

1 Q. Please provide specifications for the different types of No. 6 fuel that Hydro has
2 used at Holyrood since 2001. The specifications should indicate sulphur content
3 and heating content of each type of fuel. (Volume I Section 2: Regulated Activities,
4 page 2.74, lines 22 to 26)

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7 A. NP-NLH-329 Attachment 1 provides the specifications (including maximum sulphur
8 content and minimum heating content) for the different types of No. 6 fuel that
9 Hydro has used at Holyrood since 1997. In particular there are fuel specification
10 excerpts from the contracts of 1997, 2002, 2007 and 2012.

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12 The following are milestone dates with respect to the reductions in fuel sulphur
13 content during the periods of the contracts:

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- 15 • In March 2006, the sulfur specification was reduced from 2.0% to 1.0%
16 (deliveries began in January 2006).
17 • In March 2009, the sulfur specification was reduced from 1.0% to 0.7%
18 (deliveries began in February 2009).

SC 1 Product Quality

- .1 The Product to be supplied shall be No. 6 fuel oil conforming to the specification limits, as determined by the most current edition of the stated ASTM test methods, as follows:

<u>Property</u>	<u>Value</u>	<u>Test Methods</u>
API at 15°C (Min.)	5	ASTM D-1298
Higher heating value (Min) (6,300,000 BTU/barrel)	75.467 MJ/kg	ASTM D-4868-90 or ASTM D-240
Flash Point (Min.)	66 °C	ASTM D-93
Pour Point (Max.) (Low Pour)	15 °C	ASTM D-97
Sodium (Max)	50 ppm	ASTM D-5863
Kinematic Viscosity @51°C (Max) for 2.2% sulfur	700 cSt	ASTM D-445/ ASTM D-2161
Sulphur (Max.)	2.2% by weight	ASTM D-4294 or ASTM D-129
Vanadium (Max.)	300 ppm as Vanadium	ASTM D-5863
Ash (Max)	0.1% by weight	ASTM D-482
Sediment (Max)	0.2% by weight	ASTM D-473 or ASTM D-4870
Water (Max)	0.50% by volume	ASTM D-95
Cleanliness	1	ASTM D-4740
Asphaltenes % weight (Max)	11	IP 143
Hydrogen Sulphide (Max)	200 ppm	Draeger **

**Note Test to be performed by Inspector at Buyer's dock prior to discharge of cargo.

- .2 Seller warrants and guarantees to Buyer that Product shall be of the quality specified in this Contract and, in the event that Product is blended, no compartment of delivering vessel shall have an API gravity value (at 60 degrees F) of less than 5.0.

IT 7 Selling Price and Adjustments

.1 Selling Price

- (a) The Selling Price per Barrel delivered to Buyer DES at the Delivery Point shall be stated in U.S. currency payable at par in St. John's, Newfoundland and Labrador. Selling Price shall be firm except for price adjustments provided for in the Contract Documents. Adjustments provided for in this Article shall be applied in sequence as they appear in this Article.
- (b) The Selling Price shall change from and after May 31st, 2002, up or down, cent for cent with changes in the Platt's Monthly Average Price. For the purposes of computing escalation no account shall be taken of temporary entitlement allowances or temporary voluntary allowances or other discounts or surcharges set forth in footnotes thereto. For greater certainty, the Platt's Monthly Average Price is understood to be determined by averaging the daily mean prices for each day during the month for which a price is published in Platt's Oilgram Price Report.
- (c) For each cargo, the Platt's Monthly Average Price that shall be used in the determination of the price of the cargo shall be the Platt's Monthly Average Price for the month of the delivery date requested in the cargo's Firm Order.

.2 Selling Price for Provisional Invoices used where deliveries occur more than fifteen days before month end.

Where delivery occurs fifteen (15) or more days before month end, a provisional invoice shall be submitted to Buyer for payment. The Selling Price used shall be computed in a similar manner to that prescribed in Clause IT 7.1 except that the number of days used in computing the provisional monthly price shall be the number of days for which a price is published up to and including date of invoice preparation and as a minimum, the first fourteen (14) days of the month.

.3 Adjustment for Vanadium Content

The Selling Price for each Barrel delivered under the Contract shall be subject to a deduction of \$0.01 U.S. for each 5 parts per million or major fraction thereof that the vanadium content for each delivery is in excess of the specified maximum for vanadium in this Contract.

