#752-11618 - Fire Hose Supplies

Creation Date **May 4, 2015**	End Date **May 26, 2015 2:00:00 PM EDT**
Start Date **May 12, 2015 4:44:10 PM EDT**	Awarded Date **Not Yet Awarded**

752-11618--01-01   3â€ x30â€™ length of Ecoâ€"10 red hose or approved equivalent

Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
MES Fire [Ad]	First Offer - $114.63	6 / each	$687.78		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** 3 x 2.5 x 30 DJ 800 Red DJ30R-30 **Supplier Notes: Manufacturer::** FIREQUIP			
Dana Safety Supply [Ad]	First Offer - $129.77	6 / each	$778.62	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code:** Jaflite HD **Supplier Notes: Manufacturer::** Armored Textile Jaflite HD 3" X30' red coupled 2.5" coupled NST			
HYDRO-STAT INC	First Offer - $161.64	6 / each	$969.84	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code:** PT3X30REN **Supplier Notes: Manufacturer::** NORTH AMERICAN HOSE P.T. 800 3" X 30' DJ RED ULTRA SHIELD COATED CPLD ALUM EX 2 1/2" NST			
JGB Ent Inc [Ad]	First Offer - $164.38	6 / each	$986.28		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes: Manufacturer::** KEY FIRE DP30-800-ECO-R-30-ARN			
BIKO, Inc.	First Offer - $174.84	6 / each	$1,049.04		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes: Manufacturer::** Key fire hose			

752-11618--01-02   2.5â€ x50â€™ length of Key Combat blue hose or approved equivalent

Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs
Dana Safety Supply [Ad]	First Offer - $141.63	60 / each	$8,497.80	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code:** Jafline HD **Supplier Notes: Manufacturer::** Armored Textile Jafline HD 2.5" x 50' blue 2.5 coupled NST with reflective exit arrows on female, bar coded couplings on request			
MES Fire [Ad]	First Offer - $303.65	60 / each	$18,219.00		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** 2.5 x 50 FQ Combat Master Flow Blue 25BB **Supplier Notes: Manufacturer::** FIREQUIP We are taking exception to the â€œEasy Exit Identifiersâ€ on the 1.75â€ and 2.5â€ hose. Instead we propose to install highly reflective Scotch Lite arrows on the female couplings showing the direction out of the structure.			
JGB Ent Inc [Ad]	First Offer - $334.38	60 / each	$20,062.80		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes: Manufacturer::** KEY FIRE DP25-100-B-50-ARN			
BIKO, Inc.	First Offer - $370.24	60 / each	$22,214.40		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes: Manufacturer::** Key fire hose			
HYDRO-STAT INC	First Offer - $389.70	60 / each	$23,382.00	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code:** DT25X50BEN **Supplier Notes: Manufacturer::** NORTH AMERICAN HOSE DURATTACK 2 1/2" X 50' DJ BLUE ULTRA SHIELD COATED CPLD ALUM EX NST RED HEAD			

752-11618--01-03   1.75â€ x50â€™ length of green Key Combat hose or approved equivalent

Supplier	Unit Price	Qty/Unit	Total Price	Attch.	Docs

Dana Safety Supply [Ad]	First Offer - $99.48	70 / each	$6,963.60	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code: Jafline HD** **Supplier Notes: Manufacturer:: Armored Textile** Jafline HD 1 3/4" x 50' green with 1.5" NST with reflective exit arrows on female, bar coded couplings on request			
MES Fire [Ad]	First Offer - $230.47	70 / each	$16,132.90		Y
Product Code: **Agency Notes:**		**Supplier Product Code: 1.75 x 50 FQ Combat Master Flow Green CM17GB** **Supplier Notes: Manufacturer:: FIREQUIP** We are taking exception to the â€œEasy Exit Identifiersâ€ on the 1.75â€ and 2.5â€ hose. Instead we propose to install highly reflective Scotch Lite arrows on the female couplings showing the direction out of the structure.			
HYDRO-STAT INC	First Offer - $255.60	70 / each	$17,892.00	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code: DT175X50GEN** **Supplier Notes: Manufacturer:: NORTH AMERICAN HOSE** DURATTACK 1 3/4" X 50' DJ GREEN ULTRA SHIELD COATED CPLD ALUM EX 1 1/2" NST STORZ			
JGB Ent Inc [Ad]	First Offer - $269.38	70 / each	$18,856.60		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes: Manufacturer:: KEY FIRE** DP17-100-G-50-ARN			
BIKO, Inc.	First Offer - $280.82	70 / each	$19,657.40		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes: Manufacturer:: Key fire hose**			

