



# ESSAYONS

*Forward*

U.S. Army Corps of Engineers

Gulf Region Division, IRAQ - Volume I, Issue 1

**Hendrik Johannes Visagie**

**November 9, 1974—April 12, 2004**

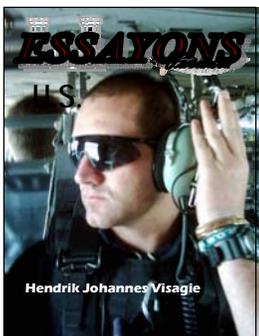




## Commander's Notes

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Cover story in memory of Hendrik Johannes Visagie.

(Photo provided by Erynis)

Above: castle in Kirkuk located on the Northern Oil Company. (Photo by Maria Or)

**It's not the running , but the having run**

**Many have not finished who have begun**

**It's not what you will be doing, but what you have done**

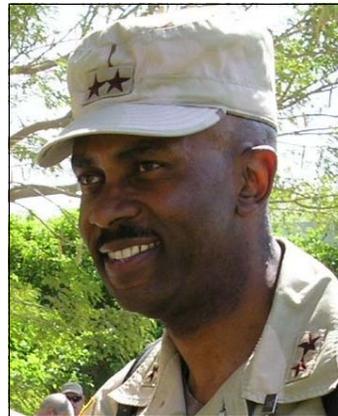
**That makes up life's plusses at the setting sun.**

Author -- anon

**T**his poem rings in my head because it is apropos to

what we, the Gulf Region Division team and our partners are facing here today in Iraq as we, once again, bring the peace back to Iraq. The news media-- both in print and on television -- tells stories of destruction and death. It is impossible to imagine that anything could be going right here, unless you are here.

The GRD team is a great team, composed of all of you dedicated and selfless servants, who place your personal well being second to that of those whom you serve. I appreciate that. I want you all to continue to do your very best in all that you do each day. I truly appreciate your efforts and your



**Maj. Gen. Ron Johnson**  
(Photo by Maria Or)

sense of devotion to duty that epitomizes the greatness of this division. The warrior spirit to never quit is as critical today as it was the very first day I told you that it is not about what we say we do, it is all about what we do--Deeds , not Words!

This is a tough mission, in a tough place, but I know that each of you are up for the challenge. Remember, the U.S. Army Corps of Engineers has never failed our Nation and it never will. Hang in there -- the sun will set and we all want to talk about "having run" this journey.

God bless you all for your service! **RLJ**

### ESSAYONS FORWARD

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## Engineers Helping Doctors Save Soldiers

When the sounds of helicopters fly in, some hearts beat faster to keep others from stopping. Doctors clamber as Soldiers are admitted straight from the combat zone. Nurses hurriedly prepare surgical areas for their patients. And all the while, engineers attentively watch the generators that power the Ibn Sina Hospital to keep them from going down.

The doctors and nurses need power to keep their medical equipment running and lights on.

The generators can not fail. “We won’t let it happen,” said Myron Fancher, who is the Gulf Region Division’s project manager for the operations, maintenance, repairs and improvements of the hospital located in Baghdad’s Green Zone.

Although there is some newer equipment at the hospital, a great deal of it still resembles the days of black and white TV. Built in the 1950’s, the Ibn Sina Hospital, like a lot of Iraq’s infrastructure was minimally maintained during Saddam’s regime.

The seven generators that currently power the hospital were salvaged and scrounged from various locations when the 30<sup>th</sup> Medical Brigade and 28<sup>th</sup> Combat Support teams moved from their medical tents to the hardened facility.

The generators are in poor condition, said Fancher.

The equipment ordinarily lasts 15-20 years when it is properly maintained. The generators nonetheless, are about 20 years old. Fancher believes they were probably burned out after two years of use and credits Iraqi ingenuity with keeping them in operation.

They are like cars, he explained. Regular maintenance needs to be performed like tune-ups and oil changes. These generators were never taken care of. Instead, they were run to the ground and then constantly under repair.

