Engineering Management Services

Applied Technology and Engineering, P.C.

The current business environment requires all aspects of manufacturing operations to be evaluated with respect to economic competitiveness. One option that has been found to be attractive is outsourcing certain engineering management services. This approach allows companies to have on-going and routine access to experienced engineering expertise while minimizing company management time requirements allowing them to focus on core competencies and areas of individual expertise. This enhances the technical oversight of specialized engineering operations at a fraction of the cost required to maintain that expertise in-house. Further, reducing management time associated with engineering operations should provide large returns in productivity for the company.

Applied Technology and Engineering, P.C., (AT&E) offers specialized environmental and energy engineering management services to manufacturing facilities. AT&E has developed an engineering management services model based on four elements. They are: ***site evaluation, data management, performance analysis,*** and ***process or conservation improvement***. In the environmental engineering area, this model has been applied specifically to the operation of wastewater treatment facilities. In the energy management area, the model has been applied to tracking progress against corporate goals and often becomes integrated into broader energy management programs. Descriptions of these services are as follows.

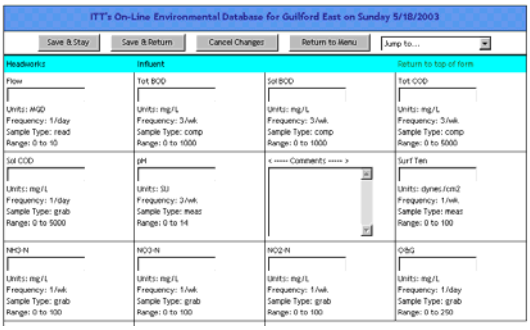
ENVIRONMENTAL MANAGEMENT

AT&E offers engineering services in the environmental area specifically targeted for supporting wastewater treatment plant (WWTP) operations. The objective is to supplement existing local capabilities by providing experienced oversight of operations through routine communications regarding operational performance and through appropriate recommendations.

At many industrial WWTP facilities, performance problems are related to practical constraints preventing sufficient staffing to properly address process control requirements. Many facilities are simply not of sufficient size or complexity to justify the cost of a full-time process control engineer. AT&E has developed an Environmental Management Service to economically address the most common process management deficiencies. Based on today's rapidly advancing computer and communication technologies, this service provides the benefit of an experienced process control engineer supporting your facility operations at a fraction of the cost of a full-time staff engineer.

The first step is a ***Site Evaluation*** to gain a general knowledge of a facility's design capacity, permit requirements, processes and equipment utilized, sampling regimen, and staffing. Operational data, system specifications, drawings, and permit documents will be collected and discussed. Current problems and limitations will be revised as well as management objectives and schedules.

A key component of our management model is a Web-based ***Data Management*** system developed and maintained by AT&E. The user logs-on using a secure password, enters operating data, and reviews facility performance over the Internet.



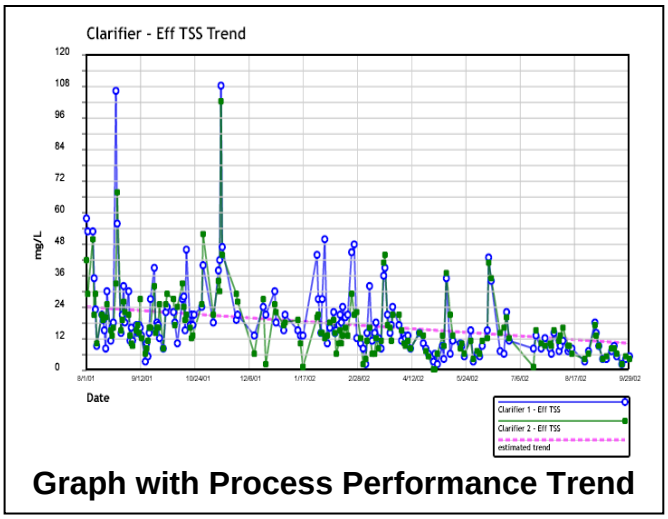
Data Entry Screen

Each facility's data parameters, reports, graphs, and Trend graphs can be configured by the user or by

