# Produced Water **PROTECTING OUR ENVIRONMENT & ECONOMY**

Barataria-Terrebonne National Estuary Program 2010 Tidal Graph Calendar





#### **Pollution Prevention in a Valuable Estuary System**

In 1901, a well six miles from Jennings, LA, produced the first oil discovered in the state in commercial quantities marking what is recognized as the birth of the industry in the state. This well spewed oil 100 feet into the air. Back then, that spewing oil was a sign of economic prosperity; however, since that time much research has been conducted on the adverse impacts of released crude oil and produced water into sensitive environments, such as the Barataria-Terrebonne Enstuarine System. This research, conducted by both governmental and industry stakeholders, has resulted in the most current regulations in place today for the oil and gas industry. These regulations have been designed to ensure that valuable natural resources can continue to be produced from environmentally sensitive areas, such as estuarine systems, while protecting these systems from adverse impacts.

The Barataria-Terrebonne Estuary is compromised of approximately 4.2 million acres located between the Atchafalaya and Mississippi Rivers in South Louisiana. The two basins, Barataria Basin to the east and the Terrebonne Basin to the west, are separated by Bayou Lafourche.

An estuary is a semi-enclosed coastal body of water with one or more rivers or streams flowing into it, and has a free connection to the open sea. Estuaries are affected by marine influences, such as tides, waves, and the influx of saline water; and also by riverine influences, such as flows of fresh water and sediments. As a result they may contain many biological niches within a small area, and are therefore associated with high biological diversity and productivity in some cases to commercial levels.

The 602,000 people living within the estuary system depend on its valuable resources in order to survive. Many of its residents rely upon fishing, hunting, trapping, and the oil & gas industry as a means of life. Therefore, it is of utmost concern that we also continue to protect and preserve the estuary to ensure all stakeholders can continue to reap the cultural, economic, and protective benefits provided for many generations to come. The theme of this calendar is centered on pollution prevention so please assist by implementing and sharing the measures contained within this calendar.

For an operator of an oil and gas associated facility, it is important to recognize the environment in which the facility is located. In southern Louisiana and the coastal Gulf of Mexico region a facility can be located in a vast array of environments, mostly all of which are susceptible to damages caused by oil and or produced water spills. It is especially important to implement pollution prevention measurers in these areas because releases in these areas can likely result in severe and cost impacts that can persist for months, or even years!

*Established in 1991, the mission of the Barataria-Terrebonne National Estuary Program (BTNEP) is the preservation and restoration of the Barataria-Terrebonne estuarine system, the 4.2 million acre region between the Atchafalaya and Mississippi Rivers. BTNEP strives to rebuild and protect the estuary for future generations through the implementation of a science-based, consensus-driven plan that utilizes partnerships focused on the estuary's rich cultural, economic, and natural resources.* 





Oil and gas exploration, production, and their associated industries have been key contributors to the economy of the State of Louisiana. Its importance cannot be overestimated. At the same time, the exploration, transportation, and storage of large volumes of oil have resulted in Louisiana being recognized as the state with the highest exposure to oil spills.

> Lease and royalty income in Louisiana soared to an 1982 all-time record \$624.5 million. Oil and gas severance taxes in Louisiana hit an all-time record \$971.6 million

Bullwinkle, the world's tallest man-made offshore 1988 structure, was launched in the Gulf of Mexico

**1989** First tension well leg platform was installed in the Gulf of Mexico in 1,760 feet of water

**1990** The Marine Spill Response Corporation was established by the petroleum industry as an oil spill response corporation

1991

The Louisiana Legislature established the Louisiana Oil Spill Coordinator's Office (LOSCO) in the Office of the Governor

> Louisiana oil production peaked at ~728.5 million barrels, reserves begin to decline

Louisiana oil and gas industry rebounds with the development of new technology 1996 and overall worldwide demand for oil

> **1997** Louisiana celebrated the 50th anniversary of offshore oil and gas exploration and production

> > Louisiana celebrated 100 years of the oil and gas industry in the State 2001

> > > Hurricanes Gustav and Ike 2005

2008 Hurricanes Katrina and Rita Hurricanes significantly impacted coastal Louisiana and the oil and gas industry in the State

#### 1868

The Louisiana Oil and Coal Company drilled an unsuccessful well in search of oil about 15 miles west of Lake Charles

Heywood Well six miles from Jennings was brought in, the birth of the industry in the State 1901

1909

Louisiana Legislature passed the first State 1906 oil and gas conservation law

The Standard Oil Refinery in Baton Rouge went on stream. Louisiana's first long distance oil pipeline soon began transporting crude from Caddo Parish to the Refinery.

