BP Pipelines (North America) Inc.

Whiting to Dickson Product Pipeline System

Product Quality Manual

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CONTENTS

Section I

General Product Quality Specifications

The following are the product quality specifications for the Whiting to Dickson pipeline system.

All finished products available to be received into the BP Pipelines North America systems are intended to meet pertinent ASTM specifications and are required to meet State and Federal specifications and regulations as defined in the latest version of the applicable governing rules for petroleum finished products. These include, but are not limited to ASTM D975 Diesels, and ASTM D 4814 Gasolines. In conjunction with ASTM standards and the various governmental regulations, BP Pipelines North America requires all fuels to meet appearance and workmanship.
In addition, it is the responsibility of the shipper to ensure that origin product tanks and /or inline batches meet the pipeline specifications in this document and any additional specifications required at delivery location(s).

A. General Product Quality Specifications - Diesels

A.1

Ultra-Low Sulfur Diesel No.1 (ULSD #1) - (1) (9) (15) (16)

Product Property	ASTM Test Method	Minimum	Maximum	Note
Color	Visual	Undyed		
Appearance	D4176 Proc. 1	Clear and Bright		(3)
Haze Rating, @ ≤70º F	D4176 Proc. 2		2	
Gravity, API @ 60º F	D1298 / D4052	37.5		
Flash Point, º F	D93A	110		(2)
Viscosity, cST @ 104º F / 40 ºC	D445 / D7042	1.3	2.4	(11)
Total Sulfur, ppm (µg/g)	D2622 / D5453 / D7039		11	(14)
Cloud Point, º F	D2500 / D5771/ D5772 / D 5773		-35	(4)
Sediment & Water, vol %	D2709		0.05	
Ash, wt%	D482		0.01	
Cetane Number or Derived Cetane Number or Cetane Index	D613 D6890 D4737 Procedure A	40.0 40.0 41.0		(5) (10)
One of the following must be met: Cetane Index Aromatics, vol. %	 D976 D5186 / D1319	 40.0	 35.0	
Distillation, º F 10% recovered 50% recovered 90% recovered	D86 / D2887		 419 550.4	(8)
Copper Corrosion 3 h at 122 º F (50 °C)	D130		1	
Ash, wt%	D482		0.01	
Ramsbottom carbon residue on 10 % distillation residue, wt%	D524 or D4530 (correlated to D 524)		0.15	
N.A.C.E. or Accelerated Iron Corrosion test	TM0172 / D7548	B+		(6)
Renewable Diesel			5%	(12)(13)
Lubricity by (HFRR), micron max, wear scar	D6079 / D7688		See Note	(7)

NOTES

1. In addition to the above specifications, product must meet ASTM D975 No.1-D S15 latest revision, as well as applicable federal and state regulations.
2. Test method ASTM D93A is the referee method. Internal specification requirement.
3. Product shall be undyed, clear and bright, and free of suspended matter and water.
4. Alternate methods may be used, but in case of dispute, ASTM D2500 is the referee method.
5. Where cetane number by test method ASTM D613 is not available, test methods ASTM D6890 Derived Cetane Number (DCN), D4737 Procedure A can be used as an approximation.
6. N.A.C.E. TM0172 or ASTM D7548 Accelerated Iron Corrosion testing is a requirement of the pipeline.
7. Lubricity additives are prohibited on Whiting to Dickson Pipelines System. Product must meet lubricity specifications where end user receives fuel.
8. Alternate method D2887 may be correlated to D86, but in case of dispute, D86 is the referee method.
9. This product will be subject to DRA injections.
10. Cetane Improver. Indicate on Certificate of Analysis (COA) Refinery Certificate of Quality (RCQ) or in report if online blending when Cetane improver is added: Please list actual concentration or may state “Contains Cetane Improver 2-Ethylhexyl nitrate at or below 1200 ppm”.
11. Bias-corrected values from Test Method D7042 may be used. In case of dispute, Test Method D445 shall be used as the referee method.
12. May contain up to 5% Renewable Diesel. Renewable diesel must meet the registration requirements for fuels and fuel additives established by the EPA under section 211 of the Clean Air Act and the requirements of ASTM D975. Please note that Renewable diesel containing fatty acid esters (FAME, FAEE, or other esters) are prohibited on the Whiting to Dickson Pipeline System.
13. Biodiesel containing fatty acid esters (FAME, FAEE, or other esters) is not allowed on the Whiting to Dickson Pipeline System.
14. ASTM D2622 is the referee method. ASTM D5453 and ASTM D7039 may be used providing the method reliably produces results equivalent to ASTM D 2622.
15. Test methods indicated in the latest revision of ASTM D 975 Standard Specification for Diesel Fuel are accepted but must meet the precision criteria in 40 CFR Part 1090.
16. Referee methods specified by pertinent regulatory agencies, ASTM, or BP Pipelines North America shall be used in case of dispute.

