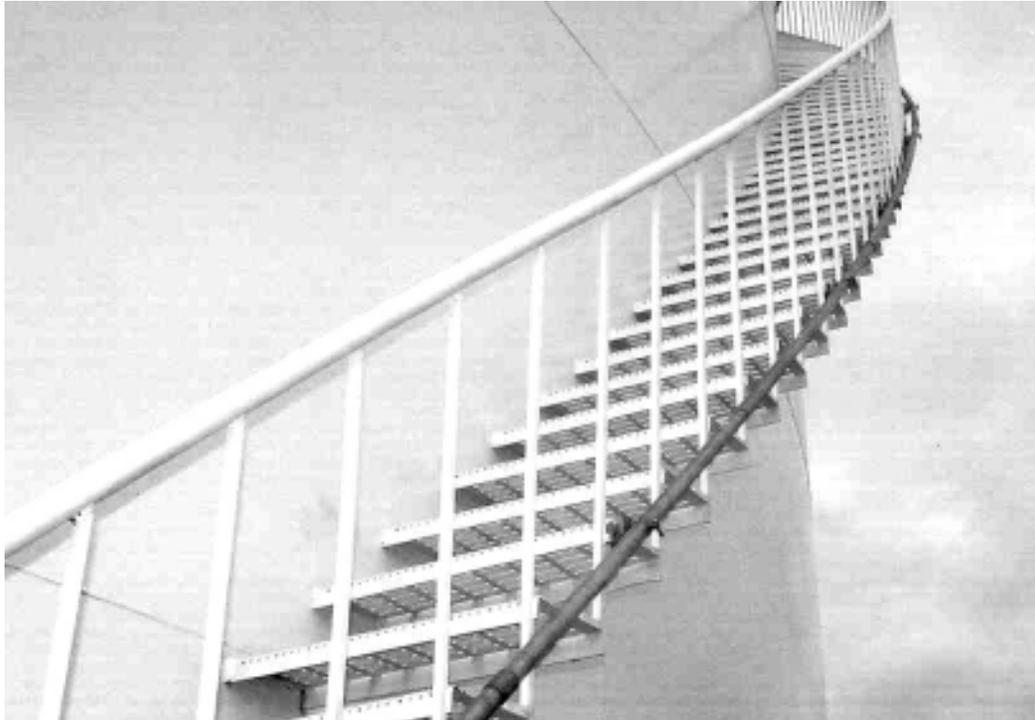


FUEL LINE

Defense Energy Support Center

Vol. 4, 2000



© Scottish Power

Contents

FUEL LINE

Fuel Line is an official publication distributed quarterly by and for the Defense Energy Support Center and fuel-oriented clientele. *Fuel Line* is prepared by desktop publishing applications and designed to provide timely, factual information on policies, plans, operations, and technical developments of the Center and interrelated subject matter. Views and opinions expressed in the *Fuel Line* are not necessarily those of the Department of Defense.

Submissions and inquiries should be addressed to:

Defense Energy Support Center
ATTN: DESC-DEB (Fuel Line Editor)
8725 John J. Kingman Road
Suite 4950
Fort Belvoir, VA 22060-6222
Send e-mail to:
cmcintyre@desc.dla.mil
The commercial telephone number is:
(703) 767-9691
DSN prefix is 427.

Jeffrey A. Jones
Director

Capt. Stuart D. Funk,
SC, USN
Deputy Director

Tony Frontiero
Executive Officer

Claire McIntyre
Editor
cmcintyre@desc.dla.mil

On the cover...staircase leading to top of fuel storage tank; wind farm; Navy Petroleum Office Change of Command.

When the Wind Whispers “Power” 8

As the fastest growing energy source worldwide, wind power is attracting attention from government and industry, users and providers. The technology, simple and environmentally friendly, has improved significantly in the last 20 years, increasing usage and providing an alternative energy source from Europe to China to the United States. How did DESC figure into a recent wind energy industry forum?

Reporting In: The Education of Paul Jones 10

When a DESC employee takes to the road as part of on-the-job training and education under the agency’s Multifunctional Program, his studies take him to the Defense Fuel Support Point located in Charleston, South Carolina. Read his up-close account of daily fuel terminal operations viewed from railcar and fuel truck loading areas, inside storage tanks, and behind measuring equipment.

Under Surveillance 14

The Defense Logistics Agency has its own team of criminal investigators who track everything from fraud relating to employee attendance and workers’ compensation to surplus weaponry sales and donations that have wandered off the official record books into black market trafficking. Find out what kinds of challenges they come up against, what constitutes a felony, and how items are demilitarized.

Northern Travels 20

The energy industry seminar of the Industrial College of the Armed Forces headed north to Alaska, then on to the United Kingdom and Norway for its 2000 domestic and foreign visits to industry sites. Take a tour with ICAF students as they meet with top company representatives, fly over glaciers and explore how the North Sea delivers up rich sources of oil and gas energy.

Fuel Terminal Security 26

Make the rounds with Tim Ness, a security guard at the Defense Fuel Support Point at Grand Forks, North Dakota. Then read his own account of happenings during 20 years at the fuel terminal, and the critical role that guards play in responding to emergencies and preventing disasters.

From the Director

The events of October 12, 2000, fill all of us with terrible sorrow and remind us of how fragile our liberties are. Terrorism underscores our vulnerability to asymmetrical threats in this century. But threats to our security also underscore the importance of what the petroleum community does every day to keep our forces ready for action.

I just returned from a week in Alaska followed shortly by two weeks in Korea and Japan visiting many of the key POL [Petroleum, Oil and Lubricants] support groups and sites in the North Pacific and Northeast Asia. As is always the case on this kind of trip, the energy community showed its enormous dedication to the job of supporting our combat forces. For someone recently returned to the energy world, I see an ever greater cohesion of military and civilians engaged in a common enterprise—to fuel the forces.

In Alaska, the Anchorage and surrounding communities also play a key role. And, while the important environmental issues may dominate the focus of those outside the Department of Defense, our representatives in Alaska have shown that readiness and environmental responsibility can both fit on the same plate.

In Korea and Japan as well, it was very comforting to see people pulling together to get the job done. It didn't matter whether someone works for the FISC [Fleet and Industrial Supply Center] at Yokosuka, at USFJ [U.S. Forces Japan], USFK [U.S. Forces Korea], a DESC organization, or a military base, the picture is the same—the petroleum community pulling together to keep the warfighter first.

Perhaps one should expect this the closer one gets to potential “harm's way.” But it seems to be the case everywhere—including here at Fort Belvoir.

I see an ever greater cohesion of military and civilians engaged in a common enterprise—to fuel the forces.

These special qualities of our work force will be needed during the next year as we undergo perhaps the most change we've seen in such a short period. We hope to be implementing FAS [Fuels Automated System] after many years' work. During fiscal year 2001, we will be capitalizing Air Force retail fuels and will take full responsibility for retail fuel beginning October 2001. The Air Force's Directorate of



*DESC Director
Jeffrey A. Jones*

Aerospace Fuels at San Antonio ALC [Air Logistics Center] will not exist as we have known it after the end of this fiscal year. As the ALC closes in June 2001, the directorate will be reassigned to Warner Robins ALC. DESC will assume most of the organization's missions by September, including logistics support of missile propellants, oxidants and special fuels. This will allow the Air Force to completely eliminate the fuels division of their working capital fund.

A great deal of change is coming, but a great and dedicated work force can make it happen. Right now, DESC senior managers are working to make sure we have the right numbers of people with the right skills in the right places. I know a lot of DESC people are working long hours. What you are doing is very important to our future, but we don't want to constantly overwork you. A total of 30 new DESC employees will be added to our roles in fiscal year 2001 to help with the work being generated by all the change we need to make.

The energy community is so close to where “things happen”—it keeps us focused on the important issues. It's a great community to be part of! ★

POLEX 2000



Maj. Gen. Joe Thompson, center, visits petroleum bag farm established by the 402nd Quartermaster Battalion at Fort A.P. Hill, Virginia.

Each year, the U.S. Army Reserve participates in POLEX (Petroleum, Oils and Lubricants Exercise), the Army's largest petroleum and water exercise. The exercise provides training for all liquid logisticians in the Army Reserve. The 475th Quartermaster Group trains with the Defense Energy Support Center and delivers fuel to Department of Defense (DoD) customers using Army Fuel Transportation Units under the command of petroleum battalions like the 402nd Quartermaster Battalion. Commanded by Lt. Col. Jack Skelly, the 402nd's mission was to transport, store and deliver bulk fuel for POLEX units located at Fort A.P. Hill and Fort Pickett, Virginia. Two petroleum bag farms were constructed at Fort A.P. Hill that could store 150,000 gallons of fuel.

During POLEX 2000, the 402nd trained with diesel fuel marine. The fuel was transported between Virginia's Craney Island, Fort A.P. Hill, and Fort Pickett, and returned to Craney Island. The 402nd also transported JP-8 fuel to all DoD customers in Virginia, including Langley Air Force Base, Fort Story, and Byrd Air Force Base. During the two-week exercise, a total of 705,934 gallons of fuel were transported over 26,660 miles.

NEWSMAKERS...



DESC Director Jeffrey Jones, left, presents Navy Lt. Cmdr. Jeffrey "Kash" Grimes with Defense Meritorious Service Award on August 16, 2000.



Maj. Gerald David, USAF, is promoted to lieutenant colonel as his wife, Lori, and Col. Jack Vance, USA, pin on the new rank.



Navy Lt. Cmdr. David Fowler, right, congratulates Lt. Col. Gerald David following promotion ceremony.

Mannequins display the latest in Army gear at the annual conference of the Association of the United States Army, Washington, D.C., October 2000.



DESC Launches Pilot Mentoring Program



Participants in the August 17, 2000 launch of DESC's pilot mentoring program, which establishes partnerships between employees and supervisors to promote personal and professional growth. Left to right, seated: Shirley Bergman, Frank Boyle, Nancy Dibble, Bill Robinson and Jim Smith. Standing: Kerry Pilz, Paul Jones, Tammie Coll, Gabriella Earhardt, Cindy French Smith, Karen Yankosky, Patricia Littlejohn, Kelly Morris, George Atwood and Jim Shillingford.



