	0	2	0	2	2
Sodium	3	1	3	1	2	2
Magnesium	13	3	13	4	12	12
Calcium	3217	910	3273	871	3187	3126
Barium	0	0	0	0	0	0
Phosphorous	1101	299	1102	293	1090	1103
Zinc	1090	341	1104	329	1058	1103
RFS Coarse Spectrometric Results (ppm)						
Wear Metals						
Iron	0	2	1	0	0	0
Chromium	0	0	1	0	0	0
Lead	0	0	0	0	0	0
Copper	0	0	0	0	0	0
Tin	0	0	2	0	0	0
Aluminum	0	1	1	0	0	0
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	1	0	0	0
Titanium	0	0	0	0	0	0
Contaminants						
Silicon	0	5	1	0	0	0
Boron	0	1	0	0	0	0
Sodium	0	3	0	0	0	0

Viscosity Results (cSt)						
Viscosity	15.14	N/G	15.90	N/G	15.85	12.13
FT-IR Results (Abs/. 1mm or Percent)						
Oxidation	0.04	0.01	0.04	0.01	0.04	0.01
Sulfation	0.03	0.01	0.03	0.01	0.03	0.01
Nitration	0.04	0.01	0.04	0.01	0.04	0.01
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.04	0.02	0.04	0.02	0.04	0.02
Zinc Depl	-0.11	-0.15	-0.11	-0.15	-0.11	-0.29
Titration Results						
TBN	8.58	N/G	8.63	N/G	8.42	8.29
Particle Count Results (mew/average m(c))						
>4	561500	N/G	302500	N/G	71700	92400
>6	305900	N/G	164800	N/G	39100	50400
>14	52100	N/G	28000	N/G	6600	8600
>21	17500	N/G	9400	N/G	2200	2800
>38	2700	N/G	1400	N/G	300	400
>70	200	N/G	100	N/G	0	0
ISO >4	5615	N/G	3025	N/G	717	924
ISO > 6	3059	N/G	1648	N/G	391	504
ISO >14	521	N/G	280	N/G	66	86
ISO Code	20/19/16	N/G	19/18/15	N/G	17/16/13	17/16/14
Extra/ Special Test Results						
XRF-Fe	N/G	0	N/G	0	N/G	N/G
XRF-Pb	N/G	0	N/G	0	N/G	N/G
XRF-Zn	N/G	100	N/G	96	N/G	N/G
HPI	0	0	0	0	0	0

NTS Bus Data: Bus 73433

Oil Type	Used Oil	Used Oil	FF Residual	FF Filter	Bypass Resid.	Bypass Filter
Sample #	89415	89304	89308	89307	89306	89305
Date	5/9/2005	4/26/2005	4/26/2005	4/26/2005	4/26/2005	4/26/2005
Miles on Oil	302728	302557	302557	302557	302557	302557
Fine Spectrometric Results (ppm) ASTM D 6595						
Wear Metals						
Iron	8	10	10	4	10	4
Chromium	0	0	0	0	0	0
Lead	5	6	6	0	6	0
Copper	0	1	1	0	1	0
Tin	0	0	0	0	1	0
Aluminum	0	0	0	0	0	0
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0
Additives/Contaminants						
Silicon	2	2	2	0	2	1
Boron	1	1	1	0	1	0
Sodium	4	0	0	0	0	0
Magnesium	13	8	8	1	8	1
Calcium	2779	1908	1922	574	1935	545
Barium	0	0	0	0	0	0
Phosphorous	1009	822	824	244	824	230
Zinc	1056	883	880	284	892	266
RFS Coarse Spectrometric Results (ppm)						
Wear Metals						
Iron	0	1	1	6	3	3
Chromium	0	0	0	0	0	0
Lead	0	0	0	0	0	0
Copper	0	1	1	1	0	2
Tin	0	0	0	1	0	2
Aluminum	4	0	0	2	0	1
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0
Contaminants						
Silicon	0	2	1	8	3	4
Boron	0	0	0	1	0	0
Sodium	0	0	0	3	0	0