A.2

Ultra-Low Sulfur Diesel No. 2 (ULSD #2) Notes (1), (13), (15), (16)

Product Property	ASTM Test Method	Minimum	Maximum	Note
Color	Visual	Undyed		
Color, ASTM	D1500 / D6045		2.5	
Appearance	D4176 Proc. 1	Clear and Bright		(3)
Haze Rating, @ ≤70º F.	D4176 Proc. 2		2	
Gravity, API @ 60º F	D1298 / D4052	30		
Flash Point, º F	D93A	130		(2)
Cloud Point, º F	D2500 / D5771 D5772 / D 5773		See Note 4	(4)
Pour Point, ° F	D97/ D5949/ D5950, D5985		See Note 4	(4)
Viscosity @104 º F, cST	D445 / D7042	1.9	4.1	(9)
Sediment & Water, vol%	D2709		0.05	
Total Sulfur, ppm (µg/g)	D2622 / D5453 / D7039		11	(14)
Cetane Number or Derived Cetane Number Cetane Index	D613 D6890 D4737 Procedure A	40.0 40.0 41.0		(5) (12)
One of the following must be met: Cetane Index Aromatics, vol. %	 D 976 D5186 / D1319	 40.0	 35.0	
Lubricity by (HFRR), micron max, wear scar	D6079 / D7688		See Note 7	(7)
Distillation, º F, 50% recovered 90% recovered	D86 / D2887	 Report 539.6	 640.4	(8)
Copper Corrosion 3hrs @122 º F	D130		2	
Color	D1500		2.5	
Ash, wt%	D482		0.01	
Ramsbottom carbon residue on 10 % distillation residue, wt%	D524 / D 4530 (correlated to D 524)		0.35	
Renewable Diesel			5%	(10) (11)
N.A.C.E. or Accelerated Iron Corrosion test	TM0172 / D7548	B+		(6)

NOTES

1. In addition to above specification, products must meet ASTM D975 No.2 -D S15 latest revision, as well as applicable federal and state regulations.
2. Test method ASTM D93A is the referee method.
3. Product shall be undyed, clear and bright and free of suspended matter and water.
4. Maximum Cloud Pt. +15 ºF - September through March 15.
   Maximum Cloud Pt. +20 ºF - March16 through August
   Alternate methods ASTM D5771, D5772, D5773 may be used, but in case of dispute, ASTM D2500 is the referee test method.
   Cloud Point improver/depressant additives are prohibited on the Whiting to Dickson Pipelines System.
   Maximum Pour Pt. 0 ºF - September through March 15
   Maximum Pour Pt. +10 ºF - March 16 through August
   Alternate methods ASTM D5949, D5950, D5985 may be used, but in case of dispute, ASTM D97 will be referee test method.
   Pour Point improver/depressant additives are prohibited on the Whiting to Dickson Pipelines System.
5. Where cetane number by test method ASTM D613 is not available, test methods ASTM D6890 Derived Cetane Number (DCN) or D4737A can be used as an approximation. ASTM D 613 is the referee test method.
6. N.A.C.E. and / or Accelerated Iron Corrosion testing is a requirement of the Whiting to Dickson Pipelines System.
7. Lubricity additives are prohibited on the Whiting to Dickson Pipelines System. Product must meet Lubricity specifications where end user receives fuel.
8. Alternate method ASTM D2887 may be correlated to ASTM D86, but in case of dispute, ASTM D86 is the referee method.
9. Bias-corrected values from test method ASTM D7042 may be used as alternative. In case of dispute, test method ASTM D445 shall be used as the referee method.
10. May contain up to 5% Renewable Diesel. Renewable diesel must meet the registration requirements for fuels and fuel additives established by the EPA under section 211 of the Clean Air Act and the requirements of ASTM D975. Please note that Renewable diesel containing fatty acid esters (FAME, FAEE, or other esters) are prohibited on the Whiting to Dickson Pipelines System.
11. Biodiesel containing fatty acid esters (FAME, FAEE, or other esters) is not allowed on the Whiting to Dickson Pipelines System.
12. Indicate on Certificate of Analysis (COA), Refinery Certificate of Quality (RCQ) when Cetane improver is added: “Contains Cetane Improver 2-Ethylhexyl nitrate at or below 1200 ppm.”
13. This product will be subject to DRA injections.
14. ASTM D2622 is the referee method. ASTM D5453 and ASTM D7039 may be used providing the method reliably produces results equivalent to ASTM D 2622.
15. Test methods indicated in the latest revision of ASTM D 975 Standard Specification for Diesel Fuel are accepted but must meet the precision criteria in 40 CFR Part 1090.
16. Referee methods specified by pertinent regulatory agencies, ASTM, or BP Pipelines North America shall be used in case of dispute.

