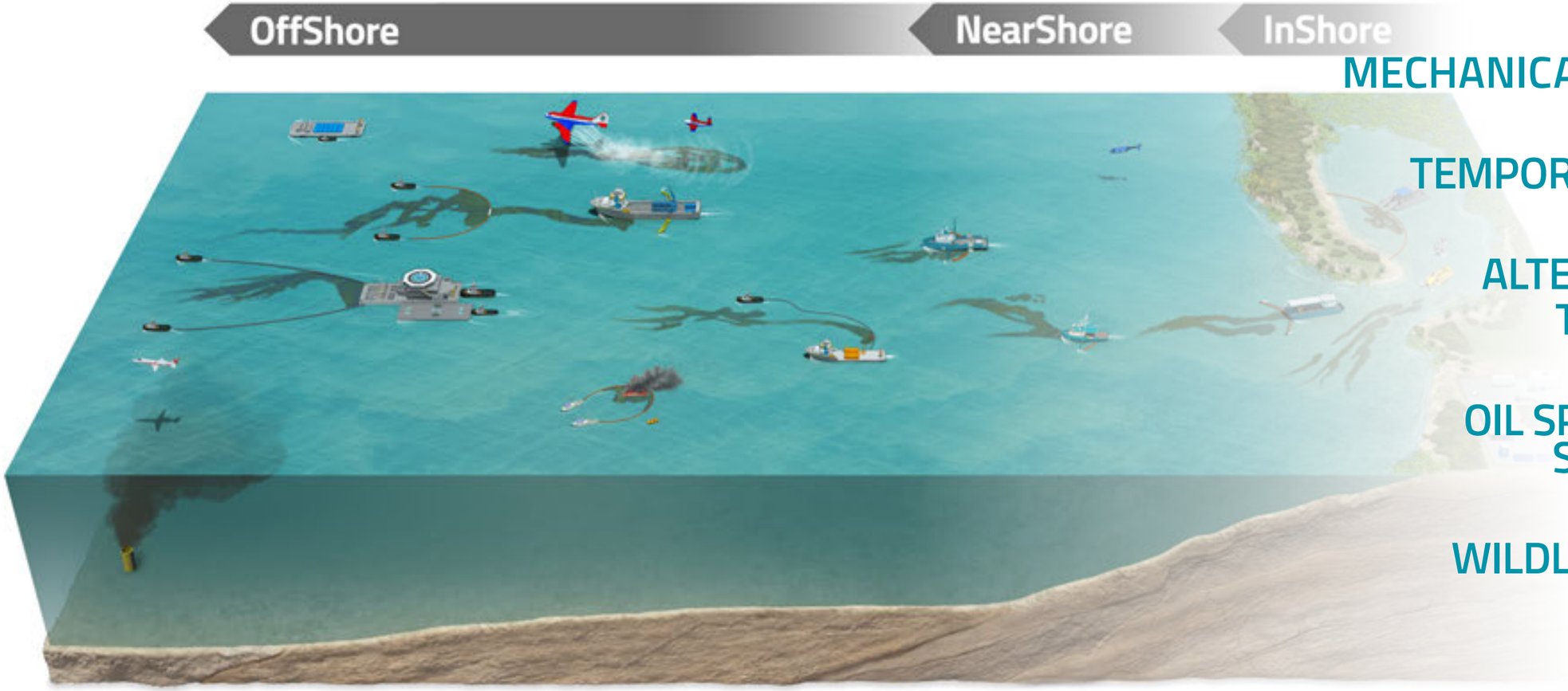
TACTICS MANUAL

The Tactics Manual is intended to give the user an overview of all CGA oil spill response capabilities, a visual representation of the equipment and its components, and a general understanding of how to use each technology in an effective oil spill response. It's focus is to provide the necessary data to assist in the operational decision making process concerning the use of CGA resources and what it takes to support them logistically.

