

THE NAVY'S ENVIRONMENTAL MAGAZINE

# Currents

Summer 2007

Navy  
Divestiture  
*deep in the heart of*

TE★AS

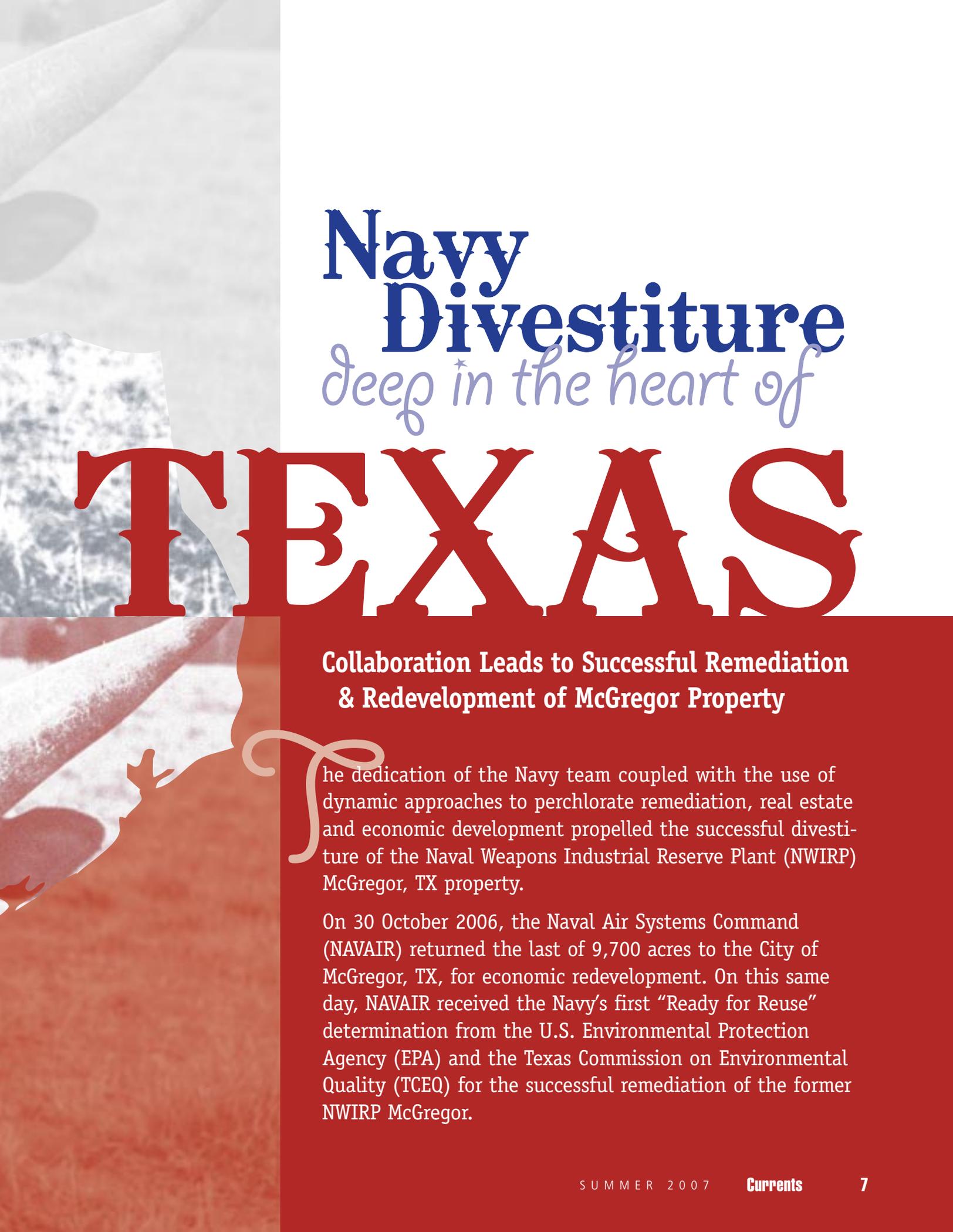
Collaboration Leads to Successful Remediation  
& Redevelopment of McGregor Property

Tiny Organisms Play Large Role  
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Integrating Avian Radars into Navy Operations





# Navy Divestiture *deep in the heart of*

# TEXAS

## Collaboration Leads to Successful Remediation & Redevelopment of McGregor Property

The dedication of the Navy team coupled with the use of dynamic approaches to perchlorate remediation, real estate and economic development propelled the successful divestiture of the Naval Weapons Industrial Reserve Plant (NWIRP) McGregor, TX property.

