AFPET LABORATORY REPORT

HQ AFPET/PTPLA
2430 C Street
Building 70, Area B
Wright-Patterson AFB, OH 45433-7632

Lab Report No:2011LA31317001 Date Received:05/03/11 1403 hrs* Date Sampled: 04/22/2011**
Cust Sample No:1 Date Reported:05/04/11 1548 hrs* Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Reason for Submission: Aircraft Crash/Incident IAW T.O. 42B-1-1
Product: Aviation Turbine Fuel, Kerosene
Specification: ASTM D 1655 - 10 Grade:Jet A

Source: FUEL TANK SUMP DRAIN Qty Submitted: 16 oz

Method	Test	Min	Max	Result
ATP	Hy-Lite 2 Adenosine Triphosphate Meter for Biological Content in Fuel (RLU/L)			280
GC/MS	Gas Chromatography (Mass Spectroscopy)			See Below

Dispositions:
For information purposes only.
ATP readings less than 1000 RLU/L are considered negligible biological contamination by IATA and instrument manufacturer guidelines.
GC was that of a typical Jet A type fuel.

Approved By **Date**
David Craycroft, 05/04/2011*
Lead Chemist
\\SIGNED\\

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AFPET LABORATORY REPORT

HQ AFPET/PTPLA
2430 C Street
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Lab Report No:2011LA31317002 Date Received:05/03/11 1403 hrs* Date Sampled: 04/27/2011**
Cust Sample No:1 Date Reported:05/04/11 1607 hrs* Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Reason for Submission: Aircraft Crash/Incident IAW T.O. 42B-1-1
Product: Aviation Turbine Fuel, Kerosene
Specification: ASTM D 1655 - 10 Grade:Jet A

Source: FUEL TANK SUMP DRAIN Qty Submitted: 1 gal

Method	Test	Min	Max	Result	Fail
ATP	Hy-Lite 2 Adenosine Triphosphate Meter for Biological Content in Fuel (RLU/L)			150	
GC/MS	Gas Chromatography (Mass Spectroscopy)			See Below	
MIL-STD-3004B(1)	Appearance			Pass	
ASTM D 3242 - 08	Total Acid Number (mg KOH/g)		0.10	0.002	
ASTM D 1319 - 10	Aromatics (% vol)		25	20.0	
ASTM D 3227 - 04a	Mercaptan Sulfur (% mass)		0.003	0.001	
ASTM D 4294 - 10	Total Sulfur (% mass)		0.30	0.06	
ASTM D 86 - 10a	Distillation				
	10% Recovered (°C)		205	173	
	20% Recovered (°C)			179	
	50% Recovered (°C)			197	
	90% Recovered (°C)			246	
	End Point (°C)		300	277	
	Residue (% vol)		1.5	1.4	
	Loss (% vol)		1.5	0.4	
ASTM D 56 - 05	Flash Point (°C)	38		46	
ASTM D 4052 - 09	Density @ 15°C (kg/m³)	775	840	813	
ASTM D 5972 - 05e1	Freezing Point (°C)		-40	-53	
ASTM D 445 - 10	Viscosity @ -20°C (mm²/s)		8.0	4.3	
ASTM D 3338 - 08	Net Heat of Combustion (MJ/kg)	42.8		43.1	
ASTM D 1322 - 08	Smoke Point				
	Smoke Point (w/allowable Naphthalenes) (mm)	18.0		21.0	
ASTM D 1840 - 07	Naphthalenes (% vol)		3.0	1.4	
ASTM D 130 - 10	Copper Strip Corrosion (2 h @ 100°C)		1 (Max)	1a	
ASTM D 3241 - 09e1	Thermal Stability @ 260°C				
	Change in Pressure (mmHg)		25	0	
	Tube Deposit Rating, Visual		<3 (Max)	>4	X
ASTM D 381 - 04	Existent Gum (mg/100 mL)		7	4.0	
ASTM D 3948 - 08	WSIM	70		72	
ASTM D 5006 - 10e1	FSII (% vol)	0.10	0.15	0.00	X
ASTM D 2624 - 09	Conductivity (pS/m)	50	600	0	X

Dispositions:
For information purposes only.
Coordinated with Tim Mudry (PTOT), phone: DSN 785-8101, COM 937-255-8101.
ATP readings less than 1000 RLU/L are considered negligible biological contamination by IATA and instrument manufacturer guidelines.
GC was that of a typical Jet A type fuel.