A.3

Heating Oil - Ultra-Low Sulfur - (1), (13), (15), (16), or Certified Non-Transportation Distillate Fuel (Certified NTDF) - (17)

Product Property	ASTM Test Method	Minimum	Maximum	Note
Color	Visual	Undyed		
Color, Saybolt	D130	-15		
Appearance	D4176 Proc. 1	Clear and Bright		(3)
Haze Rating, @ ≤70º F.	D4176 Proc. 2		2	
Gravity, API @ 60º F	D1298 / D4052	30		
Flash Point, º F	D93A	130		(2)
Cloud Point, º F	D2500 / D5771 D5772 / D 5773		See Note 4	(4)
Pour Point, º F	D97/ D5949/ D5950, D5985		See Note 4	(4)
Viscosity @104 º F, cST	D445	1.9	4.1	(9)
Sediment & Water, vol%	D2709		0.05	
Total Sulfur, ppm (µg/g)	D5453 / D2622 / D7039		11	(14)
Cetane Number or Derived Cetane Number Cetane Index	D613 D6890 D4737 Proc. A	40.0 40.0 41.0		(5) (12)
One of the following must be met: Cetane Index or Aromatics, vol. %	 D976 D1319	 40.0	 35.0	
Lubricity by (HFRR), micron max, wear scar	D6079 / D7688		See Note 7	(7)
Distillation, º F, 50% recovered 90% recovered	D86 / D2887	 Report 539.6	 640.4	(8)
Copper Corrosion 3hrs @122 º F	D130		1	
Color	D1500		2.5	
Ash, wt%	D482		0.01	
Ramsbottom carbon residue on 10 % distillation residue, wt%	D524		0.35	

Renewable Diesel			5%	(10) (11)
N.A.C.E. or Accelerated Iron Corrosion test	TM0172 / D7548	B+		(6)

NOTES

1. In addition to above specification, product must meet ASTM D975 No.2 -D S15 latest revision, as well as applicable federal and state regulations.
2. Test method ASTM D93A is the referee method.
3. Product shall be undyed, clear and bright and free of suspended matter and water.
4. Maximum Cloud Pt. +15 ºF - September through March 15.
   Maximum Cloud Pt. +20 ºF - March16 through August
   Alternate methods ASTM D5771, D5772, D5773 may be used, but in case of dispute, ASTM D2500 will be referee test method.
   Cloud Point improver/depressant additives are prohibited on the Whiting to Dickson Pipelines System.
   Maximum Pour Pt. 0 ºF - September through March 15
   Maximum Pour Pt. +10 ºF - March 16 through August
   Alternate methods ASTM D5949, D5950, D55985 may be used, but in case of dispute, ASTM D97 will be referee test method. Pour Point improver/depressant additives are prohibited on the Whiting to Dickson Pipelines System.
5. Where cetane number by test method ASTM D613 is not available, test methods ASTM D6890 Derived Cetane Number (DCN), D4737A can be used as an approximation. ASTM D 613 is the referee test method.
6. N.A.C.E. TM0172 and / or Accelerated Iron Corrosion (ASTM D7548 testing is a requirement of the Whiting to Dickson Pipelines System.
7. Lubricity additives are prohibited on the Whiting to Dickson Pipelines System. Product must meet Lubricity specifications where end user receives fuel.
8. Alternate method ASTM D2887 may be correlated to ASTM D86, but in case of dispute, ASTM D86 is the referee method.
9. Bias-corrected values from test method ASTM D7042 may be used as alternative. In case of dispute, test method ASTM D445 shall be used as the referee method.
10. May contain up to 5% Renewable Diesel. Renewable diesel must meet the registration requirements for fuels and fuel additives established by the EPA under section 211 of the Clean Air Act and the requirements of ASTM D975. Please note that Renewable diesel containing fatty acid esters (FAME, FAEE, or other esters) are prohibited on the Whiting to Dickson Pipelines System.
11. Biodiesel containing fatty acid esters (FAME, FAEE, or other esters) is not allowed on the Whiting to Dickson Pipelines System.
12. Indicate on Certificate of Analysis (COA) or Refinery Certificate of Quality (RCQ) when Cetane improver is added: “Contains Cetane Improver 2-Ethylhexyl nitrate at or below 1200 ppm.”
13. This product will be subject to DRA injections.
14. ASTM D2622 is the referee method. ASTM D5453 and ASTM D7039 may be used providing the method reliably produces results equivalent to ASTM D2622.

15. Test methods indicated in the latest revision of ASTM D 975 Standard Specification for Diesel Fuel are accepted but must meet the precision criteria in 40 CFR Part 1090.
16. In case of dispute, referee methods specified by pertinent regulatory agencies, ASTM, or BP Pipelines North America shall be used.
17. This fuel may be designated for non-transportation use (Certified NTDF – 15 ppm sulfur max) and for heating oil use (Heating Oil (15 ppm max sulfur) ULS Heating Oil).