On 30 October 2006, the Naval Air Systems Command (NAVAIR) returned the last of 9,700 acres to the City of McGregor, TX, for economic redevelopment. On this same day, NAVAIR received the Navy's first "Ready for Reuse" determination from the U.S. Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ) for the successful remediation of the former NWIRP McGregor.

This “Ready for Reuse” determination marked the culmination of a 14-year project that has set new standards for innovative technologies and generated a fresh perspective for best business practices for future remediation projects.

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The NWIRP McGregor project is, however, far more complex than an outstanding and innovative environmental remediation effort. Personnel from NAVAIR, the Naval Facilities Engineering Command Southeast (NAVFACSE), and contracting partners EnSafe and CH2M Hill formed the Navy team that spearheaded the innovation that allowed the Navy to transfer the NWIRP property to the City of McGregor.

Always focusing on their goal, the McGregor officials and citizens, Navy, TCEQ and the EPA forged a strong and mutually respected partnership that proved to be the key to this successful and precedent-setting environmental remediation and redevelopment project.

“The cooperation among the Navy, the city, the TCEQ and the EPA has been remarkable,” said Mark Craig, NAVFACSE Remedial Project Manager. “Working with them as a team, as well as other local, state and federal stakeholders, is what truly made this property transfer possible. We had our fair share of challenges to overcome, and we all worked together for solutions. It’s an incredibly rewarding experience to work toward a common goal, achieve that goal, and to know that this project is a model for future remediation projects.”

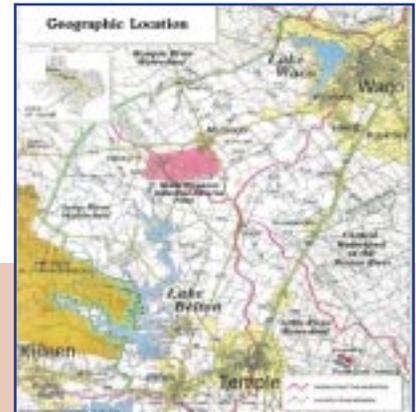
**Background**

The NWIRP McGregor property has served our nation for over half a century. Fulfilling these missions initiated a greater economic stability in the region and, at the height of production, employed upwards of 1,400 McGregor and central-Texas citizens, making it the largest employer in this area of central Texas.

In 1942, the Army Ordnance Corps established the Bluebonnet Ordnance Plant (named for the Texas state flower) on 18,000 acres just outside of McGregor, to manufacture bombs for World War II. When the plant closed in 1946, a large portion of the property was deeded to Texas Agricultural & Mechanical University for agricultural research and education.

In 1952, the Air Force acquired over 11,000 acres of the former Bluebonnet facility to support their production of jet assisted take-off boosters and solid-fuel rocket propulsion systems.

The Navy assumed ownership in 1966. In 1973, NAVAIR assumed ownership of the property and for the next 20 years, the NWIRP operated as a government-owned/contractor-operated (GO/CO) facility dedicated to researching, testing and manufacturing solid propellant rocket motors used in missiles such as the Shrike, Sparrow, Phoenix and Sidewinder. (In this case, Hercules/Alliant was the contractor operating the NWIRP McGregor facility.)



As environmental awareness increased, the Navy knew they were responsible to mitigate effects of over a half-century’s worth of mission-related byproducts, so they engaged ordnance and environmental experts in 1991 to investigate and identify a plan to address environmental concerns. This plan involved the most

advanced science, innovative technologies, and close communications with the community.

The regional economy was severely affected by the NWIRP closure in 1995, but the Navy remained open to a continued partnership with the City of McGregor to help provide some economic relief by returning the property to the city for economic redevelopment.

In addition to the remediation plan, the Navy opted for a phased divestiture that allowed them to transfer portions of the property to the city as they became eligible. This would allow the city to bolster its economy through lease agreements and tax revenues. But before a single acre would be transferred, the Navy was required to ensure that it was either free of environmental hazards or had effective and proven remedies in place. Although this is a typical regulatory requirement, this was not a typical transfer case. As a contractor-operated facility, the typical funding provisions under the base closure laws did not apply; the NWIRP was neither an active military base, nor was it closed as part of the Base Realignment and Closure Act (BRAC).