.4 Higher Heating Value Adjustment

When the Higher Heating Value content of the Product delivered is less than the Guaranteed Higher Heating Value the Selling Price for that delivery shall be adjusted in accordance with the following ratio:

Adjusted Price for Product is:

$$\frac{\text{BTU/Barrel delivered}}{\text{Guaranteed Higher Heating Value tendered BTU/Barrel}} \times \text{Selling Price}$$

SC 1 Product Quality

NP-NLH-329, Attachment 1

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- .1 The Product to be supplied shall be No. 6 fuel oil with properties as determined by the most current edition of the stated ASTM test methods, conforming to the specification limits as follows:

<u>Property</u>	<u>Value</u>	<u>Test Methods</u>
API at 15°C (Min.)	5	ASTM D-1298
Higher heating value (Min) *	40.3 MJ/kg (6,300,000 BTU/barrel)	ASTM D-4868-90 or ASTM D-240
Flash Point (Min.)	66 °C	ASTM D-93
Pour Point (Max.) (Low Pour)	15 °C	ASTM D-97
Sodium (Max)	50 ppm	ASTM D-5863
Kinematic Viscosity @51°C (Max) for 2.2% sulfur	700 cSt	ASTM D-445/ ASTM D-2161
Sulphur (Max.) **	2.2% by weight	ASTM D-4294 or ASTM D-129
Vanadium (Max.)	275 ppm as Vanadium	ASTM D-5863
Ash (Max)	0.1% by weight	ASTM D-482
Sediment (Max)	0.2% by weight	ASTM D-473 or ASTM D-4870
Water (Max acceptable = 1.0% by volume) ***	0.50% by volume	ASTM D-95
Cleanliness	1	ASTM D-4740
Asphaltenes % weight (Max)	11	IP 143

* For price adjustment purposes as outlined in Clause IT 7.4, Seller must specify a Guaranteed Higher Heating Value in Form of Tender Item (e).

** Sulphur content maximum value is subject to change as per Clause SC 16.

*** If the average of the results of Water testing by the First Analyst and Second Analyst exceeds 0.50% water by volume, for purposes of calculating payment, the quantity of Product received will be reduced by the percentage calculated by subtracting 0.50% from the average of the results of Water testing by the First Analyst and Second Analyst.

- .2 Seller warrants and guarantees to Buyer that Product shall be of the quality specified in this Contract and, in the event that Product is blended, no compartment of delivering vessel shall have an API gravity value (at 15 degrees C) of less than 5.0.

- .3 Vessels discharging at Holyrood Generating Station shall be capable of maintaining a minimum discharge pressure of 700 kPa at marine vessel's discharge manifold and a minimum discharge temperature of 38° C.

IT 7 Selling Price and Adjustments**.1 Selling Price**

- (a) The Selling Price per Barrel delivered to Buyer DES at the Delivery Point shall be stated in U.S. currency payable at par in St. John's, Newfoundland and Labrador. Selling Price shall be firm except for price adjustments provided for in the Contract Documents. Adjustments provided for in this Article shall be applied in sequence as they appear in this Article.
- (b) The Selling Price shall change from and after July 31, 2007, up or down, cent for cent with changes in the Platt's Monthly Average Price. For the purposes of computing escalation no account shall be taken of temporary entitlement allowances or temporary voluntary allowances or other discounts or surcharges set forth in footnotes thereto. For greater certainty, the Platt's Monthly Average Price is understood to be determined by averaging the daily mean prices for each day during the month for which a price is published in Platt's US Marketscan Price Report.
- (c) For each cargo, the Platt's Monthly Average Price that shall be used in the determination of the price of the cargo shall be the Platt's Monthly Average Price for the month of the nominated delivery date requested in the cargo's Firm Order.

.2 Selling Price for Provisional Invoices used where deliveries occur more than fifteen days before month end.

Where delivery occurs fifteen (15) or more days before month end, a provisional invoice shall be submitted to Buyer for payment. The Selling Price used shall be computed in a similar manner to that prescribed in Clause IT 7.1 except that the number of days used in computing the provisional monthly price shall be the number of days for which a price is published up to and including date of invoice preparation and as a minimum, the first fourteen (14) days of the month.