This guidebook is in no way intended to provide general or tactical information for any resources not associated with CGA, nor is it intended to be an all inclusive oil spill response tactics manual. In the event of an oil spill, it is CGA's recommendation that the Responsible Party's Spill Management Team (SMT) should consider the use of all available resources and operational response tactics applicable to the details and conditions of that response.

EQUIPMENT GUIDEBOOK



ICON DEFINITIONS

OFFSHORE
Offshore for CGA equipment deployment considerations, OFFSHORE is defined as the operating environment extending outward from beyond 30 nautical miles from the shoreline.

NEARSHORE
For CGA equipment deployment considerations, NEARSHORE is defined as the operating environment that extends outward from the shoreline to roughly 30 nautical miles. Areas near the shoreline where water depth is less than 6 feet are considered inshore and excluded from this nearshore definition.

INSHORE
For CGA equipment deployment considerations, INSHORE is defined as the operating environment from the shoreline inward to include shallow water seaward of the coastline (less than 6 feet in the Gulf of Mexico) and all inland waterways.

OIL SPILL DETECTION (CAMERA)
Outfitted with an X-Band radar system and infrared camera system working together to locate oil on the surface of the water. Equipment outfitted with the OSD has the capability to skim at night if approved by the FOSC.

PERSONNEL PROTECTIVE EQUIPMENT
Indicates additional response PPE is available onboard vessel (2 week supply)

SAFETY
Indicates continuous air monitoring capability for OS, LEL, VOC, CO, H2S, and C6H6 (Benzene) either via Industrial Hygienist or Safety Technician.

MEDICAL
Indicates onboard capability of an independent EMT or Paramedic.

ALTERNATIVE RESPONSE TECHNOLOGY
Response capabilities that require FOSC approval prior to use.

HELO
Indicates the equipment discussed has the capability to land a helicopter onboard in some capacity to facilitate the transfer of personnel and/or supplies.

24-HOUR OPERATIONS
Indicates that as a general rule the equipment discussed has the capability to operate in an oil recovery mode 24 hours a day.

DAYLIGHT ONLY
Indicates that as a general rule the equipment discussed has the capability to operate in an oil recovery mode during daylight hours only.

OSRV

OIL SPILL RECOVERY VESSEL (OSRV)
Indicates that the vessel being discussed was built specifically for the recovery of oil and that the oil spill recovery equipment onboard is a built-in integral part of the vessel design and operation.

PIDV

PETROLEUM INDUSTRY DESIGNATED VESSEL (PIDV)
Indicates that a specific type and size of vessel must be identified and procured for deployment of the oil spill recovery equipment being discussed.

WORK METHODS
Detailed information on the deployment and recovery of each equipment type.

LOCATION DEFINITIONS

(AP-TX)
ARANSAS PASS, TX

(G-TX)
GALVESTON, TX

(LC-LA)
LAKE CHARLES, LA

(PV-LA)
PORT OF VERMILION, LA

(MC-LA)
MORGAN CITY, LA

(L-LA)
LEEVILLE, LA

(H-LA)
HARVEY, LA

(V-LA)
VENICE, LA

SAFETY (SAF)

SAF RESPONSE SAFETY

DESCRIPTION

Safety of ALL response personnel and the public is the number one priority for all Clean Gulf Associates' operations during each phase, of every response. CGA maintains strict adherence to an aggressive safety program as outlined in the CGA Safety Procedures Manual. There is a defined set of steps followed, in order, prior to beginning oil spill recovery operations on any CGA equipment, by all CGA personnel (see work method). This program utilizes air monitoring equipment, site assessment procedures and techniques consistent with best work practices and regulatory guidelines, site safety planning, and coordination with the response Safety Officer (SOFR) to develop an integrated site-specific safety plan for each response operation. In addition, CGA believes in and follows internal guidelines for incident prevention, reporting, and documentation as a very high priority. The CGA safety program can be integrated into the incident wide safety plan and will be evaluated to ensure procedures remain at least as strict as CGA policy and procedures. Any deviation requires the VP's approval.