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HQ AFPET/PTPLA
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Wright-Patterson AFB, OH 45433-7632

Lab Report No:2011LA31317002 | Date Received:05/03/11 1403 hrs* | Date Sampled: 04/27/2011**
Cust Sample No:1 | Date Reported:05/04/11 1607 hrs* | Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Approved By	**Date**
David Craycroft, Lead Chemist \\SIGNED\\	05/04/2011*

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AFPET LABORATORY REPORT

HQ AFPET/PTPLA
2430 C Street
Building 70, Area B
Wright-Patterson AFB, OH 45433-7632

Lab Report No:2011LA31318001 Date Received:05/03/11 1411 hrs* Date Sampled: 04/22/2011**
Cust Sample No:2 Date Reported:05/04/11 1555 hrs* Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Reason for Submission: Aircraft Crash/Incident IAW T.O. 42B-1-1
Product: Aviation Turbine Fuel, Kerosene
Specification: ASTM D 1655 - 10 Grade:Jet A

Source: FUEL TRUCK FILTER DRAIN Qty Submitted: 16 oz

Method	Test	Min	Max	Result
ATP	Hy-Lite 2 Adenosine Triphosphate Meter for Biological Content in Fuel (RLU/L)			760
GC/MS	Gas Chromatography (Mass Spectroscopy)			See Below

Dispositions:
For information purposes only.
ATP readings less than 1000 RLU/L are considered negligible biological contamination by IATA and instrument manufacturer guidelines.
GC was that of a typical Jet A type fuel.

Approved By **Date**
David Craycroft, 05/04/2011*
Lead Chemist
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AFPET LABORATORY REPORT

HQ AFPET/PTPLA
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Building 70, Area B
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Lab Report No:2011LA31318002 Date Received:05/03/11 1411 hrs* Date Sampled: 04/27/2011**
Cust Sample No:2 Date Reported:05/04/11 1610 hrs* Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Reason for Submission: Aircraft Crash/Incident IAW T.O. 42B-1-1
Product: Aviation Turbine Fuel, Kerosene
Specification: ASTM D 1655 - 10 Grade:Jet A

Source: FUEL TRUCK FILTER DRAIN Qty Submitted: 1 gal

Method	Test	Min	Max	Result	Fail
ATP	Hy-Lite 2 Adenosine Triphosphate Meter for Biological Content in Fuel (RLU/L)			1020	
GC/MS	Gas Chromatography (Mass Spectroscopy)			See Below	
MIL-STD-3004B(1)	Appearance			Pass	
ASTM D 3242 - 08	Total Acid Number (mg KOH/g)		0.10	0.002	
ASTM D 1319 - 10	Aromatics (% vol)		25	20.0	
ASTM D 3227 - 04a	Mercaptan Sulfur (% mass)		0.003	0.001	
ASTM D 4294 - 10	Total Sulfur (% mass)		0.30	0.06	
ASTM D 86 - 10a	Distillation				
	10% Recovered (°C)		205	174	
	20% Recovered (°C)			179	
	50% Recovered (°C)			197	
	90% Recovered (°C)			246	
	End Point (°C)		300	276	
	Residue (% vol)		1.5	1.4	
	Loss (% vol)		1.5	0.5	
ASTM D 56 - 05	Flash Point (°C)	38		46	
ASTM D 4052 - 09	Density @ 15°C (kg/m³)	775	840	813	
ASTM D 5972 - 05e1	Freezing Point (°C)		-40	-52	
ASTM D 445 - 10	Viscosity @ -20°C (mm²/s)		8.0	4.3	
ASTM D 3338 - 08	Net Heat of Combustion (MJ/kg)	42.8		43.1	
ASTM D 1322 - 08	Smoke Point				
	Smoke Point (w/allowable Naphthalenes) (mm)	18.0		21.0	
ASTM D 1840 - 07	Naphthalenes (% vol)		3.0	1.4	
ASTM D 130 - 10	Copper Strip Corrosion (2 h @ 100°C)		1 (Max)	1a	
ASTM D 3241 - 09e1	Thermal Stability @ 260°C				
	Change in Pressure (mmHg)		25	0	
	Tube Deposit Rating, Visual		<3 (Max)	1	
ASTM D 381 - 04	Existent Gum (mg/100 mL)		7	3.0	
ASTM D 3948 - 08	WSIM	70		87	
ASTM D 5006 - 10e1	FSII (% vol)	0.10	0.15	0.00	X
ASTM D 2624 - 09	Conductivity (pS/m)	50	600	0	X