The real challenge now, since new generators are a tough commodity to find in Iraq, is finding old parts to keep the existing machines working. New power will not be available until the Corps finishes construction on a neighboring building that will share its generator with the hospital; until then old ones will have to continue to be fixed.

Luckily, the hospital was able to find an Iraqi generator mechanic guru, Karim, to fix the generators even when parts are unavailable.

“This guy is an incredible worker and he’s very reliable,” said Fancher, “he can take anything and make it work.”

When parts are not available because they are obsolete, Karim pulls out his creative genius and replicates generator parts by building them, said

Fancher.

The scope of work for the Ibn Sina hospital includes a long list of other operations and projects. The tasks range from keeping the morgues cold to replacing the whole heating, ventilation and air conditioning system, improving the water systems, putting in drop ceilings, replacing fire alarms, emergency exits and more.

For Fancher, who hails from Vicksburg District, this is his second tour. Last year he helped refurbish 250 schools in southern Iraq. He said however, the Ibn Sina hospital project has been the most rewarding thing he’s worked on so far.

“You see the impact here, you see the Soldiers and you see the doctors and the nurses who carry the heavy load,” said Fancher.



(Photo provided by Myron Fancher)

Working at the hospital, he’s witnessed Soldiers come in on a regular basis and it is clear to him that this job is important.

The Ibn Sina hospital will eventually be handed back to the Iraqi people.

Fancher said he’s heard a new Iraqi Surgeon General will be in place in the near future.

Soon there will be Iraqi doctors and nurses roaming the halls of the Ibn Sina doing their jobs because engineers like Fancher, Alnnemi and others did theirs.

- By Maria Or



Dental assistant Sgt. Fernando Diaz and Lt. Col. David DuBois, a 28<sup>th</sup> Combat Support Hospital dentist, perform an implant procedure on a Soldier at Ibn Sina Hospital in Baghdad. (Photo by Sgt. Tyrone Walker, from the December 2003 Mercury, an Army Medical Department publication)

# Uncommon Valor

*GRD helps honor one of its fallen protectors*

**T**hey gathered by the hundreds, shoulder to shoulder in a marble ballroom near the Tigris to remember their comrade, their brother-at-arms, their friend, Hendrik Johannes Visagie. Contractors, military personnel, and civilians participated in a candlelight memorial April 15, 2004 to honor a knight whose death had left hollowness in the halls of the Gulf Regional Division.

Visage, (pronounced *Fi sake*), or “Fish” as he was known to his friends, was fatally shot April 7 during a return trip to Baghdad from Jordan. Just outside Fallujah unknown assailants attacked their convoy. Despite heroic efforts by the rest of the security team, and medical treatments in the 31<sup>st</sup> Combat Support Hospital located in Baghdad, Visage died of his wounds on April 12. He was 29.

For the GRD and its extended family, it was the second time\* one of their own had fallen in Iraq. Everyone attending hoped it would also be the last.

Fish, a native of Roodepoort, South Africa, had been in Iraq as a member of Erinys, a British security company contracted to provide security services to the GRD. Fish’s assignment included being a member of the personal security team to Maj. Gen. Ron Johnson, GRD commander.

Fish’s pursuit of excellence as special agent for personal security was his passion. His dedication led him to the development of a tool known as the Surveillance Bus (a state-of-the-art mobile tracking and listening center) while serving with the Special Task Force in South Africa. “(The bus is) a task force capability that Fish created which has gained legendary status,” said Michael Hutchings, Erinys Iraq’s Chief Executive Officer.

“Fish would have approved of the way in which our people involved in the attack on April 7<sup>th</sup> handled themselves,” said Hutchings. “He would have approved of the bravery, recognized the teamwork and the good drills, and he would have been glad that his friends made it back together because they worked together and un-

derstood what had to be done.”

