



**State of Louisiana  
Department of Natural Resources  
Coastal Restoration Division**

**2006 Annual Inspection Report**

**Bayou Sauvage Refuge Restoration  
Phase I**

State Project Number PO-16  
Priority Project List 1

August 15, 2006  
Orleans Parish

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## **I. Introduction**

The Bayou Sauvage Refuge Restoration Phase I Project (PO-16) is located in eastern Orleans Parish approximately 10 miles northeast of Chalmette, LA (Appendix A). It is bordered by U.S. Highway 90 to the north, the Lake Pontchartrain Hurricane Protection Levee to the east and south, and the Maxent Canal levee to the west. The project area includes approximately 3,800 acres of fresh marsh. The site was inspected on October 25, 2005 by representatives of LDNR and USFWS.

## **II. Project Description and History**

The project is divided into two units (North Unit and South Unit) which are hydrologically separated by a railroad embankment. A 30-inch diameter (22,000 GPM) water pump was installed in each unit, with each pump having the capability to remove water from the unit.

The project's purpose is to regulate water levels in the marshes of both units throughout the year by pumping excess water from the management areas. Such management during the fall and winter, enhances emergent fresh marsh habitats in the project area for wintering waterfowl. Annually, the water level is intended to be controlled to the range of 0.0 feet to - 0.5 feet below marsh elevation during the spring and summer and to within 0.0 feet to + 0.5 feet above marsh elevation during the fall and winter. The water level control schedule is also intended to preserve black willow habitat in order to maintain wading bird rookeries.

## **III. Inspection Purpose and Procedures**

The purpose of the annual inspection of the Bayou Sauvage Refuge Restoration Phase I Project (PO-16) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. Should it be determined that corrective actions are needed, LDNR shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan September 2, 2004). The annual inspection report also contains a summary of maintenance projects and an estimated projected budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C. A summary of past operation and maintenance projects completed since completion of the project are outlined in Section II.

An inspection of the Bayou Sauvage Refuge Restoration Phase I Project (PO-16) was held on October 25, 2005 by representatives of LDNR George Boddie, Tom Bernard, Barry Richard, Melissa Kaintz, and Dan Parker and Todd Smith of USFWS. The tidal

gauge at the Bayou Sauvage Refuge boat launch read 0.8 ft-NAVD. Photographs of that inspection are included in Appendix B of this report.

## **IV. Inspection Results**

### **Pump #5**

Pump #5 was inaccessible due to road and levee damage from the Hurricane. USFWS informed us the pump had been flooded and they had already made plans to repair/replace the damaged machinery. Due to the damages, this pump was inoperable at the time of inspection. In January, 2006, USFWS advised LDNR that all repairs to Pump #5 had been completed and the system was operational.

### **Pump #6**

Pump #6 had also been flooded during the Hurricane and was also inoperable (Photo #1). USFWS made arrangements to repair/replace the damaged machinery for this pump at the same time as Pump #5. In January, 2006, USFWS advised LDNR that all repairs to Pump #6 had been completed and the system was operational.

## **V. Conclusions**

The structures sustained a great deal of damage from Hurricane Katrina. However, the quick response from USFWS helped get everything repaired and running again. It was noted that the storm surge brought a large amount of high salinity water into the project area. This caused the marsh to become stressed which could slow or even prevent the recovery process (Photo #2). There is no way to flush the project area with fresh water so there is very little that can be done for this except monitor the situation.

## **VI. Recommendations**

There is no need for additional repairs at this time. The Hwy 11 culvert situation and the marsh situation will continue to be monitored.