To remedy this and help revitalize the economy for his constituents, Congressman Chet Edwards (D-Waco) sought special legislation that would allow the Navy to transfer the property. This legislation was passed under the National Defense Authorization Act of 1998, which then put NWIRP McGregor on the fast track for environmental cleanup and property transfer.

One of the first steps was to conduct an Environmental Baseline Survey (EBS), which investigated historical records and conducted a fence-to-fence examination of the property to determine if it was suitable for transfer. The EBS provided the information needed for the Navy to determine the best remediation strategy.



One of the buildings undergoing explosive decontamination.



Workers going through a decontamination line in the Open Burning/Open Detonation area (Area S).

The Navy then implemented an aggressive, multi-phased Resource Conservation and Recovery Act (RCRA) Facility Investigation, and identified four broad areas of environmental concern:

#### 1. Energetics

Although the Navy never made warheads, bombs, or military ordnance at NWIRP McGregor, they were responsible to ensure the property was safe from explosive materials prior to transfer.

#### 2. Perchlorate

Ammonium perchlorate (AP) is a major component of propellants in solid fuel for rockets and missiles. AP has a limited shelf life; so pressurized water was used to flush the casings before reloading them with a fresh supply. During this process, the perchlorate would dissolve and remain in the water under natural conditions.

#### 3. Soil Contamination

Concerns included landfills, petroleum products, industrial solvents, pesticides and heavy metals.

#### 4. Groundwater Contamination

Water had the potential to become exposed to contaminants as it migrates on the surface and below ground.

### Energetics

Prior to Navy ownership, energetics (explosive material) was used at the NWIRP property in the manufacturing processes for bombs and jet-assisted take-off boosters.

The Decontamination Unit of the Naval Surface Warfare Center in Indian Head, MD was brought in to conduct extensive decontamination to certify that all buildings were safe from energetics hazards, as outlined by strict Department of Defense (DoD)

**Based on the sampling results, many buildings were determined to be safe; others were washed down or demolished, then re-sampled to confirm they were clear of energetic hazards.**

## The Basics About PERCHLORATE

1. Perchlorate is an efficient and stable oxidizer and is the safest propellant available today.
2. Perchlorate salts are both man-made and naturally occurring compounds and are commonly found as ammonium, potassium, and sodium perchlorate.
3. Perchlorate is used in the production of explosives and fireworks.
4. Perchlorate is used to quickly deploy some air bags.
5. Perchlorate uses include the production of matches, dyes, lubricating oils, electroplating, rubber manufacturing, and paint productions.
6. Potassium perchlorate is used by DoD as an oxidizer in pyrotechnics such as training simulators, flares, hand grenade delays, and aircraft countermeasures.
7. Potassium perchlorate was once used to treat thyroid disorders in people with Graves' Disease. Potassium perchlorate is still used today under limited conditions to test for thyroid hormone production.

For additional perchlorate information, please visit the Defense Environmental Network & Information eXchange (the official DoD source for perchlorate information) at <https://www.denix.osd.mil/denix/Public/Library/MERIT/Perchlorate/index.html>



Before a single acre would be transferred, the Navy was required to ensure that it was either free of environmental hazards or had effective and proven remedies in place.

guidelines. These guidelines also required that soils and waters be free of buried ordnance or energetics materials.

During a two-year energetics study and remediation investigation, approximately 4,700 samples were analyzed for energetics at an on-site lab created specifically for the decontamination effort. Based on the sampling results, many buildings were determined to be safe; others were washed down or demolished, then re-sampled to confirm they were clear of energetic hazards. The team ultimately certified 198 buildings as free of explosive hazards.

### Perchlorate

With the environmental investigation for traditional contaminants such as solvents, metals and petroleum products well underway, additional investigations began in 1998 to address perchlorate.

The Navy's original transfer schedule was significantly altered when samples from both on and off the facility revealed traces of perchlorate. Due to the reloading process, ammonium perchlorate was initially released into the soil, and subsequent natural washing and leaching caused perchlorate to enter the surface water and groundwater. This discovery had the potential to impact the drinking water for 16 local communities—approximately half a million people. At this juncture, the Navy's partnerships with the community, TCEQ (formerly the Texas Natural Resource Conservation Commission, or TNRCC) and EPA were to become more important than ever.