Albana Eribeli-Metus, a colleague who was also on the trip from Jordan, tended to his wounds immediately after the attack. “He was calm, even joking a bit despite knowing how badly he was injured,” she said. With great humility, she feels somewhat honored to have been one of the last to speak with him and remains in awe of his composure even faced with his own mortality.

“Our motto in the Task Force for those who have almost died, is that life’s got a special flavor, the protected will never know,” said friend and colleague Derrick Vosloo, reciting a



**Corps of Engineers, Erinys, and other friends pay their**  
*(Photo by Steven Wright, watermark photo provided by Erinys)*

quote often used by Fish.

Although Maj. Gen. Johnson confesses he only knew Fish for a short time, their close relationship was formed in the bond that existed between a protector and his charge. "It is not time, but closeness to a person that increases my vulnerability and opens me up to deeper pain and despair," he said. "Fish's life and his impact upon mine will never be forgotten. Fish's death and his impact on me will never be forgotten."

Illuminated on a memorial table stood a photo of Fish, his weapon, his armor, boots and mementos of his tour in Iraq. As the memorial concluded, those who came to pay their respects placed their individual candles at the base of the memorial. The glow of more than 200 flames, representing the eternal light Fish's life on earth, filled the white marble hall.

"Fish is on duty tonight," said Johnson. The memorial, originally planned to be in an outside area near the GRD headquarters had moved inside due to high winds earlier in the day. "We're in this ballroom because Fish helped make the winds blow harder this afternoon to tell us to move this indoors where it is safer," said Johnson.

Stoically, Johnson shook his head in awe of the seemingly divine intervention, "Amazing." -

**- By Thomas O'Hara**

*\*The first occurred January 28, 2004, when a suicide bomber in Baghdad killed Frans Strydom, an SASI employee subcontracted to Erinys.*



*(Photo by Steven Wright)*

**"Our motto in the Task Force for those who have almost died, is that life's got a special flavor, the protected will never know." — Hendrik Johannes Visagie**

last respects to Fish by bringing their candles together.



**Water is filtered through sand beds and filters are cleaned when backwashed in this facility at Qarmet Ali Water Plant.** (U.S. Army Corps of Engineers file photo)

# Qarmet Ali

**W**ater and oil don't mix, but water is a key component of oil production in the Ramaylah Oil fields in southern Iraq. Continued oil production in this field, one of the world's most productive, depends on water flowing from Qarmet Ali, an industrial water plant located near Basrah. The plant takes its water from the Basrah River.

Qarmet Ali Water Plant will be turned over to Iraq's South Oil Company this month after nearly one year and \$280 million to restore the plant, install two 28-megawatt turbines to develop water pressure and restore eight cluster pump stations--each with its own 28 megawatt generator--located in the oil field. The water plant will produce 52,000 gallons of water per minute with almost all of this water being used for oil production.

Water is needed for two purposes in oil production. It is injected into the oil field to maintain pressure needed to sustain and increase oil recovery; and used to wash oil in the Gas-Oil Separation Plants (GOSPs).

An important part of the production process is the treatment of the water for petroleum recovery and environmental reasons. As the water will be injected into the oil field it is filtered at the plant to remove fine sediment that might reduce the permeability

of the production zones.

Next three chemicals added the water in mixing tanks. Flocculent is introduced to cause suspended and colloidal sediments to settle to the bottom of the mixing tank. Chlorine is added to prevent growth of organics like bacteria and algae which might grow in the pipes and tanks and a corrosion inhibitor to eliminate rust and corrosion in the water delivery system of pipes, valves and pumps.

Oil in Iraq is free flowing under constant pressure. When wells are successfully drilled into the oil reservoir, pressure due to depth of burial and confinement (geostatic pressure) drives oil to the surface like an artesian well. In the Ramaylah field wellhead pressure ranges from 1000 to 3000 pounds per square inch. With production, the pressure decreases and eventually wells must be pumped. The pressure needed to drive the oil to the surface may be maintained by injecting water, gas or some other fluid into or below the reservoir.