Dispositions:
For information purposes only.
Coordinated with Tim Mudry (PTOT), phone: DSN 785-8101, COM 937-255-8101.
ATP readings between 1000 and 5000 RLU/L are considered moderate biological contamination by IATA and instrument manufacturer guidelines.
GC was that of a typical Jet A type fuel.

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HQ AFPET/PTPLA
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Lab Report No:2011LA31318002	Date Received:05/03/11 1411 hrs*	Date Sampled: 04/27/2011**
Cust Sample No:2	Date Reported:05/04/11 1610 hrs*	Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Approved By	**Date**
David Craycroft, Lead Chemist \\SIGNED\\	05/04/2011*

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HQ AFPET/PTPLA
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Lab Report No:2011LA31319001 | Date Received:05/03/11 1418 hrs* | Date Sampled: 04/22/2011**
Cust Sample No:3 | Date Reported:05/04/11 1558 hrs* | Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Reason for Submission: Aircraft Crash/Incident IAW T.O. 42B-1-1
Product: Aviation Turbine Fuel, Kerosene
Specification: ASTM D 1655 - 10 Grade:Jet A

Source: FUEL TANK FORWARD NOZZLE Qty Submitted: 16 oz

Method	Test	Min	Max	Result
ATP	Hy-Lite 2 Adenosine Triphosphate Meter for Biological Content in Fuel (RLU/L)			76
GC/MS	Gas Chromatography (Mass Spectroscopy)			See Below

Dispositions:
For information purposes only.
ATP readings less than 1000 RLU/L are considered negligible biological contamination by IATA and instrument manufacturer guidelines.
GC was that of a typical Jet A type fuel.

Approved By | **Date**
David Craycroft, Lead Chemist
\\SIGNED\\ | 05/04/2011*

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AFPET LABORATORY REPORT

HQ AFPET/PTPLA
2430 C Street
Building 70, Area B
Wright-Patterson AFB, OH 45433-7632

Lab Report No:2011LA31319002 Date Received:05/03/11 1418 hrs* Date Sampled: 04/27/2011**
Cust Sample No:3 Date Reported:05/04/11 1614 hrs* Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Reason for Submission: Aircraft Crash/Incident IAW T.O. 42B-1-1
Product: Aviation Turbine Fuel, Kerosene
Specification: ASTM D 1655 - 10 Grade:Jet A