In February 1999, offsite samples were taken from the watersheds that feed lakes Belton and Waco, as well as the water intakes of the local water authorities.

**RIGHT:** The intercepted groundwater is pumped through a biological Fluidized Bed Reactor that degrades perchlorate to concentrations below laboratory detection limits (less than 0.00043 micrograms per liter). Since January 2002, more than 4,500 pounds of perchlorate have been removed from more than 400,000,000 gallons of recovered groundwater.



**LEFT:** Three multipurpose soil cells were constructed in 2001 to address perchlorate-contaminated soil and source area groundwater in Area M. The soil cells enabled anaerobic soil treatment while allowing carbon and nutrient-rich water to infiltrate into the perchlorate-contaminated aquifer.

Perchlorate was found only a few times in the watersheds; ensuing samples showed the perchlorate concentration was decreasing. Perchlorate was never found at the water intakes.

The investigation indicated that contaminated groundwater had migrated off the property and contained perchlorate at concentrations that exceeded the Texas drinking water interim standard of 22 micrograms per liter. The TNRCC requested that interim stabilization measures be implemented to prevent further offsite migration of perchlorate from the NWIRP McGregor site.

## Strategic & Effective Remediation

Subsequent investigations showed that perchlorate in groundwater had migrated from onsite sources to offsite properties by way of three major groundwater plumes with a combined area of 2,800 acres.

The Navy was determined to find a solution that would keep the project moving forward while stabilizing perchlorate migration. “To proceed,

we needed to address three key challenges—one, assure that the new and untested remediation technology would operate reliably and at low cost; two, complete the development, evaluation and implementation of the new technology under a compressed schedule to meet the TNRCC deadlines for the site; and three, distribute information to the community and stakeholders to educate them about perchlorate remedial technologies and site cleanup status,” said Craig.

As a result of the excellent cooperation between the partners, a three-pronged strategy was implemented:

1. Expedite environmental investigations;
2. Develop innovative technologies to remediate the groundwater before it threatened human health and the environment; and
3. Work through regulatory issues that would allow the property transfer to proceed as rapidly as possible.

The challenge of remediating perchlorate emerged as one of the most pressing issues for the site. Because

there were no proven technologies available for remediating perchlorate other than the expensive and hard-to-operate ion-exchange systems, the Navy set out to develop its own remediation systems utilizing both ex situ and in situ biological systems. These innovative, cost-effective, and easy-to-operate treatment systems were bench-scale tested and, within a three-month period, successful pilot studies were underway.

Because of the favorable geologic and hydrogeologic conditions, the Navy found that permeable reactive barriers (PRB) filled with gravel and organic matter could be used to reduce perchlorate to concentrations below laboratory detection limits while allowing cattle grazing to continue directly above the remediation systems. Two forms of PRBs (trenches and bioborings) were constructed to deal with different types of site topography. The PRBs are also referred to as biowalls.

Trenches, approximately two feet wide, were keyed into a non-water-bearing zone 10 to 30 feet below ground surface. Slotted polyvinyl chloride piping was then placed at the bottom of the trenches on a bed of gravel and attached to riser pipes that could be

## Strategic & Effective REMEDICATION

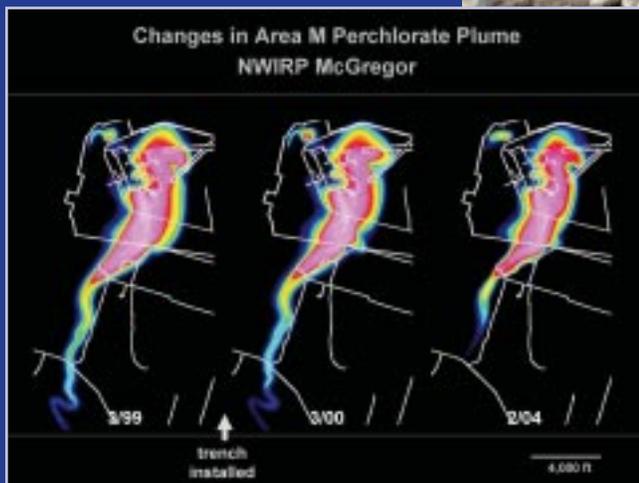
Efficiently developed, innovative perchlorate treatment technologies have saved the Navy millions of dollars in pilot-scale testing and full-scale operations. While there were many, primary measures included:

- ★ Developing multiple in situ PRB delivery systems,
- ★ Creating innovative and multi-functional anaerobic land-farming cells that treat both soil and groundwater simultaneously,
- ★ Establishing a continuously discharging, fully automated ex situ biological fluidized bed treatment system, and
- ★ Using innovative investigation techniques to reduce the number of groundwater monitoring wells.