Dr. Marc DeSimone, adjunct facilitator, U.S. Department of Agriculture graduate school, guided mentoring workshop during launch of DESC's new program.



Nancy Dibble, president of the American Federation of Government Employees Local 2449, and Jeffrey Jones, director, DESC, sign memorandum of understanding for the DESC pilot mentoring program.

Statement of Command Support

Mentoring, in the long run, is more important than the fuel we buy. It is the fuel for progress and depends on the people who have gone before and our people who are eager to learn. Mentoring means to serve and to learn. It encourages a sense of selfless commitment to achieve and grow. The mentoring partnership is based on trust, a sense of dignity, hope and belief in a bright future for the mentoree and DESC. The program reminds us that each day we live, there is something new to learn and share.

NAVY PETROLEUM OFFICE CHANGE OF COMMAND



Capt. Mark F. Heinrich, incoming commanding officer, Navy Petroleum Office



Capt. Stuart D. Funk, incoming deputy director, Defense Energy Support Center

During a September 18, 2000 Change of Command ceremony at the Defense Logistics Agency Headquarters Complex at Fort Belvoir, Virginia, Capt. Stuart D. Funk relinquished command of the Navy Petroleum Office to Capt. Mark F. Heinrich, moving on to serve as deputy director of the Defense Energy Support Center.



Left to right: Lt. Mark Kusmirek, Rear Adm. Keith Lippert, Capt. Stuart Funk, and Capt. Mark Heinrich

Scenes from the Energy 2000 Conference...

...an energy efficiency workshop and exposition held at the David L. Lawrence Convention Center in Pittsburgh, Pennsylvania, August 21-23, 2000. One hundred and five exhibits, 11 from the federal government, displayed the latest energy products and technology. Jointly sponsored by the U.S. Department of Energy, Department of Defense, and General Services Administration, attendees from government and the private sector numbered 1,100. Guest speakers included Randall Yim, deputy under secretary of defense for installations.



Left to right: Eggert Hvanndal, Sharon Murphy, Laverne Tillson and Mark Iden of DESC's Installation Energy commodity business unit.



Mark Iden, left, explains DESC energy programs to conference attendees.



Gizmo, a Honeywell robot animated by remote control, befriends Stephanie Pettway of DESC's command office.

Harnessing Energy from the Wind

DESC Hosts Army Wind Industry Forum at Fort Belvoir

By Claire McIntyre

Electricity can be created from the wind. Lots of it. And although wind machines have been kicking around Europe, in one form or another, for hundreds of years, today the wind energy industry is growing faster than ever, its technology and performance having improved by leaps and bounds over the past two decades, and governments worldwide encouraging expanded use.

In keeping with the momentum, on August 3, 2000, the Defense Energy Support Center (DESC) hosted an all-day U.S. Army wind energy industry forum at the Defense Logistics Agency Headquarters Complex at Fort Belvoir, Virginia. Representatives from government and industry exchanged information on what they need and what they can offer as well as capabilities and limitations from both sides of the camp before a gathering of about 60 participants. The Department of Defense (DoD) is the largest user of energy in the government, the U.S. Army, the largest energy user within DoD.

Jeffrey Jones, DESC director, opened the conference, welcoming industry and U.S. Army participants. Ray Clark, principal deputy assistant secretary of the Army for installations and environment, delivered the keynote address. More



© National Wind Power

than 10 presentations included a wind industry overview by Randy Swisher of the American Wind Energy Association; U.S. Army wind power opportunities and challenges by Chris Conrad of the Office of the Assistant Secretary of the Army, Installations and Environment; and a history of the Army's use of renewable energy sources by Roch Ducey of the Engineer Research and Development Center of the U.S. Army Corps of Engineers. Satish Sharma of the Army's Utility Privatization and Energy Branch, Office of the Assistant Chief of Staff for Installation Management, gave an overview from the installation perspective.

But why the interest, the growth in wind power? How and where does it work?

Background

According to the American Wind Energy Association, 1999 was the "best year ever" for wind energy, with a 36 percent increase in total capacity worldwide, representing the largest jump in capacity for any year. And while wind energy may represent a small percentage of total energy use, it does earn the distinction of the fastest growing energy technology. Also, its use is specifically encouraged in Executive Order 13123, "Greening the Government."

Europe takes the lead with this one, with Germany, Denmark, Spain, the United Kingdom, the Netherlands, Italy and Sweden ranking high in wind energy growth. The United States, however, is second in existing wind energy

capacity only to Germany. Focus in Europe leans toward environmental concerns as well as creating independence from energy imports. According to the American Wind Energy Association, the top five wind energy markets in growth are: Germany, the United States, Spain, Denmark and China.

Take Denmark, for instance. In 1980, the average Danish wind turbine had a 26 kW (kilowatt) generator and a blade span (diameter) of 10.5 meters. Today their average wind turbine has a 600 kW generator and a 43-meter rotor diameter, producing somewhere between 1 and 2 million kilowatt hours of electricity. How much energy is that? According to the Danish Wind Turbine Manufacturers Association, enough to meet the annual electrical needs of 300-400 European households. The weight of the Danish turbines is half what it was five years ago. The sound is half what it was three years ago. The annual energy output is 100 times as great as it was 15 years ago.

According to the National Wind Technology Center (an offshoot of the National Renewable Energy Laboratory, which is part of the U.S. Department of Energy), the U.S. wind industry produces about 3.5 billion kilowatt hours of electricity a year—enough to meet the annual electrical needs of 1 million Americans.

Clean Machines, Open Spaces

The technology is clean (no toxic emissions) and simple (the wind turns a turbine that turns a generator that creates electricity). With few moving parts, turbines are low maintenance. Over the last 20 years, the cost has decreased more than 80 percent to generate electricity

from wind turbines and the noise associated with the turning rotor blades has decreased to negligible status.

A key component of whether wind energy is economically and practically feasible may best be expressed by borrowing a phrase from Real Estate 101: location, location, location. Wide open spaces. Winds of about 11 mph are required for small scale wind machines; winds of about 13 mph are required for larger scale wind farms. Turbines typically occupy a small portion of space in an area dedicated to farming or ranching.

Turbines can only produce energy when the wind is blowing. So the stronger the wind, and the less



interference to block or slow the wind, the better. How important is wind speed? Double the wind speed and get eight times as much energy. Coastal areas are optimum, but plains and hill tops are also choice locales.

So, for those exploring alternative energy sources, the wind may hold a certain allure: It's pollution-free, it provides energy diversification to lessen dependence on other power sources and foreign imports, and,

A key component of whether wind energy is economically and practically feasible: location, location, location.

under the right conditions, it can be very cost-competitive. And it falls right in line with the federal government's mandates for increased use of renewable forms of power, the environmentally friendly, cost-effective, energy efficient "green" technologies.

Parameters

But, to return to DESC's wind energy industry forum, nobody said

the process of getting wind turbines operating on Army installations would be easy. Some obstacles exist, partly in the form of extensive required permits, in addition to the Army's long list of competing priorities. For many Army bases, funding will go first to such projects as renovations for barracks, firing ranges and power plants. And there are no premiums, or financial incentives, currently being offered

continued on page 17 ↗

Through a Multifunctional Employee's Eyes



Paul Jones joined the Defense Energy Support Center's Multifunctional Program in July 1999, embarking on a six-year curriculum of classroom and on-the-job training designed to provide employees with steady career advancement and promotion potential. While currently serving as a commodity business specialist in the Center's Facilities and Distribution Management commodity business unit, Mr. Jones juggles off-site visits to DESC's facilities in the field to gain first-hand knowledge of the fuel business and the people who make it run.

One aspect of the Multifunctional Program, the U.S. Department of Agriculture's New Leader Program, is a largely self-designed, six-month course of study focused on successful communication with subordinates, colleagues and superiors. "The program is designed to show students what makes for an effective manager. How do you sell an idea or product?" notes Mr. Jones. When he took that question to DESC's Defense Fuel Support Point located at Charleston, South Carolina, he found another question: How do terminal personnel get the fuel from the tank to the customer?

The following account from Mr. Jones describes one day of a two-week stint at Charleston—what he observed and learned from actual hands-on activities at the fuel terminal.

The New Leader Program—First Stop, Charleston, South Carolina

A Day in the Life of a Fuel Terminal

By Paul B. Jones

The U.S. Department of Agriculture's New Leader Program is a six-month study of self-evaluation that encourages students to stretch and grow from within. One of the many assignments a student has to perform during this six-month program is a 30-day detail, an assignment in a new location, with new duties and an opportunity to learn from and work with a new work force. I was fortunate to be selected, through the efforts of my supervisor, Marshall

Gore, to work for two weeks at a government-owned, contractor-operated fuel storage terminal at Defense Fuel Supply Point (DFSP) Charleston, South Carolina.

April 3, 2000, 0530 hours. I report to Donald Matthews, DESC quality surveillance representative (QSR), who takes me on an inspection tour of the facilities and I experience an average workday for the men at the Charleston terminal. I meet the terminal personnel that I will be

learning from and working with from Management Engineering Associates, Inc. In addition to Larry D. Verhosek, the terminal superintendent, Ron Ebry, the chief operator, and Dave Szez, the administrative clerk, other personnel include Ronald Todd, Simon Mills, Roland White, Jerry Woods and Rex Lillard.

Storage Tanks

There is more to operating and maintaining a fuel terminal than one

would expect. Tank number one is out of service being repaired. The tank walls are raised three feet above ground level for installation of a new slope floor. The floor of the refurbished tank slopes towards the center so water and particles can collect in one place. Since water is heavier than JP-8 fuel, it automatically collects at the center of the tank to be pumped out into a mobile holding tank. Once the fuel tank is back in operation, clean fuel separated out from water in the holding tank will be pumped back into the fuel tank.