.3 Adjustment for Vanadium Content

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.4 Higher Heating Value Adjustment

When the Higher Heating Value content of the Product delivered is less than the Guaranteed Higher Heating Value the Selling Price for that delivery shall be adjusted in accordance with the following ratio:

Adjusted Price for Product is:

$$\frac{\text{BTU/Barrel delivered}}{\text{Guaranteed Higher Heating Value tendered BTU/Barrel}} \times \text{Selling Price}$$

SC 1 Product Quality

- .1 The Product to be supplied shall be No. 6 fuel oil with properties as determined by the most current edition of the stated ASTM test methods, conforming to the specification limits as follows:

<u>Property</u>	<u>Value</u>	<u>Test Methods</u>
API at 15°C (Min.)	5	ASTM D-1298
Higher heating value (Min) *	40.3 MJ/kg (6,300,000 BTU/barrel)	ASTM D-4868-90 or ASTM D-240
Flash Point (Min.)	66 °C	ASTM D-93
Pour Point (Max.) (Low Pour)	15 °C	ASTM D-97
Sodium (Max)	50 ppm	ASTM D-5863
Kinematic Viscosity @51°C (Max) for 2.2% sulfur	700 cSt	ASTM D-445/ ASTM D-2161
Sulphur (Max.) **	1.0% by weight	ASTM D-4294 or ASTM D-129
Vanadium (Max.)	200 ppm as Vanadium	ASTM D-5863
Ash (Max)	0.1% by weight	ASTM D-482
Sediment (Max)	0.2% by weight	ASTM D-473 or ASTM D-4870
Water (Max acceptable = 1.0% by volume) ***	0.50% by volume	ASTM D-95
Cleanliness	1	ASTM D-4740
Asphaltenes % weight (Max)	8	IP 143

* For price adjustment purposes as outlined in Clause IT 7.4, Seller must specify a Guaranteed Higher Heating Value in Form of Tender Item (e).

** Sulphur content maximum value is subject to change as per Article SC 16.

*** If the average of the results of Water testing by the First Analyst and Second Analyst exceeds 0.50% water by volume, for purposes of calculating payment, the quantity of Product received will be reduced by the percentage calculated by subtracting 0.50% from the average of the results of Water testing by the First Analyst and Second Analyst.

- .2 Seller warrants and guarantees to Buyer that Product shall be of the quality specified in this Contract and, in the event that Product is blended, no compartment of delivering vessel shall have an API gravity value (at 15 degrees C) of less than 5.0.
- .3 Vessels discharging at Holyrood Generating Station shall be capable of maintaining a minimum discharge pressure of 700 kPa at marine vessel's discharge manifold and a minimum discharge temperature of 38° C.

SPECIAL CONDITIONS - 2
CONTRACT 2007-35952

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- .4 In the event that Product delivered hereunder does not meet specifications as set forth in this Contract:
- (a) Buyer shall give Seller an opportunity to bring such Product into compliance with the Contract within a reasonable period of time; or
 - (b) Seller shall pay to Buyer a mutually agreed upon sum as compensation for the non-compliance of the Product; or
 - (c) Seller shall, within a reasonable period of time, remove the Product not in compliance with the specifications in this Contract at Seller's expense.
- Buyer agrees to exercise option (c) only after giving full consideration to options (a) and (b).
- .5 Seller shall provide Buyer with an Analysis of Product Quality from an independent inspection service, mutually agreed upon by Buyer and Seller, prior to delivery of Product to Site and the issuance of the Notice of Readiness. The analysis shall contain the results of the independent inspector's analysis of the Product loaded aboard the marine vessel, shall identify the inspector and shall contain Inspector's certification that such Product meets the contractual specifications.

SC 2 Vanadium Content

If for any delivery the Analysis of Product Quality issued by Seller's supplier at the point of loading shows vanadium in the cargo to be in excess of 200 ppm such cargo shall not be shipped to Buyer without prior consultation and approval of Buyer.

INSTRUCTIONS AND INFORMATION TO TENDERERS - 4
CONTRACT 2012- 52990

IT 8 Selling Price and Adjustments

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.1 Selling Price

- (a) The Selling Price per Barrel delivered to Buyer DES at the Delivery Point shall be stated in U.S. currency payable at par in St. John's, Newfoundland and Labrador. Selling Price shall be firm except for price adjustments provided for in the Contract Documents. Adjustments provided for in this Article shall be applied in sequence as they appear in this Article.
- (b) The Selling Price shall change from and after November 1, 2012, up or down, cent for cent with changes in the Platt's Monthly Average Price. For the purposes of computing escalation no account shall be taken of temporary entitlement allowances or temporary voluntary allowances or other discounts or surcharges set forth in footnotes thereto. For greater certainty, the Platt's Monthly Average Price is understood to be determined by averaging the daily mean prices for each day during the month for which a price is published in Platt's US Marketscan Price Report.
- (c) For each cargo, the Platt's Monthly Average Price that shall be used in the determination of the price of the cargo shall be the Platt's Monthly Average Price for the month of the nominated delivery date requested in the cargo's Firm Order.

