



FOCUS ON UTILITIES

Getting Ahead Under Deregulation

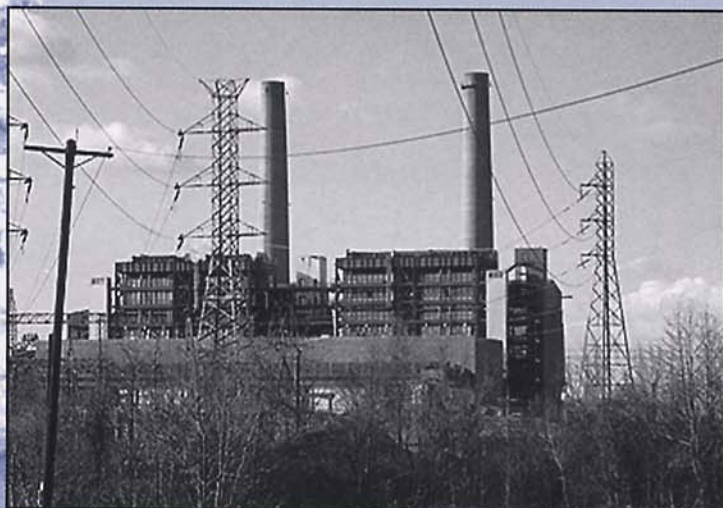
Innovative licensing crucial to success as competition intensifies

Deregulation is changing the landscape of electric power generation across the United States. Changes in pricing and technology are creating environmental and cost conflicts between existing plants and new construction as traditional monopolies are dismantled. Under this new regime, the ability to develop innovative licensing strategies will be a major advantage to electricity providers.

Andrew Aitken, former environmental vice president at New England Power Company and now an independent consultant, observes that deregulation has resulted in two populations of generating facilities: older plants operating under non-utility ownership, and new merchant plants being constructed to compete in the open market. In New England, more than 30,000 MW of new generating capacity has been proposed, which is far more than necessary to support projected growth in electricity demand. Even if only a small percentage is actually built, competition will be intense. Existing plants will have to operate cleaner and leaner to stay in business.

Under this new climate of intensified competition, one characteristic important to success will be innovative licensing strategies. Operators of older plants are being pressured to improve their environmental performance as they keep these facilities in operation and recoup their substantial investment. New plants

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Oil Spills and The Incident Command System

When an oil spill occurs in U.S. waters, the personnel and equipment used in the response are managed using the Incident Command System. The Incident Command System (ICS) provides the command structure necessary for quickly putting in place an effective response in an emergency situation. The ICS organizes personnel into a hierarchical structure so that everyone knows his or her responsibilities as well as their place in the organization. The ICS also facilitates the deployment and tracking of response resources such as oil skimmers and boom to multiple locations in the response, and the management of these resources through a cycle of work periods lasting days and sometimes weeks.

The traditional ICS is implemented using a set of paper forms. For example, there are forms that are used to set up and maintain the organizational structure, and there are forms used to assign resources to a specific area such as a segment of beach that needs cleaning or an oil decontamination area. The ICS forms provide information on all of the response resources during the response and become the record of the response effort when clean up is completed. If the ICS forms are used consistently by the response organization, then managing the spill response can be made more effective.

The On Scene Command and Control (OSC²) software, developed by ASA as a prototype for the U.S. Coast Guard, utilizes GIS technology to automate the ICS and make managing a spill response easier and more consistent. OSC² integrates the traditional ICS forms, implemented within a relational database, with a simple GIS capability. Because all ICS forms access personnel and equipment resources from a central database, the response organization works with a consistent set of response resources. Integrated with the ICS forms is a GIS interface that lets the responders manage deployment and tracking of personnel and equipment on a map. The map shows the location and status of elements of the response such as staging areas and shoreline cleanup groups, and allows the operator to make resource assignments by dragging them onto the map from lists of available resources.

The OSC² software operates on a group of networked laptop computers packaged for shipment anywhere in the U.S. Multiple printers can be connected for generating maps and documents, and a projector can be attached for displaying maps and ICS forms on a large screen. When connected

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OILMAP "Ideally suited" for OSRO Evaluations

Last August, California enacted legislation requiring all oil plan holders to demonstrate that their oil spill response organization (OSRO) can intercept spilled oil before sensitive resources are impacted. Oil spill response contractors are routinely evaluated based on federally established equipment and performance requirements. By using ASA's OILMAP, however, one OSRO was able to demonstrate their response capabilities beyond these generic standards.