B. General Product Quality Specifications - Gasolines

B.1
Conventional Gasolines
Regular and Premium (1)(3)(9)(11)(12)

Product Property	ASTM Test Method	Minimum	Maximum	Note
Color	Visual	Undyed		
Appearance Haze Rating, @ ≤70 ºF.	D4176 Proc. 1 D4176 Proc. 2	Clear and Bright	 1	(2)
Distillation, º F, 10% Evaporated	D86		See Notes	(1), (5)
Distillation, º F, 50% Evaporated	D86	170		(1), (5)
Distillation, º F, 90% Evaporated	D86		See Notes	(1), (5)
Distillation, End point, º F	D86		430	(5)
Vapor Pressure, DVPE, psi (EPA equation)	D5191			(1), (5)
Vapor/Liquid Ratio, min	D4814 / D5188	Report		(1), (4)
Driveability Index, max	D4814		Report	(1), (5), (10)
Gravity, API @ 60º F	D1298 / D4052	Report		
Copper Corrosion, 3 hrs@122ºF Silver Strip Corrosion	D130 D7667 / 7671		1 1	
Regular Gasolines Research Number Motor Number Index, (R+M)/2	 D2699 D2700 (R+M)/2	 Report 82.0 87.0		
Premium Gasolines Research Number Motor Number One of the following grades:	 D2699 D2700	 Report Report		

Antiknock Index, (R+M)/2 Antiknock Index, (R+M)/2 Antiknock Index, (R+M)/2	(R+M)/2 (R+M)/2 (R+M)/2	91.0 92.0 93.0		
Sulfur, ppm (µg/g)	D2622		80	(7)
Mercaptan Doctor Test or Mercaptan Sulfur Wt. %	D4952 D3227	Sweet	 0.002	
Lead Content, g / U.S.gal	D3237		0.03	(6)
Phosphorous, g / U.S.gal	D3231		0.003	(6)
Gum, mg/l00ml (washed)	D381		5	
Oxidation Stability, minutes	D525	240		
N.A.C.E. or Accelerated Iron Corrosion test	TM0172 / D7548	B+		(8)

NOTES

1. In addition to the above specifications, product must meet adopted version of ASTM D4814 pertinent to state regulations, as well as any additional federal and state regulations.
2. Product shall be undyed, clear, and bright and free of suspended matter and water.
3. Product must not contain Ethers or Alcohols. Oxygenated gasolines are prohibited on the Whiting to Dickson Pipeline System.
4. See ASTM D4814 and/or other destination requirements for seasonal volatility Vapor Lock Protection Class.
5. Vapor Pressure (without Ethanol) and Distillation Classes

Vapor Pressure, psi	Distillation Class
7.8	AA
9.0	A
10.0	B
11.5	C
13.5	D
15.0	E

Distillation Class	10% Evaporated max	50% Evaporated min	50% Evaporated max	90% Evaporated max	End Point max*	Residue, max vol%	DI** max
AA	158	170	250	374	430	2	1250
A	158	170	250	374	430	2	1250
B	149	170	245	374	430	2	1240
C	140	170	240	365	430	2	1230
D	131	170***	235	365	430	2	1220
E	122	170***	230	365	430	2	1200

* Pipeline maximum / ** Driveability Index

***Gasolines known from the origin to retail that will not be blended with ethanol may meet a minimum 50 % evaporated distillation temperature of 66 °C (150. °F) for volatility classes D and E only.

6. Only pipeline approved additives may be used in this gasoline. Additives containing phosphorus are prohibited. Intentional addition of lead or MMT octane enhancing additives is prohibited.
7. All shipments must not exceed 80 ppm (µg/g) Sulfur by the test procedure(s) stipulated in 40 CFR Part 1090.
8. N.A.C.E. TM0172 or ASTM D7548 Accelerated Iron Corrosion testing is a requirement of the Whiting to Dickson Pipeline System.
9. This product will be subject to DRA injections.
10. Driveability Index specifications are applicable at refinery and apply after blending with 10% ethanol.
11. Test methods indicated in the latest revision of ASTM D 4814 Standard Specification for Automotive Spark-Ignition Engine Fuel are accepted but must meet the precision criteria in 40 CFR Part 1090.
12. In case of dispute, referee methods specified by pertinent regulatory agencies, ASTM, or BP Pipelines North America shall be used.