TACTICAL OVERVIEW

Safety is the number one priority! CGA policy is to respond in modified level "D" only (hard hat, safety glasses, steel toed boots, lifejacket, inner and outer gloves, and tyvek coveralls as needed), with the capability to go to a modified level "C" (adding an air purifying respirator) if needed for preventative safety concerns (the approval of the VP and the response SOFR are needed prior to). CGA will have at least one asset in each operating area with continual air monitoring capabilities. Prior to beginning any operations in the field, a complete site assessment will be conducted and documented then used to develop the 3-page site safety plan. Once developed, it is the Supervisor's responsibility to ensure all personnel review the site safety plan and sign the safety-briefing sheet prior to beginning operations for each operational period. If any action level (listed above, 1/2 the PEL) is reached during any time all operations are immediately stopped and personnel back out of the area to a safe point to reevaluate.

MEDICAL SUPPORT & INDUSTRIAL HYGIENIST

The HOSS barge will have a medic and industrial hygienist assigned to conduct continual safety oversight, medical monitoring, and to provide emergency medical services in the field as needed.

AIR MONITORING EQUIPMENT

IBRID MX-6 (measures):	Oxygen (O2)
	Lower Explosive Limit (LEL)
	Volatile Organic Compounds (VOC)
	Carbon Monoxide (CO)
	Hydrogen Sulfide (H2S)
Draeger Chip Meter (measures):	Benzene (C6H6)

SITE ASSESSMENT EQUIPMENT

Calibration gas	Flashpoint tester
GPS	Compass
Intrinsically safe radio	Weather meter
Binoculars	Response Safety Forms

ACTION LEVELS

O2: below 19.5%	O2: above 23%
VOC: 50ppm	CO: 25ppm
H2S: 5ppm	Benzene: .5ppm

*All CGA equipment and personnel evacuate the area at lower alarm level or "Action Level".

These levels are set to be ½ of the PEL.

LOGISTICAL SUPPORT*

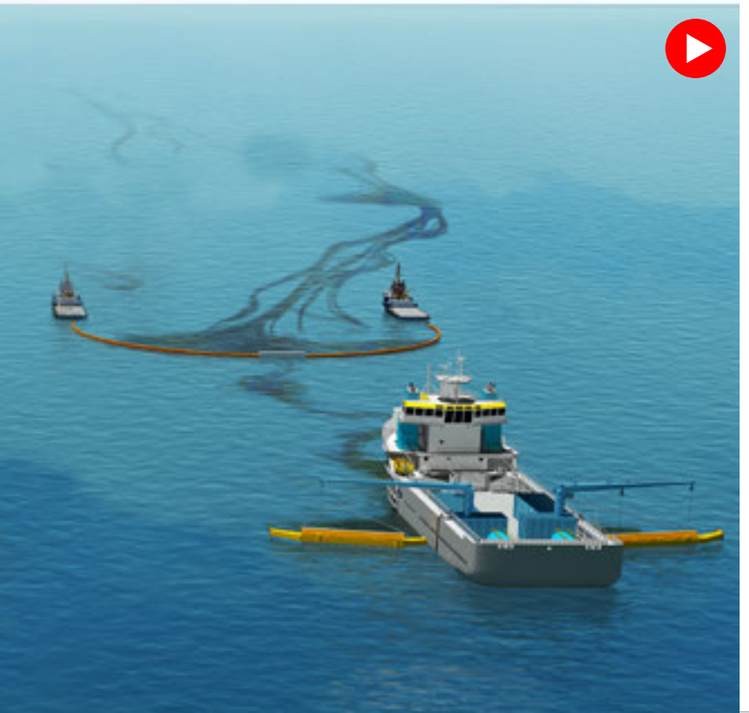
- 1 QTY – Safety Rep per task force
- 1 QTY – Medic (paramedic or EMT) per task force (Geographic area concerns will be considered for numbers)
- 1 QTY – Industrial Hygienist (HOSS barge or larger asset in task force)
- 1 QTY – Transport aircraft and small vessel for field surveys as needed