.2 Selling Price for Provisional Invoices used where deliveries occur more than fifteen days before month end.

Where delivery occurs fifteen (15) or more days before month end, a provisional invoice shall be submitted to Buyer for payment. The Selling Price used shall be computed in a similar manner to that prescribed in Clause IT 7.1 except that the number of days used in computing the provisional monthly price shall be the number of days for which a price is published up to and including date of invoice preparation and as a minimum, the first fourteen (14) days of the month.

.3 Adjustment for Vanadium Content

The Selling Price for each Barrel delivered under the Contract shall be subject to a deduction of \$0.01 U.S. for each 5 parts per million or major fraction thereof that the vanadium content for each delivery is in excess of the specified maximum for vanadium in this Contract.

.4 Higher Heating Value Adjustment

When the Higher Heating Value content of the Product delivered is less than the Guaranteed Higher Heating Value the Selling Price for that delivery shall be adjusted in accordance with the following ratio:

Adjusted Price for Product is:

$$\frac{\text{BTU/Barrel delivered}}{\text{Guaranteed Higher Heating Value tendered BTU/Barrel}} \times \text{Selling Price}$$

SC 1 Product Quality

NP-NLH-329, Attachment 1

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.1 The Product to be supplied shall be No. 6 fuel oil with properties as determined by the most current edition of the stated ASTM test methods, conforming to the specification limits as follows:

Property	Minimum	Maximum	Test Methods
API at 15°C	5.0		ASTM D 1298 or ASTM D 4052
Higher heating value *	40.3 MJ/kg (6,300,000 BTU/barrel)		ASTM D 4868 or ASTM D 240
Flash Point	66 °C		ASTM D 93
Pour Point (Lower Pour Point)	15 °C		ASTM D 97
Kinematic Viscosity @ 50°C		700 mm ² /s (cSt)	ASTM D 445
Sulphur , mass %**		0.70%	ASTM D 4294
Vanadium		200 mg/kg	ASTM D 5863
Sodium		50 mg/kg	ASTM D 5863
Ash, mass %		0.1%	ASTM D-482
Sediment, mass %		0.2%	ASTM D-473
Water (Max acceptable = 1.0% by volume) ***		0.50%	ASTM D-95
Cleanliness		1	ASTM D-4740
Asphaltenes, mass %		8	IP 143 or ASTM D 6560
H2S		2.00 mg/kg	IP 570

* For price adjustment purposes as outlined in Clause IT 7.4, Seller must specify a Guaranteed Higher Heating Value in Form of Tender Item (e).

** Sulphur content maximum value is subject to change as per Article SC 16.

*** If the average of the results of Water testing by the First Analyst and Second Analyst exceeds 0.50% water by volume, for purposes of calculating payment, the quantity of Product received will be reduced by the percentage calculated by subtracting 0.50% from the average of the results of Water testing by the First Analyst and Second Analyst.

SPECIAL CONDITIONS - 2
CONTRACT 2012- 52990

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- .2 Vessels discharging at Holyrood at the Generating Station shall be capable of maintaining a minimum discharge temperature of 38° C while ensuring the cargo is discharged within the specified laytime in section SC 6.1. while never exceeding 860 kPa. discharge pressure at the loading arm as measured at the Jetty Control Room
- .3 In the event that Product delivered hereunder does not meet specifications as set forth in this Contract:
- (a) Buyer shall give Seller an opportunity to bring such Product into compliance with the Contract within a reasonable period of time; or
 - (b) Seller shall pay to Buyer a mutually agreed upon sum as compensation for the non-compliance of the Product; or
 - (c) Seller shall, within a reasonable period of time, remove the Product not in compliance with the specifications in this Contract at Seller's expense.

Buyer agrees to exercise option (c) only after giving full consideration to options (a) and (b).

- .4 Seller shall provide Buyer with an Analysis of Product Quality from an independent inspection service, mutually agreed upon by Buyer and Seller, prior to delivery of Product to Site and the issuance of the Notice of Readiness. The analysis shall contain the results of the independent inspector's analysis of the Product loaded aboard the marine vessel, shall identify the inspector and shall contain Inspector's certification that such Product meets the contractual specifications.