

ANNUAL REVIEW 2006







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Welcome to ABS and its Affiliated Companies

Throughout its existence, since its foundation in 1862, ABS has dedicated its activities to promoting the security of life, property and the environment. From the outset, the focus of those activities has been within the marine sector, primarily the provision of classification services to the builders, owners and operators of ships and marine-related facilities. Classification activity continued as the dominant function of ABS in 2006 with the ABS classed fleet reaching record levels and the ABS organization expanding to meet the increased demand for our services.

For more than 30 years ABS has also offered clients a portfolio of related services that fall outside of its traditional core classification activity. In 1990, those services were brought together under a single holding company, ABS Group of Companies, Inc., which is a wholly owned affiliate of ABS, subject to separate Board oversight and management. Since that time, the activities of the ABS Group of Companies have grown significantly, with 2006 being its most successful year of operation.

Headquartered in Houston, ABS and its affiliated companies provide services to clients in all parts of the world through a network of offices in 70 countries. This review of the activities of ABS will focus on the ship, offshore and military classification services it provides as well as ancillary services. The review of affiliated company activity will focus on the four market segments that it serves: Energy & Transportation, the Corporate sector, the Public sector and Quality Management Systems.

ABS ACTIVITY



MARINE

ABS is the third largest classification society in the world based on the gross tonnage of its fleet. Its classed fleet comprises almost 10,000 vessels of various types, aggregating

in excess of 126m gross tons. The ABS classed fleet has shown an unbroken pattern of growth over the last 16 years and a record orderbook at the end of 2006 will mean a continuation of the current high level of activity through the end of the decade.



OFFSHORE & ENERGY

ABS was the first classification society to offer services to the offshore oil and gas industry, nearly 50 years ago. Today it remains the leading classification society classing in excess

of 70 percent of the global fleet of mobile offshore drilling units and more than 45 percent of all floating production units. 2006 was one of the industry's busiest periods and ABS secured more than 80 percent of all new MODU contracts and 56 percent of all new production unit contracts, confirming its position as the preferred provider of classification and related certification services to the offshore industry.



GOVERNMENT

2006 was marked by the launch of the first naval combatant vessel to have been built to the ABS *Naval Vessel Rules*. These Rules are the result of a multi-year collabora-

tion between ABS and the US Navy to extend classification beyond the traditional application, limited to military support vessels, to encompass the hull and machinery of combatant vessels. During the year, the navies of several other nations also turned to ABS for the classification of new vessels of various types. With the Rules, systems and procedures now firmly in place, this is expected to be a significant growth area for ABS in the future.



FLEET MANAGEMENT SYSTEMS

Through a clientcentered approach, ABS Nautical Systems LLC, an affiliate of ABS, offers an off-the-shelf suite of software modules that provides a globally

standardized, integrated fleet management solution for shipowners, operators and managers and for the offshore industry that is flexible enough to meet organizational requirements. 2006 saw a significant expansion in the ABS Nautical Systems level of activity as it increased its client base across all sectors – commercial, government and offshore.

ABS GROUP ACTIVITY



ENERGY & TRANSPORTATION

ABSG Consulting Inc. (ABS Consulting) a subsidiary of ABS Group of Companies, Inc. and an affiliate of ABS, is a leading provider of risk-

related services to the international energy and transportation sectors. This activity is a natural outgrowth of the parent organization's classification activity in the marine and offshore industries. 2006 saw sustained growth in the demand for these services as the energy, offshore and shipping markets all recorded heightened levels of activity.



CORPORATE

Clients turn to ABS Consulting for assistance in improving their operational and financial performance through the provision of technology-based solutions for managing

the financial consequences of natural hazard, operational and security risks. ABS Consulting's engineering capabilities, coupled with the proprietary EQECAT catastrophe modeling software and alternative risk transfer expertise, provides the foundation for assessing, mitigating, transferring and preparing for risks. Demand for these highly specialized services remained high throughout 2006.



PUBLIC

Governments around the world rely on the sophisticated risk analysis capabilities of ABS Consulting to guide their preparedness strategies for improving security,

mitigating natural and man-made hazards and effectively managing the many diverse risks that threaten their nation's citizens, assets and environment. 2006 brought increased demands for ABS Consulting services in this area as governments faced an increasingly uncertain period with identifiable threats from elements as diverse as climate change to terrorism.



QUALITY MANAGEMENT SYSTEMS

The ability to demonstrate conformance to an accredited quality management system that encourages continuous improvement is a requirement for companies

across a broad range of industries. ABS Quality Evaluations, Inc. (ABS QE) a subsidiary of ABS Group of Companies, is established as a respected third-party auditor of management systems to international standards including ISO 9001 and 14001, OHSAS 18001 and ISO/IEC 27001. ABS QE is a key contributor to the development of industry, national and international standards. It continued to expand its services and customer base in 2006.



ROBERT D. SOMERVILLE CHAIRMAN & CEO ABS hese are indeed remarkable times for the international shipping industry and the success of ABS is merely a reflection of the greater successes that shipowners, shipbuilders, machinery and equipment manufacturers and almost every sector of the industry enjoyed in 2006.

For ABS, the most tangible measure of our success is the period of unbroken growth in the size of the ABS-classed fleet over the last 16 years. For the last three years, that growth has taken us to successive historic record levels. 2006 continued that pattern. The year ended with the ABS classed fleet standing at 126.5m gross tons, an increase of more than 5m tons over the previous record established in 2005. This performance further cemented our position as the third largest class society in terms of tonnage. With almost 10,000 vessels in class, ABS remains the largest society in terms of vessel numbers.

The growth occurred across all the principal ship types – tankers, bulk carriers and containerships. In addition, the world's seemingly insatiable demand for oil, coupled with declining output from some traditional sources, has spurred a level of activity within the offshore sector not seen in the last 20 years.

ABS is the class society with the most experience in this highly specialized sector and that experience has proven decisive in the award of class contracts. A remarkable 84 percent of all mobile offshore drilling units – jackups and semisubmersibles – are on order to ABS class. And ABS ended the year with a 56 percent share of all production units – semisubmersibles, FPSOs and TLPs – on order.

The immediate future looks equally bright. ABS closed out 2006 with an orderbook of more than 1,700 vessels aggregating over 28m gross tons, yet another historic record and more than double the orders, both in numerical and tonnage terms, that were placed with ABS just five years ago.

Additionally, demand for fleet management systems from operators in both the ship and offshore sectors increased during 2006 pushing the ABS affiliated company, ABS Nautical Systems to yet another record performance. The various operating subsidiaries of the affiliated ABS Group of Companies also experienced a period of sustained growth throughout 2006. Not surprisingly, this greatly increased activity across all sectors of our operations was also reflected in our financial performance which exceeded expectations and continued to provide a solid footing for the entire organization and for the continuing research and product development that is undertaken to further improve the classification services offered in pursuit of the ABS Mission of promoting the security of life, property and the natural environment.

These last few years of very rapid growth have posed numerous challenges for the management of ABS. Perhaps the most significant has been the need to attract, train and retain the increased number of staff to provide the level of responsive, high quality services that are essential to our reputation and our future financial well being. We have been fortunate in that many able, experienced personnel have been and continue to be recruited, with China being the principal area of expansion. Our challenge has been to train them so that they can become productive members of the ABS team, as quickly as possible.

There are few options for developing experienced surveyors. They must be familiar with the application of the ABS Rules and procedures, and have sufficient in-service experience

to give them the confidence to apply those Rules in an effective and judicious manner. And so our challenge has also been administrative in nature. We have developed mentoring programs, and have used the tremendous power of our electronic survey system to allocate surveyors according to their abilities and to pair surveyors so that the newer hires can benefit from accompanying experienced colleagues on the job.

For the engineers, we have developed an electronic plan review system that is, we believe, the most advanced of any that is currently being offered to the shipyards and designers, to not only speed and simplify plan review but to allow interactive monitoring of the review process by the more experienced engineers.

Adequate staffing of the international marine industry is an issue that will be with us for some time. There is a looming concern that we may enter a damaging period in which it will become difficult to retain experienced personnel in what is becoming a highly competitive market. As a consequence we are constantly reviewing our employment practices to make sure we remain benchmarked against industry norms in the principal markets around the world.