Eight feet from the bottom of the tank, a floating aluminum pan that spans the diameter of the tank, its edge sealed with a rubber gasket, prevents vapor build up and product loss through evaporation. On top of the tank rests a geodesic dome to prevent snow, rain, and dust from entering. The inside wall is coated from floor level to three feet up to prevent rust from forming on the bottom of the tank due to moisture within the tank. The rest of the tank is bare metal which, when properly grounded, dissipates static electricity efficiently.

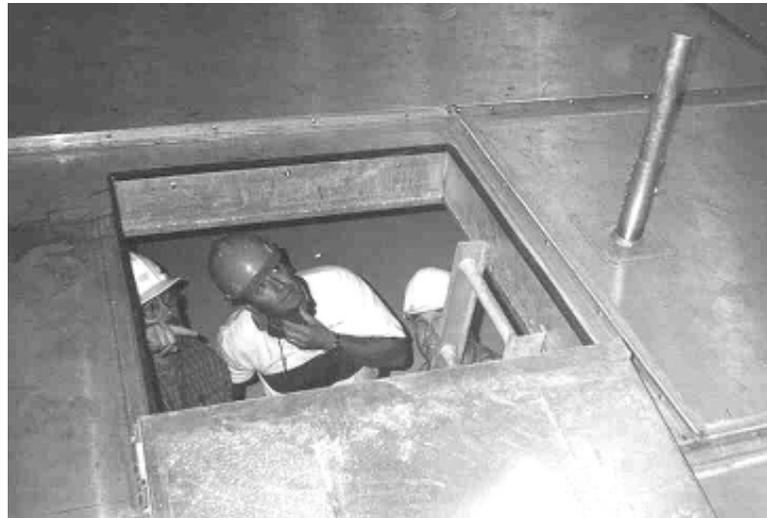
A QSR must be ever vigilant on site. For example, rainwater must be able to run off freely and not allowed to collect and pool within the berm. During my visit, workmen were repouring a section of concrete within the berm because the original slab, which had not been correctly graded, had collected rainwater and had to be destroyed and replaced.

Railcar Loading

At the railcar loading area, workers load railcars with JP-8. It takes about 30 to 35 minutes to load one 20,000-gallon railcar. Fuel travels from the storage tank

through the pipeline to a pumping house and, finally, through a hose to the railcar. Each man sits on top of the railcar with the loading nozzle. The double-open upside-down “T” spout rests on the bottom of the railcar floor. The product is slowly introduced into the railcar so as not to build up static electricity, a possible source of ignition. As the product

water rests at the bottom of the railcar, it will have washed away the paste, exposing bare wood. After all tests/samplings are completed, top and bottom hatches are sealed with numbered wire (the same number appears on the wire and the government bill of lading) and bolted down.



Terminal engineers standing on floor of storage tank look up eight feet through opening to floating pan. The pan prevents vapor buildup and evaporation of fuel.

level raises, the flow of product increases because, once the fuel level inside the railcar reaches above the spout on the car’s floor, fluid is flowing into fluid, instead of flowing into air. Since the latter instance increases the possibility of an explosive reaction, a slower flow rate is used.

It takes three minutes for the static to dissipate before the loading boom is removed from the railcar and tied to the railing of the catwalk. The temperature of the product is recorded and samples taken from the bottom, middle, and top sections of the rail car. Next, water indicator paste is applied to the end of a wooden measuring rod, which is placed straight down the hatch. When the rod is drawn out, if any

Fuel Truck Loading

Eight tank trucks are being loaded at the loading rack. Each tank truck driver must call out the number of gallons he or she will take aboard. The rule is necessary because the truck driver is responsible for the weight of the cargo over state roads. By placing responsibility for the product’s weight with the driver, DFSP-Charleston does not have liability for any weight infraction with the state.

Three individuals are involved in truck loading—the driver, a worker stationed on the top of the truck, and a worker stationed on the ground. A static line, which dissipates any

continued on page 12 ➤

*Charleston. . .
continued from page 11*

electrical charges, is placed on the truck by the “bottom” man, who is responsible for loading the fuel. The top man inspects the inside of the tank compartments to make sure they are clean and dry. The bottom man then hooks up the scully system [an overflow prevention mechanism] and nozzle to begin fueling once the top man gives the OK.

Like railcar loading, there is a three-minute wait to let the static dissipate after the last compartment is loaded with JP-8 before fuel sampling begins. The temperature gauge is placed into the far end of the tank truck. The top man walks the length of the trailer and begins to take a fuel sample of the bottom, middle and top of each of the four or five compartments, depositing the samples into one weighted sample jar. After all samples are collected, the jar should be no more than three-fourths to seven-eighths full. If the jar is too full or not full enough, a fresh sample is taken correctly.

The temperature is recorded from the last compartment and sent to the administration office via a two-way radio. [Temperature readings are closely linked to fuel quantity. The industry standard of 60 degrees Fahrenheit serves as a basis to calculate fuel volume, which can expand or contract on either side of the 60 degree mark. Thus, fuel shipped at a temperature of 72 degrees, for example, will register a larger volume at a destination point in the Middle East where temperatures reach over 100 degrees and the fuel expands accordingly.] Each hatch is locked down and sealed with a numbered wire. The bottom man

simultaneously locks down the intake valves and levers and seals them with the numbered wire.

A tank truck normally does not exceed a gross measurement of 8,000 gallons. Each truck is entered into a daily log book showing: (1) tank-trailer number; (2) amount of gallons in each compartment; (3) destination of the product; and (4) sample bottle number.

analysis consisting of the following tests: (1) Distillation; (2) Existent Gum; (3) Freeze Point; (4) Corrosion; (5) Fuel System Icing Inhibitor (FSII); (6) Thermal Stability; and (7) Water Reaction. All test results are recorded on the JP-8 MIL-T-83133D form and faxed back to Wright-Patterson AFB.

When product is shipped via pipeline from the fuel terminal to Charleston Air Force Base, three



Storage tank on left undergoes rehab of exterior wall surface.

The label on each sample bottle contains the following information: (a) date of sample; (b) tanker-trailer number and company name; (c) hydrometer (temperature) test results; (d) receiving activity name. The first sample bottle of each day is taken to the laboratory for the following tests: (1) Flash Point; (2) Conductivity; (3) B-2 Hand Refractometer.

Testing the Tests, Pumping to the Air Base, Gauging the Tanks

About once a year, Wright-Patterson Air Force Base in Ohio tests the accuracy of DESC’s Charleston laboratory by shipping the laboratory a sample of fuel for

samples are taken: the first sample is taken at the terminal at the pumping station, the second is taken at the Air Force base just before passing through the filter, and the third sample is taken after the product has passed through the filter at the Air Force base. All three samples undergo the Particulate Contamination in Aviation Fuel by Line Sampling Test. The Karl-Fisher-Titration Test is also performed on the sample from the fuel terminal.

Three important rules that a good QSR lives by are: cleanliness in all lab equipment, integrity of sampling product, and integrity of accurate testing.

At the end of the workday, the tank (in this case tank number two) that transferred product to the railcars, tank trucks, and pipeline is gauged to determine how much fuel remains in the tank. The top section of a tape measure lowered into the tank is covered with a pink fuel paste, which will be washed away by the presence of fuel, thus indicating how high the fuel rests in the tank. Similarly, a dark brown paste covers the bottom of the tape measure, or the plumb bob, which will be washed away by any water resting on the bottom of the tank. Next, the temperature of the fuel is taken. This reading is matched to the original start gauge and temperature to calculate the number of gallons that were shipped.

So ends an average workday for the men at DFSP Charleston.

Over the next two weeks at DFSP Charleston, I learned that each day was very similar to the amount and intensity of work done on the first day. I was fortunate to be able to travel on rounds with a quality surveillance representative who allowed me to perform the same tasks as the terminal employees. I was also fortunate to be able to spend time with our customers and to hear first-hand about the services and products we at Defense Energy Support Center supply to the warfighter. In addition, I learned that the end users are pleased with the quality and quantity of product we supply to them. ★

Mr. Jones spent the following two weeks observing activities at Fort Dix, New Jersey. In October of this year, he embarked on a West Coast fuel terminal tour. What will he report on next?



View from inside a geodesic dome storage tank.

I was fortunate to be able to travel on rounds with a quality surveillance representative who allowed me to perform the same tasks as the terminal employees.



Oil/water separator consisting of two mobile holding tanks collects water and fuel mixture (left container) pumped out of storage tank. Fuel is separated out into container on right.

Fraud, Felonies and Surplus Weaponry

Criminal Investigations at the Defense Logistics Agency

By Claire McIntyre

It stands to reason that a government agency like the U.S. Department of Defense has got plenty of investigatory offices working to uncover wrongdoings within and without the ranks of defense personnel. But what may not be so obvious is that the Defense Logistics Agency (DLA) has its own team of veteran investigators surveilling unlawful practices ranging from fraudulent attendance records to black market weapons trafficking. And they operate right in the midst of the DLA Headquarters Complex at Fort Belvoir, Virginia.

Doye Hambrick, director of the DLA Criminal Investigations Activity (DCIA), reveals one of his most prevalent information gathering methods: He walks down the hall and people stop and talk to him. Sure, tips come in via e-mail, fax and the telephone, but sometimes the human touch breaks down the barriers, the hesitations that come with opening a can of worms, or at least suggesting to the authorities that they run a check on a questionable can.

Mr. Hambrick's approachability defies the stereotypical cloaked and trenchcoated agent of film noir legend. His openness (he alludes to himself as a Texan who loves to talk,

"like there's any other kind"), in fact, particularly equips him as a receiver of information.

Investigative Operations division handles a span of general crimes including time and attendance fraud, misuse of government property and



Doye Hambrick, director of the Defense Logistics Agency Criminal Investigations Activity

[While the Defense Criminal Investigative Service of the Department of Defense (DoD) has investigative jurisdiction over all DoD agencies, "DCIS cannot do it all," observes Mr. Hambrick. DCIA became a separate DLA organization in 1991 and fully autonomous in 1995. Personnel include 18 investigators; field offices are located worldwide.]

Two sections comprise DCIA operations. The General

workers' compensation. The Trade Security Controls division monitors the whereabouts of surplus government property, most notably, weapons sales.