CONTAINMENT/ BOOMING (CON)

OCEANGOING BOOM BARGE

CON

OCEANGOING BOOM BARGE
CGA 300



DESCRIPTION

The CGA 300 is an Oceangoing Boom Barge that houses 25,000 feet of 43" air inflatable auto-boom palletized in 500' sections. Each section can be set over the side via onboard crane and handed to a support vessel for inflation and deployment. When no longer needed, each section can be attached to one of two recovery reels where it is deflated, coiled back into a roll, and pressed onto a pallet or strap for placement back in secondary containment to be stored for reuse or decontamination. The barge also has a machinery space with a generator and HPU to provide power for the two onboard cranes, a removable conex box workshop and storage space, and an air-conditioned temporary (removable) workspace for personnel assigned during a response. Below deck is a storage area for additional PPE, parts, or other items to provide logistical support as needed to support operations.

TACTICAL OVERVIEW

CONTAINMENT AT THE SOURCE

The Oceangoing Boom Barge is designed to be a transportable platform capable of providing collection and containment capabilities at the source of an oil spill with the assistance of an offshore tug. Once on-scene, the 25,000' of boom can be inflated and deployed by support vessels to provide collection and containment of any free oil on the surface.

IN SUPPORT OF MECHANICAL RECOVERY

The CGA 300 can also be deployed in support of mechanical recovery operations as enhanced skimming, either with 1,000 ' to 3,000' sections towed between two vessels in a wide swath width with a break in the center to channel oil down to skimming vessels, or with one end attached to an existing skimming vessel boom to extend the swath width and increase the effective oil encounter rate.

PROTECTION BOOMING

In areas where the water depth will facilitate the 43" boom, it can be deployed to provide protection booming, such as larger canal openings or bay inlets.

MAXIMUM SEA CONDITIONS

The CGAS Supervisor onboard, in conjunction with the support tug captain, will determine when the sea conditions have exceeded a safe level for deployment, generally 2' – 4'.

VESSEL PARTICULARS

Contstruction:	Steel	Size (length/beam):	180' / 54'
Draft:	2.5'	Weight:	858 tons
Range:	Gulf of Mexico	Speed (transit):	5-7 knots
Power:	40 KW generator	Crane Capacity:	2/10 ton
Fuel:	500 gals. (diesel)		

ACCOMMODATIONS

Bunks:	N/A	Galley:	N/A
Head:	1		

COMMUNICATIONS

Portable VHF

OIL SPILL EQUIPMENT

Boom:	25,000'/43" Auto (air inflatable) - 55,000' total (30,000' in Harvey, LA)
Recovery Reels:	2 hydraulic

SUPPORT VESSELS

Tugs (offshore):	1/1200 hp min	Utility/Crewboat:	1 (supply)

LOGISTICAL SUPPORT*

- 1 QTY – boom barge w/ 25,000' of boom (43")
- 1 QTY – tug (1,200 hp min)
- 2 QTY – PIDV per 1,000' of boom deployed
- 1 QTY – support crew boat (supply)
- 4 QTY – personnel (2 CGAS/2 OSRO)

ADDITIONAL RESOURCES

ICS form 213 Resource Request

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	VSL PROC. TIME	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
3HRS	N/A		+1HR	NM/6 KTS	1HR

ON WATER MECHANICAL RECOVERY (OWR)

OWR

HIGH VOLUME OPEN SEA SKIMMING SYSTEM (HOSS)