1910 The first over-water drilling in America occurred on Caddo Lake near Shreveport

1973

1969

The offshore industry unveiled Clean Gulf Associates, a cooperative stockpiling of containment and cleanup equipment

Numerous prolific oil and gas fields discovered in North and Central Louisiana

The first successful oil well out of sight of land was produced in the Gulf of Mexico. This resulted in the birth of the offshore oil and gas industry. 1942

1913

1947

1949

Major offshore fields discovered in the Gulf of Mexico off the Louisiana coast

In Louisiana, a rapid and effective oil spill response can be challenging. The State has approximately 250,000 oil and gas wells and is criscrossed by over 14,000 miles of pipelines. Numerous pipeline crossings over water bodies are both subject to flooding and pose navigation hazards. The State's offshore oil and gas fields and their associated infrastructure are especially vulnerable to seasonal tropical storm and hurricane activity. Finally, Louisiana's vast coastal and riverine wetlands are the largest in America and many of these areas have limited highway access.

Louisiana Oil Spill Coordinator's Office Office of the Governor www.losco.state.la.us

e and Collaborative Process.

ooperative







Depending on your facility or vessel's applicability, the following information explains the Federal and State regulations surrounding oil, produced water and hazardous material spills.

As defined in Louisiana State regulations, a spill event is defined by 33 LAC Part IX Chapter 1 as 'the accidental or unauthorized leaking or releasing of a substance from its intended container or conveyance structure that has the potential to be discharged or results in a discharge to waters of the State. Discharges resulting from circumstances identified, reviewed, and made part of the public record with respect to a valid Louisiana Water Discharge Permit System (LWDPS) permit are not considered spill events.' With this definition considered, it is important to recognize that a reportable spill event is one which exceeds the Reportable Quantity (RQ) set by the appropriate federal or state requirements, with respect to the particular chemical or material spilled.

Spills of oil or produced water, in reportable quantities, are required to be reported to the following agencies:

#### FEDERAL

#### National Response Center (NRC) ~ 800-424-8802

Any person in charge of a vessel or a facility is required to make Federal notifications to the NRC for any discharge of oil that creates a sheen, sludge or emulsion at or below the surface of the water or ajoining shorelines, or a release of a hazardous material that exceeds the RQ. If direct reporting is not practicable to the NRC, reports can be made to the U. S. Coast Guard (USCG) On-Scene Coordinator (OSC) for the geographic area where the release occurred.

#### Minerals Management Services (MMS)

MMS requires notification to the district office for a one (1) barrel or greater release. If the source is a pipeline or flow-line, the MMS Pipeline Division requires notification. Louisiana State notifications are required to the Louisiana State Police for any discharge of hazardous material exceeding the RQ.

MMS New Orleans District	Office: 504-734-6740 or 504-734-6742 Cellular Telephone : 504-615-0114
MMS Lake Charles District	Office: 337-477-1265 or 337-480-4600 Cellular Telephone: 337-370-2419
MMS Lake Jackson District	Office: 979-238-8121 Cellular Phone: 979-292-9334
MMS Houma District	Office: 985-853-5884 Cellular Phone: 985-688-6050
MMS Lafayette District	Office: 337-289-5100 Cellular Phone: 337-280-0227
MMS Pipeline Safety Division	Office: 504-736-2814 or Specific Engineer Cellular Phone: 504-452-3562

#### U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) ~ NRC ~ 800-424-8802

According to 49 CFR 171.15 & 49 CFR 171.16, as soon as practical but no later than 12 hours after the occurrence of any incident described below, each person in physical possession of the hazardous material must provide notice by telephone to the NRC at 800–424–8802 (toll free) or 202–267–2675 (toll call).

A telephone report is required whenever any of the following occurs during the course of transportation in commerce (including loading, unloading, and temporary storage):

#### As a direct result of a hazardous material—

(i) A person is killed;

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- (ii) A person receives an injury requiring admittance to a hospital;
- (iii) The general public is evacuated for one hour or more;
- (iv) A major transportation artery or facility is closed or shut down for one hour or more;
- (v) The operational flight pattern or routine of an aircraft is altered;
- (vi) Fire, breakage, spillage, or suspected radioactive contamination occurs involving a radioactive material or an infectious substance other than a regulated medical waste;
- (vii) A release of a marine pollutant occurs in a quantity exceeding 450 L (119 gallons) for a liquid or 400 kg (882 pounds) for a solid; or
- (viii) A situation exists of such a nature (*e.g.*, a continuing danger to life exists at the scene of the incident) that, in the judgment of the person in possession of the hazardous material, it should be reported to the NRC even though it does not meet the criteria above.