752-11618--01-04 5â€ x100â€™ length of Pro-Flow LDH yellow hose or approved equivalent					
Supplier	**Unit Price**	**Qty/Unit**	**Total Price**	**Attch.**	**Docs**
Dana Safety Supply [Ad]	First Offer - $486.91	24 / each	$11,685.84	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code: Jafrib** **Supplier Notes: Manufacturer:: Armored Textile** Jafrib 5" x 100' yellow coupled locking Storz			
MES Fire [Ad]	First Offer - $569.50	24 / each	$13,668.00		Y
Product Code: **Agency Notes:**		**Supplier Product Code: 5 x 100 FQ Hydro Flow Yellow w/storz HS50YD** **Supplier Notes: Manufacturer:: FIREQUIP**			
HYDRO-STAT INC	First Offer - $609.00	24 / each	$14,616.00	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code: HF5X100YRS** **Supplier Notes: Manufacturer:: NORTH AMERICAN HOSE** HF400 5" X 100' YELLOW NITRILE COVERED CPLD R/A LOCKING 5" STORZ ACTION			
JGB Ent Inc [Ad]	First Offer - $658.75	24 / each	$15,810.00		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes: Manufacturer:: KEY FIRE** RC50-450Y-100-STZ			
BIKO, Inc.	First Offer - $690.19	24 / each	$16,564.56		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes: Manufacturer:: Key fire hose**			

752-11618--01-05 5â€ x30â€™ length of Pro-Flow LDH yellow hose or approved equivalent					
Supplier	**Unit Price**	**Qty/Unit**	**Total Price**	**Attch.**	**Docs**
Dana Safety Supply [Ad]	First Offer - $207.37	6 / each	$1,244.22	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code: Jafrib** **Supplier Notes: Manufacturer:: Armored Textile** Jafrib 5" x 100' yellow coupled locking Storz			
MES Fire [Ad]	First Offer - $270.73	6 / each	$1,624.38		Y
Product Code: **Agency Notes:**		**Supplier Product Code: 5 x 30 Hydro Flow Yellow w/storz HS50Y30** **Supplier Notes: Manufacturer:: FIREQUIP**			

HYDRO-STAT INC	First Offer - $302.16	6 / each	$1,812.96	Y	Y
Product Code: **Agency Notes:**		**Supplier Product Code:** HFX30YRS **Supplier Notes:** Manufacturer:: NORTH AMERICAN HOSE HF-400 5" X 30' YELLOW NITRILE COVERED CPLD R/A LOCKING 5" STORZ ACTION			
JGB Ent Inc [Ad]	First Offer - $315.75	6 / each	$1,894.50		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes:** Manufacturer:: KEY FIRE RC50-450Y-30-STZ			
BIKO, Inc.	First Offer - $346.73	6 / each	$2,080.38		Y
Product Code: **Agency Notes:**		**Supplier Product Code:** **Supplier Notes:** Manufacturer:: Key fire hose			

Supplier Totals

Dana Safety Supply [Ad]			$29,170.08 (5/5 items)
Bid Contact	Mark Sevigny msevigny@1dss.com Ph 336-854-5536 Fax 336-854-3884	Address	5221 W. Market St. Greensboro, NC 27409
Supplier Code	00001561		
Bid Notes	All hose is from Armored Textile. Delivery is 4 - 6 weeks. Stenciled per specs. Warranty 10 years on hose and couplings non-pro-rated.		
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MES Fire [Ad]			$50,332.06 (5/5 items)
Bid Contact	Jamie Robinson jrobinson@mesfire.com Ph 727-686-0020	Address	9849 East Gulf st Seminole, FL 33776
Bid Notes	Prices include freight		
Agency Notes:		**Supplier Notes:** Prices include freight	