### **Immediate Repairs**

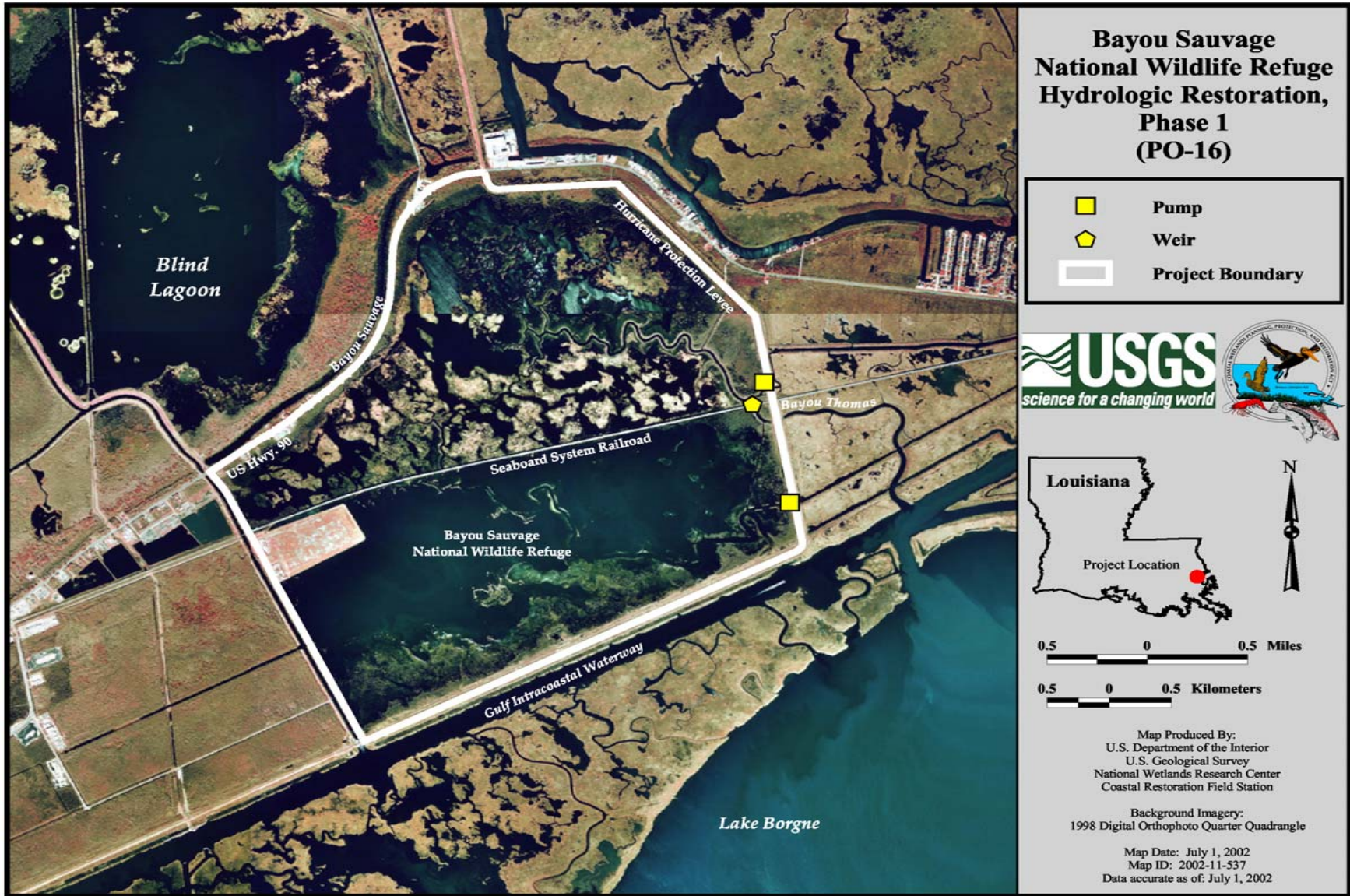
- None at this time.

### **Programmed Maintenance**

- Periodically check pump stations for any maintenance needs.

## **Appendix A**

### **Project Features Map**



**Appendix B**  
**Photographs**



**Photo #1 – Pump #6.** Notice the debris on the fencing for the walkway showing that the water was at least that high at one point.





