

ATTACHMENT 3

FACILITY: International Waxes, Inc. - Farmers Valley, PA
CAPITAL COST FOR : Added Separator Cover, Regenerative Thermal Oxidation for
Wastewater Treatment Plant (PADEP Source ID 300) - 2022 Updated Cost Analysis

BASIS: Potential VOC Emissions (TPY) = 49.00
VOC Control Efficiency (%) = 89.10% (90% separator cover system, 99% thermal oxidizer)
VOC Removed (TPY) = 43.66

Cost Item	Cost, \$
Direct Costs	
Purchased Equipment Costs - API Separator Cover System	
Separator cover system, A (70% of total quote received is assumed be equipment costs)	\$91,834
Instrumentation, 0.10A	\$9,183
Sales Taxes, 0.03A	\$2,755
Freight (included in quote)	\$0
Purchased Equipment Cost (PEC), B1	\$103,773
Purchased Equipment Costs - Thermal Oxidizer (95% heat recovery)	
Incinerator + auxiliary equipment (as estimated based on \$30 per cfm), A	\$167,100
Instrumentation, 0.10A	\$16,710
Sales Taxes, 0.03A	\$5,013
Freight, 0.05A	\$8,355
Purchased Equipment Cost (PEC), B2	\$197,178
Direct Installation Costs, C1 - API Separator Cover System, 0.30B1	\$31,132

Direct Installation Costs, C2 - Thermal Oxidizer

Foundations / supports, erection/handling, electrical, mechanical, pneumatic,
piping, painting, 0.30B2 \$59,153

Total Direct Cost, D (B1+B2+C1+C2) \$391,236

Indirect Costs (Installation) - API Separator Cover System + Thermal Oxidizer

Engineering, 0.1B1 + 0.1B2 \$30,095
 Construction and Field Expense, 0.05B1 + 0.05B2 \$15,048
 Contractor fees, 0.1B1 + 0.1B2 \$30,095
 Start-up, 0.02B1 + 0.02B2 \$6,019
 Performance test, 0.01B1 + 0.01B2 \$3,010
 Contingencies, 0.03B1 + 0.03B2 \$9,029

Total Indirect Cost, E \$93,295

Total Capital Investment (TCI), (D+E) \$484,531

ATTACHMENT 3 (continued)

FACILITY: International Waxes, Inc. - Farmers Valley, PA
ANNUAL COSTS FOR : Added Separator Cover, Regenerative Thermal Oxidation for
Wastewater Treatment Plant (PADEP Source ID 300) - 2022 Updated Cost Analysis

Cost Item	Factor	Unit Cost	Cost, \$
Direct Annual Cost			
Operating Labor			
Operator		\$50.00 /hr (1 hr/shift x 3 shifts/day, 365 days/yr)	\$54,750
Supervisor		15% of operator	\$8,213
Maintenance			

Labor	\$50.00 /hr	(1 hr/shift x 3 shifts/day, 365 days)	\$54,750
Material	100% of maintenance labor		\$54,750
Subtotal operating and maintenance labor & maintenance materials			\$172,463
Utilities			
Electricity (fan)	\$0.0522 kWh x 4kWh x 8760 hrs/yr	(8,760 kWh/yr)	\$1,829
Natural gas (auxiliary fuel - 95% heat recovery)	\$5.786 / MMBTU x 1.5 MMBTU/hr x 8,760 hrs/yr		\$76,028
Total Direct Annual Operating Costs, A			\$250,320
Indirect Annual Costs			
Overhead	60% of sum of operating labor, maintenance labor, and maintenance materials		\$98,550
Administration charges	0.02 TCI		\$9,691
Property taxes	0.01 TCI		\$4,845
Insurance	0.01 TCI		\$4,845
economic life	10 years		
interest rate	7%		
Capital recovery (CRF)	0.142	CRF factor	\$68,986
Total Indirect Annual Operating Costs			\$186,918
Total Annual Operating Costs			\$437,237
TONS OF VOC EMISSIONS REMOVED			43.66
VOC COST EFFECTIVENESS			\$/ton = \$10,015