

Osborne Reef Waste Tire Site Removal 2008 Project
Project Evaluation
Nov. 12, 2009

Contract number SW224, between Florida Department of Environmental Protection and Broward County requires the submittal of a Project Evaluation Report prior to payment for tasks completed under the project, specifically:

VII. Project Evaluation

The Contractor, in cooperation with project partners, will evaluate diver productivity; tire recovery, and transport techniques; tire recovery, transport and processing costs; level of reef protection and restoration achieved; and will prepare a report on project evaluation findings.

Permits

On February 1, 2008, Broward County received the Notice of Intent to Issue the Environmental Resource Permit from the Florida Department of Environmental Protection (FDEP). As required by the Notice of Intent, Broward County published, in the Sun-Sentinel, the required Publication of Notice, confirmation of which was sent back to FDEP. The approved Environmental Resource Permit was issued on February 22, 2008 and received by Broward County on February 25, 2008.

Crane Operations

Broward County has a multi-year agreement with Spirit Crane Inc. for crane services to be used for LCU offload and reload in addition to a 40-ton crane to be used onboard the LCU during the entire operation. There were no issues with the crane or operator and it is expected that Spirit Crane will provide crane services for the 2010 operations.

Port Everglades

In June 2009, the Port Everglades Department requested from the Board of County Commissioners (BOCC) that dockage and associated fees for the LCU be waived up to \$35,000. This was approved and there were no issues with dockage at the port.

There were no unanticipated costs associated with the LCU for the 2009 project. County staff provided trash removal for the ship, but this became problematic and it is recommended the military appropriate funds for a trash dumpster in future years.

Mission Operations

On February 10, 2009, Pat Quinn, Ken Banks, Lou Fisher, and Joe Ligas (Broward County) met with 1LT Robert Myer, SFC William Vaughn, SSG John Williams, and SSG Donald Lester to discuss the upcoming operation, facilities at Port Everglades, staging at the Coast Guard station, and expectations from various participating parties. The inclusion of SFC Vaughn in the 2009 project was fortuitous as he participated in a lead role in the 2008 project and was able to provide continuity in the 2009 project.

On July 19 and July 10, 2009 Broward County staff deployed a total of 20 concrete-filled cinder blocks (Figure 1) in two parallel lines on the tire field to create a grid that was anticipated to help keep military divers at specific locations and facilitate future mapping of the field to determine productivity. The western most line of blocks began at the southern end of the tire field. Blocks were placed exactly 100ft apart along the reef edge/tire field interface. The second line of blocks was placed in a similar fashion 100ft east of the first line. Each set of east-west blocks was numbered 1 through 10 with set 1 at the southern end of the field and set 10 at the northern end of the field.



Figure 1. One of 20 concrete-filled cinder blocks used to create a grid in the tire field. This grid was used to by divers to know their locations during the removal operation and late to aid in productivity determination.

The US Army Dive Company arrived in Ft. Lauderdale on July 15, 2009. Due to a delay caused mission responsibilities to NASA, the LCU arrived in Port Everglades on July 19, 2009 and was offloaded the following day. Conex boxes containing the military's operational equipment were transported to the US Coast Guard Station Ft. Lauderdale for setup/storage. Transportation vehicles and drivers were supplied by the Broward County Parks and Recreation Department.

On July 21, 2009 Broward County personnel, deployed 2 buoys along the eastern edge of the tire field and 2 buoys along the western edge of the tire field. The buoys also served to mark the reef edge and as such were guides for the LCU in anchoring each morning. Additionally, 3 buoys were placed in a linear fashion on the south-western section of the tire field as dive location markers for the Army divers to begin working.

Dive operations began on July 22, 2009 and continued through August 17, 2009. Dive operations were planned through the end of August, but due to lack of additional LCU support, (the ship was required to support another NASA mission) we were not able to continue. Divers worked an estimated 17 days with full 1 dive day cancelled due to adverse weather conditions. Sustained wind speeds of 10-15 knots create wave conditions of 2-4 ft which was determined to be the safety limit for small boat and crane operations. The number of working days and cancelled days may differ in this report from the US Army After-Action Report (AAR) due to variations in required reporting (e.g. training dive days in Port Everglades on cancelled tire operation days).