To help attract new, qualified entrants to the industry, we are reviewing and expanding our commitments to scholarship programs at the leading maritime universities in Asia, Europe and the Americas. And we are participating in national outreach programs that help to increase public awareness of the maritime sector in the hope that more young people will consider the marine and offshore industries as offering an interesting and viable career.

As we look to the future generations that will provide classification services in the years to come, it is in the belief that class itself will survive. That may appear to be an unduly pessimistic note in view of the current vibrant business environment. It is my firm belief that class will survive but I foresee a difficult struggle that must be undertaken to protect the future of this honorable profession.

We had ample evidence of the threats in 2006 with the focus turned largely on Brussels and the workings of the European Union. Class has very few friends within those bureaucratic halls. This was repeatedly stressed during the debate over the Third Maritime Package or Erika III as it is more commonly referred to. The following wording is from the proposed draft Directive on class and it is of great concern: *"The existing system no longer suffices and must be further improved..."* No coulds or shoulds in the EU's mind – it doesn't work and it must be improved.

This takes no account of the remarkable and constantly improving safety record of the international shipping industry, much of which can be attributed to a classification system that has reinvigorated its sense of purpose and its determination. This takes no account of the remarkable improvement, to a statistically insignificant level, in the number of Port State detentions of ships for class-related deficiencies.

It takes no account of the remarkable degree of class unity and determination that resulted in the introduction of the landmark Common Structural Rules for tankers and bulk carriers in 2006. These Rules represent the most fundamental change in the classification process in its history and are expected to result in ships that are at least as robust, and in all probability more robust than comparable vessels designed to the most stringent of the now superceded class Rules. And the EU Directive statement takes no account of the constantly expanding IACS Quality System, nor of the increasingly stringent audits to which all IACS members are subject from the European Maritime Safety Agency and from many of the most reputable flag States.

We continue to be judged by our very occasional failings but the consequences are dire. The EU, for example, has refused to be swayed by the IACS petition that class societies be accorded the same degree of liability protection that is enjoyed by every other sector of the shipping industry. The new Directive continues to allow unlimited liability on class for simple negligence. It is only a matter of time before such a liability regime ruins one class society, and that will be the death knell of all societies in the form that we know them today.

And the Directive also proposes that class societies should mutually recognize each other's certificates for machinery and equipment. Such a measure would mean that ABS would be asked to accept into class a vessel that had been ordered to ABS Rules and standards that would be delivered with all its main machinery and critical equipment certified by a hodge-podge of other societies, some of which would not even be members of IACS. This makes no sense and would impose unacceptable exposure to future legal liabilities, yet there is a strong possibility that this proposal will be approved by the European Parliament and the Council of Ministers to be enforced on European Recognized Organizations.

There is a growing body of increasingly influential opinion that either does not understand class or, even more worryingly, believes that there is a commercial advantage to be gained if class is abolished. And these forces are becoming better organized. Ultimately, class cannot fight and win this battle alone. Those other members of the safety regime who believe in the self regulatory classification process must realize the dangers that class is facing and provide support if rational legislation and regulation of this industry is to continue.

At ABS, we know that we have to do our part. We must deliver appropriate standards and we must interpret and enforce those standards in an effective, pragmatic and honest manner. We can never forgo our basic commitment to maritime safety and we must never compromise our reputation and our integrity. Every day the committed professionals at ABS strive to fulfill our side of the bargain.

And ultimately we have to convince the legislators that class is not an adversary but an ally. Their desire to promote the security of life, property and the environment is our Mission. It is the creed under which we operate. We are the conduit by which the industry and governments can co-exist in a mutually beneficial manner. And that is the challenge we face this year and in the coming years.

I am confident we can meet these and future challenges through the continuing strong support of our many clients and the dedicated efforts of the almost 3,000 ABS employees around the world. Our success is entirely attributable to those employees and to the trust and loyalty our clients continue to invest in our people and our services.

Robert D. Sømerville Chairman and Chief Executive Officer





MARINE

n extraordinarily strong newbuilding market, an expanding fleet and a significant number of older vessels undergoing survey as owners sought to extend ship service life to reap maximum returns from the buoyant market conditions in all sectors, marked 2006 as perhaps the most active year in the long history of ABS. Additional engineering and survey staff were hired across the globe to help meet the increased demand for services with the total ABS workforce projected to have grown by one third in a three-year span from 2005-2007.

The net result of all this activity was a year that saw the ABS fleet grow to a new record in terms of gross tonnage classed, a new record in terms of tonnage contracted to be built to ABS class and a new record in the number of vessels contracted to ABS standards. These increases also were reflected in the society's financial performance which once again allowed ABS to provide benefits to employees around the world and adequate resources to continue to fund the extensive technical research and development work that contributes to the refinement and expansion of the ABS Rules.

The year was also marked by the introduction in April of the new Common Structural Rules for tankers and bulk carriers, intended to usher in a new generation of robust vessels. ABS had helped instigate this fundamental change in the classification process in 2001 when it jointly announced with two other IACS members the intention to develop a single set of Rules for tankers. The initiative was subsequently joined by the other seven members of IACS who jointly agreed to a companion project to develop comparable rules for bulk carriers.

ABS assigned several of its most experienced technical experts to the project which has resulted in the adoption of a more severe boundary condition, with the 25-year North Atlantic trading condition replacing the previous 20-year criteria used by ABS to determine fatigue life. The new rules also introduce the dynamic loading approach that had been the foundation of the ABS SafeHull evaluation since its introduction, and it also adopted the net scantling approach for the initial design that ABS had pioneered.

Extensive industry input was sought and received during the review of the rules, resulting in many refinements to the criteria prior to their adoption and implementation. The new Rules were widely lauded by industry although some owners reserved their assessment until new designs, optimized against the criteria, had been developed by the designers and could be analyzed. Additionally some owners' groups were critical of the fact that the tanker and bulk carrier rules, since they had been developed by different groups on parallel tracks, were not fully harmonized in their engineering approach. When introducing the new Rules, IACS committed to a fiveyear program that will result in the complete harmonization of the two rule sets and ABS will play an active role in that process.



SPOTLIGHT: COMMON STRUCTURAL RULES



A Fundamental Change in the Class Process

April 2006 proved a landmark in the two century history of marine classification. It marked the formal implementation of the Common Structural Rules for tankers of 150 meters in length and greater and for bulk carriers of 90 meters and more in length. For the first time the structural rules of all ten member societies of IACS were harmonized for these two principal ship types. The introduction of the Common Rules replaced 20 sets of rules with just two, one each for the two ship types.

The multi-year, multi-million dollar effort by the class societies was in response to a growing trend towards a new generation of short life ships through designers and shipyards using advanced computer analyses to optimize designs against the minimum structural requirements of the societies. By year's end, shipyards were working on new designs that took specific account of the new standards from the outset. Predictions that steelweight would increase by an order of between 3-6 percent on average, and that new designs would be at least comparable to a similar vessel built to the most stringent of the former rules and in all probability would be more robust, appeared to be accurate.

The introduction of the new Common Rules tended to overshadow many of the other more routine events of the year including the continuing very active rule development efforts by the ABS Technology department that resulted in the issuance of several new rules and guides for other ship types. These included, among many others, a new *Guide for Vessels Operating in Low Temperature Environments*, developed in anticipation of increased energy-related shipping activity in the Arctic region; new *Guidance Notes on Ship Vibration* that apply the latest technology to a problem that continues to trouble designers and operators alike; a new *Guide for Vessel Maneuverability* developed to assist users in applying the IMO maneuvering standards; *Guidance Notes on the Control of Harmonics in Electrical Power Systems*, the first comprehensive set of classification guidelines that address risks to onboard systems from the increasingly common occurrence of non-linear loads and resulting voltage distortion; and a new *Guide for Building and Classing Liquefied Petroleum Gas Carriers with Type-A Independent Tanks* that anticipates the projected increase in newbuilding contracts for large LPG carriers that will be needed for expanding export trades, particularly from the Middle East.