B.2
Conventional BOB Gasolines
Regular CBOB and Premium CBOB (1)(3)(8)(13)(14)

All parameters must be met after blending with denatured ethanol unless noted otherwise.				
Product Property	**ASTM Test Method**	**Minimum**	**Maximum**	**Note**
Color	Visual	Undyed		
Appearance Haze Rating @ ≤70 ºF	D4176 Proc. 1 D4176 Proc. 2	Clear and Bright	 2	(2)
Gravity, API @ 60 ºF	D 287 / D1298 / D4052	Report		
Benzene, vol%	D5769 / D3606		4.90	
Sulfur, ppm (µg/g)	D2622 / D5453		80	(7)
Distillation, ºF 50% Evaporated	 D86	 150		(1)(5)
Distillation, End Point, ºF	D86		430	(5)
Vapor Pressure, DVPE, psi (EPA equation)	D5191		See Notes	(1)(5)
Vapor/Liquid Ratio, min	D4814 / D5188	Report		(1)(4)
Driveability Index, max	D4814		Report	(1)(12)
Copper Corrosion, 3hrs@122ºF Silver Strip Corrosion	D130 D7667 / 7671		1 1	
Regular CBOB Gasolines Octane, Research Octane, Motor Anti-Knock Index (R+M/2)	 D2699, D2885 D2700, D2885	 Report 82.0 87.0		
Premium CBOB Gasolines Octane, Research	 D2699, D2885	 Report		

Octane, Motor One of the following grades: Anti-Knock Index (R+M/2) Anti-Knock Index (R+M/2) Anti-Knock Index (R+M/2)	D2700, D2885	Report 91.0 92.0 93.0		
Mercaptan Doctor Test or Mercaptan Sulfur Wt. %	D4952 D3227	Sweet	 0.002	
Lead Content, g / U.S.gal	D3237		0.01	(6)
Phosphorous, g / U.S.gal	D3231		0.004	(6)
Gum, mg/l00ml (after washing)	D381		5	
Oxidation Stability, minutes	D525	240		
N.A.C.E. or Accelerated Iron Corrosion test	TM0172 / D7548	B+		(9)

NOTES:

1. In addition to the listed specifications, product must meet the adopted revision of ASTM D4814 pertinent to state regulations, as well as any additional federal and state requirements.
2. Product shall be undyed, clear, and bright and free of suspended matter and water.
3. Product must not contain Ethers or Alcohols. Oxygenated gasolines are prohibited on the Whiting to Dickson Pipeline System.
4. See ASTM D4814 and/or destination requirements for seasonal volatility Vapor Lock Protection Class.
5. Vapor Pressure (without Ethanol) and Distillation Classes (without Ethanol)

Vapor Pressure, psi	Distillation Classes
7.8	AA
9.0	A
10.0	B
11.5	C
13.5	D
15.0	E

Distillation Class	10% Evaporated max	50% Evaporated min	50% Evaporated max	90% Evaporated max	End Point max*	Residue, max vol%	DI** max
AA	158	170	250	374	430	2	1250
A	158	170	250	374	430	2	1250
B	149	170	245	374	430	2	1240
C	140	170	240	365	430	2	1230
D	131	170	235	365	430	2	1220
E	122	170	230	365	430	2	1200

* Pipeline maximum / **Driveability Index

6. Only pipeline approved additives may be used in this gasoline. Additives containing phosphorus are prohibited. Intentional addition of lead or MMT octane enhancing additives is prohibited.

7. Sulfur must be tested and shown to be at or below 80 ppm before and after the addition of ethanol. All shipments must not exceed 80 ppm (μg/g) Sulfur by the test procedure(s) stipulated in 40 CFR Part 1090.
8. This product will be subject to DRA injections.
9. Iron Corrosion testing only applies before blending with ethanol. N.A.C.E. TM0 172 or ASTM D7548 Accelerated Iron Corrosion testing is a requirement of the Whiting to Dickson Pipeline System.
10. Reserved.
11. Reserved.
12. Driveability Index specifications are applicable at refinery and apply after blending with 10% ethanol.
13. Test methods indicated in the latest revision of ASTM D 4814 Standard Specification for Automotive Spark-Ignition Engine Fuel are accepted but must meet the precision criteria in 40 CFR Part 1090.
14. In case of dispute, referee methods specified by pertinent regulatory agencies, ASTM or BP Pipelines North America shall be used.

C. Reserved

D. Reserved

E. Gasoline Blendstock and Distillate Blendstock

Currently only Naphtha, as a gasoline blendstock, is approved for shipping on the Whiting to Dickson Pipeline System. While the shipping of Naphtha is allowed, the following constraints apply:

a. Naphtha cannot be stored separately in any BP owned tank storage facility.
b. Gasoline and Naphtha final storage tank blends must be less than or equal to seasonal RVP (vapor pressure, psi) limits.
c. Naphtha shipped on the Whiting to Dickson Pipeline System may not exceed 15.0 psi.
d. Naphtha max blend percentages. Tanks used for naphtha and gasoline blending will have max percentage naphtha limitations; these limitations are dependent on tank configurations. Please check with the Pipeline Scheduler to determine what max naphtha percentage applies.

Any other gasoline blendstock or distillate blendstock must be approved before being shipped.
Pipeline schedulers should contact the bp Terminal & Pipelines-US Quality Assurance Advisor for initiating the approval process for other gasoline or distillate blendstocks.