At the request of Broward County, a log was being kept on board the LCU to document daily departure from and return to the port, anchor deployment and retrieval times, and the time the first lift bag was on the surface each day. However, due to post-tire operation reassignments of the LCU crew, Broward County personnel had not been able to obtain an entire copy of the log.

An estimated 17,000 tires (Table 1) were removed over the course of the operation by approximately 66 military personnel including boat drivers and LCU crew. When conditions were ideal (e.g. calm seas, no equipment failures) the divers were able to recover approximately 2,000 tires during a single day. With an estimated 1,200 tire load per open-top trailer, this appears to be the maximum productivity that can be expected during the course of the operation as loading of tires into a trailer nearing capacity becomes logistically difficult. The required time to for the LCU to weigh anchors, return to Port Everglades, offload/reload trailers, and return to the dive site will prohibit more than one load (two trailers) being recovered in any given day.

Table 1. Dive date, number of tires retrieved, and number of trailers utilized with asset numbers during the 2008 operation.

FORT LAUDERDALE TIRE SALVAGE 2009

Date	Total # Tires	# Trailers Taken	Trailer Serial #
19-Jul			LCU arrive
20-Jul			LCU offload
21-Jul	115	0	N/A
22-Jul	755	0	N/A
23-Jul	804	1	N/A
24-Jul	1391	1	272
27-Jul	600	0	N/A
28-Jul	0	0	weather
29-Jul	1100	1	277
30-Jul	1084	1	338
31-Jul	1700	1	271
3-Aug	1325	2	272, 255
4-Aug	1250	1	277
5-Aug	255	1	271
6-Aug	280		weather
7-Aug	1400	2	271, 338
10-Aug	494	1	255
11-Aug	2000	2	277, 272
12-Aug	1680	2	281, 255
13-Aug	1000	1	338
14-Aug	0	0	N/A
15-Aug	0	0	N/A
16-Aug	0	0	N/A
17-Aug	0	0	N/A
18-Aug	0	1	271, LCU departs
21-Aug			AAR at NSUOC
25-Aug			Divers depart
Total	17233		

Please see the included “Lauderdale AAR_Army.doc” file supplied by the US Army for further details on the day-to-day operation.

An After-Action meeting was held on August 21, 2009 to discuss the 2010 operation. Attendees were 1LT Robert Myer, SFC William Vaughn, SSG John Williams, SSG Donald Lester, Pat Quinn, Ken Banks, Lou Fisher, and Joe Ligas (Broward County). There were very few concerns or recommendations for the 2009 operation. These are listed below:

- 1) Cost of the crane/operator and dumpster should be accounted for in IRT cost estimate.
- 2) Better coordination between military units.

- 3) Explore possibility of more powerful tow vessels.
- 4) Use of 15 man zodiacs rather than 7 man zodiacs.
- 5) Redesign of towing bridals. Add quick disconnect snap shackle on each side and ensure lift-bag cable can slide along bridle.
- 6) Utilize heavier anchor weights or install a manta ray anchor system throughout tire field for stable buoy/zodiac attachment.
- 7) Position slings and equipment in the tire field as the last task of each day. This would increase dive efficiency the following morning.
- 8) Establish exact coordinate for the LCU to drop anchors and moor each morning.
- 9) Recommend June-July for project time frame for better weather conditions.

Post survey dives of the tire field by Broward County personnel appeared to indicate the military divers were working in the north-western corner of the tire field rather than the south-western corner where buoys were initially deployed (Figure 2). This could have been the result of the military divers moving the buoys themselves, buoys being moved due to wave conditions, or recreational divers moving the buoys.