Considerable effort was also put into the continuing project to expand the functionality of the software that has been developed to allow both ABS and the shipowner to electronically monitor the life cycle condition of a vessel. Several hundred ABS-classed vessels have been modeled and included in the program on delivery. The power of the system will be more fully realized as these vessels age and accumulate a more detailed gauging, damage and survey history.



Delivering Superior Service in China

By the end of 2006, more vessels were on order to ABS class from Chinese shipbuilders than in any other nation or to any other class society. Although many of these were small, the orderbook included sophisticated large LNG carriers, a series of 10,000 teu containerships, semisubmersibles and jackup drilling rigs and vlcc and capesize bulk carrier tonnage. Additionally, repair activity in the constantly expanding number of Chinese ship repair yards was also increasing at a rapid rate. This included several complex projects to convert single hull tankers into a regulatory compliant double hull configuration.

Throughout the year ABS continued to expand its workforce in China to handle the escalating work load and provide responsive service to our many clients. More than 50 surveyors were added at Chinese ports and an additional 10 engineers were brought into the busy Shanghai engineering office. Administrative and support personnel were also added as needed. As the year ended, the pace of activity continued to increase and it is projected that there will be more than 200 surveyors and a 300-strong total ABS workforce in China by the end of 2007.





Environmental issues loomed large during 2006 with the IMO's Marine Environmental Protection Committee tackling several important subjects ranging from ballast water management to revisions of the Marpol Annex II requirements for the carriage of vegetable oils and noxious cargoes and the application of the Marpol Annex VI requirements regulating SOx and NOx emissions. ABS devoted a great deal of attention to assisting owners deal with these new regulatory strictures including a comprehensive guide to *Understanding the Revisions to Marpol Annex II and the IBC Code* that was issued in advance of the 1 January 2007 enforcement date.

Increasingly owners are looking to their classification societies to assist them in the detailed interpretation and application of the almost constant flow of new regulations that govern their activities. To assist owners in this way and provide a more focused monitoring of the wider trends, both regulatory and commercial, that are likely to impact an owner's operations, ABS created a new Ship Sector Development Group in the latter part of the year. The group brings together individuals with in-depth knowledge of the tanker, bulk carrier and gas carrier sectors so that relevant information can be identified, analyzed and promptly distributed to owners.

The Ship Sector Development Group was just one manifestation of the increased emphasis that was placed on service delivery throughout the ABS organization in 2006. As expected, the new Common Structural Rules have ushered in a period when service delivery has become a critical differentiator between the IACS members when seeking to attract and retain classification contracts. Increased staffing, increased training and the continuing refinement and integration of the ABS information management systems were also viewed as key elements in the challenge to the organization if it is to continue to be known for delivering superior customer service.

SPOTLIGHT: TRAINING



Increased Emphasis on the Classroom

In a fast changing world, training takes on ever greater importance. In 2006, ABS significantly expanded its internal training program, administered through the ABS Academy and also introduced a range of classification-related courses for our clients to provide training for their staff in many of the core areas that relate to the classification process. These external training initiatives built on the highly successful LNG training course that ABS first began offering in Korea in the previous year. Originally intended for ABS surveyors and engineers, the course was seized upon by LNG operators and shipbuilders eager to increase the depth of their staff's understanding of these complex ships.

By the third quarter of the year, new ABS training facilities had been opened in Korea and Greece and a comprehensive suite of practical courses – ranging from *Orientation to Classification Surveys* to *Application of Finite Element Analysis to Ship Structures* were being offered. With the ABS workforce growing rapidly to meet the buoyant market's demands, ABS personnel, from new hires to veteran surveyors were also subject to periods of intense classroom instruction coupled with on-the-job mentoring to keep them abreast of rule, regulatory and procedural changes. Examples of the enhancements to the information management systems included the introduction of dynamic checklists for all surveys of ABS-classed vessels. The new checklists are automatically prepared by the system for the attending surveyor at the time the survey is ordered. As they are composed in real-time, they include the most up-to-date information contained in the survey record with respect to the vessel. They are also specifically tailored to the type of vessel and the specific survey, statutory inspection or audit that is to be carried out. The scope of the enhancement is evidenced by the fact that the system is able to produce approximately 600,000 unique checklists from the parameters that are used. The new system also means that owners receive positive reports: they are able to log on to the system through the web portal and see items that have been surveyed and found satisfactory. In the past, an owner only received exception reports detailing those items found to be unsatisfactory.

Also introduced during the year, after extensive beta testing, is a new electronic system that governs the entire plan review process and establishes a real-time link with the designer or client that permits transparent tracking of the progress. Using the new system, designers and shipyards submit their drawings to the ABS engineering office over a web interface. The review can then be undertaken simultaneously by several engineers in one or more offices. Clients are given

an account and password to protect the security of their projects. As the approvals are completed, the client is able to download the approved files as well as view and respond to comments raised by the engineers. The system is designed to significantly speed up the review process – as soon as a drawing is approved, it is made available electronically to the submitter – and to open the communication channel between the submitter and the reviewing engineer.

Important as service delivery is, and will continue to be, the ultimate differentiator for a class society is the quality of the services it provides. ABS has long contended that the best public accounting of its services is the Port State Control (PSC) record it maintains with the principal PSC administrations the Paris MOU, the Tokyo MOU and the US Coast Guard - for class-related detentions. 2006 proved another very solid year for ABS in this respect as it remained in the elite tier of classification societies under all three regimes and continued to enjoy a rolling three year average record that was substantially better than the average of all IACS members. Encouraging as this performance was, however, it remains the goal of ABS to report a zero detention record under all three regimes within a calendar year. Until that time, ABS will continue to expand and improve upon its training programs and pursue its policy of Continuous Improvement as it remains committed to setting standards of excellence for the marine and offshore industries.





he world's demand for energy continues to drive offshore exploration and production pioneers to seek new ways to drill for, produce and transport oil and gas to reach world markets safely and efficiently. Designs that will take the industry into new frontiers are being developed. From pioneering jackups with the capability of drilling to depths of more than 40,000 feet to innovative regasification technologies, ABS has assisted industry as it pushes known boundaries by providing detailed technical guidance and review of these novel concepts.

It is a leadership role to which ABS is accustomed as it continues to be the foremost provider of classification and certification services to the offshore industry. At year's end nearly 74 percent of the world's offshore fleet of exploration units, which includes jackups, semisubmersibles and drillships, was classed to ABS Rules, with 84 percent of all mobile drilling units on order also contracted to ABS class. Nearly half of the offshore fleet of production units, which includes spars, TLPs, FPSOs and FSOs were built or certified to ABS standards, with 56 percent of all new construction contracts for these units specifying ABS class. And a range of novel concepts including Compressed Natural Gas (CNG) carriers and a unique Compressed Gas Liquid Carrier (CGLC) had received ABS Approval in Principle (AIP).

ABS engineers applied a variety of risk-based approaches to review these and other designs. These included HAZID, HAZOP, gas dispersion and explosion models, fire, flaring and heat radiation analysis, a jetting study, escape and evacuation studies and inspectability analysis. HAZID (hazard identification) studies were also the cornerstone of the assessment work into alternative propulsion systems for LNG carriers. The technical capabilities of ABS helped maintain a robust share of the new LNG orders that were placed during the year as this sector continued to expand at a rapid pace. Orders included a series of QFlex design, 216,000 m³ vessels to service Qatar's projected export expansion.



Setting Standards for Compressed Natural Gas

Because many worldwide gas-producing fields lack suitable infrastructure for liquefying natural gas, and because terminal regasification facilities may be similarly limited, transportation of "stranded" gas in compressed rather than liquid form offers cost and operational benefits. ABS has been providing guidance to designers and operators as they develop novel concepts for the transportation of these energy reserves.

ABS was the first class society to provide standards for this proposed new class of vessels using risk-based analyses to address issues for which no empirical experience existed. A milestone was reached in 2006 when ABS provided its first full class approval for a CNG vessel developed by Canadian-based Sea NG Corp. The company uses its proprietary Coselle system of coiled small diameter, high strength steel pipe to store the gas under high pressure.

Approval in Principle has also been granted by ABS to other proposed CNG systems including the Enersea and TransCanada designs.





