HSW's Successful, Innovative, and Cost-Saving Technical Approaches to Environmental Compliance and Facility Restoration

"I found that HSW is committed to consistently provide superior efforts with professional end products in a timely manner and within the estimated budgets."

Ibrahim Ayoub, P.E.
Vice President of
Environmental Matters
General Components, Inc.

"[HSW] provides excellent support to us in preparing and implementing work plans, completing comprehensive investigations, and recommending corrective actions and solutions to problems. Your work is respected by us and the Florida Department of Environmental Protection and the U.S. Environmental Protection Agency representatives."

Harold Williams, KSC
Remediation Program
Manager,
NASA Kennedy Space Center

HSW has built a reputation among our clients and the regulatory agencies for our use of innovative and streamlined approaches to traditional methods of project performance, administration, and reporting. The success of these approaches hinges on three recommendations that we make to our clients facing environmental cleanup:

1. Develop a clear Exit Strategy;
2. Build flexibility into regulatory drivers so program activities can be guided by good science and engineering, and by corporate goals; and
3. Think out-of-the box. Many "cookbooks" have been created for environmental cleanup. While they provide important task information and procedures, the best overall solutions require far more creativity.

HSW's project success is demonstrated by cost and time savings, and it is reflected in testimonials from our clients.

Department of Transportation. HSW is responsible for restoring groundwater to safe enough levels to donate property formerly containing a DOT landfill to the County as a park. We took over responsibility for running an existing pump and treat system in May 2003. Since then, O&M costs have been reduced 77% and sampling and analysis costs have been reduced 57%. Reasons for the significant drop in costs include:

- rerouting and combining influent and effluent streams;
- use of passive diffusion bags for sampling;
- reducing the number and frequency of samples; and
- proactive maintenance activities.

An air sparge pilot test was performed, and a bioaugmentation study is currently underway to speed the pace of cleanup and meet an aggressive Exit Strategy developed by HSW. The need for an NPDES permit was eliminated, and 30 of the 65 acres is already in the final stages of approval for donation to the County.

General Components, Inc. HSW took over as GCI's environmental consultant in 1996. Through innovative extraction and treatment system design, we increased the rate of contaminant mass removal from the existing pump and treat system 10-fold. Reasons for the significant increase in mass removal rate include:

- Routine and proactive system maintenance to increase operational runtimes;
- Redesign of recovery well system;
- Introduction of new treatment technology including air stripping combined with off-gas treatment using photocatalytic destruction.

HSW has implemented additional remedial technologies including excavation, horizontal wells, and air sparging. GCI has never had a permit violation or late submittal for any document. Reporting and compliance history is impeccable.

Stoller – DOE STAR Center. HSW's focus since we were first selected to work at the facility in 1993, when Martin Marietta was the DOE contractor, was site restoration, environmental compliance, and utilizing innovative technologies in site assessment and cleanup activities. Among the more interesting technical applications at the site include tests of *in situ* anaerobic bioremediation, dual rotary auger steam stripping, and biosparging and thermal dynamic stripping. HSW provided support for the design and implementation of each of these technologies. The *in situ* anaerobic bioremediation pilot test involved extraction of groundwater, addition of benzoate, lactate, and methanol, and reinjection. Although reduction rates ranged from 70 to 99%, where nutrient breakthrough occurred, full scale operation was not selected. Rather, thermal enhanced recovery is currently being implemented full-scale. This technology is a combination of in situ electrodes to provide resistive heating and a network of collection wells and vapor recovery wells inside the area. During a pilot study, within only 6 months of startup, concentrations of VOCs in the test plot decreased by 3 or more orders of magnitude.

"...I am confident that HSW will continue to provide high quality work within their budget and on time. I am pleased to provide this recommendation for HSW as a qualified, reliable consulting firm for solving complex environmental permitting issues..."

Terry L Zinn
Senior Attorney
FDOT

"...We recognize your qualifications in the areas of environmental restoration, monitoring and analytical services..."

Michael Ebben
Nuclear Services Group
CH2M HILL

NASA. HSW has served as an environmental consultant to NASA since 1990. Our assessment techniques have been selected due to their cost effectiveness and efficiency. Some of the more notable techniques in terms of saving time and money, while meeting strict regulatory operating procedures and quality assurance/quality control parameters are:

- Use of membrane interface probe to identify narrow zones of DNAPL at varying depths;
- Portable gas chromatography coupled with direct push technology to characterize groundwater plumes;
- Use of rotasonic drilling technique to minimize the generation of investigation derived waste;
- Use of GPS to rapidly identify sample locations and other field activities and
- PCB immunoassays.

HSW has designed and constructed numerous remedial systems at the Kennedy Space Center including air sparge systems with soil vapor extraction and pump and treat.

DOD Contractor (Confidential Client). HSW's streamlining measures saved this client over $250,000 at one facility alone. Those measures included:

- Modified sampling parameters (changed analytical method);
- Use passive diffusion bags for groundwater sampling;
- Eliminated unnecessary sampling locations and properly abandoned wells and piezometers as the plume reduced in size;
- Maintain operational runtimes of pump and treat systems at >95%;
- Eliminated unnecessary portions of the treatment train;
- Shut down recovery wells and cycle when appropriate; and
- Implement full-scale air sparging as a final polishing step.

Although we cannot identify the client, it is a nationally recognized DOD contractor that has hired HSW to assist in assessment and remediation activities at five of their facilities nationally.

Tampa Electric Company. HSW completed TEC's first comprehensive environmental assessment to determine regulatory compliance, and developed an engineering plan that would allow the facility to attain and maintain compliance with environmental permits and regulations. The study encompassed a variety of surface water issues including identifying potential pollutant sources, managing contact and non-contact stormwater, and developing strategies for prevention of uncontrolled releases.

HSW used state-of-the-art modeling techniques to simulate hydrologic events and route the flow through the complex hydrologic system at the plant. Combining water operations at the plant with hydrologic data allowed us to predict where and when uncontrolled discharges were likely to occur. The data were then used to design modifications to the stormwater system at the plant and develop best management practices for long-term sustainability of the design modifications. HSW also used the information to develop recommendations for designing a closed loop system and reducing (or ultimately eliminating) the need for outside water purchase.

CH2M Hill, DOE Mound Facility. The DOE Mound Facility is in the final closure and restoration phase as a CERCLA site. This former nuclear weapon component manufacturing facility is being converted into a technology park for industrial reuse with long-term stewardship by DOE. The accelerated program allows for the phased release of site property for economic development, and shifts focus from long-term assessment and clean-up to short-term, immediate remedial action. HSW was selected by CH2M Hill to provide support in developing effective remediation strategies for VOC contaminated soils that would meet the stringent schedule imposed by DOE. HSW developed matrices of remedial actions that were ranked according to various factors including implementability, cost and effectiveness.

Mr. Dennis Peek, P.E., Vice President of HSW, leads HSW's efforts in selecting and designing engineering options to meet the remedial Exit Strategy developed between HSW and each of our clients. If you would like additional information, please contact him by phone at 813-968-7722 or by e-mail at cdpeek@hsweng.com