

SHANNON

Shannon proudly manufactures the INSULTECH® family brand of insulation products.

ENERGY SURVEY SERVICES

Energy Survey Sample

Presented By: Shannon Enterprises
Contact:
Phone / Email: (716)693-7954
Project Name: Sample Steam System
Project Contact:
Phone / Email:
Shannon Proj. #: 2535

Survey Date: 9/22/2015
Proposal Date:
Fuel Cost (\$/mmBTU): \$9.60
Steam Cost: \$12.80
Product Specification: (M) LT450TT
Insulation Thickness: 1.5 Inches
Fastener Type: (M) Velcro Flaps / Wiretwists

QTY	Description / Location	Amb. Temp	Meas. Surface Temp	Operating Hours	Bare Heat Loss (BTU/Hr)	Bare Oper. Cost (\$/Year)	Insulated Heat Loss (BTU/Yr)	Insulated Oper. Cost (\$/Year)
Main Boiler Room								
3	Valve, Gate, 150#	90	360	8760	23,916.06	\$2,681.66	18,439,324	\$236.02
3	6" 300# Stop Check Valve	90	360	8760	39,463.20	\$4,424.93	30,426,196	\$389.46
6	44" Dia. Steam Drum (6"-10"	90	345	8760	108,201.60	\$12,132.43	93,449,607	\$1,196.15
6	44" Dia. Mud Drum (6"-10" Deep)	90	330	8760	101,836.80	\$11,418.76	87,952,571	\$1,125.79
Steam Header								
6	Valve, Gate, 150#	90	350	8760	23,362.56	\$2,619.60	20,177,355	\$258.27
4	Valve, Globe, 150#	90	350	8760	15,575.04	\$1,746.40	13,451,570	\$172.18
2	Flange, 150#	90	345	8760	10,874.53	\$1,219.34	9,391,920	\$120.22
Steam Tunnel								
6	Exp. Joint, Single,	90	342	5834	22,837.25	\$1,705.38	13,135,599	\$168.14
4	Valve, Gate, 150#	90	342	5834	18,321.41	\$1,368.15	10,538,164	\$134.89
3	Blind Flange Cap, 300#	90	338	5834	7,928.06	\$592.03	4,560,088	\$58.37
PRV Station to DeAerator								
1	Strainer, 150#	110	325	8760	3,219.84	\$361.03	2,780,853	\$35.59
1	Pressure Reducing Valve, 150#	110	325	8760	6,123.20	\$686.58	5,288,375	\$67.69
1	Valve, Globe, 150#	110	315	8760	3,070.08	\$344.24	2,651,511	\$33.94
1	Flange, 150#	110	315	8760	2,784.90	\$312.27	2,405,213	\$30.79
1	Valve, Gate, 150#	110	315	8760	3,070.08	\$344.24	2,651,511	\$33.94

Heatloss Calculation

$$Q = K (\Delta T) / L + (K / Ht)$$

Q = Heatloss (BTU / Hr. / SF)
 K = Bare Surface Thermal Conductivity (K = 26.9)
 ΔT = Surface Temp - Ambient Temp
 L = Insulation Thickness
 K = Insulated Surface Thermal Conductivity (K = 0.525 @ 300 F)
 Ht = Combined Coefficients (Ht = 3.2 @ 300 F)
 (Radiation, Convection & Conduction)

Emissions Section #1 Natural Gas (mm BTU)	2940.29	Emissions Section #2 #8 Tank Oil (mm BTU)	2940.53
CO2 (Tons)	444.21	CO2 (Tons)	264.43
NOx (lbs)	444.21	NOx (lbs)	1163.55
N2O (lbs)	6.42	N2O (lbs)	-
SO2 (lbs)	1.66	SO2 (lbs)	3318.72
PM10 (lbs)	5.47	PM10 (lbs)	211.40
VOC (lbs)	15.93	VOC (lbs)	34.01
CO (lbs)	71.10	CO (lbs)	105.82

* (Amount is less than 0.05 Lbs)

Energy Survey Summary

Total Heatloss - Bare (BTU/Year):	3,277,893,469.42
Total Heatloss - w/ Insulation (BTU/Year):	317,299,858.47
Heatloss Savings - w/ INSULTECH® (BTU/Year):	2,960,593,610.95
Total Annual Operating (Steam Cost) - Bare:	\$41,957.04
Total Annual Operating (Steam Cost) - w/ Insulation:	\$4,061.44
Annual (Steam Cost) Savings - w/ INSULTECH®:	\$37,895.60
* Lifetime (Steam Cost) Savings (15 Yrs):	\$537,402.96
Total Cost (INSULTECH® Blanket System):	\$26,231.01
Installation (By Shannon):	\$4,800.00
Total Cost:	\$31,031.01
Payback (Months):	10
Number of Fittings:	48

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