ABS continued to review novel gas transport and storage technology with Approval in Principle given to Torp Technology's HiLoad LNG Regas unit. The unit is a floating mechanism that locks directly onto a vessel carrying liquefied natural gas to convert the LNG into vapor, injecting it into underwater pipelines connected to shore.

Having previously classed the first offshore LNG deepwater port buoy for Excelerate's Energy Bridge Deepwater Port in the Gulf of Mexico, ABS received class contracts on additional buoys for intended service off the US east coast. The buoys are the STL design from Advanced Production and Loading AS of Norway (APL). ABS will class the buoys and subject the associated moorings, riser and PLEM to technical review for site-specific location in accordance with ABS *Rules for Building and Classing Single Point Moorings*.

The ABS advancement of offshore technology for practical applications was also evidenced by the 2006 installation of the world's first permanent Suction Embedded Plate Anchor (SEPLA) mooring system in the Gulf of Mexico. ABS reviewed and approved the system for a floating production unit, ATP's semisubmersible production facility for the Gomez field. SEPLA is a proprietary technology that uses a 12-point taut leg arrangement moored with polyester rope fixed to the seabed.

Further examples of ABS' advanced customized approach to client needs included an asset integrity management (AIM) program for an oil major's fleet of FPSOs, review and certification for Noble Corporation's patented aluminum alloy riser, and full class approval for a CNG carrier design developed by Canadian-based Sea NG Corporation that uses the proprietary Coselle system for storing and transporting gas.

An alternative method for transporting stranded gas reserves was brought to ABS by SeaOne Maritime Corp. The approach eliminates the need for the costly separation process at source and lengthy regasification on delivery. SeaOne's proprietary system is able to transport the gas in the form it is extracted and can then deliver either pipeline quality gas as loaded and/or fractionated products. The gas is merely stored at an elevated pressure and at a temperature that is lower than

SPOTLIGHT: JACKUPS ON ORDER



Jackup Orders Reach 20-Year High

2006 was notable for the continued high level of demand for new jackup drilling rigs with the majority of these orders being placed with traditional leaders in the field such as Keppel FELS and SembCorp Marine in Singapore. But the level of demand saw new yards entering the field with Chinese builders beginning to establish a presence in the market. At year's end six jackups were on order at Dalian shipyard to ABS specifications. Another first was the striking of steel for an MSC Gusto CJ 64-X100D (L201) jackup at Labroy's shipyard in Batam. The rig is the first of its kind to be built in Indonesia.

Additionally, the first jackups ever ordered from builders in the United Arab Emirates were specified to ABS class. A total of four units are being built: two units for Thule Drilling ASA and two units for Mosvold Drilling Ltd. The Thule rigs are being built at QGM Group LLC rig construction yard in Dubai based upon the Friede & Goldman Super M2 rig design. The Mosvold rigs, also F&G Super M2 units, were ordered from Maritime Industrial Services Co. Ltd. Inc. in Sharjah. By the close of the year, 68 jackups were on order worldwide to ABS class and an additional nine rigs were delivered to their owners during the course of the year.

atmospheric but much warmer than the cryogenic temperature for LNG. The containment system has been developed as a method of cost effectively transporting gas from smaller and more remote locations and is scalable to ships ranging in size from aframax to ulcc sized tankers. It is also suited for retrofitting to a converted existing tanker or for inclusion in a purpose designed newbuilding. ABS issued its Approval in Principle for the SeaOne containment system using the ABS Guidance Notes on Review and Approval of Novel Concepts. ABS evaluation of the overall concept also included an assessment of the process system, a structural strength feasibility study and an analysis of the cargo tank support system.

One sector subject to heightened activity in 2006 was floating production systems with operators selecting increasingly larger, more complex units for deepwater service. It was also marked by the continuing efforts of designers to develop novel concepts such as the Petrobras MonoBR and growing interest in FPSOs for service in the deep waters of the US sector of the Gulf of Mexico.



At year's end there were 111 FPSOs on station throughout the world – more than all other floating production solutions combined – and an additional 43 units (14 newbuilds, 27 conversions and two redeployments) were on order. Of the current fleet, 99 have come on station in just the past ten years, and industry observers are predicting that as many as another 90 will be ordered in the next five. An example of the projected growth in this sector is the expected 12 additional units needed for offshore Angola by 2010. Five FPSOs and one FSO already in service off Angola are to ABS class. At year's end ABS had a 42 percent share of the world's FPSO fleet.

ABS' longstanding service commitment to Petrobras, the government-owned Brazilian oil company, reached a milestone in 2006 as the ABS-classed *P50* floating production, storage and offloading unit (FPSO) located in the Albacora Leste Field of the Campos Basin offshore Brazil commenced oil production. The significance of the *P50* first oil is that it represented Brazil attaining oil self-sufficiency, with the country's production projected to surpass the average consumption estimated for the year. Brazil's President Luiz Inacio Lula da Silva was on board the unit for ceremonies marking the occasion. Petrobras' continued confidence in ABS was underscored in 2006 with its classification award of five of six semisubmersible orders being built by various Brazilian companies to ABS class. The *DSS™* 38 is one of those semis developed to meet deepwater operational requirements. It is rated to drill to depths of 30,000 feet below mud line in just over 9,000 feet water depth. Keppel FELS Limited will build the platform to ABS requirements.

Hybridization: New Thinking for Offshore Design

New floating production unit designs are emerging that show a remarkable degree of crossbreeding between previously accepted designs to create entirely new hybrid arrangements. These new concepts combine the basic ideas from spars, tension leg platforms (TLPs) and semisubmersibles into novel configurations.

ABS has been working with designers and operators such as Deepwater Development Systems, Petrobras, Bennett & Associates, TexBASS and Keppel FELS as they develop concepts that bring new thinking to the challenge of drilling and extracting offshore energy reserves. Deepwater Development has advanced conceptual drawings for a multicolumn floater that includes characteristics of a semisubmersible and a spar for drilling and production in deepwater, high pressure, high temperature fields. Petrobras has constantly pushed technology frontiers and its proposed MonoBR FPSO concept is a short cylindrical mono-column that has some characteristics of a spar but a much shallower draft. ABS has reviewed the design and provided its Approval in Principle.



Technology currently owned by Durward International, a joint venture between Keppel FELS and TexBASS, has created a design that is a cross between a semisubmersible and a truss spar. The MinDOC3 design is intended for the ATP Mirage Field in the Gulf of Mexico. The first iteration of the design has received Approval in Principle from ABS and the latest version, the third generation of the concept, was under review by ABS as 2006 came to a close.



With vast reserves of oil and gas expected to be exploited in the Russian Arctic including the Barents Sea, the Pechora Sea and the Kara Sea, as well as gas fields developing on the Yamal Peninsula, there is a predicted need for large tankers and LNG carriers to transport the gas and oil that will be produced from these far northern locations. Vessels operating in the Arctic region are exposed to a number of unique demands and ABS issued guidance to address these challenges in its ABS Guide for



Vessels Operating in Low Temperature Environments. Several papers were presented at key gas and shipping conferences outlining ABS' guidance for Arctic operations of LNG carriers.

Offshore engineers and the ABS Corporate Technology Group focused on several additional issues affecting the energy and offshore sectors in 2006. These projects included: motion and sloshing assessment procedures for offshore terminal LNG offloading; development of a software tool for evaluation of FPSO structures in which direct sea keeping calculations will be used to calculate dynamic loads and total stress for scantling criteria; revision of the ABS *Guide for Building and Classing Floating Production Installations* to include criteria that considers the recent hurricanes in the Gulf of Mexico; development of additional criteria for subsea composite risers; and further extension of design verification procedures for steel catenary risers (SCRs) as well as other types of applications such as top tensioned risers, flexible risers and hybrid risers.

ABS also began one of the most advanced studies to date in the field of computational fluid dynamics (CFD) in 2006. The study, undertaken in conjunction with a leading US academic institution, will improve prediction of impact pressure on the membrane cargo containment systems of LNG vessels. It further refines the existing ABS LNG sloshing prediction models to take into account two phase flow to simulate the cushioning effect due to gas trapped at tank corners.