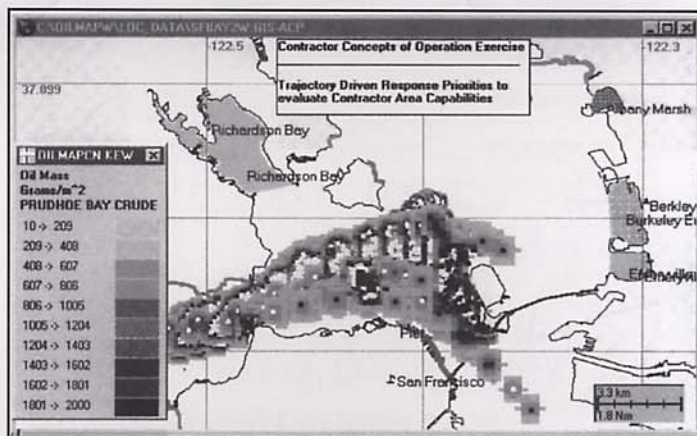
Up to this time, OSRO reviews have been based on information in the area contingency plan, which is created jointly by the Coast Guard, industry, and states under OPA (the Oil Pollution Act) 1990. The area contingency plan contains basic spill events and is not picture driven. Instead of using these standard scenarios, OILMAP was employed by an evaluation team, consisting of the state, spill contractor, NOAA, and BlueWater Consultants, to generate an event-specific spill trajectory based on historical data.

OILMAP was used to simulate a spill from a vessel colliding with a known navigational hazard. The evaluation team ran the model for this event many times, varying the wind and current conditions to design a worst case spill based on shoreline impact. Color keyed sensitive shoreline resources, according to ESI (Environmental Sensitivity Index), were displayed in OILMAP's graphical user interface, overlain on a nautical chart. The resulting scenario provided a realistic foundation for the OSRO to identify, for each time interval, their concept for a response operation. On-water skimming resources from their resource list were assigned to specific response tasks. Booming strategies were prioritized to protect sensitive sites prior to impact of the

trajectory. Response support boats, skiffs, and personnel were assigned to meet the deployment strategies. Resource mobilization included time for travel from storage to the site. Only those resources, which had completed their tasks, could be re-assigned and careful tracking of resources ensured that they were used only one at a time.

"OILMAP was ideally suited for this application," reported Terry Joslin of BlueWater Consultants. "It provided an effective graphic tool allowing the OSRO to demonstrate their realistic response capabilities and for the authorities to evaluate the potential response concepts and resource use."

Mr. Terry Joslin is an environmental consultant based in San Francisco. He can be reached at BlueWater Consultants, blueh20@ix.netcom.com or 415-492-2882.



Oil Spills and The Incident Command System...continued

to an Internet web server, the OSC² operator can post maps and ICS forms to a World Wide Web site for access by the public. ASA is continuing work on the OSC² application throughout 1999 and supporting the Coast Guard in oil spill response training exercises and drills.

If you would like to know more about OSC², please contact Chris Galagan at chris@appsci.com or 401-789-6224.

Resources

- 1 Trailer Inflatable Boom (4,000)
- ACME-UTILITY-15-5-25-60(105)
- ACME-UTILITY-15-5-25-60(116)
- Acompna, Nick
- Adapt's Headsets (7 units)
- Akshel, Demir
- Alamka, Fernan
- Albert, Gene
- Anderson, Eric
- Baker, M.
- Barge, Large Ocean
- Barge, SBS-2 Portloorn, unpowered
- Barge, SBS-2 Portloorn, unpowered
- Barge, SBS-2 Portloorn, unpowered
- Bennett, Ray
- Bennett, Eric
- Benson, Ben
- Bingham, John
- Boat, 32ft Mustang
- Boat, 34ft Mustang-Cascade
- Boat, 9 meter RHB
- Boat, BUSL 1

210 Form

Resource: Bennett, Eric
 Status: ASSIGNED
 Location From: WatchStation
 Location To: On-water Recovery Group
 ETR: 3/2/1999 10:52:00 AM
 Time: 3/2/1999 10:52:00 AM

On February 9, **Chris Galagan** and **Eric Anderson** gave a presentation of ASA's OILMAP for ArcView at the 9th Annual Petroleum User's Group Conference sponsored by ESRI in Houston, TX. The conference focuses on GIS (Geographic Information Systems) applications in areas of interest to the petroleum industry, including oil spill response and contingency planning.

The International Oil Spill Conference held in Seattle, WA from March 8-11 was attended by **Eric Anderson**, **Deborah French**, **Eoin Howlett**, and **Roddy Thomas**. Eric presented the paper *OCS², A Combined ICS Forms, Database and Trajectory Model System* (see article). Deborah presented *Evaluation of Net Environmental Benefit Using Fates and Effect Modeling*, which describes the use of models to quantify spill impacts under various response strategies in support of objective decision-making.



A protest sign at a public meeting on oil development in the North Caspian Sea. A public perception of an oil-or-fish future appears to be common in Kazakhstan.