**Photo #2 – Interior Marsh.** There are very few live plants inside the project area due to the high salinity.

**Appendix C**  
**Three Year Budget Projection**

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Three-Year Operations & Maintenance Budgets 07/01/2006 - 06/30/2009				
<u>Project Manager</u>	<u>O &amp; M Manager</u>		<u>Federal Sponsor</u>	<u>Prepared By</u>
<i>Barry Richard</i>	<i>Barry Richard</i>		<i>USFWS</i>	<i>Barry Richard</i>
	<b>2006/2007</b>		<b>2007/2008</b>	<b>2008/2009</b>
<b>Maintenance Inspection</b>	\$3,257.00		\$3,341.00	\$3,428.00
<b>Structure Operation</b>	\$13,589.00		\$13,942.00	\$14,305.00
<b>Administration</b>	\$-		\$-	\$-
<b>Maintenance/Rehabilitation</b>				
06/07 Description:				
<i>E&amp;D</i>	\$-			
<i>Construction</i>	\$-			
<i>Construction Oversight</i>	\$-			
<i>Sub Total - Maint. And Rehab.</i>	\$-			
07/08 Description:				
<i>E&amp;D</i>		\$-		
<i>Construction</i>		\$-		
<i>Construction Oversight</i>		\$-		
	<i>Sub Total - Maint. And Rehab.</i>	\$-		
08/09 Description:				
<i>E&amp;D</i>				\$-
<i>Construction</i>				\$-
<i>Construction Oversight</i>				\$-
		<i>Sub Total - Maint. And Rehab.</i>		\$-
	<b>2006/2007</b>		<b>2007/2008</b>	<b>2008/2009</b>
<b><u>Annual O&amp;M Budgets</u></b>	<b>\$16,846.00</b>		<b>\$17,283.00</b>	<b>\$17,733.00</b>
<b><u>O &amp; M Budget (3 yr Total)</u></b>				<b>\$51,862.00</b>
<b><u>Existing O &amp; M Budget</u></b>				<b>\$207,738.36</b>
<b><u>Remaining O &amp; M Budget (Projected)</u></b>				<b>\$155,876.36</b>

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**OPERATION AND MAINTENANCE BUDGET WORKSHEET 2006/2007**

Bayou Sauvage Refuge Restoration (Phase I) / PO-16 / PPL 1

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$3,257.00	\$3,257.00
General Structure Maintenance	LUMP	0	\$0.00	\$0.00
Engineering and Design	LUMP	0	\$0.00	\$0.00
Operations Contract	LUMP	1	\$13,589.00	\$13,589.00
Construction Oversight	LUMP	0	\$0.00	\$0.00

**ADMINISTRATION**

LDNR / CRD Admin.	LUMP	0	\$0.00	\$0.00
FEDERAL SPONSER Admin.	LUMP	0	\$0.00	\$0.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
<b>TOTAL ADMINISTRATION COSTS:</b>				<b>\$0.00</b>

**MAINTENANCE / CONSTRUCTION**

**SURVEY**

SURVEY DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Secondary Monument	EACH	0	\$0.00	\$0.00
	Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
	Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
	TBM Installation	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
<b>TOTAL SURVEY COSTS:</b>					<b>\$0.00</b>

**GEOTECHNICAL**

GEOTECH DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Borings	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
<b>TOTAL GEOTECHNICAL COSTS:</b>					<b>\$0.00</b>

**CONSTRUCTION**

CONSTRUCTION DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Rip Rap	LIN FT	0	\$0.00	\$0.00
		TON / FT	0.0	\$0.00	\$0.00
		TONS	0	\$0.00	\$0.00
			0	\$0.00	\$0.00
	Filter Cloth / Geogrid Fabric	SQ YD	0	\$0.00	\$0.00
	Navigation Aid	EACH	0	\$0.00	\$0.00
	Signage	EACH	0	\$0.00	\$0.00
	General Excavation / Fill	CU YD	0	\$0.00	\$0.00
	Dredging	CU YD	0	\$0.00	\$0.00
	Sheet Piles (Lin Ft or Sq Yds)		0	\$0.00	\$0.00
	Timber Piles (each or lump sum)		0	\$0.00	\$0.00
	Timber Members (each or lump sum)		0	\$0.00	\$0.00
	Hardware	LUMP	0	\$0.00	\$0.00
	Materials	LUMP	0	\$0.00	\$0.00
	Mob / Demob	LUMP	0	\$0.00	\$0.00
	Contingency	LUMP	0	\$0.00	\$0.00
	General Structure Maintenance	LUMP	0	\$0.00	\$0.00
	OTHER			\$0.00	\$0.00
	OTHER			\$0.00	\$0.00
	OTHER			\$0.00	\$0.00
<b>TOTAL CONSTRUCTION COSTS:</b>					<b>\$0.00</b>