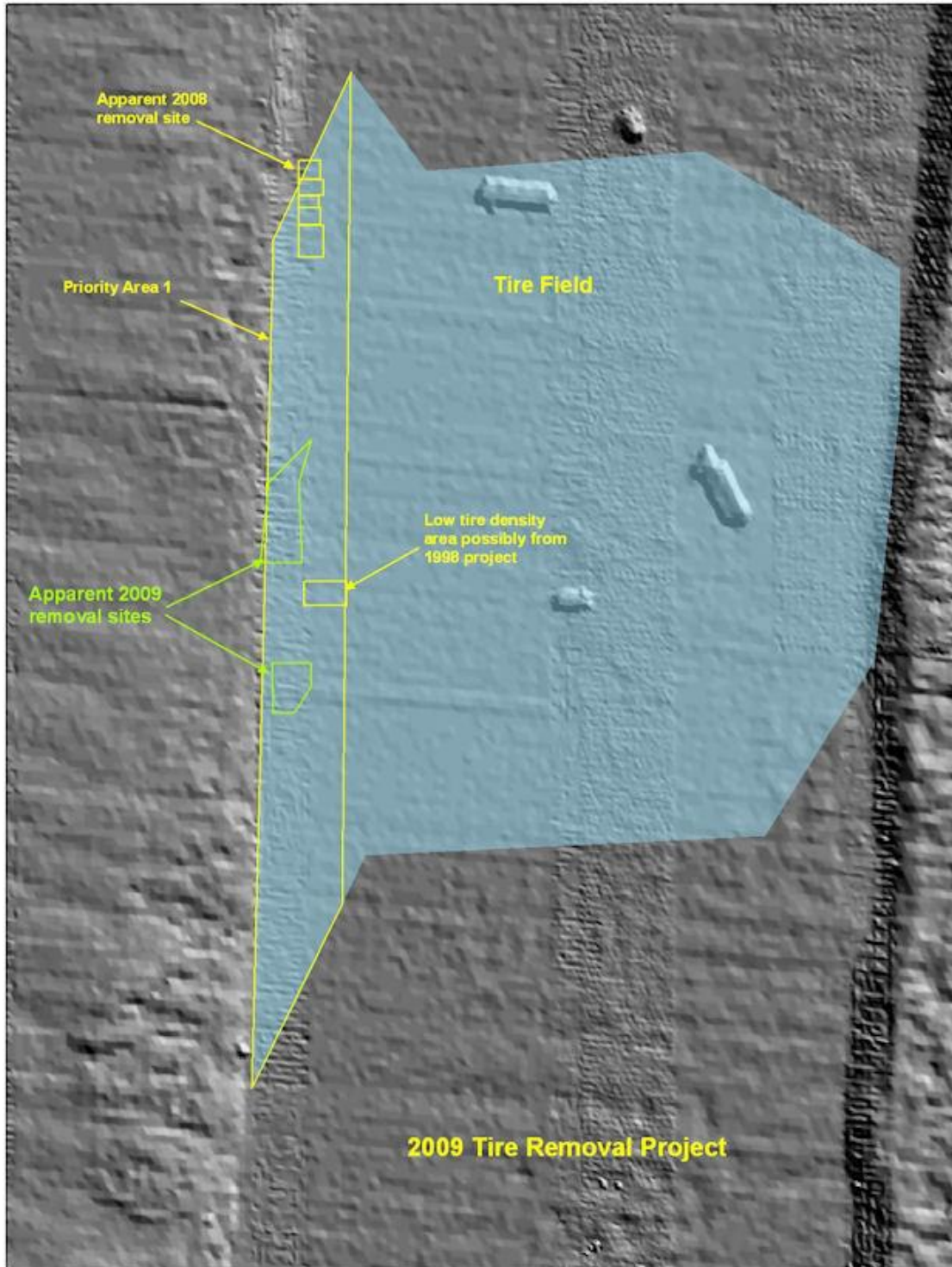


Figure 2. Layout of the tire field off Ft. Lauderdale. Blue area designates general size and shape of the tire field.

Tire Transport

Wheelabrator Ridge Energy, Inc. provided tire transportation and disposal services and Florida Transportation Services (FTS) provided stevedore services for the duration of the project. There were no issues with Wheelabrator Ridge Energy, Inc. Occasional delays (up to 2 hrs) were encountered waiting for stevedore services to offload and reload trailers. There was at least one instance of improper movement of a trailer by the FTS yard mule driver resulting in a trailer's landing gear being damaged.

Summary of Recommendations:

Military Operations:

Prior to the 2010 project, Broward County personnel will deploy and ground truth multiple dive locations to facilitate placement of anchors for buoys and zodiac mooring.