JGB Ent Inc [Ad]			$57,610.18 (5/5 items)
Bid Contact	Josh Defino jdefino@jgbhose.com Ph 315-451-2770 Fax 315-234-6460	Address	115 Metropolitan DR Liverpool, NY 13088
Agency Notes:		**Supplier Notes:**	

HYDRO-STAT INC			$58,672.80 (5/5 items)
Bid Contact	RICHARD C NICKELS Rnickels@hydrostat.com Ph 954-428-7677 Fax 954-481-2823	Address	1111 SW 1ST WAY DEERFIELD BEACH, FL 33441
Supplier Code	00003420		
Qualifications	WBE		
Bid Notes	FRICTION LOSS		

Friction Loss (FL) The part of the total pressure lost while forcing water through pipe, hose, fittings, adapters and appliances. The basis for fire hose friction loss calculations are the size of the hose, the amount of water flowing (gpm), the length of the hose lay, the age of hose, the condition of the lining and the surface used. These factors give rise to the formula for computing friction loss:

$FL = C•Q•¹•L$

Where: FL = friction loss in psi
C = coefficient (constant factor — see below)
Q = flow rate in gallons per minute/100
L = hose length in feet/100
Friction Loss Coefficients (C):
1¾" — 15.5
2½" — 2.0
3" - .80
4" - .20
Example 1: If 200 gpm is flowing from a nozzle, what is the friction loss in 200 ft. of 2½" hose?
$FL = C \cdot Q^1 \cdot L$
C = 2
Q = gpm/100 = 200/100=2
L = length/100=200/100=2
$FL = (2)(2)^2(2)$
FL = (2) (4) (2)
FL = (8) (2)
FL = 16 psi
Note: FL is the total friction loss
Example 2: If 150 gpm is flowing through 200 ft. of 1¾" hose, what is the friction loss from the hose?
$FL = C \cdot Q^1 \cdot L$
C = 15.5
Q = gpm/100 = 150/100=1.5
L = length/100=200/100=2
$FL = (15.5)(1.5)^2(2)$
FL = (15.5) (2.25) (2)
FL = (34.875) (2)
FL = 69.75 psi (round to 70 psi)
GPM Formula — It is possible to determine water flow from any solid stream nozzle when the nozzle pressure and tip diameters are known. The following formula is used to determine the GPM flow of solid stream nozzles.

$GPM = 29.7 \cdot d^2 \cdot \sqrt{NP}$
Where: GPM = discharge in gallons per minute
29.7 = a constant
d = diameter of the tip measured in inches
NP = nozzle pressure in psi
Example 1: Determine the water flow from a 2" tip master stream nozzle operating at 80 psi nozzle pressure.
$GPM = 29.7 \cdot d^2 \cdot \sqrt{NP}$
$= (29.7)(2)^2 (\sqrt{80})$ (Use 81 for square root purposes)
= (29.7) (4) (9)
= (118.8) (9)
= 1069.2 GPM (1070)
Example 2: Determine the GPM flow from a 1-1/8" tip handline at 50 psi nozzle pressure.
$GPM = 29.7 \cdot d^2 \cdot \sqrt{NP}$
$= (29.7)(1.125)^2 (\sqrt{50})$ (use 49 for square root purposes)
= (29.7) (1.265) (7)
=(37.57) (7)
= 262.99 GPM (265)
Solid Stream Handline @ 50psi

Tip Size	GPM
1"	210
1-1/8"	265
1-¼"	325

Solid Stream Master @ 80 psi

Tip Size	GPM
1½"	600
1¾"	800
2"	1000
2-¼"	1345
2-3/8"	1500
2½"	1660

Appliances — Fire ground operations sometimes require the use of hose line appliances. These appliances include reducers, wyes, manifolds, and heavy stream piping. In situations where total gpm is less than 350

gpm, the friction loss is insignificant. If total gpm is greater than 350 gpm, add 10 psi for friction loss in the appliance. Master stream appliances flowing at rated capacity use 25 psi per appliance.

Standpipe â€" When pumping into a standpipe, do not add friction loss for the piping because it is insignificant. Allow for elevation only.