DESCRIPTION

The HOSS barge is a 174' dedicated Oil Spill Recovery Barge (OSRB) with state of the art oil spill detection and recovery equipment onboard. An integrated infared camera and x-band radar system gives it day and night oil spill detection, tracking, and oil recovery capability. Three offshore tugs work in unison to hold 67" offshore capable boom (1,320' max per side) off each side in a "V" pattern with a swath width of up to 500'. The boom, channels free oil on the surface of the water to four, Lamor 5-brush oleophilic skimmers that maximize oil recovery while minimizing water collection. The rotating brushes allow the oil to be scraped off into a 250 barrel sump system that has decanting capability to minimize the amount of water that might be collected prior to it being pumped into one of four 1,000 bbl recovered oil (RO) storage tanks. The skimming system is also equipped with secondary skimmers to collect any product that might bypass the primary skimmers. Once full, the RO tanks can be pumped into a storage barge for disposal in accordance with an approved disposal plan. One of two 500 GPM pumps can offload the barge simultaneous to skimming operations. The HOSS has a 52' x 52' 20,000 lb. helicopter deck and accommodations onboard for 16 people.

TACTICAL OVERVIEW

MECHANICAL RECOVERY

The HOSS barge is a high volume designated oil spill recovery barge that provides mechanical recovery of free oil on the surface of the water in the offshore, nearshore, and inshore environments as long as the water depth can facilitate the barge draft of 6' and the draft of the supporting towing vessels. It is best utilized when positioned as near to an uncontrolled source as possible or in the heaviest concentrations of oil. It can also be used to recover large streamers of oil as needed. Oil spill detection equipment gives it the capability to locate and skim oil 24 hours a day if approved by the Unified Command. The HOSS barge is most effective with an assigned aircraft to provide tactical direction and support OWR operations.

MAXIMUM SEA CONDITIONS

Under most circumstances the HOSS barge can maintain standard operations in 3' to 5' seas, with the boom onboard and utilizing only the belts up to 7' seas. Ultimately, the CGAS Supervisor onboard, in conjunction with the support tug captains, will determine at what point sea conditions have exceeded the capability of the barge.

COMMAND AND CONTROL

The advanced communication, oil spill detection, accommodations and helo support ability make the HOSS barge an ideal command and control vessel in the field.

VESSEL PARTICULARS

Contstruction:	Steel	Size (length/beam):	174'/52'
Draft:	6'	Weight:	1,073 tons
Range:	Gulf of Mexico	Speed (transit):	5-7 knots
Power:	3 x 75 KW generators	Helo deck:	52' x 52' (20,000 lbs)
Crane Capacity:	2/10 ton	Fuel:	6,968 gals. (diesel)
Water:	2,000 gals. (potable)		

ACCOMMODATIONS

Bunks:	16	Galley:	1 full function
Head:	2		

COMMUNICATIONS

Radios:	VHF-FM and Aviation,	Tracking:	AIS
Satellite:	Phone, fax, data, WiFi		

OIL SPILL DETECTION

Aptomar SECurus (Infrared Camera, HD Digital Video Camera, High Output Spotlight, and Rutter X-band Radar)

OIL SPILL EQUIPMENT

Skimmer:	4-5 Brush Lamor	Daily Recovery Capacity:	76,285 BBLS
Boom:	2,640'/67" Sea Sentry	Swath Width:	500' (max)
RO Storage:	4,100 BBLS	Pumps:	2/500 GPM