**TOTAL OPERATIONS AND MAINTENANCE BUDGET: \$16,846.00**

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**OPERATION AND MAINTENANCE BUDGET WORKSHEET 2007/2008**  
 Bayou Sauvage Refuge Restoration (Phase I) / PO-16 / PPL 1

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$3,341.00	\$3,341.00
General Structure Maintenance	LUMP	0	\$0.00	\$0.00
Engineering and Design	LUMP	0	\$0.00	\$0.00
Operations Contract	LUMP	1	\$13,942.00	\$13,942.00
Construction Oversight	LUMP	0	\$0.00	\$0.00

**ADMINISTRATION**

LDNR / CRD Admin.	LUMP	0	\$0.00	\$0.00
FEDERAL SPONSER Admin.	LUMP	0	\$0.00	\$0.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
<b>TOTAL ADMINISTRATION COSTS:</b>				<b>\$0.00</b>

**MAINTENANCE / CONSTRUCTION**

**SURVEY**

SURVEY DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Secondary Monument	EACH	0	\$0.00	\$0.00
	Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
	Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
	TBM Installation	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
<b>TOTAL SURVEY COSTS:</b>					<b>\$0.00</b>

**GEOTECHNICAL**

GEOTECH DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Borings	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
<b>TOTAL GEOTECHNICAL COSTS:</b>					<b>\$0.00</b>

**CONSTRUCTION**

CONSTRUCTION DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Rip Rap	LIN FT	0	\$0.00	\$0.00
		TON / FT	0.0	\$0.00	\$0.00
		TONS	0	\$0.00	\$0.00
			0	\$0.00	\$0.00
	Filter Cloth / Geogrid Fabric	SQ YD	0	\$0.00	\$0.00
	Navigation Aid	EACH	0	\$0.00	\$0.00
	Signage	EACH	0	\$0.00	\$0.00
	General Excavation / Fill	CU YD	0	\$0.00	\$0.00
	Dredging	CU YD	0	\$0.00	\$0.00
	Sheet Piles (Lin Ft or Sq Yds)		0	\$0.00	\$0.00
	Timber Piles (each or lump sum)		0	\$0.00	\$0.00
	Timber Members (each or lump sum)		0	\$0.00	\$0.00
	Hardware	LUMP	0	\$0.00	\$0.00
	Materials	LUMP	0	\$0.00	\$0.00
	Mob / Demob	LUMP	0	\$0.00	\$0.00
	Contingency	LUMP	0	\$0.00	\$0.00
	General Structure Maintenance	LUMP	0	\$0.00	\$0.00
	OTHER			\$0.00	\$0.00
	OTHER			\$0.00	\$0.00
	OTHER			\$0.00	\$0.00
<b>TOTAL CONSTRUCTION COSTS:</b>					<b>\$0.00</b>

**TOTAL OPERATIONS AND MAINTENANCE BUDGET:** **\$17,283.00**

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**OPERATION AND MAINTENANCE BUDGET WORKSHEET 2008/2009**

Bayou Sauvage Refuge Restoration (Phase I) / PO-16 / PPL 1

DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
O&M Inspection and Report	EACH	1	\$3,428.00	\$3,428.00
General Structure Maintenance	LUMP	0	\$0.00	\$0.00
Engineering and Design	LUMP	0	\$0.00	\$0.00
Operations Contract	LUMP	1	\$14,305.00	\$14,305.00
Construction Oversight	LUMP	0	\$0.00	\$0.00

**ADMINISTRATION**

LDNR / CRD Admin.	LUMP	0	\$0.00	\$0.00
FEDERAL SPONSER Admin.	LUMP	0	\$0.00	\$0.00
SURVEY Admin.	LUMP	0	\$0.00	\$0.00
OTHER				\$0.00
<b>TOTAL ADMINISTRATION COSTS:</b>				<b>\$0.00</b>

**MAINTENANCE / CONSTRUCTION**

**SURVEY**

SURVEY DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Secondary Monument	EACH	0	\$0.00	\$0.00
	Staff Gauge / Recorders	EACH	0	\$0.00	\$0.00
	Marsh Elevation / Topography	LUMP	0	\$0.00	\$0.00
	TBM Installation	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
<b>TOTAL SURVEY COSTS:</b>					<b>\$0.00</b>