Also, within 30 days of the incident, pipeline operators are required to submit written reports to PHMSA. PHMSA also prefers that pipeline operators transmit the reports electronically

#### STATE

**Local Emergency Planning Committee (LEPC)** As mandated by specific state regulations.

#### Louisiana State Police (LSP) ~ 877-925-6595

Louisiana State Police requires reporting of an incident within 60 minutes of discovery. Additionally, any release of a regulated hazardous material that causes an injury resulting in fatality or requiring hospitalization, results in a fire or explosion, and/ or exceeds the RQ during any continuous 24 hour period must be reported. Also, any incident, accident, or cleanup within the facility, which could reasonably be expected to affect the safety of the public or where the owner/operator initiates protective measures beyond the boundaries of the facility must be reported.

#### Reportable Quantity for oil/petroleum products: RQ LDEQ = 1 barrel RQ State Police = 100 # RQ NRC = Film, Sheen, Sludge or Emulsion in water or adjoining Shoreline









## NEW ORLEANS, LOUISIANA Mississippi River Spill

In the early morning hours of July 23, 2008, a vessel collision between a tanker and barge and tug resulted in one of the largest petroleum spills in the Mississippi River since Hurricane Katrina in 2005. The operator of the tugboat at the time of the incident had only a mate's license and there was no licensed master onboard the vessel. It is important to recognize that implementing pollution prevention equipment is a large part of pollution prevention, but having properly trained and licensed personnel can be just as important. This spill event resulted in over 400,000 gallons of fuel oil being released, approximately 58 miles of the Mississippi River to be closed to vessel traffic, affected several water intakes, impacted environmental sensitive areas, and took many months and millions of dollars to complete the clean-up.

Some interesting facts regarding vessel personnel and licensing are below:

- A ship's captain must have a master's license, issued by the ship's flag state.
- Various types of licenses exist, specifying the maximum vessel size (in gross tonnage) and in what geographic areas the captain can operate in.
  - An unlimited master's license allows the captain to operate any vessel worldwide.
  - Restricted tonnage licenses include vessel categories down to 100 tons gross tonnage and below.
- Examples of licenses with restricted geographic scope include those issued by the United States Coast Guard for the Great Lakes, inland waters, and near coastal waters.
- A candidate for an unlimited master's licenses requires several years of seagoing experience as chief mate, second mate, and third mate.
- To become a master (unlimited tonnage) in the United States, one must first accumulate at least 365 days of service while holding a chief mate's license.
- The chief mate's license, in turn, requires at least 365 days of service while holding a second mate's license, passing a battery of examinations, and approximately 13 weeks of classes.
- Similarly, one must have worked as a third mate for 365 days to have become a second mate.
- There are many special cases in license upgrades at the individual level, as licensing regulations change from time to time.











## Spill Prevention from Vessels

t is important, and required, for larger vessels to have written and implemented transfer procedures for transferring crude oil and refined petroleum products, along with other regulated substances. Properly following procedures will assist in lessening the threat of a spill. Some common items to note during transfers include:

- Place drip pan(s) under all connections.
- Both the vessel and dockside person-in-charge (PIC) must be readily available to cease the transfer immediately, if necessary. Open communication between PICs is crucial.
- Fuel tank overflow from tank vents is one of the most common spill occurrences from vessels.
- Make sure to complete Declaration of Inspections (DOIs) and reduce the flow speed as tank gets closer to full.

Hull construction also plays a large part in the prevention of spills. Double-skinned vessels, now mandated in certain transportation applications, are designed and engineered to minimize releases that could occur as a result of a vessel collision. Vessels can ensure that spills are contained on deck by also using impervious secondary containment rails containing all exposed deck space and/or storage tank areas. Spill kits are also must-haves onboard larger vessels to ensure that there is an effective means to remove the pollutant from the area. *Please be reminded that personnel asked to remediate small spills must have the proper level of training for the level of activity.* 

Training of vessel personnel is another great way to prevent spills from occurring. With short, simple safety and environmental briefings, personnel are made more aware of items to look out for (e.g. drums and containers left open, unsecured cargo, and pumping out of water from secondary containment structures).

Bilge discharges containing oil are a very common occurrence; however, most go unreported. It was estimated that only about 5% of bilge discharges are properly reported within the Gulf of Mexico Region!

# ntion











During the early morning hours of January 21, 2007, a tug boat transporting a barge struck a wellhead

in Bayou Perot, located just south of Lake Salvador and the Gulf Intracoastal Waterway (GIWW) in Louisiana. Unfortunately, the tug boat-barge package backed off and left the scene of the incident without making any required notifications, leaving a severely damaged and completely submerged wellhead structure spewing oil and produced water into Bayou Perot. Thankfully, later that morning, the U.S. Coast Guard received a report from a passing fisherman of the release. Upon investigation, the owner of the well was determined to be a newly organized independent oil and gas company who had just completed the well. Construction of the associated flowline was scheduled to start the following week to begin production. With an approximate 8,500 barrels of crude oil released along with an undetermined amount of produced water, this spill was the largest by volume to occur in the United States in 2007. At the heightened state of the response, approximately 350 responders were working in the field, approximately 100 Unified Command (UC) members were engaged at the primary and forward command posts, and 142,000 feet of containment boom was deployed to protect and contain 46 miles of sensitive shoreline. It was also roughly estimated that the closure of the GIWW caused a \$3,000,000 economic loss. During the management of this release, the environmental damage was minimized and the spill quickly mitigated due to the following:

- The mobilization of specialized offshore Oil Spill Removal Organization (OSRO) skimming equipment, typically not utilized in shallow inland waterway environments, was dispatched and proved to be an effective means for recovery of the released crude oil.
- Continuous training for Federal, State, and local agencies and all emergency responders allowed for efficient setup of the UC System.
- Early initial response, despite not knowing the responsible party, proved to be effective in minimization of impacts.
- Safety First Message being implemented throughout the entire response resulted in no injuries reported due to well planned and carried out safety briefings, along with significant presence of safety officers in the field.
- The development of a tiered booming strategy was effective in minimizing entrainment being caused by strong currents and shifting winds.
- Unconventional resources for recovery were developed and utilized.
- Operations for dealing with sensitive areas were planned and adhered to.
- The use of the USCG mobile Vessel Traffic Safety crew and system proved to be an effective method of controlling vessel traffic, allowing the important waterways to reopen for demerged vessel traffic.

BAYOU PEROT Case Study

- Alternate response technologies, such as burning, solidifying agents, etc., were able to be physically tested, often even before being used on site.
- Early notification of stakeholders was used.
- Coordination and assistance of the adjacent facility operators and construction contractors was outstanding.
- There was a proactive public affairs posture. A Joint Information Center (JIC) and media releases were developed early and were continuous, despite there being little media interest.

One great lesson learned from this event was that if a storm choke had been installed on the well during the completion process, this large response would have not been warranted. Millions of dollars would have been saved and the environment may have never been impacted negatively!



*It was roughly estimated that the closure of the Gulf Intracoastal Waterway caused a \$3,000,000.00 economic loss* 



Barataria-Terrebonne National Estuary Program: P.O. Box 2663, NSU Campus, N. Babington Hall, Room 105, Thibodaux, LA 70310 - 1.800.259.0869 - www.btnep.org Tides from: Barataria Bay, Grand Isle, East Point, 29d 15'48" N 89d 57' 24" W - Tides & Currents by Jeppesen Marine - www.nobeltec.com [TIDE ADJUSTMENT TABLE CAN BE FOUND ON THE INSIDE BACK COVER]



April 1 22:08 • 1.2 ft Low Tide:

April 28 6:35 am • -0.8 ft







#### Т

Lt is important for any drilling, production, or workover facility to have some sort of wellhead spill prevention system installed. All wellheads should have surface and/or subsurface well shut-in valves and devices in use for each well. These devices shall be sufficient to determine a method of activation or control such as:

- Pressure differential,
- Change in fluid or flow conditions,
- Combination of pressure and flow, and
- Manual or remote control mechanisms.

Drilling and workover operations should also have a Blowout Preventer (BOP) assembly and well control system installed before drilling below any casing string. In accordance with 40 CFR 112, these systems must be capable of controlling any wellhead pressure that may be encountered while the BOP assembly and well control system are on the well.



Prevention

Wellhead Spill

To obtain applicability data for down hole safety applications in the State of Louisiana, refer to, "Title 43, NATURAL RESOURCES Part XIX. Office of Conservation General Operations Subpart 4. Statewide Order No. 29-B-a, Chapter 11. Required Use of Storm Chokes."

Although these types of spill prevention devices are typically required, cost analyses prove time and time again that proper installation of these devices, at the appropriate time, will provide a very cost effective solution of protection. In comparison to the cost to remediate a worst case uncontrolled crude oil and produced water release, which can easily run in the millions of dollars, the installation of these devices is a proactive cost saving measure.



High Tide: May 1

22:08 • 1.2 ft

Low Tide:

May 28

6:35 am • -0.8 ft





# urricane Preparedness





Two significant storms in the 2008 Hurricane Season directly impacted the State of Louisiana and surrounding states.

#### HURRICANE GUSTAV

Once in the Gulf of Mexico, Hurricane Gustav gradually weakened into a Category 2, making landfall on the morning of September 1, 2008 near Cocodrie, Louisiana. Weakening continued, and Hurricane Gustav became a tropical storm that evening, and a tropical depression the next day, as it meandered around the south-central US.

Hurricane Gustav triggered the largest evacuation in United States history. Over 3 million people fled the oncoming hurricane, a lesson learned from Hurricanes Katrina and Rita.

In total, an estimated 153 deaths have been attributed to Gustav in the United States and in the Caribbean. Damage in Louisiana totaled approximately \$4.3 billion dollars.