LOGISTICAL SUPPORT*

3 QTY – Offshore tugs (2/1200 hp, 1/1800 hp)

1 QTY – Utility/Crewboat (supply)

12 QTY – Personnel (4 CGAS/8 OSRO)

ADDITIONAL FEATURES

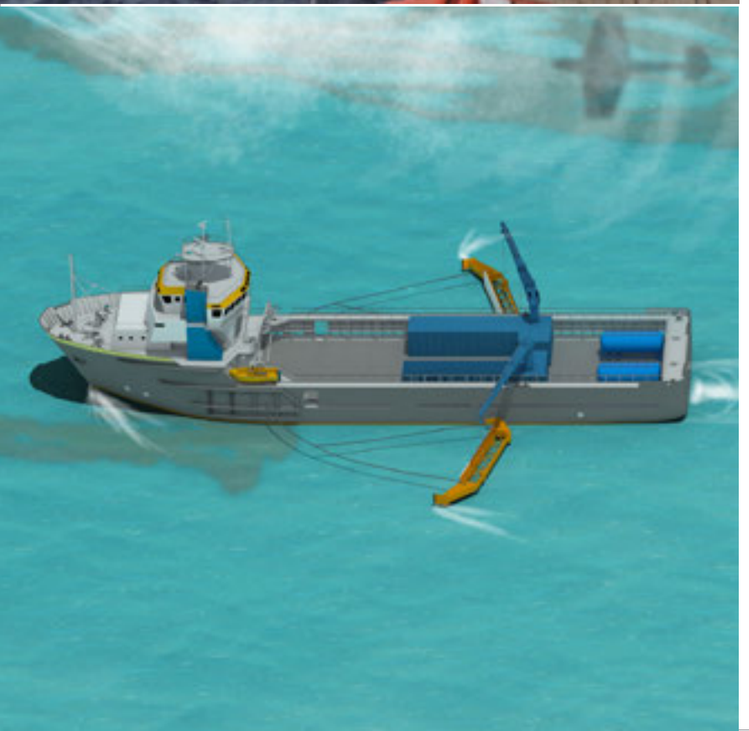
ICS form 213 Resource Request

CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	VSL PROC. TIME	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
6HRS	N/A		+1HR	NM/6 KTS	1HR

OWR KOSEQ RIGID SKIMMING ARMS



DESCRIPTION

The KOSEQ Rigid Skimming Arms are skimming systems available to CGA members through a contract with T&T Marine, Inc. Each system requires a large Offshore or Platform Supply Vessel (OSV/PSV), greater than 200' with at least 100' x 50' of free deck space for deployment. A 50' long rigid framed Arm is deployed on each side of the vessel that consists of pontoon chambers to provide buoyancy, a smooth nylon face, and a hydraulically adjustable mounted weir or nylon brush skimmer. A special purpose deployment system, consisting of conex boxes with a pedestal mounted deployment arm, or a 30-ton minimum cherry picker, is used to deploy from the deck of the vessel. Once in the water, the Arm floats independently of the vessel and is attached by a tow bridle and a lead line. The movement of the vessel forward draws the rubber end seal of the arm against the hull to create a collection point for free oil directed to the skimmer by the Arm face. The skimmer is hydraulically adjusted to maximize oil recovery and minimize excess water collection. A positive displacement screw type and centrifugal transfer pump suited for highly viscous oils then pumps the recovered liquid to portable tanks and/or dedicated fixed storage tanks onboard the vessel. Once separated, and with approval from the Coast Guard, the water can be pumped off from the bottom of the portable tanks, in front of the collection arm, to be reprocessed through the system. Once full with as much pure recovered oil as possible, the oil is transferred to a temporary storage barge for disposal in accordance with an approved disposal plan.

TACTICAL OVERVIEW

MECHANICAL RECOVERY

Deployed on large Petroleum Industry Designated Vessel (PIDV) the KOSEQ Rigid Skimming Arms are high volume surge capability deployed to increase the rated daily recovery capacity at the source of a large oil spill in the offshore and outer nearshore environments. They are highly mobile and sustainable in rougher sea conditions than normal skimming vessels (9.8' seas). The large Offshore Supply Vessels (OSV) required to deploy the Arms are able to remain on scene for extended periods. Temporary storage on deck in portable tanks usually provides between 1,000 and 3,000 bbls. In most cases, the PIDV will be able to pump 20% of its deadweight into the liquid mud tanks in accordance with the vessels Certificate of Inspection (COI). All storage can be offloaded utilizing the vessels liquid transfer system.

MAXIMUM SEA CONDITIONS

The Skimming Arms rated maximum deployable sea state is 9.8'. Ultimately it will be the decision of the PIDV Captain, with input from the T&T Supervisor onboard, to determine when the sea conditions have exceeded the safe operating conditions of the vessel.