**GEOTECHNICAL**

GEOTECH DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Borings	EACH	0	\$0.00	\$0.00
	OTHER				\$0.00
<b>TOTAL GEOTECHNICAL COSTS:</b>					<b>\$0.00</b>

**CONSTRUCTION**

CONSTRUCTION DESCRIPTION:	DESCRIPTION	UNIT	EST. QTY.	UNIT PRICE	ESTIMATED TOTAL
	Rip Rap	LIN FT	0	\$0.00	\$0.00
		TON / FT	0.0	\$0.00	\$0.00
		TONS	0	\$0.00	\$0.00
			0	\$0.00	\$0.00
	Filter Cloth / Geogrid Fabric	SQ YD	0	\$0.00	\$0.00
	Navagation Aid	EACH	0	\$0.00	\$0.00
	Signage	EACH	0	\$0.00	\$0.00
	General Excavation / Fill	CU YD	0	\$0.00	\$0.00
	Dredging	CU YD	0	\$0.00	\$0.00
	Sheet Piles (Lin Ft or Sq Yds)		0	\$0.00	\$0.00
	Timber Piles (each or lump sum)		0	\$0.00	\$0.00
	Timber Members (each or lump sum)		0	\$0.00	\$0.00
	Hardware	LUMP	0	\$0.00	\$0.00
	Materials	LUMP	0	\$0.00	\$0.00
	Mob / Demob	LUMP	0	\$0.00	\$0.00
	Contingency	LUMP	0	\$0.00	\$0.00
	General Structure Maintenance	LUMP	0	\$0.00	\$0.00
	OTHER			\$0.00	\$0.00
	OTHER			\$0.00	\$0.00
	OTHER			\$0.00	\$0.00
<b>TOTAL CONSTRUCTION COSTS:</b>					<b>\$0.00</b>

**TOTAL OPERATIONS AND MAINTENANCE BUDGET:** \$17,733.00

## **Appendix D**

### **Field Inspection Form**

**FIELD INSPECTION CHECK SHEET**

Project No. / Name: Bayou Sauvage Refuge - Phase 1 (PO-16) Date of Inspection: 25-Oct-05 Time: 9:30 AM

Structure No. CTU No. 5 Inspector(s): LDNR: Richard, Bernard, Boddie, Kaintz  
USFWS: Smith, Parker

Structure Description: Pump Platform Water Level: Normal Outside: Normal

Type of Inspection: Post Storm Weather Conditions: clear skies

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Platform	N/A	N/A	N/A	N/A	Pump Station inaccessible due to Hurricane damage.
Trash rack	N/A	N/A	N/A	N/A	Pump Station inaccessible due to Hurricane damage.
Fuel Tank	N/A	N/A	N/A	N/A	
Pump Drive Engine	N/A	N/A	N/A	N/A	Pump Station inaccessible due to Hurricane damage.
Pump Gear Box	N/A	N/A	N/A	N/A	Pump Station inaccessible due to Hurricane damage.
Piping	N/A	N/A	N/A	N/A	Pump Station inaccessible due to Hurricane damage.
Lake Pont. Inlet System	N/A	N/A	N/A	N/A	Pump Station inaccessible due to Hurricane damage.



**FIELD INSPECTION CHECK SHEET**

Project No. / Name: PO-16 Bayou Sauvage Refuge Date of Inspection: 25-Oct-05 Time: 9:30 AM

Structure No. CTU 6 Inspector(s): LDNR: Richard, Bernard, Boddie, Kaintz  
USFWS: Smith, Parker

Structure Description: Pump Station Water Level: Normal Outside: Normal

Type of Inspection: Post Storm Weather Conditions: clear skies

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Pump Platform	Good	None	Light	1	
Trash Rack	Appeared good but inspected from distance	Not inspected closely	Not inspected closely	1	
Fuel tank	Fair	None	Yes	1	Someone is leaving trash on tank.
Pump Drive Engine	Poor	None	Yes	1	Flooded during Hurricane Katrina
Pump gear box	Poor	None	Moderate		Flooded during Hurricane Katrina
Piping	Good	None	None observed		