Chris Galagan participated with geologists from universities and the private sector in hosting the 34th annual meeting of the Northeastern Section of the Geological Society of America in Providence, RI from March 21-24. At the symposium, Integrating Science in the Decision-Making Process: Managing Estuarine Habitats in Narragansett Bay, held during the meeting, **Craig Swanson** spoke on *Modeling the Effects of Thermal Discharge from an Electric Power Generating Facility on Estuarine Circulation*. University and college faculty, students, and industry professionals from the northeast attended the meeting that is held every year in a different city in the northeast region.

Craig Swanson and **Deborah French** presented a seminar on Quonset Point / Davisville Development Process & Environmental Issues on March 25. The seminar is part of a series hosted by the Department of Ocean Engineering at the University of Rhode Island that is examining the engineering, regulatory and environmental issues for a large container port proposed on Narragansett Bay, RI.

Eric Anderson spent the week of April 5 at the offices of the Offshore Kazakhstan International Oil Company NV (OKIOC) in Atyrau, Kazakhstan, installing and training OKIOC Environment and Health & Safety personnel in the application of OILMAP for the Caspian Sea. He attended a public meeting of OKIOC with concerned citizens and representatives of government and environmental groups on April 9.

Malcolm Spaulding, **Daniel Mendelsohn** and **Craig Swanson** have an article in the upcoming Marine Technology Society Journal special issue on Advances in Coastal and Ocean Modeling entitled *WQMAP: An Integrated, Three Dimensional Hydrodynamic and Water Quality Model System for Estuarine and Coastal Applications*.

Getting Ahead Under Deregulation...continued

are forced to consider adding the latest in control technology, which is often somewhere between R&D and commercially proven, in order to satisfy regulatory requirements. Often both types of plant are owned by the same company, which creates an internal tension in the allocation of limited resources.

Strategies for either maintaining or acquiring licenses can take advantage of available techniques, such as numerical modeling and natural resource damage assessment. "Environmental impacts result from most human activity, not just electric power production," Aitken explains. "Power plant owners and developers can use these and other sophisticated techniques to identify the impacts for which they can quite

properly be held responsible, without having to over-control to the point of becoming uncompetitive."

Using computer models is becoming a key component of this process. Hydrodynamic, water quality, and biological models are addressing many marine environmental issues, including thermal discharge, impingement and entrainment. In addition to allowing rigorous investigation of these issues, modeling techniques also incorporate graphic tools, such as animations, which expedite communication of complex natural processes to all concerned.

Mr. Andrew Aitken is an expert in power plant licensing and can be reached at andrewaitken@worldnet.att.net or 401-294-9156.

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ASA at 20

On 1 May 1999 ASA celebrates its 20th anniversary. Over the past two decades ASA has worked in more than 50 countries, in every continent, and for hundreds of government, industry, and academic clients. So to commemorate this occasion, Malcolm Spaulding and Craig Swanson, two of ASA's founding partners, were subjected to intense interrogation during their lunch to provide these insights into ASA's formation, development, and success.

Q. How was ASA born?

A. In the late 1970's we had been working in the Ocean Engineering Department of the University of Rhode Island as a professor (Malcolm) and graduate student (Craig) on the development and application of state of the art, numerical environmental models. From our research it appeared that the models we were developing might be very useful in assessing the environmental impact for coastal development activities. ASA was formed to provide these models and associated services to the market.

Q. Did you ever think it wouldn't work?

A. I (Malcolm) started a company in the mid 1970's to provide general engineering services. The company initially experienced rapid growth and then quite quickly failed. Important lessons were learned from this experience. It was clear that ASA's success was not certain. ASA's first two full time employees (Craig and Eric) made a real commitment to ASA's growth and development. They provided the energy and technical expertise necessary for ASA to prosper.

Q. To what do you attribute ASA's success?

A. The key to ASA's success has always been its bright, well educated, and extremely dedicated staff, and a focus on providing our clients with the highest quality services and models in the industry. It hasn't hurt that ASA's modeling tools and products have also been leaders in the marketplace.


Q. What do you consider ASA's greatest achievement?

A. Raising the level of environmental assessment used to solve a client's problems by employing powerful models that allow quantitative analyses. We have been an industry leader in bringing these quantitative environmental assessment tools to the market and applying them to solve real world problems. ASA has also been a leader in developing integrated environmental modeling systems with powerful and intuitive user interfaces and embedded geographic information systems. ASA's models are used throughout the world and, in several cases, are dominant in the market.

Q. Where do you see ASA 20 years from now?

A. Given the strength of ASA's staff and supporting environmental modeling tools, ASA is committed to substantially expanding the services and model products we provide to our clients. ASA is well positioned and committed to becoming one of the premier firms in marine and freshwater environmental impact assessment in the world. We will continue to develop integrated monitoring and modeling systems and analysis tools that will decrease the time and cost to perform an assessment, increase our efficiency in doing our work, provide us with more robust and accurate predictions, and allow real time environmental assessment.

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