E.1
Naphtha

Product Property	ASTM Method	Min	Max	Notes
Vapor Pressure, DVPE, psi (EPA equation)	D5191		15.0	1

Notes

1. RVP 15.0 psi is the in-line maximum. It is the responsibility of the shipper to ensure vapor pressures do not exceed the psi in-line maximum.

Section II

Quality Assurance

A. Origin requirements pertinent to Pipeline Shipments

A1 Origin requirements: Refineries performing in-line blending - Diesels

A.1.1 It is the responsibility of the refinery to ensure that diesel batches meet the pipeline specifications and any additional regulatory or state specifications.

A.1.2 30 Minute Sample. For those refineries that perform in-line blending, the Whiting to Dickson Pipeline System will rely on refinery origin testing to ensure all batches meet the pipeline specifications. The refinery will pull a 30-minute sample and test for:

API Gravity
Appearance and/or Haze Rating
Sulfur, ppm(μg/g)
Flash Point, ºF

Batch Composite. In addition, the refinery will provide pipeline specification testing on the batch composite as certification. The batch composite sample must be representative of the actual barrels being tendered.

A.1.3 If a batch composite does not meet pipeline specifications, refinery personnel shall notify the pipeline by calling the Tulsa Control Center.

Whiting Console: 918-660-4456

The decision to shut down a pipeline will be made by refinery oil movement personnel in conjunction with the applicable Whiting to Dickson Pipeline Controller, Advanced Fuels Products and, if applicable, Supply personnel.

A.1.4 If the in-line blending is not performing adequately or if any downstream oversight testing show that a composite or grab sample of a batch does not meet pipeline

specifications, the pipeline may prohibit further in-line blending until such time it can be demonstrated that sufficient corrective action has taken place and documentation of the corrective action is accepted by the pipeline.

A.2 Origin requirements: Refineries performing in-line blending - Gasolines

A.2.1 It is the responsibility of the refinery to ensure that gasoline batches meet the pipeline specifications and any additional regulatory or state specifications.

A.2.2 30 Minute Sample. For those refineries that perform in-line blending, the Whiting to Dickson pipeline will rely on refinery origin testing to ensure all batches meet product specifications. The refinery will pull a 30-minute sample and test for:

API Gravity
Appearance and/or Haze Rating
Vapor Pressure (RVP), psi
Sulfur, ppm(µg/g)

Batch Composite. In addition, the refinery will perform specification testing on the batch composite as certification. The batch composite sample must be representative of the actual barrels being tendered. The batch composite test results shall be made available to BP Pipelines North America through refinery LIMS or other system report.

A.2.3 If a batch composite does not meet the product specifications, refinery personnel must notify the pipeline by calling the Tulsa Control Center.

Whiting Console: 918-660-4456

The decision to shut down the pipeline will be made by refinery oil movement personnel in conjunction with the applicable Whiting to Dickson pipeline, Advanced Fuels Products and, if applicable, Supply personnel.

A.2.4 If the in-line blending is not performing adequately or if the results for downstream oversight testing show that a composite or grab sample of a batch does not meet specifications, the pipeline may prohibit further in-line blending until such time it can be demonstrated that sufficient corrective action has taken place and documentation of the corrective action is accepted by the applicable pipeline.

A.3 Origin requirements: Refineries and Terminals that pre-certify Shore Tanks and batches - Diesels and Gasolines

A.3.1 It is the responsibility of the shipper to ensure that Shore Tanks meet the pipeline specifications, and any additional regulatory or state specifications, prior to shipment.

A.3.2 Prior to shipment, Refinery and Terminal origin locations are requested to provide a Refinery Certificate of Quality or Terminal Certificate of Analysis if required per EPA regulation to certify and/or recertify the Shore Tank.

Where re-certification is required, shipper shall provide the certificate of analysis to the email address(es) as given by the Pipeline Scheduler and copy the bp Terminals & Pipelines Quality Assurance Advisor for review and record archives.

Where re-certification is not required, copy of terminal and/or station quality assurance testing may be requested and should include Terminal/Station Key Properties test results[1]

[1] Terminal/Station Key Properties-Gasoline: Appearance, API, Sulfur, RVP; Diesel: Appearance, API, Sulfur, Flash Point.

A.3.3 Please send, as applicable, Refinery Certificates of Quality, origin Terminal/Station Certificates of Analysis or Key Properties testing to the email address as given by the Pipeline Scheduler or, if requested, fax to Tulsa Control Center: 918-660-4456

A.3.4 Origin locations shall follow EPA record keeping requirements for regulated fuels.