General Investigative Operations

Time and attendance fraud relates to employees who misrepresent hours and/or days that they work at DLA. Often a supervisor will turn a blind eye to the

practice, believing that over-reporting a small amount of time is not worth pursuing. "But let's say the worker in question makes \$20 an hour and doesn't work five hours of reported time in a given week," says Mr. Hambrick. "That's \$100 a week. A theft is a theft. If someone were to walk in and take \$100 out of petty cash, no one would question whether or not that constituted a crime. It's all the same."

Other types of crimes investigated include travel fraud, where employees claim expenses for reimbursement by the government that were never incurred (i.e., hotel bills, rental cars) and PCS (permanent change of station) travel expenses, sometimes claiming moving expenses for an entire family when, again, the expenses were never incurred.

Then there are the workers' compensation cases where DLA employees claim the inability to work because of physical injuries and limitations. In some cases of fraud, employees are found to be working at another job (i.e., as real estate agents, lawyers, street vendors and, in one case, as a clown) while drawing 66 percent of their DLA base pay, tax-free.

What's the penalty for getting caught in the clutches of such practices? Restitution to the government, job termination, sometimes a fine, and always a record that the subject committed a felony. Filing false claims and/or larceny (anything over \$100) adds up to a felony. Speaking of false claims, fabrication of a college degree, or place awarded, also constitutes a felony if an employee has obtained employment as a result of falsifying records.

Finally, the computer as crime vehicle. Cruising the Internet for pornography or running home businesses from workplace computers constitute misuse of government equipment, also a felony.

Most cases do not go to court. Ninety-eight percent of transgressors end up confessing, according to Mr. Hambrick. "We don't want to catch anybody," he says. "They always catch themselves."

Trade Security Controls

On the surface, the mission of DCIA's Trade Security Controls division may seem relatively routine. They monitor the transfer of surplus government property, whether through sale or donation. But it's not desks and filing cabinets that they track. The division focuses its attention on weaponry and any other items that require demilitarization.

What constitutes demilitarization? Altering an item to the extent necessary to make its use, as originally intended, impossible. A weapon, for example, must be cut into parts small enough to prohibit its use as originally designed. In contrast, straightening out a paper clip may alter its shape, but it could still be bent back into its original position to be used for its original purpose. In that case, the metal may have to be melted down to satisfy the requirement of thwarting its initially intended use.

The potential for danger and criminal activity involved in the improper disposal, storage and sale of weaponry lies at the heart of the Trade Security division. In the course of monitoring the whereabouts of military surplus, they sometimes follow suspicious,

The Defense Logistics Agency has its own team of veteran investigators surveilling unlawful practices ranging from fraudulent attendance records to black market weapons trafficking.

undocumented trails leading to unlawful use of the property. This is where law enforcement paths start to crisscross and the matter of jurisdiction comes into play.

Depending on the type and location of the property under investigation, Trade Security personnel work with the Defense Criminal Investigative Service, U.S. Customs, the U.S. Department of Commerce, the Federal Bureau of Investigation, the U.S. Air Force Office of Special Investigations (OSI), the U.S. Army Criminal Investigation Command (CID), and the Naval Criminal Investigative Service (NCIS). And while Trade Security may find discrepancies and red flags in the process of monitoring government property, other agencies that happen upon out-of-place government weaponry may call upon the DLA agency to track its source.

Case in point: Matthew Brown, the Trade division's deputy director, receives a phone call from the U.S. Customs attaché from Panama, who has uncovered a stash of M-16 rifles marked with a U.S. government stamp. Can DCIA help to identify the source? A wealth of documentation related to demilitarized equipment sales contained in several government

continued on page 16 ➤

*Criminal Investigations. . .
continued from page 15*

databases will figure centrally in DCIA's search. The attaché will likely receive information about the M-16s within hours. Early speculation includes possible theft from an inventory storage point.

Mr. Brown, who served as an agent with the U.S. Air Force Office of Special Investigations before

Given the variety of openings through which the property can flow into the wrong hands, what factors contribute to unlawful transfer? "Right now, there's a lack of oversight over storehouses and too much access by other agencies," says Mr. Brown. "Under those conditions, you can't monitor if material stored at a law enforcement facility is being sold illegally. Weapons can slip through the cracks in a million different ways. I never

parallel paths in their efforts to prevent, intercept and capture runaway weaponry. He calls investigators "fiery and red-blooded," and the weapon technology "more and more sophisticated. A laptop computer can launch a nuclear missile. Prior to about 1990, it was mostly World War II equipment we were dealing with."

Add to the equation possible entry and exit points at the place of manufacture and the trafficking reaches enormous proportions. "It's like the metaphor about putting a finger in the dike—we're plugging little holes," says Mr. Brown. "This trade program started in 1988, so it's still early on and we're finding more problems. We're doing small things but I think they're giant leaps."

"What is junk to us, is state of the art to many people," adds Mr. Hambrick, referring to the threat posed by renegade U.S. weapons systems falling into the hands of developing countries amid political hostilities.

Mr. Hambrick's commentary on perception expands into parting advice as the 36-year veteran of investigative work, 18 years of that with the U.S. Army Criminal Investigation Command, proffers an oyster half-shell.

"An oyster makes a pearl out of an irritation," he says. "So I tell people that the next time something is irritating, instead of reacting to it, they should try to make a pearl out of it."★

To contact the DLA Criminal Investigations Activity team, access their Web site at www.dla.mil/dcia.



Matthew Brown, deputy director, Trade Security Controls, Defense Logistics Agency Criminal Investigations Activity

joining the Defense Logistics Agency eight years ago, emphasizes the threat to national security springing from misappropriated technologically advanced weapons systems. "You can dam up the river, but the salmon will still find a way to swim upstream," he observes.

A host of U.S. programs release weaponry to non-U.S. military interests: the Foreign Military Sales program, surplus sales, reutilization sales and donation programs to federal, state and local agencies. Donations may include equipment related to counter-narcotics efforts.

cease to be amazed at how ingenious people are. It makes my job interesting."

He cites a statistic to further illustrate his point about surplus property slipping across and through the country unimpeded: At large sea ports, out of 100,000 containers leaving the country, U.S. Customs inspects only one-tenth of one percent of the items each month.

As part of his mission to increase awareness of the problem, Mr. Brown gives presentations to government representatives from a variety of agencies. They are all on

*Wind Energy...
continued from page 9*

by the government to the Army for using wind turbines.

Mr. Swisher of the American Wind Energy Association pointed out the intermittent characteristic of wind. "You're not going to supply 100 percent of energy with wind. The industry hopes to fill five to 10 percent of U.S. energy needs," he said, adding that "the environment is not going to go away as an issue."

With only two to three moving parts, wind turbines prove simple, yet sophisticated, observed Mike Bergey of Bergey WindPower Company. He lauded hybrid energy systems, for example, wind and solar, that harvest natural resources available in the field. "In winter, high winds and low sun are dominant. In summer, you find low winds and high sun. Using both systems [wind and solar] brings good results because they're complementary."

Bruce Levy of TDX Power has worked in the energy/power field for more than 20 years but claims not knowing how to spell "wind" until 1994. "When you bring wind power in to work with diesel power, you get a very serious winner," he told conference participants, stressing the need for careful study and assessment at each potential site. "We're not true believers. We're trying to do least cost. Every site is different. There's nothing cookie cutter about it."

As an energy supplier to the U.S. Army, DESC will continue to stand ready to support all their electricity requirements, including those generated by wind energy.★

For more information on the Army's wind energy industry forum, visit the DESC Web site at www.desc.dla.mil. Other wind energy resources: www.nrel.gov/wind; www.awea.org

DESC Debuts Reverse Auction for On-Line Bidding

Natural Gas Suppliers Compete in Cyberspace

It's called a reverse auction, an event offered for the first time this year by the Defense Energy Support Center (DESC), leading the agency further into electronic commerce, cyberspace operations, and time-cutting contract award mechanisms.

On July 27, 2000, DESC held a live auction on the Internet, allowing vendors to bid on a contract to supply 273,285 dekatherms of natural gas. The event is referred to as a reverse auction because the bid prices decline as bidders compete by offering lower bids against each other. Like a conventional auction, bidders are aware of competing bid amounts as they are offered, thus enabling on-line, real-time bidding.

Six suppliers, out of 13 who had been invited, participated in the auction. Prior to the auction, all vendors had entered into a Basic Ordering Agreement, which provides technical information on the vendors' ability to supply the product. After the bidding was completed, DESC contracting personnel looked at factors contained in the Basic Ordering Agreements, in conjunction with price, to determine the contract award.

The reverse auction was timed to coincide with "bid week" in the natural gas industry, a time when gas sells quickly at market prices for

deliveries in the next month. Because of inherent price fluctuations in the natural gas market, "timing is everything," says Sharon Murphy, director of DESC's Installation Energy commodity business unit. "We work at warp speed. We don't take months to award contracts in gas," she adds. "We in DESC see e-commerce clearly as the way we in government contracting should be moving toward doing procurement, especially in volatile energy commodities such as natural gas."

"Timing is everything. We work at warp speed. We don't take months to award contracts in gas."

Bidding closed less than 30 minutes after it began. DESC awarded the contract to Washington Gas Energy Services for \$1.1 million, 15 minutes after bidding ended.

DESC plans to offer a total of 12 reverse auctions over a six-month period following the July launch of on-line bidding, six of which will involve natural gas. The auctions are conducted by FreeMarkets, Inc. of Pittsburgh, Pennsylvania, an on-line auction house.★

More on DESC's On-Line Bidding in the next edition of Fuel Line

Low Sulfur and Diesel Fuel Lubricity – The Continuing Saga

by Maurice E. LePera
LePera and Associates

In October 1993, EPA limited sulfur in diesel fuel for “on-road” vehicles to a maximum of 0.05 percent or 500 parts per million (PPM). This created many fuel-related problems that resulted from the poor lubricating quality of the low sulfur diesel fuel. Since the maximum limit for sulfur in diesel fuel prior to October 1993 had been 0.50 percent or 5,000 PPM, the refinery processing not only lowered the sulfur content but also removed trace amounts of certain polar impurities. Both organo-sulfur compounds and these polar impurities were the ingredients that gave diesel fuel its needed natural lubricating qualities.