With the rapid increase in offshore activity taking place in Asia, ABS identified growing regional interest in offshore technology developments and established the Singapore Offshore Technology Center (SOTC) as a satellite branch of its Corporate Research and Technology department to specifically support offshore research in the area. The SOTC staff will form partnerships with universities, shipyards, design agencies and other organizations in the region to advance offshore technology innovation. SOTC immediately embarked on studies of jackup dynamic analysis, global performance of floating structures, first principle structural analysis of offshore installations to include fatigue and strength analysis, application of composite materials on offshore installations and sea load assessments for complex sea states. ABS technology and offshore representatives also met with representatives from the Centre for Offshore Research & Engineering (CORE) at the National University of Singapore to develop a plan for participating in future joint industry projects.





GOVERNMENT

A landmark in the history of ABS occurred late in 2006 when the US shipyard Marinette Marine launched the USS Freedom (LCS-1), the first US Navy combatant vessel to be constructed to the Naval Vessel Rules jointly developed by ABS and the Navy. The multi-year initiative to apply commercial shipbuilding knowledge and experience to the standards for the design and construction of the hull and principal machinery of Navy combatant vessels ushers in a new era of cooperation between ABS and the US government.

With other nations also looking to the US for appropriate standards for their future combatant vessels, the new Rules also presage a significant expansion by ABS into this sector, building upon the society's long standing activities in assisting the non-combatant operations of the Military Sealift Command (MSC) as well as other government agencies such as the US Coast Guard and the National Oceanographic and Atmospheric Administration (NOAA).

This new cooperative approach also included the ABS Naval Engineering department providing preliminary design review for what will be the US Navy's premier surface warfare vessel, the DDG 1000 (formerly DD(X)) class of destroyers. This group of engineers is dedicated exclusively to military engineering plan review and technical support.

Today's military is increasingly calling upon new hull forms, multi-mission vessels, pre-positioned ships and seabase concepts that address critical mission needs. In 2006 ABS technology projects that supported military classification included: Aluminum Structure Strength Criteria and Fatigue; Dynamic Stability Criteria Development for Naval Vessels; Slamming Impact Loads for Large High Speed Naval Monohulls; and Human System Integration (HSI) Checklist for Military Vessels. These projects examined the welds of aluminum structures to assess fatigue strength and analysis methodology, assessed capsizing risk and loss of stability, examined the impact loads for large mono-hull high speed naval craft, and created specific ergonomic guidance for military craft systems.

In support of the Navy's seabasing concept, ABS created a special task force within its Naval Engineering group to review the maritime assets from the Navy's Maritime Prepositioning Force (Future) MPF(F). Three of the MPF(F) platform types will be classed with ABS: the medium speed roro vessels, the advanced dry cargo delivery vessels and the mobile landing platforms. In addition to the MPF(F) platforms, ABS will review the design of the support vessels that will interface with the major seabase assets. The Joint High Speed Vessel (JHSV), a non-combatant that will include a flight deck and an off-loading ramp, will be classed to the ABS Guide for Building and Classing High Speed Naval Craft. And the US Navy's Missile Range Instrumentation Ship (T-AGM(R)), that will be used to monitor international compliance with strategic arms treaties, will also be designed to ABS standards.



SPOTLIGHT: T-AKE VESSELS



Helping to Keep the Navy Supplied

ABS provided continuing support throughout 2006 to the US Navy's Military Sealift Command (MSC) whose fleet was focused on support of the US forces in Iraq, Afghanistan and other regional assignments. The MSC's most recent fleet addition, the first of a series of T-AKE underway replenishment vessels, built to ABS class requirements, was delivered into service in 2006 by General Dynamic's NASSCO shipyard in San Diego.

The primary mission of these ships is to deliver food, ammunition, fuel and other provisions to combat ships at sea. The ABS classed *USNS Lewis and Clark* (T-AKE 1) entered operational deployment towards the end of the year. The second and third ships in the multi-ship series, the *USNS Sacagawea* (T-AKE 2) and *USNS Alan Shepard* (T-AKE 3) were launched as 2006 came to a close with further vessels taking shape in the dock under the watchful eye of ABS surveyors.

The US Army Tank Automotive and Armament Command (TACOM) looked to ABS for technical guidance in the new construction and major modifications of its Logistics Support Vessels (LSV) program. ABS also provided technical guidance to NOAA for its new fisheries research vessels, two of which have been delivered.

Other nations' navies also sought assistance from ABS during 2006. The Egyptian government selected ABS to class its series of Fast Missile Craft (FMC). The government of Oman turned to ABS for classification of a series of patrol craft to be built in the United States. ABS is also working with the Mexican Navy as it builds its first patrol boats, as well as both the Indian Navy and the Indian Coast Guard.

As the US government and its allies look to develop and protect their maritime assets, ABS is uniquely positioned to take its commercial ship experience and transfer this knowledge to the military community.





Rapidly escalating demand for IT solutions from vessel operators and ship managers in both the shipping and offshore sectors made 2006 a landmark year for ABS Nautical Systems LLC (ABS NS), an affiliate of ABS. ABS NS is a leading provider of fully integrated modularized fleet management systems designed to improve operating efficiencies both on an individual ship and across an entire fleet. The ABS NS 5 system, of which Version 5.3 was released in 2006, addresses all the key operational elements including purchasing and inventory, planned maintenance, regulatory requirements and crew management and payroll among others.

A significant expansion of the NS 5 system was achieved in 2006 in response to specific feedback received from clients. Functionality was improved with the development and release of the new Dry-Dock module. Several long standing clients participated in the development, sharing their practical experience in this area. OSG Ship Management provided much of the client input that was incorporated into the finished product. Other product advancements included the release of new Reliability-Centered Maintenance functionality, developed with significant input from ConocoPhillips personnel that provides an improved way to track equipment failures and perform failure analysis within the system. The ABS NS technical staff also worked with another client, Marathon Oil, to develop the necessary functionality to support clients who may prefer an Oracle database to the standard MySQL configuration.

Many of these system improvements are first brought forward at the annual ABS Nautical Systems Users' Conference. A record number of participants met in San Francisco in late 2006 to engage in three days of intense interaction with the ABS NS developers and support personnel. As a direct result of the feedback received at the meeting, ABS NS developed an interface, believed to be the first of its kind, which allows shipowners to download ABS classification machinery survey status data directly into the Maintenance & Repair module of the NS 5 fleet management software. The interface allows the ship operator to access the ABS survey status database and then download all the applicable Continuous Machinery Survey (CMS) information for the operator's entire ABS-classed fleet into NS 5 with just a few key strokes.

By year's end, ABS NS systems were installed aboard more than 1,000 vessels ranging in size from OSVs to VLCCs. New orders were received over the course of the year from ship and offshore operators around the world including China LNG Shipping, IAS, Dockendale, Seacor Marine, JD Irving Company, KCA Deutag and Helix Energy Solutions. To better support the expanded ABS NS' fleet and client list, a new web-based system, Tech Excel, was introduced to provide a common platform for all sales, support and development issues related to each client's account. Such superior service delivery approaches are viewed as key elements in the successful differentiation of the ABS Nautical Systems products in the marketplace.





ABS CLASS ACTIVITY

continued high level of demand for new ships of nearly all types and sizes throughout 2006 raised the ABS orderbook to a yet another record level by year's end when it stood at 1,746 vessels aggregating 28.1m gross tons. Deliveries of ships to ABS class also posted a strong year-on-year increase, boosting the total ABS-classed fleet to a new record of 126.5m gt. This performance re-cemented ABS' position as the third largest society, based on gross tonnage.

Tanker ordering remained strong throughout the year with owners pursuing new building berths for ships of all sizes in advance of the looming 2010 single hull phase-out date. By the close of the year ABS held requests for class for 222 tankers, a 24 percent increase over the previous year in numbers. The more than 11m gt of tankers on order also represented a more than 17 percent increase over end-2005.

In addition to the high level of interest in crude and product tankers, the pending implementation of the new Marpol Annex II/IBC Code requirements for vegetable and other specialty oils and chemicals saw marked interest in these vessels by owners. The ABS orderbook for chemical carriers grew 40 percent in numbers to 138 tankers aggregating 1.57m gt.