#### **HURRICANE IKE**

Hurricane Ike was the third most destructive hurricane to ever make landfall in the United States. Ike made its landfall east of Galveston, Texas as a Category 2 hurricane, on September 13, 2008. In the United States, 112 people were killed. Damages from Hurricane Ike in coastal and inland areas are estimated at \$24 billion dollars. Hurricane Ike was the third costliest hurricane of all time, behind Hurricane Andrew in 1992 and Hurricane Katrina in 2005.

Catastrophic damage was caused by Hurricanes Katrina and Rita in 2005 and then in 2008 by Hurricanes Gustav and Ike. Southern Louisiana and Texas coastlines, coastal communities, and oil and gas infrastructure were disturbed tremendously. It is imperative for oil and gas companies and/or facilities to have a plan in place to ensure that employees are safe, facilities are prepared, and that things can resume as soon as possible after the passage of a storm. Primary considerations in implementing a Hurricane Contingency Plan should be:

- Safety of Personnel
- Prevention of Pollution
- Protection of Equipment
- Maintenance of Production

Some other important measures to outline in your Hurricane Contingency Plan:

- Offload product from the facility in a timely manner. Waiting too late can hamper vessel availability and jeopardize personnel welfare.
- Fill empty storage tanks with ambient water to add weight and reduce the chance of collapse or of the tank floating away.
- Properly shut-in wells.
- Inspect and verify safety equipment on facility, boats, and trucks.
- Secure the services and/or equipment possibly needed for recovery (OSROs, quarters, barges, cranes, etc.).
- Remove all important documents, logs, plans, etc. from the facility to avoid damage and/or total loss (e.g. agency approval letters, Declaration of Inspections, permits, emergency contact numbers).







### LOUISIANA'S Clean Marinas PROGRAMS (LCMP)

ne of the ways in which marinas can help in oil spill prevention is by participating in The Louisiana Clean Marinas Program (LCMP), a proactive pollution prevention program initiated by the Louisiana Department of Natural Resources (LDNR). Marina operators and/or boaters have the ability to implement Best Management Practices (BMPs) in the operation and maintenance of their marinas/ boats. In addition, it allows the marina operators and boaters to be proactive in protecting Louisiana's waters. The LCMP's goal is to reduce nonpoint-source pollution that is associated with marinas (e.g. storm water runoff from marinas and drips from fuel docks). If a marina is interested, the owner operator may:

- learn about the Clean Marina Initiative (*http://dnr.louisiana.gov/cleanmarina*);
- take the Clean Marina Pledge;
- conduct a self-assessment of your marina: (Request a copy of the Louisiana Clean Marina Guidebook and a self-assessment checklist from LDNR);
- call on a mentor/technical committee representative to answer any questions at 225-342-7936 (LDNR/Interagency Affairs)
- schedule a confirmation visit by calling LDNR/Interagency Affairs at 225-342-7936 or 800-267-4419;
- enjoy the benefits of the Clean Marina designation;
- maintain your Clean Marina Status annually.

The marina operator may conduct a self-assessment, which will be verified by a certification committee representative. If the marina meets at least a minimum score on the checklist at will be awarded the following:

- a certificate acknowledging environmental responsible actions;
- authorization to use the Louisiana Clean Marina logo on letterhead and in advertisements;
- a LCMP flag to fly on property;
- promotion by the Clean Marina Initiative in publications, on the World Wide Web and at public events.

The CMP can be utilized at small marinas with a few boat slips and limited resources to Louisiana's largest marinas. States such as Alabama, California, Delaware, Florida, Maryland, Mississippi, North Carolina, South Carolina, Texas, and Virginia have established Clean Marina Programs (CMPs).

Certified Louisiana Clean Marinas include:

- T-Irv's in Dulac, LA
- Bob's Bayou Black Marina in Gibson, LA
- Four Point Landing in Dulac, LA
- Houma Downtown Marina in Houma, LA
- Orleans Marina in New Orleans, LA
- South Shore Harbor Marina in New Orleans, LA





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High Tide: July 1 22:08 • 1.2 ft Low Tide:

July 28 6:35 am • -0.8 ft

# Best Management Practices (BMPs)

Lt is important to consider Best Management Practices (BMPs) when assessing pollution prevention of industrial operations. For example, it is great to say that a facility has beyond what it needs in secondary containment, but if the containment fills with stormwater and a spill

happens, then what good is the secondary containment? It is advisable that certain policies and/or BMP are in effect that stipulate how and when certain practices are to take place. 40 CFR 112 and other regulations state that if a facility experiences a spill, the response plan will be reviewed and revised to reflect any changes made to the facility and its operations to prevent the spill from occurring again. Most commonly, operators change and/or enforce best management practices. Some common best management practices are:

- GOOD HOUSEKEEPING,
- PREVENTATIVE MAINTENANCE,
- SPILL AND LEAK PREVENTION AND RESPONSE,
- INSPECTIONS,
- EMPLOYEE TRAINING,
- RECORD KEEPING AND INTERNAL REPORTING PROCEDURES,
- CERTIFICATION OF NON-STORM WATER DISCHARGES,
- SEDIMENT AND EROSION CONTROL,
- MANAGEMENT OF RUNOFF,
- MINIMIZATION OF EXPOSURE.