From this new low sulfur limit for all “on-road” vehicles, several laboratory testing procedures were developed in the mid 1990s that measured the lubricity of diesel fuel. Chevron’s “Technical Review of Diesel Fuels” publication defines lubricity as “the ability to reduce friction between solid surfaces in relative motion, the lubrication mechanism being a combination of hydrodynamic lubrication and boundary lubrication.” More simply stated, lubricity is that quality that prevents wear when two moving metal parts come in contact with

each other. Three methods of measuring fuel lubricity were developed that are now available, namely, the Scuffing Load Ball on Cylinder Lubricity Evaluator (SLBOCLE), the High Frequency Reciprocating Wear Rig (HFRR), and the Ball on Three Seats method (BOTS).

EPA proposed new regulations in June of this year that will further reduce sulfur for “on-road” diesel fuel to a maximum of 0.0015 percent or 15 PPM. The proposed regulation is to go into effect June 1, 2006. This reduction in sulfur is fully supported by engine manufacturers who contend that new exhaust catalyst systems needed to meet the enacted emission standards will not work if sulfur exceeds 15 PPM. However, the proposed legislation is not supported by the refining industries and oil companies that are recommending the limit be set at 0.0050 percent or 50 PPM. They explain that attempting to meet the anticipated demand for diesel fuel having sulfur at 15 PPM or less will be extremely difficult and very costly for consumers.

We first have to understand why lubricity is important for diesel fuel. There are several types of diesel fuel

injection systems being used by engine manufactures that depend on fuel lubricity in varying degrees. Of all systems being used, the rotary distributor injection pump is the one most dependent on lubricity because the fuel provides 100 percent lubrication to the internal parts of the injection pump. As the rotary distributor injection pump is highly susceptible to boundary lubrication wear (i.e., when heavy metal-to-metal contact occurs with the fuel providing little or no lubrication), this potential wear becomes more severe with increasing ambient temperature and increasing loading on the engine. Any significant wear will lead to under run and/or stalling annoyances, and eventually premature pump failure. The remaining types of fuel injection systems are not as highly dependent on the fuel for lubrication and, therefore, are not as sensitive to low lubricity diesel fuel, sometimes referred to as “dry diesel fuel.”

These rotary distributor injection pumps, typically found on small to medium size engines, are widely used and are manufactured by Stanadyne Automotive Corp., DENSO Corp., Robert Bosch GmbH, and Delphi Diesel Systems. These types of fuel injection pumps

We first have to understand why lubricity is important for diesel fuel.

are typically found in most U.S. and foreign manufactured light duty vehicles and a wide variety of equipment systems.

Since the introduction of low sulfur diesel fuel in 1993, there has been a considerable amount of effort by the automotive industry, users, and the petroleum industry to incorporate a “lubricity requirement” in commercial diesel fuel, namely, ASTM D975. Unfortunately, this has not yet happened due to a combination of politics and other factors. However, Europe has displayed a greater awareness and acceptance for specifying a lubricity requirement. The European Union’s Diesel Fuel Standard EN590 now requires all low sulfur diesel fuel sold in Europe to meet a lubricity standard that uses the HFRR procedure.

In the United States, the Engine Manufacturers Association published

their “Recommended Guideline on Premium Diesel Fuel” in 1997. This document, identified as EMA FQP-1A, did include a lubricity requirement for both grades of low sulfur diesel fuel. Additionally, the “World-Wide Fuel Charter” published by the Alliance of Automobile Manufacturers in January 2000 also specified a lubricity requirement for all four of their diesel fuel categories. More recently, the Diesel Fuel Injection Equipment Manufacturers issued a “Common Position Statement on Fuel for Diesel Engines” in June 2000. Contained within this statement was a strong recommendation for including the same lubricity requirement as found in the EN590 standard. So there has been some progress.

As low sulfur diesel fuel continues to be sold in the United States without any requirement for

lubricity, there continues to exist the potential for wear problems, especially in engines with the rotary distributor fuel injection pumps. The consumer is led to believe that all is well, as fuel producers would not market a “low lubricity or lubricity deficient” fuel that could promote wear. That, however, may or may not be the case since there is “no measuring stick” presently being used. Without the enforcement of a lubricity standard, neither consumers nor fuel distributors can be certain as to whether the fuel has adequate lubricity.

As soon as the industry standard for diesel fuel D975 incorporates a lubricity standard, the potential for wear problems will become a distant memory. This standard will most certainly be needed prior to the next planned reduction of sulfur in 2006.★



Shark-mouth nose art typical of P-40 aircraft flown by Flying Tigers squadron during World War II.

They were called the **Flying Tigers**, World War II pilots who volunteered to help Chinese airmen stave off attacks from the Japanese. Today, some of the legendary fighter pilots are supplying fuel to the U.S. military services—and earning long-deserved recognition for their unique role in the nation’s history. Read their story on page 32.

ICAF 2000: Energy Travels with a Northern Theme

*By Maureen S. Crandall, Ph.D.
Professor of Economics and
Leader of the Energy Industry
Seminar, Industrial College of
the Armed Forces*

Despite doubts, changes and last minute adjustments, the 2000 energy industry seminar of the Industrial College of the Armed Forces (ICAF) actually took place. No matter how early one starts planning a class visit to Alaska, including Anchorage, Kenai, the North Slope, and Valdez, with visits to the United Kingdom and Norway less than a month later, there are always surprises that make successful execution more an art than a science.

As readers may know, ICAF's industry studies program calls for an in-depth look at various strategic industries, and combines both classroom exposure and local, domestic and foreign visits to experts in the field and to industry sites. The 15 students who opted for ICAF's energy seminar did so within the context of soaring oil prices (student gas-guzzling sport utility vehicles parked in the school lot notwithstanding), extreme volatilities in gas and electricity prices and forward markets for both, environmental concerns impacting the coal industry, acrimonious debate on issues of climate change, global

warming, and the role of government in developing renewable energies, and concerns about the future of nuclear power and waste.

Each year, the faculty thinks it will be a quiet year on the energy front, but somehow that is never the case. We always have the opportunity, aided and abetted by current events, to spark interest in how the strategic energy industries work, how energy policy affects individual firms, and the key economic drivers that make these industries central to economic and national security. Course themes over the last few years have been competition, deregulation and regional integration, with links to energy and national security, economic growth, and environmental issues.

One builds up capital stock, to use an economist's term, before going into the field to test ideas on industry representatives. That buildup initially occurs in the classroom by capturing the current state of thought on the energy industry, along with opposing views. Students read and absorb, then listen and match wits with visitors to the classroom from



Dr. Maureen S. Crandall

Deutsche Bank, Aramco, Pepco, the National Mining Association, the Brookings Institution, Columbia Gas, and the Competitive Enterprise Institute. Outside ICAF's classrooms at Fort McNair, Washington, D.C., we annually call on the Department of Energy, the New York Mercantile Exchange, one of CONSOL Energy's West Virginia coal mines, Pepco's Dickerson generating station (being sold to Southern), BP Solarex, Montgomery County's waste-to-energy plant, and Constellation Energy's Calvert Cliffs nuclear power plant. This year we included a Smithsonian energy exhibit, and next year we hope to visit a wind farm.

Historically, the seminar's domestic travel has alternated between Houston and California. This year we visited Alaska for the first time.

Each year, the faculty thinks it will be a quiet year on the

energy front, but somehow that is never the case.

Alaska

It was truly the chance of a lifetime to visit Alaska and the North Slope, the single largest source of U.S. oil production. The Anchorage program included visits with ALCOM, the Defense Energy Support Center (DESC), BP Alaska, Yukon Pacific (long a proponent of delivering North Slope gas to Valdez for liquefaction and export to Asian markets), Chugach Electric on developments in electricity markets, and a round table of industry and state officials explaining Alaska's unique energy history and current position.

Alaskan energy politics has long involved native claims issues. Tensions exist between those who seek access to the Alaska National Wildlife Reserve and the Naval

Tesoro's refinery and Phillips' liquefied natural gas plant, the latter being one of the oldest such plants in the country with continuous export operations to Japan since 1969. The day began with UH60 helicopters from Elmendorf to Kenai, followed by school bus transport to the plants. Time permitted a visit to the edge of Cook Inlet to look out over the offshore oil and gas production platforms.

The idea was to alternate office visits with site visits. The group spent a day at and around Prudhoe Bay on the North Slope. A National Guard C-130 brought the group to the Slope, where British Petroleum conducted the day's tour. Prudhoe Bay development was initially viewed as part of the U.S. response to the 1970s Arab oil embargo, to increase supply and enhance U.S.

Sherpa transport from Elmendorf to Valdez. Alyeska Pipeline Services Co. pulled out all stops for us, including a boat trip across the water to the terminal facility, a tour of the SERVS (Ship Escort and Response Vessel System), and a visit to Milestone 800 of the pipeline to complement the visit to Milestone One on the Slope. The group viewed Bridal Veil Falls and saw a bit of Valdez before returning to Anchorage, which included an air tour of glaciers and mountains.

Three weeks later, we were headed east for northern Europe, with planned visits in the United Kingdom with British Petroleum, Sheikh Yamani's Centre for Global Energy Studies, and British Gas; then on to Norway with calls in Oslo, Bergen and Stavanger. Both the United Kingdom and Norway are significant players in North Sea oil and gas development, historically and for the future, and some of their production reaches U.S. consumers.

United Kingdom

First call in London was British Petroleum world headquarters, where we were greeted by the company's chief geopolitical strategist and chief economist, and heard the company's strategic energy view of the world. Even before its purchase of Amoco, BP made numerous moves to change its image in terms of alternative energy development and climate concerns, and it now describes itself as "Beyond Petroleum." Next, at the Centre for Global Energy Studies, their economist and specialists on Saudi Arabia, Iran, Iraq, Russia, and the Caspian gave us the benefit of their expertise and views.