Although tanker contracts continued to provide the mainstay of the ABS ship orderbook, the bulk carrier sector showed an encouraging degree of strength, particularly in the latter part of the year, with the ABS new construction share outperforming our existing market share again.

The containership sector fluctuated throughout the year in response to concerns that the market may be headed for overcapacity following two years of vigorous ordering. Long-standing ABS clients helped maintain the ABS share at the same level as the previous year. The period was also marked by the largest containership ever built being delivered into service under ABS class.

Oil and gas exploration worldwide remained at a remarkably high level throughout the year, resulting in a continuation of the very active ordering for mobile offshore drilling units (jackups and semisubmersibles). The overwhelming majority of these contracts specified ABS class.

As a consequence, the overall ABS fleet and orderbook have never before attained such high sustained levels. Although scrapping remains in the doldrums due to the robust market for the principal ship types and can be expected to rebound, the strong outward ABS orderbook foretells a period of continued fleet growth in the immediate term.

ABS FLEET SIZE (1990-2006)



ABS FLEET

VESSELS ON ORDER (2002-2006)



VESSELS REMOVED (2002-2006)







10

Percentages based on GT

15

25





Tanker (Liquefied Cargo)

Other

0



40%

OFFSHORE FLEET



*Classed and/or Certified by ABS
	Vessels in Class 31 Dec 2006		Vessels on Order 31 Dec 2006		New Vessels Classed in 2006	
VESSEL TYPE	NO.	GROSS TONS	NO.	GROSS TONS	NO.	GROSS TONS
Barge	2,547	7,441,009	303	821,736	220	679,831
Barge Carrier	11	365,026	2	7,353	0	0
Barge Type Unit	38	150,231	3	1,500	0	0
Bulk Carrier	682	23,297,286	116	5,580,582	26	1,184,629
Bulk Liquid Carrier	10	37,188	1	3,000	0	0
Chemical Carrier	209	4,110,544	138	1,573,220	49	830,763
Column Stabilized Unit	144	2,175,489	14	0	2	60,506
Container Carrier	457	17,544,230	109	4,569,197	20	868,746
Dredge	24	104,404	2	2,100	0	0
Drillship	21	517,345	0	0	0	0
Ferry	83	919,681	15	12,760	0	0
Fishing Vessel	22	41,777	3	3,654	1	256
Fixed Platform	158	23,120	19	16	9	0
Floating Dry Dock	17	188,328	3	7,616	0	0
FPSO/FSO	65	6,385,154	2	374,980	1	0
Liquefied Gas Carrier	76	3,868,204	32	2,970,699	8	677,259
General Cargo Carrier	326	2,785,742	11	171,100	3	2,619
Heavy Lift Ship	5	103,790	0	0	0	0
High Speed Craft	173	53,844	76	14,920	23	6,712
Ice Breaker	0	0	1	49,100	0	0
Offshore Supply Vessel	949	929,063	82	143,816	13	15,431
Offshore Support Vessel	218	356,102	136	238,808	38	66,061
Oil Carrier	816	44,226,971	222	11,043,952	44	3,003,774
Passenger Vessel	48	494,135	37	282,940	1	2,716
Refrigerated Cargo Carrier	25	271,946	0	0	0	0
Self Elevating Unit	381	2,142,165	55	9,277	7	69,979
Ship Type Unit (excl. FPSO/FSO)	22	1,643,209	3	66,361	0	0
Single Point Mooring	45	1,119	13	0	4	0
Spar	13	54,375	0	0	2	0
Special Purpose Vessel	521	1,120,385	22	23,936	8	10,246
Subsea Pipeline	9	0	2	0	0	0
Swath Vessel	8	24,972	0	0	0	0
Tension Leg Platform	9	6,480	2	0	0	0
Tug/Towboat	1,106	472,361	178	107,327	61	34,592
Underwater System	50	856	9	10,519	0	0
Vehicle Carrier	113	4,503,514	3	16,365	0	0
Yacht	437	134,902	132	27,674	27	11,283
TOTALS	9,838	126,494,947	1,746	28,134,508	567	7,525,403



TONY NASSIF PRESIDENT & CEO ABS GROUP OF COMPANIES, INC. strong global economy throughout 2006 propelled ABS Group of Companies to its most successful year as activity increased by an average 24 percent across all sectors. This increased activity was reflected in revenues and operating income, both of which exceeded projections. This performance also reflected the success of our renewed focus on providing integrated services to clearly identified growth markets within each of our core areas of activity – the public sector, energy and transportation and selected corporate areas that have welcomed enterprise risk management solutions that we provide through our ABS Consulting operating subsidiary.

This market focus has been accompanied by a renewed emphasis on our core product offerings: process safety management, natural hazards risk mitigation, quality management, security and threat vulnerability and catastrophic modeling, including the highly successful catastrophe bond offerings. 2006 also saw increased attention being paid to expanding the range of services available to the marine and offshore sectors in support of the core classification services offered by ABS. These ancillary services have ranged from comprehensive risk management support for a major global containership operator to TMSA training support for a large number of tanker operators to a suite of marine related training courses offered to Greek shipowners through a new dedicated training facility in Piraeus.

Within the offshore sector, the repercussions of the 2005 hurricane season continued to provide opportunities for ABS Consulting to provide a wide range of services focused on hurricane risk management and catastrophe modeling. These services were in addition to the growing number of advanced risk-based inspection and life cycle management projects, including the development of reliability centered maintenance programs, undertaken on behalf of several of the leading offshore operators, particularly those with floating production storage and offloading assets.

These activities were carried out through our Energy & Transportation division which accounts for the largest share of our activities. Significant growth was also recorded in our Public and Corporate divisions as our clients focused on security and threat vulnerability in the former and corporate risk and business interruption challenges in the latter. Projects undertaken ranged from earthquake and hurricane risk analyses for the Inter-American Development Bank, to the development of a comprehensive assessment of emergency response capabilities for the State of California.

ABS Quality Evaluations, one of the most respected management system registrars in the world, also returned a solid performance in 2006. It focused on the provision of management systems certification and providing assistance to clients needing to meet European Union Directive requirements. Industries served ranged from aerospace to processing, telecommunications and automotive in addition to government agencies. The company also offers second-party audit services and public training to a growing number of clients, with these services being well received in 2006.

The increased activity across all sectors of the ABS Group subsidiaries' activities meant an increase in staff worldwide of almost 16 percent in 2006, with a preponderance being additional engineers and skilled consultants to service the rapid growth of our activities in our core markets. The professionalism and talents of the ABS Group employees is a key differentiator for us in the market as we further consolidate our position as a leading independent provider of risk management services.

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Tony Nassif President and Chief Executive Officer



ENERGY & TRANSPORTATION

G lobal economic activity remained at a heightened level throughout 2006, spurring worldwide demand for oil and gas and for reliable marine transportation systems to carry the increased trade in both raw and finished goods. ABS Consulting's Energy & Transportation division experienced an exceptionally busy year as a consequence. Revenues rose by more than 20 percent as a result of the heavy demand for its core product offerings: Project Management Services, Process Safety Performance Review, Structural Analysis and Training Material developed for these two market segments.

The primary focus of these services was the provision of efficient and effective solutions that assisted clients to improve operating and business performance, manage risk and achieve compliance with applicable standards and regulations. Wherever possible, the ABS Consulting approach laid a framework for broader long-term systems in addition to addressing immediate business and operational needs. The effectiveness of this solutions-oriented approach was reflected in the company receiving many requests for further assistance from clients on the completion of specific projects.

In addition, greater emphasis in 2006 was placed on developing products and services for the shipping and offshore industries that were complementary to the core classification services provided by ABS. These ancillary services covered a wide range of technical and operational issues such as TMSA training support for a large number of tanker operators and a suite of marine related training courses offered to Greek shipowners through a new dedicated training facility in Piraeus. A major global containership operator sought ABS Consulting assistance in developing a comprehensive risk management strategy. Long standing core products, such as the Condition Assessment Program for aging vessels, particularly tankers, and the Rapid Response Damage Assessment services provided to ships enrolled with the Marine Casualty Response Center, were subject to further expansion.