Facilities that implement sound Best Management Practices can be assured that small common incidents do not result in a major environmental problem such as large scale soil, sediment, surface water, and groundwater contamination over time.





August

> High Tide: August 1 22:08 • 1.2 ft

Low Tide: August 28 6:35 am • -0.8 ft







The following case study summarizes a spill event caused by a common source. Each year within the Gulf of Mexico region, spill events originating from leaks are caused by corrosion to flowlines and gathering lines. Although no test method is 100% foolproof, measures such as flowline testing, outlined in this calendar, are proven cost effective means to significantly reduce a company's spill liability from this source. As indicated in this case study, this relatively small volume spill cause quantifiable environmental damage along with exorbitant costs associated with direct remediation, restoration and potentail **Natural Resource Damage Assessments** (NRDA).



## FLOWLINE LEAK Case Study

In March of 2008, a seaplane pilot observed pockets of oil on a barrier island south of Lake Washington near Port Sulphur, Louisiana. U.S. Coast Guard (USCG) personnel were notified and responded to the incident with Oil Spill Removal Organization (OSRO) personnel that afternoon. The source of the release was later determined to be a 4-inch crude oil transfer line buried below the surface of the island. USCG and OSRO personnel estimated that approximately 25 to 50 barrels of crude oil were released and impacted the barrier island. The impacted island was a restoration project titled "Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration (BA-35)," funded by the the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). In an effort to preserve the native sediment and vegetation, several unconventional remediation techniques, for this type of sensitive area, were utilized.



A trench (3 feet wide x 90 feet long) was excavated along the compromised flowline to create an open area for the oil trapped in the island's soil and sediments to leach into for removal. Careful planning was conducted to insure the trenching operation would provide a net benefit to the operation and not cause greater impacst to the island.



The soil removed during excavation was placed into containment areas that were constructed on site. This allowed the soil to biodegrade, and for personnel to periodically aerate the soil. The soil was then used to backfill closure sites within the restoration project area.



A containment wall made of sandbags was placed around the impacted vegetation. This assisted in protecting the adjacent, sensitive island vegetation that was impacted by the spill. This containment wall also helped to raise the water level, which sped up the natural flushing process.

*It is roughly estimated that the clean-up costs for this spill was \$450,000.000. This estimate does not include costs for repair or soil remediation.* 

High Tide: September 1

22:08 • 1.2 ft Low Tide: September 28 6:35 am • -0.8 ft







# Flowline, Pipeline Spill Prevention

Operators of U.S. Department of Transportation (DOT) regulated pipelines are subject to an extensive set of regulations designed for the safety of company employees, safety of the public, and for the prevention of pipeline failures and spills. Within the last several years, a new set of regulations now requires an Operator Qualification (OQ) Program for all company employees and contractors performing regulated tasks on the pipeline segments. Insure your OQ program is compliant and in place!

Key measures in the detection of corroded pipelines or flowlines include conducting periodic hydrostatic tests or running instrumented tools (commonly referred to as *smart pigs*) through the pipe (see photo of typical *smart pig* below). When done properly, these tests are reliable and cost effective options for identifying pipelines at risk of causing spills that could result in severe environmental and economic impact.

Prior to conducting hydrostatic tests, operators must insure that all line products are appropriately flushed from the test lines prior to conducting the tests. Failure to do so could result in a costly spill. Federal and state regulations along with industry standards normally suggest lines to be tested

to 1.25 to 1.5 times the normal operating pressure of the line, depending on the regulatory agency rules.

Check your specific regulatory requirements to insure your tests are being conducted correctly.



ExxonMobil acquired

This photo and graphical representation depicts a typical "smart pig" that records data as it runs through a pipeline with the product flow. The recorded data is analyzed to determine where there may be metal losses due to corrosion or mechanical damage, dents, or other features that may affect the integrity of the pipeline. The pipeline company can then dig up suspect locations and make repairs before there is a product leak to the environment.



6:35 am • -0.8 ft





## DISCHARGES AND CONSEQUENSES OF Illegal Bypasses from Vessels

One of the most common causes of pollution from vessels is faulty and/or bypassed oil/water separators (OWS). Under MARPOL, (International Convention for the Prevention of Pollution from Ships), vessels are allowed to discharge treated bilge water via an approved OWS. Unfortunately, incidents happen that cause these devices to sometimes malfunction resulting in unpermitted discharges to the waterway. When this does

occur, appropriate notifications must be made along with associated documentation in addition to a proper clean up of the release. However, it is when a willful bypass of the OWS occurs with a hose or pipe often referred to as the 'magic pipe' that vessel companies are in direct willful violation of MARPOL and US law and are subject to potentially civil and criminal action.