Viscosity Results (cSt)						
Viscosity	13.24	12.29	11.77	N/G	12.04	N/G
FT-IR Results (Abs/. 1mm or Percent)						
Oxidation	0.04	0.05	0.05	0.01	0.05	0.01
Sulfation	0.02	0.01	0.01	0.01	0.01	0.01
Nitration	0.04	0.05	0.05	0.01	0.05	0.01
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	<2.00	2.11	2.04	<2.00	2.11	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.07	0.09	0.09	0.08	0.10	0.05
Zinc Depl	-0.08	-0.11	-0.11	-0.16	-0.11	-0.17
Titration Results						
TBN	7.35	4.77	4.86	N/G	4.81	N/G
Particle Count Results (mew/average m(c))						
>4	93500	951300	338400	N/G	709000	N/G
>6	50900	518200	184300	N/G	286200	N/G
>14	8600	88200	31400	N/G	56800	N/G
>21	2900	29700	10600	N/G	22200	N/G
>38	400	4600	1600	N/G	3400	N/G
>70	0	400	100	N/G	300	N/G
ISO >4	935	9513	3384	N/G	7090	N/G
ISO > 6	509	5182	1843	N/G	3862	N/G
ISO >14	86	882	314	N/G	658	N/G
ISO Code	17/16/14	20/20/17	19/18/15	N/G	20/19/17	N/G
Extra/ Special Test Results						
XRF-Fe	N/G	N/G	N/G	3	N/G	0
XRF-Pb	N/G	N/G	N/G	0	N/G	0
XRF-Zn	N/G	N/G	N/G	97	N/G	85
HPI	N/G	0.1	0.1	0.1	0.1	0.1

NTS Bus Data: Bus 73433

Oil Type	Used Oil	Used Oil	Full Flow Residual	Full Flow Filter	Bypass Residual	Bypass Filter
Sample #	89802	89802	89817	89816	89815	89814
Date	6/13/2005	5/23/2005	5/23/2005	5/23/2005	5/23/2005	5/23/2005
Miles on Oil	303576	303143	303143	303143	303143	303143
Fine Spectrometric Results (ppm) ASTM D 6595						
Wear Metals						
Iron	6	8	8	2	8	2
Chromium	0	0	0	0	0	0
Lead	1	3	3	1	4	1
Copper	0	0	0	0	0	0
Tin	0	0	0	0	0	0
Aluminum	0	0	0	0	0	0
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0
Additives/Contaminants						
Silicon	1	1	1	1	1	0
Boron	0	1	0	0	0	0
Sodium	3	3	3	1	2	1
Magnesium	11	10	10	2	10	3
Calcium	3498	2810	2938	658	2929	752
Barium	0	0	0	0	0	0
Phosphorous	1115	920	990	220	968	245
Zinc	1171	972	1057	263	1061	299
RFS Coarse Spectrometric Results (ppm)						
Wear Metals						
Iron	0	0	2	7	1	2
Chromium	0	0	0	1	0	1
Lead	0	0	0	0	0	0
Copper	0	0	0	0	0	0
Tin	0	0	0	1	0	1
Aluminum	0	0	0	2	1	0
Nickel	1	0	0	1	0	0
Silver	0	0	0	0	0	0
Molybdenum	1	0	0	0	0	0
Titanium	0	0	0	0	0	0
Contaminants						
Silicon	0	0	1	7	1	1
Boron	0	0	0	0	0	0
Sodium	0	0	0	3	0	0