A.3.5 If any product does not meet product specifications, and for gasolines, the seasonal (RVP) specifications, terminal personnel shall notify the pipeline by calling the Tulsa Control Center: 918-660-4456

B. Sampling and Testing / Sample Labeling and Report Information / Retain / Record Keeping

B.1 Sampling and Testing

In addition to the shipper, 3rd party terminals and stations, BP Pipelines North America (Carrier/Operator) reserves the right to sample and test batches coming into the pipeline system.

If the testing of any party indicates that a sample does not meet specifications, the Tulsa Control Center shall be notified.

Whiting Console: 918-660-4456

The decision to shut down the pipeline will be made by appropriate Pipeline Controller, in conjunction with the Control Center Operations Team Lead, and if applicable, Advanced Fuels Products and Supply personnel.

The Tulsa Control Center will notify the Control Center Operations Team Lead and appropriate actions will be identified, as well as informing Area Team Lead, pertinent

shippers, bp Terminals & Pipelines Quality Assurance Advisor and Advanced Fuels Products (AFP) Q&TS Ground Fuels Engineers.

Incidents where products do not meet specifications will be investigated and documented per the procedures of BP Pipelines North America and Advanced Fuels Products (AFP). See Section II C of this manual for Non-Conforming Products.

B.2 Sample Labeling and Report Information

Any party that provides quality assurance test data to the Whiting to Dickson Pipeline, shall ensure the following information is provided for each sample:

- Sample Date and Time
- Product description (ex.: ULSD #2)
- Sample Location Name (Terminal, Station, Pipeline and milepost if pipeline line sample)
- Sample Identifier (Tank Number, Truck ID-BOL, Batch Number)
- Sample Point (Tank Top Hatch, Side draws; Truck sample point ID, Batch depth (bbl) how many barrels deep in batch)
- Sample Type. Examples: Line sample: Head, Middle, Tail list bbl batch depth, Tank sample: UML or All Level; Truck sample point: Top, Bottom etc.
- Test Method and Test Results (results and applicable units, i.e. ºF, psi, ppm etc.)
- Name of person(s) or company performing the sampling.
- If an outside laboratory was used for testing, the name of laboratory, location, and copy of Certificate of Analysis should be provided.

B.3 Retain

- Samples must be retained for a minimum of 30 days, unless otherwise instructed.
- Retain volume: One Quart minimum, unless otherwise instructed.

B.4 Record Keeping

- All parties shall follow EPA record keeping requirements for regulated fuels.

C. Non-Conforming Products (Off-Spec Test Results)

C.1 Procedures for Non-Conforming Products (Off-Spec Test Results)

Whenever a refinery, pipeline, terminal or station sample (tank, line grab, composite etc.) is found to have non-conforming (off-spec) test results, or if a contamination is suspected, the following steps shall be taken:

a. Make initial off-spec or suspected contamination notifications: bp and/or 3rd party shippers should contact the Tulsa Control Center at Tel.: 918-660-4456.

b. The Control Center will contact the Control Center Operations Team Lead, Area Team Lead, and Pipeline Product Scheduler for the appropriate pipeline.
c. Additional bp internal notifications: Supply scheduler, bp Terminals & Pipelines Quality Assurance Advisor, and Advanced Fuels Products (AFP) Q&TS Fuels Engineer.
d. It is recommended for 3rd party terminals/stations, and is required of bp technicians, to ensure the instruments used for testing are operating normally and within statistical control.
e. If testing continues to show results as being off-spec, report test results as instructed and be prepared to re-sample.
f. If requested to re-sample, test new sample(s) as instructed.
g. If result(s) show that the sample(s) is off-spec, actions shall be taken to ensure contaminated product is isolated to prevent delivery to ultimate consumer.

C.2 Investigation of Non-Conforming Product (Off-Spec test results)

A full investigation shall be completed on all non-conforming (off-spec) product quality incidents, as well as near misses. Incident and near miss investigations shall be documented per the procedures and practices of the pipeline operator - BP Pipelines North America and Advance Fuels Products (AFP).

Each product quality incident shall be documented on how the non-conforming (off-spec) material was handled. The following information is required:

1. Determine scope, and document all actions taken.
2. If a contamination, records are to include when the contamination was found and who was notified.
3. If applicable: Date and time a terminal tank was locked out or pipeline shut down.
4. If applicable: Steps taken to remediate the tank or handle off-spec product in the line.
5. If applicable: How many trucks were diverted/brought back.
6. If applicable: Service station lock outs and remediation (AFP to record).
7. Steps taken to identify the root cause of non-conformance, near miss and/or contamination.
8. Any other pertinent information identified in investigation scope.