The Navy has strategically installed approximately three miles of biowalls and 1,077 bioborings making NWIRP McGregor the world's largest application of permeable reactive barriers.

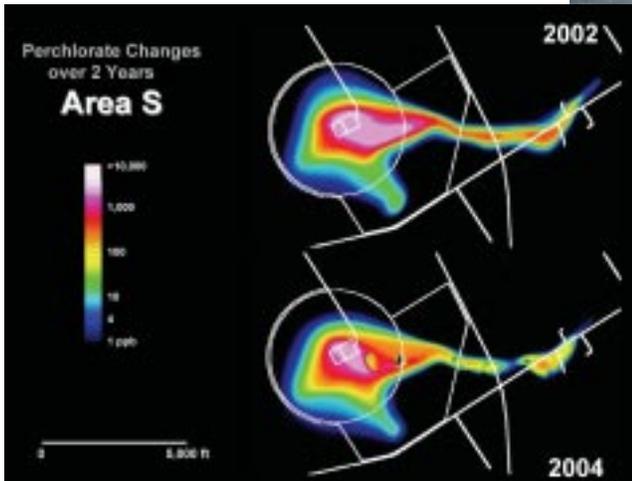


Biowall construction was keyed into bedrock in order to capture groundwater flow. The biowalls are typically 30-feet deep and two-feet wide.



The Area M perchlorate plume is receding over the nearly five-year period that the remediation systems were constructed (biowalls/fluidized bed reactor).

RIGHT: More than 13,000 feet of biowalls and 1,300 bioborings were installed by the summer of 2005, creating the world's longest biowall application. The biowall was backfilled with a mixture of mushroom compost, pine wood chips, soybean oil, and limestone aggregate. Diffuser pipes were installed on the bottom of each trench to allow for future injections of soybean oil or other carbon substrates as needed.



ABOVE: Strategically placed biowalls and natural attenuation proves to be a highly cost-effective approach, saving the Navy millions of dollars while achieving the offsite cleanup goals.



Sampling triamino-trinitrobenzene sludge in Area S, the Open Burning/ Open Detonation Area.

accessed from the surface. This design allows the Navy to add supplemental soluble organic substrate if required. Bioborings, 12-inches in diameter, were drilled using an air rotary drill rig. Bioborings were installed at five-foot intervals within three offset rows spaced 100-feet apart.

The borings and trenches were both backfilled with 60 percent gravel and 40 percent biodegradable organic matter mixture, allowing the groundwater to pass through the biowalls and bioborings while the organic matter altered the groundwater's geochemistry, allowing the metabolic processes of the indigenous bacteria to degrade the perchlorate and volatile organic compounds (VOC).

The Navy has strategically installed approximately three miles of biowalls and 1,077 bioborings making NWIRP

McGregor the world's largest application of PRBs. The groundwater monitoring data indicate that after nearly four years of operation, the biowalls are still effectively treating perchlorate-contaminated groundwater and it is estimated that the offsite property will be effectively cleaned up within 15 years. These innovative and cost-effective technologies are readily transferable to other DoD sites.

Since January 2002, more than 4,500 pounds of perchlorate have been removed from more than 400,000,000 gallons of recovered groundwater, all of which was permitted for local discharge. Additionally, perchlorate concentrations throughout the groundwater plumes at NWIRP McGregor continue to decrease

via natural attenuation (dilution) at a rate of five percent to seven percent every year, which complements the engineered perchlorate remediation.

In a major undertaking, an additional 22,000 acres beyond the NWIRP property were investigated:

- ★ Approximately 2,200 soil samples, 100 sediment samples, and 500 surface water samples were collected;
- ★ More than 800 groundwater monitoring wells were installed, with multiple samples taken from the majority;
- ★ Ground-penetrating radar and other surface geophysical techniques were used;



The biowalls were excavated with a hydraulic excavator (shallow trenches) or rock-trencher (deep trenches) and backfilled with a mixture of mushroom compost, pine wood chips, soybean oil, and limestone aggregate. Diffuser pipes were installed on the bottom of each trench to allow for future injections of soybean oil or other carbon substrates as needed.