Tesoro refinery near Kenai, Alaska.

Petroleum Reserve for additional secure energy supplies, and those who wish to preserve the pristine nature of the Arctic environment for posterity.

But we didn't go to Alaska to simply move among and between office buildings in Anchorage—we wanted to see the energy sites. We spent a day in Kenai, visiting both

energy security, but it is now a mature producing area in decline. Students also saw newer areas where the footprint of the oil industry is far reduced and the technology far more advanced and environmentally clean than in years past.

No energy visit to Alaska would be complete without a visit to Valdez. The group departed early by

continued on page 22 ↗

*ICAF 2000. . .
continued from page 21*

We spent the next day at British Gas world headquarters in Reading. Much has been said about the role and future of natural gas in this country, but only when one hears what an international company is doing, everywhere, does one truly realize the competitive nature of the business and the prospects for development in both electric power and in traditional heating and cooling, and the potential for improvement in living standards worldwide.

Norway

Onward to Oslo. Our three-day program included the Ministry of Petroleum, NordPool, Norsk Hydro, INTSOK (Norwegian Oil and Gas Partners), Statkraft (the state electricity generating company), and the Norwegian Shipowners Association. Key areas of student interest were the prospective privatization of Statoil, prospective gas exports, Kyoto concerns about future Norwegian gas-fired power projects, developments in the deregulated electricity market (Norway is years ahead of the U.S. in that regard), electricity trading, and oil tanker capacity cycles. Overall, the topics related to European Union energy prospects, for while Norway is not presently a member of the European Union, its energy future clearly depends on market developments there.

We reached Bergen on Norway's west coast by a spectacular train and fjord trip from Oslo. Bergen calls included a visit with Professor Einar Hope at the Norwegian School of Economics and Business Administration, where we heard about developments in electricity markets; the electricity



ICAF 2000 energy seminar members, Oslo, Norway.

trading company Bergen Energi; and Norsk Hydro, where we received a demonstration of new computer simulations of virtual geologic exploration and development that are lowering costs throughout the industry. A field visit to Statoil's huge Kollsnes gas terminal plant followed. Kollsnes is where offshore gas from the huge Troll field reaches land. This gas field is the largest in Europe and will be supplying as much as 25 percent of continental European gas demand for years to come.

Stavanger, the Houston of the Norwegian oil and gas industry, used to be the country's sardine capital. As the fish declined, the city declined, but found a new life in North Sea oil and gas. It is the headquarters of Norway's state oil company, Statoil; just outside Stavanger lies the headquarters of Phillips Norway, the first company to strike hydrocarbons in the Norwegian North Sea back in the 1970s.

The Statoil museum display and the company representative's remarks added greatly to the students' understanding of the key importance of North Sea developments to energy security and technology development. A briefing by the president of Phillips Norway

on his company's position, particularly with regard to natural gas and its export links to continental Europe, was a highlight of the trip. Finally, we made another site visit to Statoil's vast Karstoe natural gas processing complex, the largest in Europe, where North Sea gas from a variety of fields undergoes separation of natural gas liquids, condensates, impurities, and water before further shipment as exports to continental Europe.

Observations

The past three years have been a rollercoaster ride in prices for the petroleum industry worldwide, and Norway is no exception. Statoil's board was fired in 1999 for poor performance. In the face of worldwide privatization trends, Statoil (and the Norwegian government) is examining whether it should remain a state company. Norsk Hydro eagerly awaits the outcome. Even though it also is partly owned by the Norwegian government, Norsk Hydro argues that competitive forces bring the best results and elicit the capital needed to compete on a global scale.

There's no doubt that Norwegian petroleum and gas technology is on the cutting edge. The future of

Norway's energy industry is tied to demand conditions in Scandinavia and the European Union, and the prospect of excess supplies of electricity in continental Europe gives pause to Norwegian gas and electricity exporters. Our students learned not only the uncertainties of technological change and costs, but also the intricacies of regional integration in an environment of new European Union competition directives.

Norway is warmed by the Labrador current, while Alaska's North Slope is too far from the influence of the Humboldt current to feel any warmth. The two northern producing regions are very different, but both contribute significantly to world oil and gas supplies and exhibit great future potential, depending on market demand, for natural gas production in particular.

The Future

It is now time to think of the trips for April and May 2001. We expect to visit California, according to our normal rotation. This should be an exciting time to go, given the volatility and turmoil in California and western U.S. electricity markets. We also expect to have the opportunity to tour an offshore platform.

Foreign travel plans for 2001 are only beginning to take shape, but we are aiming for the United Arab Emirates, Saudi Arabia and Paris. This may be a big order, given the Middle East cultural contrasts with the United States. But with the help of a former ICAF student from the United Arab Emirates, the U.S. embassies, Aramco and other companies, we are optimistic. In true ICAF fashion, the impossible we do, if not today, then tomorrow.★

DoD Fraud Hotline Alert

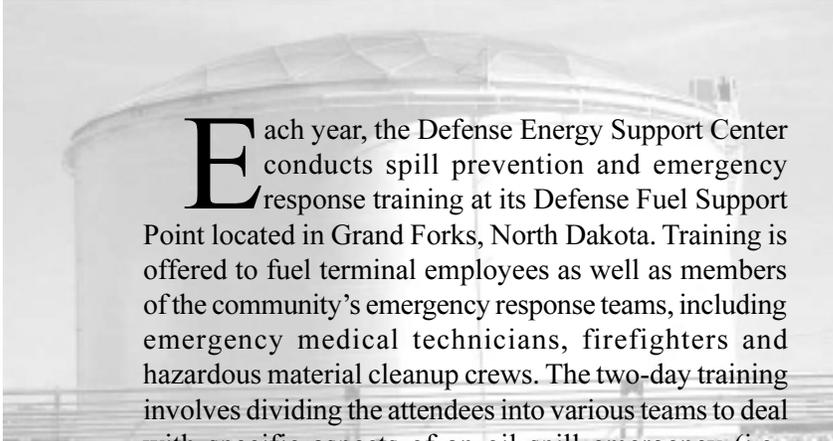
To report instances of fraud, waste, abuse, or mismanagement in Defense Logistics Agency/ Department of Defense programs and operations, contact one of the following:

- a. Visit the DLA Complaint Program Web site: www.complaints.hq.dla.mil.
- b. Call the DLA Complaint Program at 1-800-411-9127 or Defense Switched Network (DSN) 427-5447.
- c. Write to: Chief, Referral Review Team (CAASR), Defense Logistics Agency, 8725 John J. Kingman Road, Suite 2533, Fort Belvoir, VA 22060-6100.
- d. Visit the DoD Defense Hotline Web site: www.dodig.osd.mil/hotline.
- e. Call the DoD Defense Hotline Program at 1-800-424-9098.
- f. Write to: Defense Hotline, The Pentagon, Washington, DC 20301-1900.
- g. Visit the DoD Defense Hotline by e-mail: hotline@dodig.osd.mil.



Visit the DESC Website at:
www.desc.dla.mil

Emergency Response Training



Each year, the Defense Energy Support Center conducts spill prevention and emergency response training at its Defense Fuel Support Point located in Grand Forks, North Dakota. Training is offered to fuel terminal employees as well as members of the community's emergency response teams, including emergency medical technicians, firefighters and hazardous material cleanup crews. The two-day training involves dividing the attendees into various teams to deal with specific aspects of an oil spill emergency (i.e., operations, planning, logistics, finance, safety and public affairs). Often referred to as OPA 90, the training is federally mandated by the Oil Pollution Act of 1990. The training concludes with a Defense Fuel Support Point deployment exercise and a demonstration of the Grand Forks Fire Department's emergency vehicles and equipment.



Jerry Barnhill, a facilitator with Science Applications International Corp., conducts training session.

Left to right: Louis Brenner, Grand Forks Air Force Base; Tim Ness, Grand Forks DFSP; Joel Parker, Grand Forks DFSP; Mitch Steien, Grand Forks Fire Department, plot strategy following hypothetical pipeline break.



Mike Flermoen, battalion chief, Grand Forks Fire Department, briefs training group on city's emergency response efforts during 1997 flood. The May 4 flood was preceded by eight snow blizzards; 90 percent of city residents were evacuated.



Grand Forks, North Dakota



Pat Jacobs, a contract specialist with DESC's Facilities and Distribution Management commodity business unit, confers with Bill Pulley, quality surveillance representative, Grand Forks Defense Fuel Support Point.



Jerry Brownell, a mechanic at the Grand Forks fuel terminal, demonstrates use of pipeline clamp, a type of "bandaid" in event of rupture.



Sprinkler system in action at truck loading rack.



Capt. Duane Lund, Grand Forks Fire Department, displays hazardous material suit.

Fuel Terminal Security— Making the Rounds in North Dakota

By Claire McIntyre

Tim Ness has worked as a security guard at the Grand Forks Defense Fuel Support Point for the last 21 years. Want to learn something about fuel terminal security operations? Walk with Mr. Ness as he makes his rounds. Wear something warm. This is North Dakota.

He grabs a hand-held scanner as he leaves the comfort of the office to begin his checks of the 11-acre facility. Mr. Ness will pass the scanner over strategically placed electronic strips, or “keys,” to verify that the various points have been checked. The process creates a computerized record of the checkpoints indicating time and location.

Light will fade soon on this 4:00-11:30 p.m. shift, the wind rising as the night nears. His path takes him around four fuel storage tanks, a key for each attached at the bottom of the tanks’ staircases. As with all phases of his inspection, he looks for anything out of place, out of kilter or potentially hazardous. The tanks, all sporting geodesic domes, collectively hold 11.4 million gallons of JP-8 fuel. A large owl sits on the top rim of

each tank, the uniformity betraying the illusion: The birds aren’t real.

Farmland surrounds the terminal grounds. One farmer has been dumping beans in a field next to the terminal, perhaps for use as fertilizer, and attracting pigeons as a result. The fake owls are an attempt to discourage the massing pigeons, whose numbers have become troublesome.