Whenever a vessel takes on, discharges, incinerates or transfers fuel or oil waste on a large ship, it must be noted in the Oil Record Book. As identified in the case study noted below, when vessel operators make poor illegal decisions to choose to illegally bypass the separator, purposefully falsify the documentation to make it appear as if the OWS is operating properly and according to MARPOL, and then potentially falsify statements to USCG investigators during boardings (which is an obstruction of justice) severe civil and criminal action is a strong reality.

When a total of three notable violations occur, 1) the bypass 2) falsification of the Oil Record Book and 3) obstruction of justice, "vessel companies have seen higher and higher penalties, reaching \$37 million in one multi-vessel, multi-district case; fines and prison sentences for responsible officials; imposition of non-financial penalties, such as requirements for detailed environmental compliance programs and exclusion from US waters during probationary periods; and government reliance on crew member whistle blowers, who may be compensated by awards of up to one half of the penalties imposed." <sup>(1)</sup>

#### Noted Case Study:

(1) Case, Clifford P., III. "Beware of the 'Magic Pipe'." *Ship Management International*. January/February 2007, Issue 5.







Low Tide: November 28 6:35 am • -0.8 ft











### PREVENTION OF npermitted Discharges from Facilities

il and gas associated facilities should be in compliance with applicable Federal and State regulations pertaining to secondary containment and the permitted discharges of storm water. If constructed with good engineering practices, oil and gas associated facilities should be designed with an impervious secondary containment system equipped with drainage lines and a sump system capable of collecting all liquids such as contact storm water, small equipment leaks, or larger releases from equipment failures. The sump may also serve as an oil/water separator designed to assist in insuring contaminated storm water is treated to meet permit limitations for approved over board discharges.

Sumps, according to Louisiana State Regulations (33 LAC Part IX) must not have discharge pipes left in the open position and discharging unless under manned, supervised conditions. It is also required that a visual observation be made and documented to be free of sheen and/or contaminants before a discharge is allowed.



To discharge uncontaminated water from a facility, it must also be in accordance with the parameters set forth in a Louisiana Pollutant Discharge Elimination System (LPDES) Water Discharge Permit.

It is estimated that nine out of ten oil spills from sumps are due to the discharge pipe being open and unmanned at the time of the release. These types of costly releases are especially disheartening when they occur from a properly constructed facility simply due to an operator error of leaving a permitted discharge line open in the unattended position.

It is also important to remember that Federal and State regulations mandate that all sides of any containment structure be impervious, including the floor. Louisiana Department of Environmental Quality (LDEQ) inspectors state that this is one of the most often cited violations during inspections.

High Tide: December 1

22:08 • 1.2 ft

Low Tide: December 28 6:35 am • -0.8 ft





### **Tide Corrections**

To find the best time to fish your favorite locations, find a location that is closest to your area and add or subtract the time from the corresponding daily prediction.

AREA	<b>LOW</b> (Hours:Minutes)	<b>High</b> (Hours:Minutes)
Shell Beach, Lake Borgne	+5:10	+4:01
Chandeleur Lighthouse	+0:38	+0:05
Venice, Grand Pass	+1:28	+1:06
Southwest Pass, Delta	-0:29	-1:29
Empire Jetty	-1:35	-2:03
Bastian Island	+0:22	-0:19
Quatre Bayou Pass	+0:27	+1:18
Independence Island	+2:09	+1:29
Caminada Pass	+1:44	+1:14
Timbalier Island	+0:33	-0:41
Cocodrie, Terrebonne Bay	+2:50	+1:10
Wine Island	+1:12	+0:08
Raccoon Point	-0:10	-1:03
Ship Shoal Light	-1:40	-2:54

Charts in this calendar are intended for use solely as a reference guide to Louisiana fishing. It is not intended for navigational use. BTNEP makes no warranty, expressed or implied, with respect to the accuracy or completeness of the information contained in these charts. BTNEP assumes no liability with respect to the use of any information contained in this document.

The Barataria-Terrebonne National Estuary is a treasure of local, national and international importance. The mission of the Barataria-Terrebonne Estuary Foundation is to be a steward of the cultural, economic and ecological resources of the estuary by supporting the efforts of the Bartaria-Terrebonne National Estuary Program and representing a broad base of people who share the vision that the estuary's resources be sustained for future generations.

#### I want to support BTEF!

I have enclosed a check for \$

Please send you tax deductible donation to Bartaria-Terebonne Estuary Foundation (Spill Prevention Calendar) P.O. Box 1336 Thibodaux, LA 70301



This page sponsored by the Barataria-Terrebonne Estuary Foundation.