In the Ramaylah field water is essential to replace withdrawn fluid so that underground pressure is maintained in the oil field said Corps Qarmet Ali project manager David Hobbie.

"If water isn't injected pressure drops and the oil field will no longer be free flowing," said Hobbie, "To balance pres-

sure water is injected on a three-for-one basis. This is a greater ratio that normal since oil has been produced without water injection during the past year and this void needs to be filled."

**T**he water injection approach is to use pressure to push outlying oil in the reservoir toward the center of the pool. "It's like a rodeo roundup to focus the oil," said Hobbie. Maintaining reservoir pressure is also important to prevent subsidence over the depleting reservoir. As fluids are removed, the voids created allow settling of the ground above, resulting in a depression like over the Santa Barbara Oil Field in California. This will cause topographic and drainage problems on the surface.

The first step in the oil production system is to transport the crude oil from the wellhead through flow lines to the GOSPs. These facilities receive oil from up to 30 or 50 wells. Several important processes happen to the crude oil at the GOSP units including separation of oil and gas and 'washing the oil.' The crude oil from the wellheads is moved through a series to large tanks and as the oil progresses pressure is decreased. With decreased pressure, the petroleum gases or natural gas dissolved in the oil separates said Ronn Brock, a petroleum engineer located in US Army Corps of Engineers headquarters.

# Water used for oil

“The process is just like cola fizzing,” Brock said. “When the top is popped, pressure is lowered and gas is released.”

The natural gas separated from the oil is collected and, at most oil fields, will be transported by a pipeline to be used at power plants, to produce liquefied petroleum gas (LPG), or be re-injected underground to maintain reservoir pressures. Although LPG is the product used for cooking in Iraq, circumstances in Iraq are not normal, and natural gas pipelines and the country’s LPG plants are still being restored. Therefore, the valuable natural gas resource is flared (burned) at the GOSP. As facilities are repaired, it should be processed into LPG, used for petrochemicals, or fueling power plants.

Washing the oil to removes “salts” is the final step in GOSP process. Salts are soluble minerals dominantly Sodium chloride (table salt), but also including a mix of potassium and calcium chlorides, sulphates and borates. The natural salt in the Ramaylah oil is removed by mixing the oil with water from the Qarmet Ali Water Plant to form an emulsion. As the oil and water “mix”, the salt molecules in the oil attach to the water molecules. When the process is complete, the oil and water separate naturally and the water containing extracted salts is discarded.

After removing salt the

crude oil is transported by pipeline to the Basrah Refinery to be refined into petroleum products, to power plants to be used for electricity production, or delivered for export. Eighty percent of the oil produced in the Ramaylah field is exported through an oil terminal located in the Persian Gulf.

One year after the Corps began assisting the South Oil Company, oil production in the Ramaylah Oil Field now exceeds two million barrels of per day. The export of oil will provide the financial resources for Iraq to succeed in its post Saddam era.

David Hobbie, as project manager, leads a team that has finished the work at the Qarmet Ali Water Plant. The team includes himself; Lon Lyford,

project engineer; Mike Scoville, quality assurance lead and Pat Lighthart, quality assurance representative.

Mindful of all those who preceded his team by working on Qarmet Ali, Hobbie said their accomplishments are greatly appreciated.

“This has been a good job and the people I work with are great, I believe it is an absolute necessity to talk about my team and how they go to the project every day. But, we aren’t the first to have accomplished great work here. There are many Corps folks that have been here before me, and we have had a good partnership with the Iraqi people and the South Oil Company.”

**-By Steven Wright**

Several important processes happen to the crude oil at the GOSP including ‘washing the oil.’