Onward to structures housing the generator, workshop, manifold system, fire suppressant control system, spill paraphernalia and valves, past the pipeline that delivers fuel to the Grand Forks Air Base 14 miles away, past the railcar tracks, past the truck loading racks, around plastic lined berms, over rocky

pathways and across steel landings. Trucks deliver fuel to North Dakota cities of Bismark, Fargo and Minot as well as Duluth, Minnesota. Although railcar operations were decommissioned several years ago, the tracks and loading rack are still maintained, preserving the terminal’s ability to deliver by railcar should the need arise in the future.

Kellys Slough, a national wildlife refuge, rests 11 miles to the west. Much of the area is wetlands and host to a variety of amphibians, mammals and vegetation. The terminal’s pipeline crosses Kellys Slough, the stakes high in the event of a spill or leak.

All points check out A-OK as Mr. Ness finishes his first set of rounds



Security guard force at Grand Forks fuel terminal. Left to right: Tim Ness, Don Cooksey, Lester Pringle, Jack Carter and Winston Johnson.

of the evening. He will repeat the mile-long inspection three more times during his shift. Shortly before midnight, he will be relieved by the terminal's only other full-time security guard, Lester Pringle.

It's easy to overlook the security aspect of fuel terminal operations, but one fact stands out: After official working hours, surrounded by fuel, equipment and the potential for leaks, malfunction and combustion, the security guard is responsible for terminal safety. On his watch, Mr. Ness has witnessed a tank car split into two distinct sections from a combination of cold temperatures and metal fatigue. He has caught manifold leaks, pump motors that turned on automatically and erroneously, without human intervention, and a fire retardant foam mechanism also triggered without apparent cause.

But human intervention is exactly what Mr. Ness's job is about. While increasingly sophisticated technology continues to make invaluable contributions to how terminal personnel do their jobs, for instance, automatic valve opening and closing and monitoring of fuel loading from a computer screen, glitches are an inherent possibility in every machine. Or, as Mr. Ness observes, "The more complicated things get, the more attention they need."

Add to the man versus machine scenario the extreme North Dakota temperatures. A typical winter evening at the terminal might register -20 degrees Fahrenheit; -40 would not be unusual. A mild winter would find temperatures ranging anywhere from the zero degree mark to 10 or 15 degrees below zero.



Stairway leading to top of fuel storage tank.

"I get lots of fresh air. That's one of the things I like best about this job," says Mr. Ness. "I feel safe out here," he continues. "There's a lot of fuel here, but the government puts a high premium on safety and making sure its facilities are safe—it comes before profits."

Bill Pulley, DESC's quality surveillance representative at the government-owned, contractor-operated Grand Forks terminal, makes his own observation. "The security guard position is the least paid, but the most important function

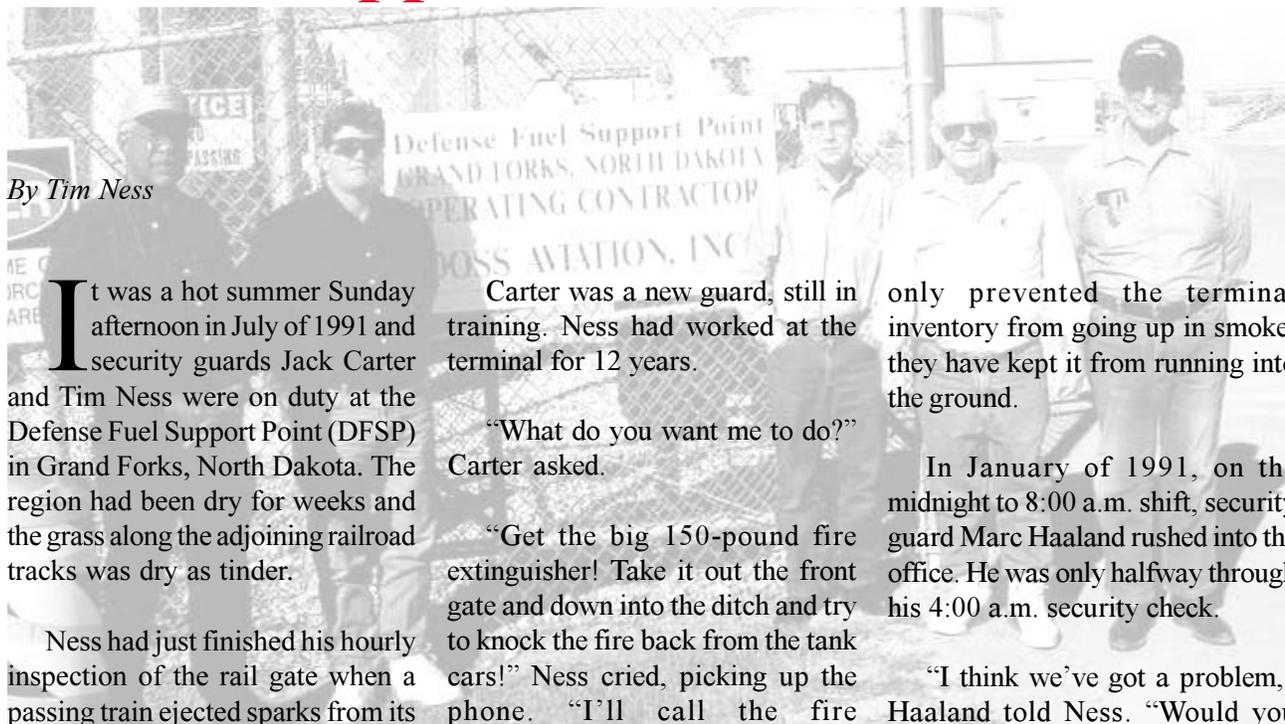
at a facility," he says. "They're worth their weight in gold. They save the government millions of dollars by responding to conditions when nobody else is around. We're [daytime terminal personnel] only on site for eight hours, but the guards are there 16 hours. And a camera is not going to detect a leak."★

[Tim Ness is a published author of poetry and articles on tropical fish. Read his account of security operations at the Grand Forks Defense Fuel Support Point on page 28.]



Railcar loading rack and tracks. Although the facility no longer receives and distributes fuel by railcar, the equipment is maintained for contingency use.

Twenty Years of Security at Defense Fuel Support Point Grand Forks



By Tim Ness

It was a hot summer Sunday afternoon in July of 1991 and security guards Jack Carter and Tim Ness were on duty at the Defense Fuel Support Point (DFSP) in Grand Forks, North Dakota. The region had been dry for weeks and the grass along the adjoining railroad tracks was dry as tinder.

Ness had just finished his hourly inspection of the rail gate when a passing train ejected sparks from its stack. They landed in the tall, dry grass of the ditch along the tracks. The grass burst into flames and the fire spread rapidly. Ness turned back and ran toward the office. Grass fires were frequent along the railroad tracks and were ordinarily dealt with by a quick call to the fire department. But this time was different.

Ten tank cars, each containing 20,000 gallons of highly explosive and unpredictable JP-4 jet fuel, waited on the rail spur along the ditch just inside the terminal fence, less than 10 feet from the fire. By the time Ness reached the office, the entire ditch was in flames. The loaded tank cars shimmered in the heat waves of the fiery tendrils that rose up behind them.

“Jack, we’ve got a fire!” Ness called out to his partner.

Carter was a new guard, still in training. Ness had worked at the terminal for 12 years.

“What do you want me to do?” Carter asked.

“Get the big 150-pound fire extinguisher! Take it out the front gate and down into the ditch and try to knock the fire back from the tank cars!” Ness cried, picking up the phone. “I’ll call the fire department!”

Carter wheeled the big extinguisher out the gate and around the fence to the fire. Within five minutes, he had put out the fire next to the tank cars and pushed what was left of it into the north corner of the ditch. Unfortunately, the wheels of the extinguisher became stuck in the mud and he was unable to reach the last remnants of the fire. When the fire department arrived, several minutes later, they put out the last of the burning grass.

Saved by the guards’ prompt actions—two lives, 200,000 gallons of jet fuel, 10 tank cars, and one bulk storage terminal valued in excess of \$15 million.

In the years that the author has been a security guard at DFSP Grand Forks, the guard force has not

only prevented the terminal inventory from going up in smoke, they have kept it from running into the ground.

In January of 1991, on the midnight to 8:00 a.m. shift, security guard Marc Haaland rushed into the office. He was only halfway through his 4:00 a.m. security check.

“I think we’ve got a problem,” Haaland told Ness. “Would you come out and take a look?”

Ness put on his parka and followed Haaland out into the cold. It was 20 degrees below zero Fahrenheit. A stiff wind was blowing from the northwest. Haaland pointed his flashlight at cracks in the ground alongside tank #1. A dark line of liquid was seeping out along the edges of the crack. It looked like moisture but they knew that no water would behave this way at 20 degrees below zero. A sniff test told them that JP-4 fuel was seeping up around the tank.

The guards immediately reported the leak to the terminal superintendent, E.D. McClendon, and the contracting officer, Bill Pulley. They were both on the site with a crew before dawn, pumping water back into the tank to freeze and stop the leak temporarily until

the cracked tank bottom could be permanently repaired.

Saved—2 million gallons of JP-4 fuel, a substantial environmental clean-up bill, and damage to surrounding farms and wildlife.

DFSP Grand Forks occupies an isolated, quiet corner of Grand Forks' outskirts, in many ways ideal for accidents, acts of vandalism, or sabotage. Police patrols are irregular. Interest of passers-by is low. The security guards at DFSP Grand Forks are often the only people working in the area. Thus, it falls on them to make reports of accidents, crimes, or fires, whether they occur in the terminal area or not.

In the past 20 years, the security force has reported assaults on the road, gas leaks, and a tank fire in the unattended Cenex Asphalt Terminal across the road. They have driven off kids shooting 4th of July rockets at floating lid bulk storage tanks. They have guided sheriff's deputies to vandals shooting guns into the facility. They have reported a 20,000-gallon tank car (which was luckily empty) breaking in half on the rail spur on a cold winter night. They have discovered and responded to cracked electric pump housings spewing JP-4 30 feet into the air, pressurized 16-inch lines slipping apart during pressure checks at 2:00 in the morning, and overheated electric fuel pumps running with the switches turned off. They have reported breaks in the fence line, leaks in the pipeline to Grand Forks Air Force Base, and numerous spills, both small and large. They have taken action to correct false alarms and accidental foam releases from the terminal's automatic fire suppression system.