### **Fishing Regulations**

This is not a comprehensive or official copy of the laws in effect and should not be utilized as such. Size and creel limit regulations are presented for selected species only. These species as well as other species may be managed by seasons, quotas and permits. Different regulations for bass, catfish and crappie may apply within specific areas. Contact the Louisiana Department of Wildlife and Fisheries (LDWF) for specific information 225-765-2800.

### **Freshwater Species**

SPECIES	SIZE LIMIT	DAILY LIMIT
Largemouth and Spotted Bass	None	10
(Atchafalaya Basin and Lake Verret-Palourde Area)	14" Minimum (TL)	10
Crappie (Sac-a-lait)	None	50
Striped or Hybrid Striped Bass	None: 2 over 30" (TL)	5 (Any combination)
White Bass	None	50
Yellow Bass	None	50
Channel Catfish	25 less than 11" (TL)	100 Juon total of
Blue Catfish	25 less than 12" (TL)	100 – these three
Flathead Catfish (Spotted, Yellow or Opelousas)	25 less than 14" (TL)	100 species
Freshwater Drum (Gaspergou)	25 less than 12" (TL)	No Limit over 12"

### Saltwater Species

SIZE LIMIT	DAILY LIMIT
12" Minimum (TL)	25
12" Minimum (TL), two over 25"	15
16" Minimum (TL), one over 27"	5
16" Minimum (TL), one over 27"	5
None	10
State & Federal Reg. 30" Min. (FL)	1
State & Federal Reg. 33" Min. (FL)	2
State & Federal Reg. 24" Min. (FL)	2
State & Federal Reg. 12" Min. (FL)	15
State & Federal Reg. 16" Min. (TL)	2
	SIZE LIMIT 12" Minimum (TL) 12" Minimum (TL), two over 25" 16" Minimum (TL), one over 27" 16" Minimum (TL), one over 27" None State & Federal Reg. 30" Min. (FL) State & Federal Reg. 33" Min. (FL) State & Federal Reg. 24" Min. (FL) State & Federal Reg. 12" Min. (FL) State & Federal Reg. 16" Min. (TL)

\* For Red Drum (Redfish) and Spotted Seatrout (Speckled Trout): Recreational saltwater anglers may possess a two day bag limit on land; however no person shall be in possession of over the daily bag limit in any one day or while fishina on the water; unless that recreational saltwater angler is aboard a trawler engaged in commercial fishing for a consecutive period of longer than 25 hours.

\*\* (Cameron & Calcasieu Parishes) Daily take and possession limit of 15 Spotted Seatrout (Speckled Trout), no person shall possess, regardless of where taken, more than two spotted seatrout exceeding 25 total inches in length, which are considered part of the daily bag and possession limit in state and coastal territorial waters South of 1-10 at the Louisiana/ Texas border eastward to Hwy's 14 and 27 near Holmwood, south along Hwy. 27 to Hwy. 82 to the Gulf of Mexico.

\*\*\* There are specific regulations for Red Snapper and Shark. Contact the LDWF for more information.

FORK LENGTH (FL): Tip of snout to fork of tail. TOTAL Length (TL): Tip of snout to tip of tail. The development of this product was supported by the BTEF, LUMCON, LDWF and LA SeaGrant.



The Barataria-Terrebonne Estuarine System consists of two estaurine basins separated by Bayou Lafourche. The Terrebonne estuary lies to the West, and the Barataria estuary to the East.

BTNEP thanks ExxonMobil Pipeline for their generous contribution in helping to print this calendar.



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The bellowing of an alligator... A cypress cottage shaded by live oaks with Spanish moss... A sprinkling of fil', made from the leaves of the sassafras tree, to thicken the gumbo.... A parish called Plaquemines, the French word for persimmon, which used to grow in abundance there...this is Louisiana.

#### NEW LETTER COMING

With warm regards, *The Barataria-Terrebonne National Estuary Program* 





P. O. Box 2663, NSU N. Babington Hall Thibodaux, LA 70310 1-800-259-0869 The Barataria-Terrebonne National Estuary Program would like to thank all those who contributed to the Spill Prevention Calendar, especially those who participated on the "Oil and Produced Water Spill Prevention Early Detection" action plan team.

The following agencies and companies have provided data, information or photographs for use in this calendar:

U.S. Coast Guard Louisiana Department of Environmental Quality Louisiana Oil Spill Coordinator's Office Louisiana Department of Natural Resources ExxonMobil Pipeline Company Shell Pipeline Company ES&H Consulting & Training Group Louisiana Universities Marine Consortium (LUMCON) SeaGrant

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#### SPECIAL THANKS TO THE FOLLOWING ORGANIZATIONS:





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