Elevation Pressure â€" When a nozzle is operating at an elevation higher than the discharge, elevation pressure is exerted back against the pump. To compensate for this pressure loss, elevation pressure must be added to the total pressure loss. Operating a nozzle below the discharge results in negative pressure against the pump. In this case, pressure has to be subtracted from the total pressure loss.

Elevation pressure = .5 psi/foot elevation

5 psi per floor of elevation

Total Engine Pressure : EP = NP + FL + Appliance Â± Elevation

Example 1: What is the engine pressure for 200 ft. of 1Â¾â€ hose flowing 200 gpm, with a low-pressure fog nozzle, on the third floor?

EP = NP + FL + Appliance Â± Elevation

Nozzle Pressure = Low=Pressure Fog = 75 psi Coefficients

1Â¾â€   â€" 15.5

Friction Loss = Câ€¢QÂ²â€¢L C = Coefficient 2Â½â€ â€" 2.0

FL = (15.5) (2)Â² (2) Q = Flow rate gpm/100 3â€ - .80

FL = 125 L = Hose length/100 4â€ - .20

NP = 75

FL = 125

Appliance = 0

Elevation = 15

EP = 75 + 125 + 0 + 15

EP = 215 psi

Example 2: What is the engine pressure for 300 ft. of 2Â½â€ hose with a 1-1/8â€ solid stream tip handline.

EP = NP + FL + Appliance Â± Elevation

Nozzle Pressure â€" Solid Stream Handline = 50 psi

GPM = 29.7â€¢dÂ²â€¢â€šNP

Attached is a copy of our friction loss chart for your convenience. Please contact me if there are any questions.

Agency Notes:

Supplier Notes:
FRICTION LOSS

Friction Loss (FL) The part of the total pressure lost while forcing water through pipe, hose, fittings, adapters and appliances. The basis for fire hose friction loss calculations are the size of the hose, the amount of water flowing (gpm), the length of the hose lay, the age of hose, the condition of the lining and the surface used. These factors give rise to the formula for computing friction loss:

FL = Câ€¢QÂ²â€¢L

Where: FL = friction loss in psi

C = coefficient (constant factor â€" see below)

Q = flow rate in gallons per minute/100

L = hose length in feet/100

Friction Loss Coefficients (C):

1Â¾â€   â€˜ 15.5

2Â½â€   â€˜ 2.0

3â€ - .80

4â€ - .20

Example 1: If 200 gpm is flowing from a nozzle, what is the friction loss in 200 ft. of 2Â½â€ hose?

FL = Câ€¢QÂ²â€¢L

C = 2

Q = gpm/100 = 200/100=2

L = length/100=200/100=2

FL = (2) (2)Â² (2)

FL = (2) (4) (2)

FL = (8) (2)

FL = 16 psi

Note: FL is the total friction loss

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$= (29.7) (4) (9)$

$= (118.8) (9)$

$= 1069.2$ GPM (1070)

Example 2: Determine the GPM flow from a 1-1/8" tip
handline at 50 psi nozzle pressure.

$GPM = 29.7 • d^2 • \sqrt{NP}$

$= (29.7) (1.125)^2 (\sqrt{50})$ (use 49 for square root purposes)

$= (29.7) (1.265) (7)$

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1¾"   —' 15.5

Friction Loss = C•Q²•L C = Coefficient 2½"   —" 2.0

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NP = 75

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EP = 75 + 125 + 0 + 15

EP = 215 psi

Example 2: What is the engine pressure for 300 ft. of 2½"
hose with a 1-1/8"   solid stream tip handline.

EP = NP + FL + Appliance ± Elevation

Nozzle Pressure —' Solid Stream Handline = 50 psi

GPM = 29.7•d²•√NP

Attached is a copy of our friction loss chart for your
convenience. Please contact me if there are any questions.

BIKO, Inc.			$61,565.78 (5/5 items)
Bid Contact	**Ruben Myers** rmyers.biko@gmail.com Ph 352-527-8482	**Address P.O. Box 522** **Hernando, FL 34442**	
Supplier Code 00013507			
Agency Notes:		**Supplier Notes:**	