Diesel, Fuel System Icing Inhibitor additive, and slop tanks, left, as well as geodesic fuel storage tanks, right, are part of the security guards' appointed rounds at the Grand Forks Defense Fuel Support Point.

Saved—\$20,000 in foam every time a security guard responds to a false alarm and turns off the automatic foam system. Saved—equipment, product, and federal wildlife refuge lands.

Even though the record shows that the security force is doing the work they are hired to do, the preventative nature of fuel terminal security often causes outside observers to see the security guard's job as redundant. They sometimes wonder who these people are that are walking around among the pipes and tanks at all hours of the night and what work they are doing to earn their keep. After all, in a terminal where there are never any accidents, why pay extra employees to sit around doing nothing? The commercial petroleum industry has largely eliminated its guard force and the only time we see the costs is when some innocent bystander mistakenly drives into a street that has been filling with gasoline throughout the night—gasoline from an unattended pipeline terminal.

The press is always quick to criticize the government for hiring

excess personnel and creating excessive regulations. But a look at the history of DFSP Grand Forks quickly reveals that government regulations, such as those requiring security guards, save both lives and property. The federal government's approach to fuel terminal management stresses safety over bottom line costs. And safety means more than emergency response. It means prevention of problems before they occur.

A look at the record of DFSP Grand Forks reveals exactly how safe a workplace it is. Government regulations and strict enforcement of those regulations have made it that way. Terminal personnel of all job descriptions, all doing their jobs as defined by those regulations, have helped to keep it that way. Because a security force is on the job, the safety record of DFSP Grand Forks consists largely of spills that never happened, potential fires that never ignited, and accidents, injuries and deaths that never took place.★

Tim Ness is a security guard at the Grand Forks Defense Fuel Support Point.

*The Defense Energy
Support Center's
Environmental Guide
for Fuel Terminals...*

...contains everything you ever wanted or needed to know about running a fuel terminal. Think you know something about terminal safety, oil spill cleanup, hazardous materials and environmentally conscious ways of dealing with fuel contaminated areas? Know what bioventing is? How about air sparging? Natural attenuation? Then there's thermal stripping. Photodegradation. What's a boom? What about preventive booming?

If that all sounds too glamorous, the guide is tempered by more legalistic, federal and state regulatory concerns. What reports must be filed? To whom? By when?

The number of regulations governing fuel terminal operations staggers the mind, as do the number of safety precautions, pollution prevention measures and maintenance procedures. But it's all there, on one compact disk, in an easy-to-find, easy-to-read format. Browse the glossary. Scan the chapter titles. Peruse the pertinent.

How did the guide come about? Was its creation very complicated? Get the story straight from the guide's author...

A Short History of DESC's Environmental Guide for Fuel Terminals

By Bill Middleton

Most manuals in federal offices look austere, probably have several volumes, and take up half the shelf. If you've ever attempted to read through any of these manuals, it's like reading *War and Peace* in "bureaucrateese." But it comes with the territory in the government because almost all of its employees are connected in some way to a rule, requirement, or regulation.

In 1989, I was asked to prepare a manual to help field activities wade through the continuing maze of environmental requirements that were becoming part of the daily operations at the Defense Energy Support Center's (DESC) government-owned, contractor-operated fuel facilities. The first guide was a haphazard collection of policy letters, executive orders, and rough summaries of air, water, and hazardous waste regulations. Copies of the guide were hand-assembled and crafted from recycled report binders.

The guides became sought after by DESC's director and regional commanders and demand grew rapidly. By 1992, a team consisting of technical editors, writers, environmental training specialists and graphics technicians from the Law Environmental and Engineering Corp. in Kennesaw, Georgia, was

selected to prepare a new document. The biggest obstacle to this effort was convincing the consultants that we wanted a user-friendly, easy-to-read guide that had a comfortable, non-Department of Defense (DoD) feel.

Technology advanced, presses rolled, and the first professional looking volume of the guide was distributed at the agency's Worldwide Fuel Conference in January 1993.

Copies of the book started to appear on the desks and bookshelves of DoD petroleum facility offices worldwide and the guide's popularity soared. Private companies, including Mobil Oil Corporation and Weyerhaeuser International, wanted to use the format as part of their employee training. The Petroleum School at Fort Lee, Virginia, as well as the Non-Com Logistics School at Brooks Air Force Base, Texas, began using it part of an environmental course. This "word of mouth" advertising created a greater demand, and plans began to update and print a new volume in time for the Worldwide Petroleum Conference in 1996. All of this attention for a government manual!

The next volume contained some additional "nice to have" accessories, including a spill poster

for listing emergency numbers and an appendix of necessary documents for DESC funding, support and spill reporting. The format was made even more user-friendly. The finished product was mailed to 500 DoD locations worldwide in packets of three for the commander, the Petroleum, Oil and Lubricants specialist, and an environmentalist. By this time, the National Guard Bureau had also adopted the guide as part of their training program.

The 1996 version was entered into the Society for Technical Communications (STC) contest for written media held in Anaheim, California. STC is an organization consisting of 20,000 members from the following career fields: technical writing and editing communications, academic institutions, and industry. Annual contests are held to judge the best in several categories for written communications, and submissions

come from major corporations, government agencies, and commercial and electronic companies. The guide, categorized as a “public relations” document, received a distinguished award, the best in its group. Major competitors included the Sony Corporation and the U.S. Department of Agriculture.

The 1999 version was pushed into the 21st century through the use of a CD-ROM. Although the written publication was still being produced and used, the CD was lighter, faster, and more compact than its predecessor. An added dimension allowed the user to click on any word in green type for detailed reference information.

The CD version of the guide was submitted to the STC for another competition and, in addition to winning an award at the regional level as best in show, it advanced to the international level and received

a distinguished award for its category. Finally, when you thought this was more recognition than it deserved, the guide was submitted by the Defense Logistics Agency to the Secretary of Defense Environmental Awards Competition and emerged with honorable mention.★

Bill Middleton is an environmental protection specialist with DESC's Facilities and Distribution Management commodity business unit. To receive a copy of the Environmental Guide for Fuel Terminals, in either CD-ROM or printed form, contact Mr. Middleton (703-767-8313) or Kola Olowu (703-767-8316).

In 1996, Mr. Middleton produced a video to promote use of the environmental guide. In a future edition of Fuel Line: filming the video.

Environmental Guide Contents

- ★ Introduction
- ★ Emergency Response Planning
- ★ Fuel Tanks
- ★ Piping
- ★ Wastewater and Storm Water
- ★ Air Emissions
- ★ Hazardous Waste and Used Oil
- ★ Assessment and Cleanup
- ★ Training
- ★ Pollution Prevention
- ★ Routine Reporting
- ★ DESC Financial Support
- ★ Glossary
- ★ Highlights of Federal Regulations and DoD Guidelines
- ★ Defense Energy Offices & Regions
- ★ Acronyms and Abbreviations



Oil spill cleanup.

Military Fuel Contractor Receives Commendation

A Short History of the Flying Tiger Fighter Pilots

By Eriberto "Chino" Gonzalez

Founded in 1956, Mercury Air Center has been providing incident-free military fueling services in Bedford, Massachusetts, since 1997. The contractor has delivered to the government more than 1.5 million gallons of fuel to over 1,000 aircraft such as: Air Force One, Air Force Two, F-14, F-16, F-18, F-117, C5A, P3 Orion, KC135, C131, C141, and AWAC to name a few.

On March 16, 2000, Massachusetts Governor Argeo Paul Cellucci awarded a proclamation to Mercury Air Group regarding the unusual role its members played in history.

In 1941, desperate to resurrect its defunct air force, the Chinese government asked U.S. Gen. Claire Lee Chennault, a recently retired Army pilot serving the Chinese in an advisory capacity, to appeal to President Roosevelt for a cadre of American airmen to assist in the training of Chinese airmen. The first American Volunteer Group (AVG), comprised of approximately 90 pilots and 180 ground personnel recruited from the Army, Navy and Marines, arrived in China during the summer and fall of 1941.

Although many of the American volunteers who arrived in China had never flown a fighter plane, the intrepid pilots quickly earned the respect of their Japanese

adversaries during their first skirmish in late December 1941 in the skies near Kunming, China and over Rangoon, Burma. The outnumbered American pilots repelled the enemy with such courage and determination that they earned the nickname "Fei-Hu" or "Flying Tigers."

Forced to fight under primitive conditions, short on supplies, and blessed with great ingenuity, the Flying Tigers amassed the enviable official record of 299 enemy aircraft shot down, and another 240 destroyed in just seven months of service.

On March 20, 2000, legendary Flying Tiger aces, Robert "Catfish" Raine, Seymour Kahn and John "Dick" Rossi, all retired from the U.S. Air Force and former chairmen of the board of the Mercury Air Group, visited the Commonwealth of Massachusetts in honor of Flying Tigers Day and to present a lithograph to Governor Cellucci.

Governor Cellucci stated "It is appropriate for all Massachusetts citizens to recognize the heroism and sacrifice of the Flying Tigers for their dedicated service during World War II."



P-40C aircraft

The Flying Tigers was the first aircraft squadron based at Hanscom Air Force Base, flying P-40 aircraft. Portions of Hanscom AFB extend into the National Historic Park of Lexington, Massachusetts. Hanscom is the second busiest certified airport in the Northeast (Logan International Airport being the first).

As a Texaco retailer, the Mercury Air Center, under the management of John M. Wraga, Jr., works closely to assist people in need. In 1998, Mercury and Texaco sponsored an "Air Life Line Chowdah Fest." All proceeds went directly to Air Life Line, a national non-profit organization comprised of private pilots who donate their time, skills, aircraft, and fuel to provide transportation for children and adults needing medical treatment. ★

Eriberto Gonzalez is a quality assurance representative with the Defense Contract Management Agency-Boston.