Placing the first water pumps at Qarmet Ali Water Plant are workers for Karafi International, a sub contractor for KBR. These temporary skid mount pumps are still in place at north and south ends of the plant and take water from a water channel. (Photo by Steven Wright)

# *One Year Later: Putting more megawatts on the grid*

*This is the first of a multi-part series highlighting the achievements and advancements made by the U.S. Army Corps of Engineers in support of Operation Iraqi Freedom. This series will continue up to June 30, 2004, the scheduled date for the transfer of authority from the Coalition Provisional Authority to the new interim government of Iraq.*

The Corps' Prime Power team provided essential emergency power and restoration services from the onset of reconstruction and remain a vital part of the power mission. (Photo by Jonas Jordan, Savannah District)

## **Shining a light on the recovery**

**I**n April 2003, Army engineers entered Baghdad, as part of the first element Task Force Fajr (Arabic for "new dawn") commanded by Brig. Gen. Steve Hawkins. As they knocked the debris off the tables and sat down with their Iraqi counterparts for the first time, it became readily apparent that the mission to restore electricity to Iraq, as with the other major infrastructure mission, was much more than they anticipated.

Prior to the hostilities associated with Operation Iraqi Freedom, the power infrastructure of Iraq was already sub-standard due to deterioration and lack of investment under Saddam.

Eighteen major power stations throughout Iraq have the potential to produce 10,000 mega watts (MW) of capacity. However, due to infrastructure degradation from neglect by the regime, the pre-war average production of the system was only 4,400 MW. With the needs of Saddam's military facilities and Baghdad drawing priority on this system, peak demand was as high as 6,200 MW -- 40 percent over capacity! This difference meant most of Iraq was under limited power even before hostilities began. Many outlying areas received electricity for only a few hours a day, while the capital and its Ba'ath Party members, operated usually without interruption.

Complicating the management of this initial effort was the destruction of the nation's National Distribution Center. The loss, not from coalition bombing, but from looters following the conflict, stripped the nerve center of the Iraq power grid of computers, communications and other assets needed to control the system. Controllers were forced to coordinate with regional distributors by telephone (also limited), and some regions failed to comply due to either local resistance, threats, and in some cases murder of commission employees by remaining Ba'ath loyalists.



## New beginnings

**W**hile members of the U.S. Army Corps of Engineers' 249<sup>th</sup> Engineering Battalion (Primer Power) took on immediate and specific in-field power hurdles, their USACE counterparts immediately began coordination with existing Iraqi power experts to develop the overall solution to the energy challenge.

As early as mid-July, in combined efforts with the Ministry of Electricity and with initial projects coordinated through contracts with the United States Agency for International Development (USAID) the Corps had restored national capacity to 3,200 MW on average, 70 percent of the pre-war level. While this was still roughly 1,000 MW below the level prior to the conflict, most of Iraq's outer cities were already receiving more power than they were used to due to the more equitable sharing of the national system. Baghdad, however, which now had to share the limited resource with the rest of the country, had to adapt to the somewhat limited supply.

"In many accounts we're actually at pre-war levels, if not better, already," said Peter Gibson, CPA senior advisor for the commission of electricity, in July.

In a summit meeting held July 16 at the Iraqi Forum conference center, coalition advisors and deputies of the Iraqi Electricity Commission met, for the first time, with power distribution representatives from fifteen separate regions of Iraq, to present the plan for long-term recovery of this vital system.

"Iraq is a wealthy country that is temporarily poor," said Ambassador Paul Bremer, administrator of the Coalition Provisional Authority (CPA) as he addressed the group for the first time. "We have a big challenge that we will face together."

The purpose of the conference was to introduce a new energy policy, to summarize activities to date, direct power distribution, load-shedding plans, and security measures to allow an equitable power utility for the people of Iraq.

The job to recover the country from this damage was a united effort led by Gibson and Karim Sahan, interim electricity commission

director. After two months of patch-working the system back to current capacity, the next step was laying out operating provisions, and a long-term plan, to eventually restore the nation to full capacity as well as educate its citizens of the need to cooperate to achieve their goals.