Viscosity Results (cSt)						
Viscosity	14.61	14.01	13.92	N/G	13.81	N/G
FT-IR Results (Abs/.1 mm or Percent)						
Oxidation	0.04	0.06	0.05	0.01	0.05	0.01
Sulfation	0.05	0.05	0.05	0.01	0.03	0.01
Nitration	0.05	0.06	0.06	0.01	0.05	0.01
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	<2.00	<2.00	2.04	<2.00	<2.00	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.02	0.07	0.04	0.00	0.04	0.00
Zinc Depl	-0.07	-0.07	-0.07	-0.15	-0.09	-0.16
Titration Results						
TBN	9.19	7.74	7.91	N/G	7.90	N/G
Particle Count Results (mew/average m(c))						
>4	34600	44800	3210300	N/G	1235900	N/G
>6	18800	24400	1758800	N/G	673200	N/G
>14	3200	4100	297900	N/G	114700	N/G
>21	1000	1400	100500	N/G	38700	N/G
>38	100	200	15500	N/G	5900	N/G
>70	0	0	1600	N/G	600	N/G
ISO >4	346	448	32103	N/G	12359	N/G
ISO > 6	188	244	17488	N/G	6732	N/G
ISO >14	32	41	2979	N/G	1147	N/G
ISO Code	16/15/12	16/15/13	22/21/19	N/G	21/20/17	N/G
Extra/ Special Test Results						
XRF-Fe	N/G	N/G	N/G	0.88	N/G	0.9
XRF-Pb	N/G	N/G	N/G	0	N/G	0
XRF-Zn	N/G	N/G	N/G	0.04	N/G	0
HPI	N/G	N/G	0	0	0	0

NTS Bus Data: Bus 73433

Oil Type	Used Oil	Full Flow Residual	Full Flow Filter	Bypass Residual	Bypass Filter	Used Oil
Sample #	90013	90002	90001	90000	89999	90003
Date	6/27/2005	6/16/2005	6/16/2005	6/16/2005	6/16/2005	6/16/2005
Miles on Oil	303793	303576	303576	303576	303576	303576
Fine Spectrometric Results (ppm) ASTM D 6595						
Wear Metals						
Iron	6	7	3	7	2	7
Chromium	0	0	0	0	0	0
Lead	0	1	0	1	0	1
Copper	1	0	0	0	0	0
Tin	0	0	0	0	0	0
Aluminum	0	0	0	0	0	0
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	1	0	0	0	0	0
Titanium	0	0	0	0	0	0
Additives/Contaminants						
Silicon	2	2	2	4	2	2
Boron	0	0	0	0	0	0
Sodium	3	3	1	2	0	3
Magnesium	11	12	4	12	4	11
Calcium	3580	3655	1102	3608	1047	3535
Barium	0	0	0	0	1	0
Phosphorous	1168	1171	357	1194	346	1174
Zinc	1151	1224	412	1208	376	1181
RFS Coarse Spectrometric Results (ppm)						
Wear Metals						
Iron	0	0	2	1	0	0
Chromium	1	1	0	1	0	0
Lead	0	0	0	0	0	0
Copper	0	0	0	0	0	0
Tin	1	1	0	2	0	0
Aluminum	1	0	0	1	1	0
0Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	0
Titanium	0	0	0	0	0	0
Contaminants						
Silicon	1	1	2	1	0	0
Boron	0	0	0	0	0	0
Sodium	0	0	1	0	0	0

Viscosity Results (cSt)						
Viscosity	15.12	15.00	N/G	15.50	N/G	14.68
FT-IR Results (Abs/.1 mm or Percent)						
Oxidation	0.01	0.03	0.01	0.05	0.01	0.05
Sulfation	0.01	0.01	0.01	0.06	0.01	0.06
Nitration	0.01	0.04	0.01	0.06	0.01	0.06
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.00	0.03	0.00	0.03	0.00	0.04
Zinc Depl	-0.29	-0.11	-0.14	-0.06	-0.13	-0.05
Titration Results						
TBN	9.71	8.94	N/G	9.12	N/G	9.22
Particle Count Results (mew/average m(c))						
>4	19200	5580900	N/G	542300	N/G	58900
>6	10400	3040200	N/G	295400	N/G	32100
>14	1700	517900	N/G	50300	N/G	5400
>21	600	174700	N/G	16900	N/G	1800
>38	0	26900	N/G	2600	N/G	200
>70	0	2700	N/G	200	N/G	0
ISO >4	192	55809	N/G	5423	N/G	589
ISO > 6	104	30402	N/G	2954	N/G	321
ISO >14	17	5179	N/G	503	N/G	54
ISO Code	15/14/11	23/22/20	N/G	20/19/16	N/G	16/16/13
Extra/ Special Test Results						
XRF-Fe	N/G	N/G	0	N/G	0	N/G
XRF-Pb	N/G	N/G	2.7	N/G	0	N/G
XRF-Zn	N/G	N/G	87.27	N/G	91.36	N/G
HPI	N/G	0	0	0	0	N/G