SPOTLIGHT: JOINT INDUSTRY PROJECT



Risk-based Standards for MODU Moorings

To study the strength and reliability of mobile offshore drilling unit (MODU) moorings and develop a risk-based approach to drilling site assessment, ABS Consulting was selected by industry to lead and manage an important Joint Industry Project (JIP) investigation of the subject. Industry concern had arisen in the aftermath of recent vicious hurricanes that resulted in several semisubmersible MODUs suffering mooring failures. These incidents raised questions about the reliability of MODU mooring systems and the consequences of failure and suggested a need to reassess and revise, as necessary, existing standards.

The working group of operators, drillers, mooring vendors and engineering companies joined with ABS Consulting to revise hurricane metocean criteria, improve the understanding of mooring failures and formalize ways to assess the consequences of those failures. The results of the JIP work are being submitted to the American Petroleum Institute committee that is developing updated Codes applicable to the Gulf of Mexico. Within the offshore sector, ABS Consulting's marine staff worked closely with several leading operators such as Petrobras and ExxonMobil to better address the issue of life cycle asset maintenance that preserves the structural and operational integrity of the asset. Unexpected or protracted downtime, particularly if it involves having to move a production asset off-station, can have severe financial implications for these often multi-billion dollar projects. Effective asset integrity programs can include elements such as detailed structural and fatigue-life analyses, the development of reliability centered maintenance and risk based inspection programs, HAZID and HAZOP studies to clearly identify potential trouble areas and the provision of sophisticated fleet management software, provided by ABS Nautical Systems, an affiliated company, that can help the owner track, manage and plan maintenance schedules more effectively.

Continuing fallout from the spate of devastating hurricanes which tore through the Gulf of Mexico the preceding year also provided opportunities for ABS Consulting to deliver a wide range of services to the offshore and refining industries, focused on hurricane risk management and catastrophe modeling. Concern over the tendency for semisubmersibles to break their moorings during extreme hurricane conditions also led to the establishment, under ABS Consulting's leadership, of a Joint Industry Project to study the continued suitability of the existing require-ments and to supply input to the American Petroleum Institute (AIP) committees reviewing applicable standards. The JIP brought together operators, drillers, mooring vendors, engineering companies and classification societies in the joint effort to apply the recent lessons learned from adverse experiences in a practical manner.



SPOTLIGHT: FPSO POLVO

Safety Analysis for FPSOs

When Prosafe Production Pte Ltd was awarded a contract to provide a 1.78 million barrel capacity floating production, storage and offloading (FPSO) vessel for service in the Campos Basin, offshore Brazil, the operator turned to ABS Consulting to provide a wide range of technical and risk-based safety services for the project. These included a comprehensive structural analysis of the existing tanker selected for conversion to assess the adequacy of the hull interface structures and to verify that the target component safety level was achieved. Specialist guidance on some design modifications was also provided. These analyses also served as third-party verifications to be submitted for certification purposes.

Additionally, Prosafe engaged ABS Consulting to conduct a series of safety assessments, and to prepare the Safety Case for the vessel, addressing both design and operational issues. The Safety Case is used to demonstrate that the vessel has a systematic approach to Health, Safety and Environment (HSE) management including appropriate controls to reduce significant risks to As Low As Reasonably Practicable (ALARP).





ABS Consulting provided assistance to several oil, gas and chemical companies over the course of the year as they re-examined their process safety organizational, technical, cultural, and resource issues in order to help them achieve sustainable process safety performance and measurable improvements. In-service accidents and outages also resulted in ABS Consulting being requested to review process safety management (PSM) programs and procedures, and the process safety culture at specific facilities and, where appropriate, at other facilities under the company's control.

In another instance, Kuwait Oil Company, the government-owned exploration and production organization sought ABS Consulting's assistance in developing a comprehensive training program and associated documentation applicable to its installations (gathering centers, booster stations, pipelines, water treatment plants, laboratories and tank farms) in the country. The 30-member ABS Consulting team conducted a training and procedure needs assessment and then developed and delivered operations and maintenance procedures manuals, and operations and maintenance training manuals for the relevant staff for each installation, and also developed emergency response action plans for the installations.

The professionalism, teamwork and dedication of the ABS Consulting Energy & Transportation team in handling a wide range of demanding projects for clients in all parts of the world have proven to be key differentiators in establishing the company as a leading provider of these specialist services to industry. A heavy book of forward contracts indicates that the team will further expand its activities in the coming year.



CORPORATE

The combination of strong demand for risk management services in the aftermath of hurricanes Katrina and Rita which devastated the US Gulf Coast in late 2005, and a steady hardening of the insurance markets helped propel the ABS Consulting Corporate division to a record performance in 2006. The group recorded a 15 percent year-on-year growth in revenue leading to an overall solid financial performance at the operating level.

The Corporate division assists clients worldwide to improve their operational and financial performance by providing technology-based solutions for managing the financial consequences of natural hazard, operational and security risks. The division's foundation is based on assessing, mitigating, transferring and preparing for risks. The blend of the group's engineering capabilities, coupled with EQECAT's market leading catastrophe modeling software and alternative risk transfer expertise, means it is uniquely prepared to develop risk management solutions for clients that address the full spectrum of potentially catastrophic risks such as earthquakes and hurricanes. These services are in addition to more routine enterprise risk management solutions for corporations seeking to minimize business or supply chain disruptions.

Enhancements were made to EQECAT's proprietary WORLDCATenterprise[™] software following the US Gulf of Mexico hurricanes, with a new module prepared that specifically quantifies the risk exposure from hurricanes to assets on and offshore in the Gulf of Mexico. Primarily aimed at the insurance market, the WORLDCAT software was in greatly increased demand during 2006 with a significant increase in licensing sales being recorded. The software is modular in form and can be used to assess and analyze a wide variety of catastrophic risks.

The analytical tool is also a critical element in the support services provided by the Corporate division to insurers placing catastrophe (cat) bonds that allow them to diversify their own risk exposure and limit the potential financial impact of large natural disasters. These bonds are fully collateralized securities which pay the issuer in the event of a natural disaster. For example, without cat bond coverage, some insurers may have been left exposed under their reinsurance cover should a second hurricane have made landfall on a major metropolitan area in the same season as Katrina. By securitizing some of the risk exposure to investors, underwriters may minimize their traditional reliance on the reinsurance market.



Insurers Seek Cat Bond Support

ABS Consulting's Corporate division provided probabilistic risk analysis, risk disclosure and investor marketing support, using teams of risk experts and EQECAT's WORLDCATenterprise[™] software, for ten catastrophe (cat) bond programs. The bonds dealt with a wide range of perils including earthquakes, hurricanes and cyclones. Two of the cat bonds supported the risk management programs of ACE Ltd. (ACE) and Swiss Re.

Bermuda-based ACE, one of the five largest insurers of commercial property in the US, wanted to securitize some of its US hurricane and US earthquake risk to investors.



EQECAT provided risk analysis for the securities. Zurich-based Swiss Re, the world's largest reinsurer, had the strategic risk management objective of ceding catastrophic risk to the capital markets. ABS Consulting worked with Swiss Re on the issuance of a multi-peril, multi-security cat bond program. This resulted in the placement of \$1.2 billion of risk, the largest cat bond deal in the ten-year history of the market.





Cat bonds supported by ABS Consulting have been used to mitigate exposure from a wide range of perils including European winter storms, North Atlantic and Gulf of Mexico hurricanes, Pacific "Ring of Fire" earthquakes and tropical cyclones making landfall in Australia. EQECAT provides on-going support for the bonds by providing updated risk analyses for each of the securities, and will perform future post-event loss determinations using the WORLDCATenterprise[™] software.

Earthquake and hurricane risk analyses were also commissioned from ABS Consulting in 2006 by the Inter-American Development Bank (IDB) for Bolivia, Guatemala, Peru and Jamaica. Disaster risk management strategies were developed to help reduce potential losses from such natural catastrophes, and a report assessing the effectiveness of and recommending safeguards to the bank's development assistance programs in these countries was presented. The comprehensive skill sets available within the ABS Consulting companies helped quantify, mitigate and, where appropriate, transfer the financial risk to which the IDB was exposed from natural catastrophes.