Hindering the effort of the coalition team had been acts of vandalism and sabotage to the system throughout the country. In many instances, several kilometers of high-power cabling

*(Photo by Maria Or)*



## *What a difference a year makes...*

were torn down by looters to recycle the copper inside. This effort, resulting in mere dollars for the looters, caused thousands of dollars of damage to the infrastructure as well as unnecessary downtimes and limitations to the system that provided energy to the Iraqis.

Because of these attacks, security of the power system became a priority for the CPA team and was specifically addressed in the Statement of Policy presented by Gibson and Sahan. "Acts against the infrastructure are considered acts against the Iraqis," said Gibson.

The goal for the commission was to restore the national capacity to close to 4,000 MW by the end of summer.

### **Restore Iraqi Electricity**

**I**n September 2003, as the grueling heat of the summer mounted, plagued by various shortages and blackouts, CPA officials and USAID decided a separate effort was necessary to expedite the overall reconstruction effort. Following the successful model demonstrated by the Corps under Task Force Restore Iraqi Oil (RIO), the Corps again tasked Gen. Hawkins, this time to form the new Task Force Restore Iraqi Electricity (RIE).

The group, comprised of 80 engineers and specialists throughout the Corps, hit the ground

**Haditha Dam is the largest hydroelectric contributor to the power system in Iraq.**  
*(U.S. Army Corps of Engineers file photo)*



running to pursue more than 40 separate new and rehabilitated generation, transmission, distribution and control systems projects. A program valued at more than \$1.5 billion. In short time, an additional 1,000 MW was added to the Iraqi grid.

That effort meant that the entire Iraqi population was getting roughly 18 hours of electricity a day – fifty percent more than what they were accustomed to. But the Corps did not stop there.

Since last fall, the RIE effort has managed additional projects as additional funds have become available. They have also orchestrated a controlled operations and maintenance of currently operating systems during the off-peak winter season to prepare for the higher load that comes with the typical summer demand.

As the task force has matured, so has the Corps command and control presence in Iraq. On January 25, 2004, the new Gulf Region Division (Provisional) of the U.S. Army

Corps of Engineers was activated that brought division-level assets on-board, as a resource multiplier, and integrated TF RIE, and other operating engineering teams, under one command.

### More to do

Currently, the Gulf Region Division Restore Iraqi Electricity directorate is charging ahead to meet the charge to “put megawatts on the grid.” RIE’s goal is to add approximately 2,000 MW of new and rehabilitated generation, transmission, distribution and controls systems. Combined with existing rehabilitation efforts by the Ministry of Electricity, USAID as well as additional imported power, the partnership goal is to achieve 6,000 MW of production on the Iraqi power grid by summer 2004.

Despite renewed hostilities in April, both in areas west of Baghdad and in the southern region, work continues at a rapid pace to reach the pre-



scribed generation goal before the desert heat reaches this Middle East.

“The commitment by the corps civilians, Iraqis and contractors in the field is still solid,” said Lt. Col. David Press, RIE Director.

If the multi-agency team remains on schedule, the system should be able to achieve the 6,000 MW goal by June, which should be a level to allow the entire county to operate more industry and provide equitable electricity throughout the country.

Long-term, the commission will upgrade existing facilities; provide added capacity and redundancies with the hopes to have a system fully capable to meet the residential and industrial needs of Iraq by 2009.

“It’s been a heavy lift for a year now, but the Corps has met each and every challenge head-on,” said Press. “It’s the great people of the corps who power this operation. It’s this operation that will power the new Iraq.”

- By Thomas O’Hara

**Above: USACE’s Peter Gibson and Dr. Karim Sahar worked side-by-side to develop the initial energy policy for the new Iraq.** (Photo by Jonas Jordan, Savannah District)

**Left: Amb. Paul Bremer addresses the summit of deputies from the Iraqi Electricity Commission July 16, 2003.** (Photo by Thomas O’Hara)





# Hail and Farewell



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*(Photos by Thomas  
O'Hara and Maria Or)*