- ★ Global Positioning Systems were used for detailed grid sampling on the lakes;
- ★ Rapid drilling in combination with expedited laboratory turnaround times allowed screening before permanent wells were installed;
- ★ Data were integrated into a Geographical Information System for “real-time analysis;” and
- ★ Visual aids were developed that transformed approximately 750,000 separate pieces of analytical data into easy-to-understand graphics.

Due to the uniqueness of the project, the team had to have a flexible and adaptable remediation design and implementation plans. As part of this effort, the Navy met with local landowners whose properties were impacted by contaminated groundwater to discuss the type, design, and locations of remedial systems that would be installed on their properties.

The Navy also worked closely with the Army Corps of Engineers (ACOE) during their two-year environmental study, which focused on the water quality of the Brazos and Leon river basins. The ACOE study results supported the Navy’s findings that the perchlorate posed no threat to the local drinking water supply.

## Regulatory Requirements

The Navy had to prove to the EPA that all remediation systems had been installed and were operating properly and successfully (OPS). This required supplying the EPA with detailed reports and backup data showing that the remediation systems were reducing groundwater perchlorate concentrations to acceptable levels. Based on the information supplied and the fact that the EPA was a key member in the partnering effort, favorable OPS determination was granted in June 2006.

With the OPS determination granted—the first in the United States for a non-BRAC facility—the final property transfer was within reach.

Eight sites at the NWIRP had been identified in 1989 as RCRA units, which were included in the Navy-owned RCRA permit. This permit presented the final challenge to property transfer because the city did not

have the financial resources to assume ownership of and liability for the entire permit. They needed a viable plan to reduce the overall size of the permit—a plan that would enable the city to adequately manage the permit while allowing the property to be sold—while the Navy retained the responsibility for environmental cleanup.

The TCEQ and the Navy worked together to outline a progressive regulatory strategy in a Post-Closure Order (PCO). The PCO holds the Navy responsible for environmental cleanup at the facility and pares down the 3,700-acre RCRA permit to only 16.4 acres, which is much easier for the City of McGregor to manage. The TCEQ approved the PCO in September 2006 and it was the first PCO to be issued in the State of Texas.

The PCO was the decisive milestone for the Navy and with that approval, the Navy could move forward with the final divestiture plans.

NAVAIR GOCO project manager Joe Kaminski was pleased with this achievement. "In nearly 40 years of federal service, I have never seen so many, and such a diverse group of people with separate agendas, work together toward the common goals of environmental protection and economic redevelopment. Nor have I seen so many obstacles overcome by people who would not take no for an answer," said Kaminski.

## Ready for Reuse

With the PCO in place, the TCEQ and the EPA then declared the NWIRP property as "Ready for Reuse." This Ready for Reuse (RfR) determination is the very first to be issued to the Navy.

An RfR determination provides, in a straightforward manner, specific information about a site, including the nature and extent of contamination, the cleanup work performed, and the status of the property with respect to federal and state requirements. Considering the expansive scope and technology requirements of the NWIRP McGregor project, receiving this determination was the ultimate commendation.

The Navy and the City of McGregor were formally recognized by the EPA and the TCEQ on 30 October 2006 in McGregor. Donald Schregardus, Deputy Assistant Secretary of the Navy (Environment), was present to accept and sign the letter of determination on behalf of the Navy.



Project team member Fred Lamb conducted a facility tour for distinguished guests attending the RfR and property transfer ceremony. Such tours were conducted as part of the community involvement efforts.

Photo by Michelangelo "Rez" Flores

"The McGregor remediation and redevelopment project is a powerful demonstration of the Navy's commitment to ensure a safe environment for future generations," said Schregardus. "It's a proud day for the Navy, knowing our partners, the City of McGregor and community, will benefit greatly from this successful collaboration."

"Getting property back into productive use is one of our highest priorities," EPA Regional Administrator Richard E. Greene said. "This determination clears the way by providing the necessary assurances to help encourage developers to reuse these valuable resources."