Source: FUEL TANK FORWARD NOZZLE Qty Submitted: 1 gal

Method	Test	Min	Max	Result	Fail
ATP	Hy-Lite 2 Adenosine Triphosphate Meter for Biological Content in Fuel (RLU/L)			300	
GC/MS	Gas Chromatography (Mass Spectroscopy)			See Below	
MIL-STD-3004B(1)	Appearance			Pass	
ASTM D 3242 - 08	Total Acid Number (mg KOH/g)		0.10	0.002	
ASTM D 1319 - 10	Aromatics (% vol)		25	20.0	
ASTM D 3227 - 04a	Mercaptan Sulfur (% mass)		0.003	0.000	
ASTM D 4294 - 10	Total Sulfur (% mass)		0.30	0.06	
ASTM D 86 - 10a	Distillation				
	10% Recovered (°C)		205	174	
	20% Recovered (°C)			180	
	50% Recovered (°C)			197	
	90% Recovered (°C)			247	
	End Point (°C)		300	278	
	Residue (% vol)		1.5	1.4	
	Loss (% vol)		1.5	0.8	
ASTM D 56 - 05	Flash Point (°C)	38		46	
ASTM D 4052 - 09	Density @ 15°C (kg/m³)	775	840	813	
ASTM D 5972 - 05e1	Freezing Point (°C)		-40	-52	
ASTM D 445 - 10	Viscosity @ -20°C (mm²/s)		8.0	4.3	
ASTM D 3338 - 08	Net Heat of Combustion (MJ/kg)	42.8		43.1	
ASTM D 1322 - 08	Smoke Point				
	Smoke Point (w/allowable Naphthalenes) (mm)	18.0		21.0	
ASTM D 1840 - 07	Naphthalenes (% vol)		3.0	1.4	
ASTM D 130 - 10	Copper Strip Corrosion (2 h @ 100°C)		1 (Max)	1a	
ASTM D 3241 - 09e1	Thermal Stability @ 260°C				
	Change in Pressure (mmHg)		25	0	
	Tube Deposit Rating, Visual		<3 (Max)	>4	X
ASTM D 381 - 04	Existent Gum (mg/100 mL)		7	3.0	
ASTM D 3948 - 08	WSIM	70		90	
ASTM D 5006 - 10e1	FSII (% vol)	0.10	0.15	0.00	X
ASTM D 2624 - 09	Conductivity (pS/m)	50	600	0	X

Dispositions:
For information purposes only.
Coordinated with Tim Mudry (PTOT), phone: DSN 785-8101, COM 937-255-8101.
ATP readings less than 1000 RLU/L are considered negligible biological contamination by IATA and instrument manufacturer guidelines.
GC was that of a typical Jet A type fuel.

* Date reflects Eastern Standard Time(EST) | Report Generated: 05/4/11 16:14*
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2430 C Street
Building 70, Area B
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Lab Report No:2011LA31319002	Date Received:05/03/11 1418 hrs*	Date Sampled: 04/27/2011**
Cust Sample No:3	Date Reported:05/04/11 1614 hrs*	Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Approved By	**Date**
David Craycroft, Lead Chemist \\SIGNED\\	05/04/2011*

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AFPET LABORATORY REPORT

HQ AFPET/PTPLA
2430 C Street
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Wright-Patterson AFB, OH 45433-7632

Lab Report No:2011LA31320001 Date Received:05/03/11 1424 hrs* Date Sampled: 04/22/2011**
Cust Sample No:4 Date Reported:05/04/11 1602 hrs* Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Reason for Submission: Aircraft Crash/Incident IAW T.O. 42B-1-1
Product: Aviation Turbine Fuel, Kerosene
Specification: ASTM D 1655 - 10 Grade:Jet A

Source: FUEL TANK AFT NOZZLE Qty Submitted: 16 oz

Method	Test	Min	Max	Result
ATP	Hy-Lite 2 Adenosine Triphosphate Meter for Biological Content in Fuel (RLU/L)			160
GC/MS	Gas Chromatography (Mass Spectroscopy)			See Below

Dispositions:
For information purposes only.
ATP readings less than 1000 RLU/L are considered negligible biological contamination by IATA and instrument manufacturer guidelines.
GC was that of a typical Jet A type fuel.