NTS Bus Data: Bus 73433

Oil Type	Full Flow Residual	Full Flow Filter	Bypass Residual	Bypass Filter	Used Oil	Used Oil
Sample #	90154	90153	90152	90151	90150	90013
Date	6/28/2005	6/28/2005	6/28/2005	6/28/2005	6/28/2005	6/27/2005
Miles on Oil	303793	303793	303793	303793	303793	303793
Fine Spectrometric Results (ppm) ASTM D 6595						
Wear Metals						
Iron	6	2	6	2	6	6
Chromium	0	0	0	0	0	0
Lead	1	0	1	0	1	0
Copper	1	0	1	0	1	1
Tin	0	0	1	0	0	0
Aluminum	0	0	0	0	0	0
Nickel	0	0	0	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	0	0	0	0	0	1
Titanium	0	0	0	0	0	0
Additives/Contaminants						
Silicon	1	2	2	1	1	2
Boron	2	0	2	0	2	0
Sodium	2	1	3	1	3	3
Magnesium	11	3	11	4	11	11
Calcium	3449	1025	3410	900	3512	3580
Barium	0	0	0	0	0	0
Phosphorous	1129	333	1117	294	1146	1168
Zinc	1104	375	1091	333	1132	1151
RFS Coarse Spectrometric Results (ppm)						
Wear Metals						
Iron	1	2	1	0	0	0
Chromium	0	0	1	0	0	1
Lead	0	0	0	0	0	0
Copper	0	0	0	0	0	0
Tin	0	0	4	0	0	1
Aluminum	1	0	0	0	0	1
Nickel	1	0	1	0	0	0
Silver	0	0	0	0	0	0
Molybdenum	1	0	0	0	0	0
Titanium	0	0	0	0	0	0
Contaminants						
Silicon	1	2	1	0	1	1
Boron	0	0	0	0	0	0
Sodium	0	1	0	0	0	0

Viscosity Results (cSt)						
Viscosity	15.05	N/G	15.81	N/G	14.98	15.12
FT-IR Results (Abs/.1 mm or Percent)						
Oxidation	0.02	0.01	0.03	0.01	0.05	0.01
Sulfation	0.01	0.01	0.01	0.01	0.06	0.01
Nitration	0.02	0.01	0.03	0.01	0.05	0.01
Water %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fuel Dilution	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Glycol %	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Soot	0.03	0.02	0.03	0.00	0.04	0.00
Zinc Depl	-0.13	-0.14	-0.13	-0.28	-0.06	-0.29
Titration Results						
TBN	9.00	N/G	8.94	N/G	8.88	9.71
Particle Count Results (mew/average m(c))						
>4	3141100	N/G	219200	N/G	98700	19200
>6	1711100	N/G	119400	N/G	53700	10400
>14	291500	N/G	20300	N/G	9100	1700
>21	98300	N/G	6800	N/G	3000	600
>38	15100	N/G	1000	N/G	400	0
>70	1500	N/G	100	N/G	0	0
ISO >4	31411	N/G	2192	N/G	987	192
ISO > 6	17111	N/G	1194	N/G	537	104
ISO >14	2915	N/G	203	N/G	91	17
ISO Code	22/21/19	N/G	18/17/15	N/G	17/16/14	15/14/11
Extra/ Special Test Results						
XRF-Fe	N/G	0	N/G	0	N/G	N/G
XRF-Pb	N/G	0	N/G	4	N/G	N/G
XRF-Zn	N/G	97	N/G	91	N/G	N/G
HPI	0	0	0	0	0	N/G