The Navy and Navy contractors supporting the RfR and final property transfer. BACK ROW FROM LEFT: Keith Johns, Fred Lamb, Bill Thomas, Jeff James, Bob Owens, Tom Beisel, Rob Plsek, Joe Kaminski, Scott Smith, Steve Beverly, Rick Davis, Ernie James, Alan Jacobs. FRONT ROW FROM LEFT: Donald R. Schregardus, Captain Bill Cords, Judith Hare, Mark Craig, Kelly Burdick, Captain Ed Brown.

Photo by Michelangelo "Rez" Flores



## The Ready for Reuse SIGNING CEREMONY

An RfR determination confirms that the environmental conditions on a site are protective of human health and the environment based on the site's current and anticipated use as a commercial/industrial property. For more information on the RfR program visit: <http://www.epa.gov/region6/ready4reuse/index.htm>.



Capt. Edward W. Brown, Executive Officer, NAVFAC Southeast and Donald R. Schregardus, Deputy Assistant Secretary of the Navy (Environment) present Jimmy Hering, Mayor, City of McGregor with a copy of the quit-claim deed to the property.

Photo by Michelangelo "Rez" Flores



Laurie King, Chief, Federal Facilities Section, EPA Region 6, reads the RfR certificate while John Steib, Deputy Director, TCEQ Compliance and Enforcement, presents the RfR Letter of Determination and Certificate for signatures. FROM LEFT: Laurie King, Donald R. Schregardus, Congressman Chet Edwards, Frank Leos, President, McGregor Economic Development Corporation and John Steib.

Photo by Michelangelo "Rez" Flores

The McGregor remediation and redevelopment project is a powerful demonstration of the Navy's commitment to ensure a safe environment for future generations."

—Donald R. Schregardus, Deputy Assistant Secretary of the Navy (Environment)

Following the RfR presentation, City of McGregor Mayor Jimmy Hering addressed an auditorium of over 250 people and proclaimed, "This is a great opportunity for the City of McGregor. When we look to the west, we see almost 10,000 acres of potential and almost 1,000 current jobs. The Navy, and state and federal agencies, have worked for years to turn that industrial land into property that we can grow into and will serve as the basis for McGregor's future prosperity. There is no doubt that the success of this project will pay off for generations of McGregor citizens."

Captain Edward W. Brown, NAVFACSE Executive Officer, presented the quit-claim deed to Mayor Herring, memorializing the final property transfer. "Together we have demonstrated our commitment, working closely over the past 14 years on a comprehensive 45 million dollar environmental restoration of the former Naval Weapons Industrial Reserve Plant," said Brown. "We now return this land to you with the hope that you can enjoy these dividends more fully. I am confident the land will be as productive for you as it has been for our Navy and our country."

Captain William F. Cords, NAVAIR Infrastructure Operations Director, presented a ceremonial key to the property to the mayor and locked in on the key to the NWIRP McGregor success. "The key to success... has been the spirit of determination, forward thinking, a strong public and private partnership, a progressive and innovative government and regulatory community, combined with a whole lot of Texas can-do," said Cords.

### Economic Redevelopment

From the beginning of this project, the entire NWIRP McGregor team, along with its partners, focused on economic redevelopment and property transfer. The



Deputy Assistant Secretary of the Navy (Environment) Donald R. Schregardus accepted the RfR determination on behalf of the Navy. Here, Mr. Schregardus signs the RfR certificate as Laurie King, Chief, Federal Facilities Section, EPA Region 6 and the City of McGregor Mayor, the Honorable Jimmy Hering stand by to sign.

Photo by Michelangelo "Rez" Flores

results of these efforts are now paying off as new tenants have invested over three million dollars in what is now called the McGregor Industrial Park.

The McGregor Industrial Park is located about 100 miles from both Dallas and Austin, with convenient access to the Waco Regional Airport. In addition, Burlington Northern/Santa Fe Rail service is onsite.

Leo Connor, Executive Director of the McGregor Economic Development Corporation, recognizes the challenges and opportunities in creating jobs and bolstering the city's economic base. "The land is beautiful, flat, includes an existing infrastructure and, in some cases, the buildings were already here. We are planning on subdividing a 1,000-acre section of gently sloping land, surrounded by towering oak trees, to develop an office park," said Connor.