Approved By **Date**
David Craycroft, 05/04/2011*
Lead Chemist
\\SIGNED\\

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AFPET LABORATORY REPORT

HQ AFPET/PTPLA
2430 C Street
Building 70, Area B
Wright-Patterson AFB, OH 45433-7632

Lab Report No:2011LA31320002 Date Received:05/03/11 1424 hrs* Date Sampled: 04/27/2011**
Cust Sample No:4 Date Reported:05/04/11 1617 hrs* Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Reason for Submission: Aircraft Crash/Incident IAW T.O. 42B-1-1
Product: Aviation Turbine Fuel, Kerosene
Specification: ASTM D 1655 - 10 Grade:Jet A

Source: FUEL TANK AFT NOZZLE Qty Submitted: 1 gal

Method	Test	Min	Max	Result	Fail
ATP	Hy-Lite 2 Adenosine Triphosphate Meter for Biological Content in Fuel (RLU/L)			340	
GC/MS	Gas Chromatography (Mass Spectroscopy)			See Below	
MIL-STD-3004B(1)	Appearance			Pass	
ASTM D 3242 - 08	Total Acid Number (mg KOH/g)		0.10	0.004	
ASTM D 1319 - 10	Aromatics (% vol)		25	20.0	
ASTM D 3227 - 04a	Mercaptan Sulfur (% mass)		0.003	0.000	
ASTM D 4294 - 10	Total Sulfur (% mass)		0.30	0.06	
ASTM D 86 - 10a	Distillation				
	10% Recovered (°C)		205	174	
	20% Recovered (°C)			178	
	50% Recovered (°C)			197	
	90% Recovered (°C)			247	
	End Point (°C)		300	277	
	Residue (% vol)		1.5	1.3	
	Loss (% vol)		1.5	0.4	
ASTM D 56 - 05	Flash Point (°C)	38		46	
ASTM D 4052 - 09	Density @ 15°C (kg/m³)	775	840	813	
ASTM D 5972 - 05e1	Freezing Point (°C)		-40	-53	
ASTM D 445 - 10	Viscosity @ -20°C (mm²/s)		8.0	4.3	
ASTM D 3338 - 08	Net Heat of Combustion (MJ/kg)	42.8		43.1	
ASTM D 1322 - 08	Smoke Point				
	Smoke Point (w/allowable Naphthalenes) (mm)	18.0		21.0	
ASTM D 1840 - 07	Naphthalenes (% vol)		3.0	1.4	
ASTM D 130 - 10	Copper Strip Corrosion (2 h @ 100°C)		1 (Max)	1a	
ASTM D 3241 - 09e1	Thermal Stability @ 260°C				
	Change in Pressure (mmHg)		25	0	
	Tube Deposit Rating, Visual		<3 (Max)	4P	X
ASTM D 381 - 04	Existent Gum (mg/100 mL)		7	6.0	
ASTM D 3948 - 08	WSIM	70		81	
ASTM D 5006 - 10e1	FSII (% vol)	0.10	0.15	0.00	X
ASTM D 2624 - 09	Conductivity (pS/m)	50	600	0	X

Dispositions:
For information purposes only.
Coordinated with Tim Mudry (PTOT), phone: DSN 785-8101, COM 937-255-8101.
ATP readings less than 1000 RLU/L are considered negligible biological contamination by IATA and instrument manufacturer guidelines.
GC was that of a typical Jet A type fuel.

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** Date as provided by customer

AFPET LABORATORY REPORT

HQ AFPET/PTPLA
2430 C Street
Building 70, Area B
Wright-Patterson AFB, OH 45433-7632

Lab Report No:2011LA31320002	Date Received:05/03/11 1424 hrs*	Date Sampled: 04/27/2011**
Cust Sample No:4	Date Reported:05/04/11 1617 hrs*	Protocol:FU-AVI-0031

Sample Submitter:
NTSB

Kailua Kona, HI 96740

Approved By	**Date**
David Craycroft, Lead Chemist \\SIGNED\\	05/04/2011*

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