Title:	Final Effluent Characteristics - page 1						
Location:	Final Effluent						
Frequency:	1/day	3/wk	3/wk	1/day	3/wk	3/wk	3/wk
Type:	read	comp	calc	comp	calc	comp	calc
Target:	<1.50		125/188	<480	3000/6000		1035/2071
Units:	MGD	mg/L	lb/day	mg/L	lb/day	mg/L	lb/day
Parameter:	Flow	Tot BOD	BOD Load	Tot COD	COD Load	TSS	TSS Load
1/6/2002	1.094400			341.0	3112		
1/7/2002	0.888171	28.4	210.4	333.0	2467	124	919
1/8/2002	0.826425			335.0	2309		
1/9/2002	0.823199	15.0	103.0	380.0	2609	36	247
1/10/2002	0.995992			428.0	3555		
1/11/2002	0.986400	17.4	143.1	382.0	3143	44	362
Minimum:	0.823199	15.0	103.0	333.0	2309	36	247
Maximum:	1.0944	28.4	210.4	428.0	3555	124	919
Average:	0.935765	20.3	152.2	366.5	2866	68	509

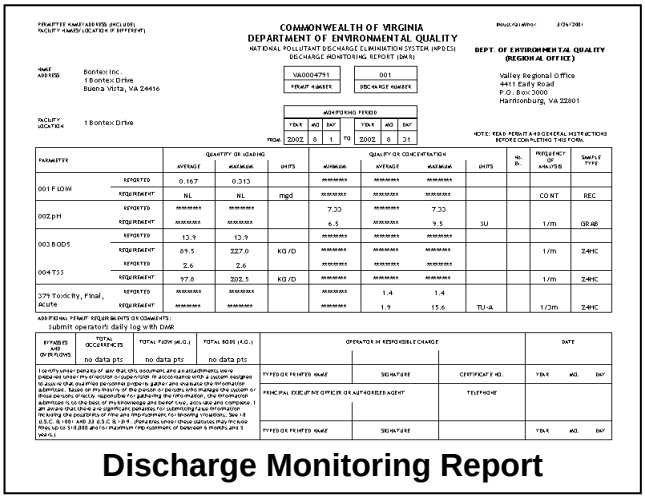
Operational Data Report

Discharge Monitoring Reports (DMR) are configured specifically for the site.



Graph with Process Performance Trend

AT&E for any range of dates desired. If simultaneous telephone and Internet capabilities are available, the user and AT&E staff can hold a teleconference to view and discuss data and graphs concurrently. In addition, management staff can review up-to-date performance remotely, wherever Internet access is available.


COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Discharge Monitoring Report

The Data Management System calculates the monthly DMR as configured by AT&E for your state's required format.

A summary report is provided by AT&E with observations, conclusions, and recommendations on a periodic basic. The report includes ***Performance Analysis*** discussions with comparisons of current parameter values versus target values. Drawing on decades of operational experience, qualified engineers will provide ***Process Improvement*** comments and recommendations based on knowledge of typical industrial treatment systems and your specific processes and equipment.

ENERGY MANAGEMENT

AT&E offers a broad range of engineering services in the energy management area. Our objective is to partner with you to assist your corporate energy staff and plant manufacturing management staff in managing the consumption of energy and other utilities. AT&E's energy management model contains similar elements as that of the environmental management model presented previously.

The first step is a ***Site Evaluation*** to gain a general knowledge of a facility's physical characteristics, manufacturing processes and equipment, and utility support systems. The evaluation can be a brief walk-through or a thorough conservation opportunity survey, as desired. Typically, at least one year's energy and utility consumption and invoice data is collected and a vital statistics survey is completed.

The previously described web-based ***Data Management*** system can be utilized to organize information pertinent to your energy program. Benchmarking concepts, involving the development of energy and utility usage indices relating engineering units (kWh, BTU, gal, etc.) to production throughput units (lb, sq yd, etc) will be utilized. The justification for benchmarking is that it promotes the best management of resources through measurement of consumption and throughput, development of usage standards, and comparison of actual indices to acceptable standard indices. This enables development of plant-level avoidable costs and directs investigations toward identification and reduction of those costs.

AT&E will provide ***Performance Analysis*** services that are integrated with your energy conservation program. We will monitor all of the pertinent energy data for a facility and provide timely feedback and analysis to key energy management personnel. This service offers a valuable decision tool to the energy manager by providing trend analysis and recommendations based on current data providing credible evidence of improvement.

Ultimately, the above process will lead to recommendations for potential ***Conservation Improvement*** projects. This is most likely when the site evaluations are the most comprehensive. AT&E offers engineering services to coordinate every aspect of project management including: feasibility assessment, savings and capital cost estimating, system design, construction coordination, start-up assistance, operational training, and cost savings verification.

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