The site's location, the existing facilities, and incentives offered by the city helped to attract several tenants quickly. Companies like Dell Computer, SpaceX, Ferguson Enterprises, and McClennan Electric Co-Op have moved onto the property and have contributed to nearly 1,000 jobs. Additionally, there are four smaller companies that have operations onsite and the city is negotiating with several others. An indoor rodeo arena is now a regular regional attraction, bringing over 40,000 people to the McGregor area.

### Community Involvement

A Restoration Advisory Board (RAB) was convened in 1996 to provide a forum for community members, local and state agencies,

environmental regulators, and the Navy to discuss and review remediation plans and environmental concerns.

The biggest challenge faced by the citizen members of the RAB was overcoming lingering distrust of the government due to the closure of the facility, job losses, and the 1993 Federal Bureau of Investigation's seizure of the Branch Davidian compound in Waco. The RAB met quarterly for a progress report that included test results, technology updates and general information.

Sandra Wittliff, first community co-chair of the RAB, commended the Navy and its contractor staff for presenting understandable findings and transparent plans. "The project team's patience really added to the success of this project. They always provided unique comparisons to define unusual technologies and regulatory requirements," says Wittliff.

"The Navy also gave us the opportunity to meet with RABs from other facilities. After listening to stories of the BRAC process I realized that, even with the added perchlorate problem, our site and team were far ahead of any others," Ms. Wittliff adds.

"NAVAIR operates and works active and inactive government owned and contractor operated facilities throughout other parts of the county," said Captain Cords. "Without hesita-

## NWIRP McGREGOR DVD Available

The *NWIRP McGregor: A Commitment to Community* DVD is available on request. Contact Kelly Burdick for a copy.

tion I say that the most successful divestiture, the one that is always moving forward in the process of transfer, the one that everyone works together on in a spirit of cooperation, is right here at McGregor.”

In addition to the RAB, the Navy developed and coordinated the Texas Regional Perchlorate Conference held in Temple, Texas, in May 1999 in conjunction with the Interagency Perchlorate Steering Committee. The conference was designed to educate stakeholders, community leaders, and local and federal officials on national perchlorate issues and to describe the

## RAB Basics

The RAB is an advisory body designed to act as a focal point for the exchange of information between an installation and the local community regarding restoration activities. The RAB is intended to bring together community members who reflect the diverse interests within the local community, enabling early and continued two-way flow of information, concerns, values, and needs between the affected community and the installation.

RAB members are asked to meet regularly and review and comment on technical documents and plans relating to the ongoing environmental studies and restoration activities.

environmental efforts that were being conducted at NWIRP McGregor. In addition, the Interagency Perchlorate Steering Committee used this venue to conduct a community outreach program.

## Recognition & Achievements

This investigation, remediation, and management strategy for the world's largest PRB application resulted in many key achievements:

- ★ First Navy and State of Texas Post Closure Order (September 2006);
- ★ First Navy non-BRAC OPS Determination (June 2006);
- ★ First Navy facility to receive an EPA “Ready for Reuse” Determination (October 2006);
- ★ First full-scale biowall application for groundwater remediation of perchlorate and VOCs;
- ★ Economic redevelopment created over 1,000 new jobs for the City of McGregor (new tenants include two Fortune 500 companies);
- ★ Accelerated remediation timeframes. Predicted reduction of clean-up times by 10 years or more;
- ★ Cost savings of over 20 million dollars in construction costs and more than three million dollars annually;
- ★ Over 20 million dollars in contracts issued to specialized Small and Disadvantaged Businesses; and
- ★ A spotless health and safety record. More than 1,000,000 construction man-hours with no reportable health and safety incidents.

NWIRP project has produced a number of published papers and has been recognized with several awards.

In February 2000, the NWIRP McGregor project team won the Grand Award from the Consulting Engineers of Tennessee in association with the American Consulting Engineers Council for the innovative and low-cost remediation of perchlorate-contaminated groundwater through an in situ system.

Because of the collaboration among the Navy, the City of McGregor, the EPA, and the TCEQ, the City of McGregor received the Community Economic Development Award sponsored by the Texas Department of Economic Development.

The NWIRP McGregor has also been recognized by the Chief of Naval Operations and Secretary of the Navy for its many breakthroughs with innovative technologies both in remediation and investigations with perchlorate, working through difficult regulatory issues with the state, and instituting public awareness. It was the combination of these dynamic efforts by a team of dedicated Navy professionals that resulted in the ultimate goal of property divestiture and economic redevelopment. 📍

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