ENGINEERING DESIGN & SPECIFICATION

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BACKGROUND:

FROM ENVIRONMENTAL PERMITTING TO ENGINEERING DESIGN & SPECIFICATION

THERE ARE TWO ASPECTS OF THE BROAD BASE OF ENVIRONMENTAL ENGINEERING:

- There is the more routine permitting services (air, water, other) that Sage currently offers. This level of permitting usually entails re-permitting an existing facility and permitting both minor and major modifications to existing facilities. More often than not, this is an air permitting activity.
- Then there is the more rare circumstance in which Sage is involved in the conceptual permitting of new "green-field" facilities or the planned installation of new pollution control equipment in which NSPS, PSD, and even MACT regulations must be considered. Again, this tends to be focused almost exclusively on air permitting of the new source.

Typically, if a facility undertakes a major modification or even builds a new source, design engineering, bid specifications, and even construction assistance are professional areas that the client needs but that Sage is typically not asked to provide. Sometimes, the difficulty of being considered a "boutique" air emission permitting service provider (which Sage is) is that it precludes clients from thinking about Sage in any other genre than air permitting. The net result is at least some inhibition of business growth.

BUSINESS BUILT ON REPUTATION

A company's reputation provides its foundation and stability of income/revenue. The flip side, however, is that same reputation limits "the field of view" from our clients' perspectives as to what Sage truly may be able to assist with beyond our present reputation.

By example, many clients think of Sage as only permitting experts and are not aware that we also have experience performing some degree of design engineering and specification (e.g., a mile-long wastewater pipeline to a river, a steam-assisted flare).

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While we are doing the permitting for these projects, the name Sage is often not even a remote consideration for the actual design, specification, or planned construction of these activities.

CASE STUDY: PIPELINE CONSTRUCTION

Let's examine the mile-long pipeline for Company A noted above. The pipeline is to carry 800,000 gallons per day of wastewater from Company A facility to a river. The project in its entirety encompasses site studies to evaluate soil boring and soil stability conditions for the pipeline; the physical routing, hydraulic design of the pumping and aboveground piping system; and the design of the stanchions and foundation supports for the pipe routing. The project also entails the site survey work, wetlands delineation, land use permitting, and Army Corps of Engineers permitting.

In this case, Sage could not only perform the routine NPDES (wastewater permitting) for the project, but also provide direct assistance to the client regarding all of the other "design" components of the project, such as the site survey work, wetlands delineation, pipeline siting and design, and the diffuser design of the pipeline outlet into the river.

CASE STUDY: STEAM-ASSISTED FLARE

In another example, Company B was well aware of Sage's general flare permitting and compliance expertise. While Sage could reasonably expect to perform the air permitting activities for this project, Sage could also assist Company B with selection, design, specification, or even construction/installation assistance for the flare system.

CASE STUDY: THERMAL OXIDIZERS

In yet another example, Company C is replacing 20-year-old regenerative thermal oxidizers (air pollution control equipment) with new higher efficiency thermal oxidizers. Sage again will provide the air permitting services but, again, could also provide the mechanical and environmental engineering design in support of this project and Company C.

Bottom line….providing engineering design and equipment specification assistance carries big risk from a professional and financial liability perspective, but it also carries the potential for big reward. Sage is capable of functioning in both the permitting and design/specification arena.

GROWING SAGE'S CAPABILITIES

Sage can provide the many facets of broad-based engineering design & specification for environmental projects. Our capabilities include:

- Civil engineering design
- Mechanical engineering design
- Process piping & pumping design
- Instrumentation & PLC controls design
- CADD drafting services
- Equipment and construction specifications
- Onsite construction management-build assistance

Much of what Sage currently does in the genre of permitting encompasses similar skills as those noted above, such as reading and evaluating a P&ID diagram, evaluating a ladder logic diagram for a control or instrument monitoring system, and using engineering skills to optimize or better manage an existing environmental system. Sage has many of the required skills to provide design and specification support for an environmental project. The issue is that clients either a) don't make the connection that we can in fact offer design/specification system support for a project, or b) are so unilaterally entrenched in the fact that Sage is nothing more than a boutique air permitting firm that they simply cannot think of Sage in any other way.

In either case, Sage is leaving opportunity for growth on the proverbial table. Sage only needs one or two opportunities from clients willing to provide Sage the opportunity to execute and build a new reputation in this area.

BUILDING DESIGN ENGINEERING EXPERTISE

Sage demonstrates expertise and knowledge of design engineering standards and construction specification standards, consistent with the industry standards set forth in the links below:

- http://standards.gov/standards.cfm
- http://www.nist.gov/index.html
- http://www.csinet.org/

CASE STUDY: LEAP OF FAITH

A general environmental consulting firm that had typical consulting revenues of ~ $30MM annually and that also performed mostly environmental permitting projects, was provided a $7MM leap of faith opportunity by a client to provide design, specification, and construction assistance on a major air pollution control project. That environmental firm went from $30MM of top line revenues to $37MM in revenue (a 23% growth in revenue) in a single project. The firm went on to parlay that opportunity into other multi-million dollar design/specification/build opportunities in groundwater remediation, landfills, etc. The opportunities exist—it is a combination of skill, luck, a loyal client base, and an occasional leap of faith!