If the incident meets the applicable criteria, the incident will be entered into bp eQMS (quality and product compliance incident reporting system)[1]

1. All quality incidents, issues and near miss events (Levels A - H and Near Miss) shall be recorded in the bp EQMS. Per bp GQAT-02-062 Product Quality, Product Compliance and Product HSE Incident Notification Procedure- latest version

Section III

Additives

A Approved Additives

Corrosion Inhibitors

Baker Petrolite Tolad 249
Baker Petrolite Tolad 3232D
Baker Petrolite Tolad 3938
Baker Petrolite Tolad 9715/9719
GE Betz Spec-Aid 8Q110
GE Betz Spec-Aid 8Q123ULS
Octel DCI 6A
Octel DCI 30-n
Nalco 5405 (Diesel: Ferrous Corrosion Inhibitor)
Nalco EC5407A Copper and Silver Corrosion Inhibitor (Gasoline: used on occasion)
Nalco EC5628A = 2/3rd 5405 and 1/3rd EC5208A (Gasoline: Ferrous Corrosion Inhibitor and antioxidant)

The above listed corrosion inhibitors may not include all approved corrosion inhibitor additives. Please contact the bp Terminals & Pipelines Quality Assurance Advisor for additional information.

Cetane Improvers - 2-Ethylhexyl Nitrate (2EHN) based only

Nalco EC5308A: Additive concentrations shall not exceed 1200 ppm.
Eurenco: Additive concentrations shall not to exceed 1200 ppm
VeryOne: Additive concentrations shall not to exceed 1200 ppm

Drag Reducing Additive (Ground Fuels)

Baker Hughes FLO MX68C – Overall Maximum batch injection concentration in ground fuel only (diesels and gasolines) = 15.0 ppm active polymer

B Additive Approval Process

The Whiting to Dickson Pipeline System has the following process for approving new additives:

- A written request (email) must be submitted to the bp Terminals & Pipelines Quality Assurance Advisor for the consideration of new additive approvals.
- Note that the Shipper must provide this request. No additive approval requests will be accepted by additive companies.
- Once the request is received from the Shipper, and it is determined that no prior approvals exist for the additive; the Shipper will receive the most recent list of required information to begin the approval process.
- Shippers must work with the respective additive company to provide the required information to initiate the additive approval process.
- Additive approvals require a technical MOC.

Section IV

Prohibited Additives/Components

Cloud Point and Pour Point Depressant Additives. The use of Cloud and Pour Point depressants is prohibited.

Cold Flow Improvers. The use of Cold Flow Improvers is prohibited.

Oxygenates. Whiting to Dickson Pipeline System does not accept gasoline containing oxygenates. Ethanol and any other alcohol or ether based oxygenates are prohibited.

Lubricity Improver Additives. The use of lubricity improver additives is prohibited.

MTBE. MTBE (Methyl tert-butyl ether) may not be intentionally added to any gasoline, motor fuel, or clean fuel produced for sale.

MMT. The use of MMT octane enhancing additive is prohibited. Methylcyclopentadienyl manganese tricarbonyl (MMT) is not allowed in gasoline. No addition of metals is allowed.

SDA and Electrical Conductivity Additives. Use of static dissipater additive or conductivity improver additives is prohibited.

Section V

Dye and Marker Policy

After June 1, 2007 BP Pipelines North America will not transport heater oil containing dye marker (solvent yellow 124) in any concentration on any of its pipeline systems. The dye marker, if required for terminal rack sales, is expected to be injected at the terminals.

After June 1, 2007 BP Pipelines North America will no longer transport any diesel fuel that contains red dye (Solvent Red 164) in any concentration on any of its pipeline systems.

All gasolines are to be undyed.

Section VI

Bio-Fuel Policy

BP Pipelines North America prohibits Biodiesel - fuels containing fatty acid esters (FAME, FAEE, or other esters) and Biofuels (e.g., ethanol) on the Whiting to Dickson Pipeline System. Renewable diesel, if it does not contain fatty acid esters, is allowed in diesel and heating oil fuels up to 5 % volume.

Appendix

Definitions

Certificate of Analysis
An official laboratory document generated from a representative fuel sample to be tendered into the Whiting to Dickson Pipeline and meeting product specifications. The certificate must be dated and signed prior to acceptance of product into the Whiting to Dickson Pipeline System.

MTBE
Methyl tertiary butyl ether: an oxygenate additive for gasoline, currently prohibited.

MV
Motor Vehicle diesel fuel; also known as on road or highway diesel fuel.

Near-Miss
A near miss is an occurrence where there is no tangible impact (no cost, no rework required etc.). A near miss does not qualify as a product quality incident and has no severity classification.

Point of origin
The specific location on carrier's system as designated in its tariff(s) where carrier accepts petroleum products for shipment.

Refinery Certificate of Quality (RCQ)
An official laboratory document generated for a representative fuel sample to be tendered into the Whiting to Dickson Pipeline System. The certificate must be dated and signed prior to acceptance of product into the Whiting to Dickson Pipeline System.

RVP
Reid Vapor Pressure, a test for gasoline volatility.

ULSD
Ultra-low sulfur diesel fuel; generic term for all finished diesel fuel products meeting the 15 ppm max sulfur specification at retail.