The strong performance recorded by the Corporate division in 2006 is expected to continue through 2007. It has generated the necessary capital to support a program of continued enhancement and expansion of the products and services it is able to offer to both the corporate and insurance industries. It will continue to distinguish itself through its ability to bring together advanced engineering expertise with the unique technology and risk expertise offered by EQECAT, and through its ability to independently quantify risk in a manner that corporate risk managers can use for cost-benefit analyses that support superior risk management, mitigation and transfer strategies.



n a world made uncertain through terrorist activity and increased security threats, the ABS Consulting Public division experienced a significant increase in the demand for the many services it offers that assist federal, state and local governments, to better identify and manage the diverse threats that they face. Increasingly those agencies are adopting risk-based strategies to assist them in prioritizing their sometimes limited resources.

ABS Consulting's Public division has a long heritage of serving government clients in the US and around the world. Its services have assisted in creating a safer workplace, both for government employees and for citizens at large. It has helped governments mitigate natural and man-made hazards, and effectively manage a rapidly changing security environment in which factors as diverse as blast impact and the release of toxic material must be considered by organizations, cities and regions. The ABS Consulting approach is to assist these agencies to minimize their risks over a period of time by promoting improved readiness using a risk-based optimization of available resources.

For example, the State of California is the first to initiate a comprehensive assessment of its emergency response capabilities. The California State Legislature, through the normal budget process, requested that the California Office of Emergency Services perform a statewide catastrophic event capability gap analysis. This analysis included reviewing capabilities at the state level, within local government including municipalities, counties and special districts, and at those private entities that regularly provide resources during a catastrophic event. ABS Consulting and its project team partner, Innovative Emergency Management (IEM), developed a secure, web-based data collection portal through which data relating to municipal, county and regional emergency response capabilities was collected. The project team used industry standards such as the Emergency Management Accreditation Program (EMAP) and defined capabilities List (TCL) and Universal Task List (UTL) to develop the survey instrument and the associated metrics to measure response capabilities. Once the data was collected from the identified agencies, the team performed a statistical analysis to determine the gaps throughout the state.



The project team, reporting to the Joint Legislative Committee on Emergency Services, placed a panel of subject matter experts that included former state emergency management directors, former state legislators and former first responders to review the results and recommended

Transforming USCG Practices

Under the leadership of Admiral Thad W. Allen and through a series of Commandant Intent Action Orders, the US Coast Guard (USCG) positioned itself in 2006 for fundamental change in how it measures mission performance, allocates resources and manages mission readiness. ABS Consulting, expanding on its long standing role with the USCG, played a significant role as the agency embarked on this transition.

Under the ABS Consulting contract for the development of enterprise leadership architecture (ELA) and the provision of risk-based management and technical support services, the company supplied the Coast Guard with systematic, transparent, repeatable, goal-focused and technically-defensible processes and tools. These could be used to align and optimize the agency's organizational performance goals, its strategic plans



and mission standards for the activities that most influence achievement of those goals and the budget distributions needed to support key activities and maintain organizational readiness. ABS Consulting applied these processes at all levels of the Coast Guard's organization.





policies. The team provided the state legislature with information needed to establish financial policies that would help narrow identified gaps. At the close of the year, it continued to work with the state budget analysts to develop a projection of the implementation costs.

Although many projects undertaken by the Public division team were far more limited in scope, or addressed specific issues such as the continuing post Hurricane Katrina recovery on the US Gulf Coast, there has been a growing tendency for public agencies to seek enterprise solutions to their security and natural hazard risk management strategies. An example is the multi-year support that ABS Consulting has been providing to the United States Coast Guard under which the company has developed a wide-ranging enterprise leadership architecture (ELA) that addresses critical elements of the agency's mission readiness and performance. The approach incorporates a seamless integration of risk management, activity-based management, strategic, operational and tactical planning, budgeting/financial management and quality management at all levels of the organization (headquarters, areas/districts and sectors) to help the Coast Guard command make more informed decisions. These initiatives addressed the integration of existing systems, knowledge and specific capabilities and took into account cultural change in addition to introducing new methods, processes and tools.

With governments continuing to struggle to balance budgetary demands against the increased demands for security and emergency preparedness, a continuing high level of activity is expected by ABS Consulting's Public division through the remainder of the decade.





QUALITY MANAGEMENT SYSTEMS

n a mature management system certification market, ABS Quality Evaluations, Inc. (ABS QE), a subsidiary of ABS Group of Companies, was able to record another strong performance in 2006 as it reached into new areas and continued to streamline its administrative processes to provide clients with a cost effective, highly reputable service. The ability to demonstrate conformance to an accredited quality management system that encourages continuous improvement has become a requirement for many companies across a broad range of industries over the last few years.

In 2006, ABS QE continued to serve the large number of worldwide clients in these established areas with a particular emphasis on the public and energy industries. And it continued to expand its activities into newer, emerging markets, largely pioneered by the organization, such as within the US educational system. As a consequence, ABS QE is now working with a more diverse portfolio of clients and is auditing to a wider range of quality, safety and environmental standards than ever before.



SPOTLIGHT: FAA AVIATION SAFETY



QE Helps FAA Meet Quality Standards

Selected by the US Federal Aviation Administration's (FAA) Aviation Safety group (AVS) as their ISO registrar, ABS Quality Evaluations (ABS QE), a subsidiary of ABS Group of Companies, enabled the organization to become the largest government agency in the United States

to attain ISO 9001 certification for a single corporate quality management system.

With almost 6,500 employees located across the US and at several international offices, AVS promotes aviation safety and oversees individual and corporate compliance with FAA regulations. AVS is responsible for the certificates issued to more than 6,000 air operators, 733,000 active pilots, over 1,600 approved manufacturers, more than 90,000 flight instructors, 11,000 designers and 320,000 aircraft.

ABS QE initiated this multi-tier process with the certification of the Office of Rulemaking of the AVS, followed by successful audits of the individual AVS offices. Following these separate certifications, ABS QE consolidated Aviation Safety's office and operations under one global quality management system.

In 2006 ABS QE representatives attended the ceremony in Washington, DC, where the FAA Administrator Marion C. Blakey, applauded the organization for its commitment to international quality standards.

The core ISO quality and environmental management system standards continue to meet the principal management system needs of most industries and businesses seeking to demonstrate a commitment to continuous improvement. However, newer certification standards have also been developed to meet the very specific needs of certain sectors such as the automotive and chemical industries.

As an established and respected third-party auditor, ABS QE has expanded its services to meet these evolving standards and currently offers management system certification services to ISO 9000, ISO/TS 16949, AS9100, ISO 14001, RC14001, OHSAS 18001, SA 8000, ISO 28001 and ISO/IEC 27001. The Responsible Care RC14001 environmental standard, for example, combines the American Chemistry Council's established responsible care program with the internationally established ISO 14001 environmental standards to provide an accepted means of demonstrating the safe handling and operation of businesses operating within the chemical sector.

It has been particularly rewarding to identify and measure the benefits that are being attained by industries outside of traditional production and service as they adopt quality management systems standards. ABS QE has been a leader in introducing these standards within the governmental and educational fields, for example, and in 2006 successfully audited the US Federal Aviation Administration's Aviation Safety organization and two Texas Education Service Center (ESC) Regions to the ISO 9001:2000 standards. Each of the educational regions covered more than 100 campuses.

In addition, ABS QE offers second-party assessment services and off-site and on-site public training in related topics. Its global resources provide industry expertise and in-depth knowledge of certification processes in areas of quality, the environment, safety and social accountability.



ABS QE's customer focus and commitment to the highest possible professional standards have led to strong relationships throughout the management systems' market. The largest and most respected accreditation bodies recognize its expertise

and contributions to the development of industry, national, and international standards. The professional and innovative approach adopted by the ABS QE staff continues to build a superior reputation within a crowded marketplace.



CORPORATE GOVERNANCE

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The mission of ABS

is to serve the public interest as well as the needs of our clients by promoting the security of life, property and the natural environment primarily through the development and verification of standards for the design, construction and operational maintenance of marine-related facilities.



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The mission of ABS Group of Companies is to be the recognized, global leader assisting our clients to improve their business performance by effectively managing risk, improving safety, enhancing quality, and minimizing the adverse environmental impact of their facilities and operations.

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