SKIMMER PARTICULARS

Contstruction:	Steel	Size (l/w/d):	50'/11'9"/6'6"
Draft:	3'3" skimmer draft (not vsl)	Weight:	10,600 lbs
Range:	Gulf of Mexico	Max Seas:	3 meters (9.8')
Speed	10 knots (planning)	Crane Capacity:	TBD
Power:	HPU 32 GPM @ 5,000 PSI		

Vessel draft and transit speed will be dependent on the selected PIDV

ACCOMMODATIONS

Dependent on PIDV specifications

COMMUNICATIONS

PIDV dependent

OIL SPILL DETECTION

PIDV dependent

OIL SPILL EQUIPMENT

Skimmer:	Wier and nylon brush inserts	Daily RecoveryCapacity:	36,326 BBLS (weir set)
			45,770 BBLS (brush set)
Boom:	N/A	Swath Width:	100' plus PIDV beam (max)

OF SYSTEMS & LOCATIONS

RO Storage:	2 to 6/500 BBLS portable tanks	Pumps:	2,500 GPM
11 Sets staged in:		Harvey, LA (6 sets)	
		Galveston, TX (5 sets)	

LOGISTICAL SUPPORT*

2 to 6 portable storage tanks (500 BBLS) — 1 QTY – Skimmer Deployment System

4 QTY – Personnel (4 T&T OSRO)

1 QTY – 200'+ Petroleum Industry Dedicated Vessel (PIDV)

* Multiple KOSEQ PIDVs can be deployed in a task force

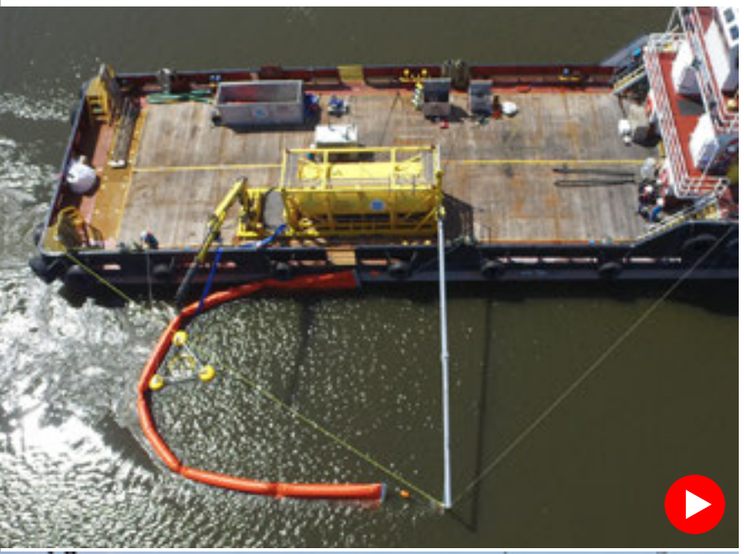
ADDITIONAL FEATURES

ICS form 213 Resource Request — CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	VSL PROC. TIME	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
4HRS	MILES/35 MPH		+24HR	NM/10 KTS	1HR

OWR FAST RESPONSE UNIT (FRU)



DESCRIPTION

The Fast Response Unit (FRU) is a self-contained, skid based, skimming system that is deployed from the right side of a Petroleum Industry Designated Vessel (PIDV). An outrigger holds a 75' long section of air inflatable boom in place that directs oil to an apex for recovery via a Foilex 250 weir skimmer. The outrigger creates roughly a 40' swath width dependent on the PIDV beam. The lip of the collection bowl on the skimmer is placed as close to the oil and water interface as possible to maximize oil recovery and minimize water retention. The skimmer then pumps all fluids recovered to the storage tank where it is allowed to settle, and with the approval of the Coast Guard, the water is decanted from the bottom of the tank back into the water ahead of the containment boom to be recycled through the system. Once the tank is full of as much pure recovered oil as possible it is offloaded to a storage barge for disposal in accordance with an approved disposal plan. A second 100 barrel storage tank can be added if the appropriate amount of deck space is available to use as secondary storage.

TACTICAL OVERVIEW

MECHANICAL RECOVERY

The FRU is designed to provide fast response skimming capability in the offshore and nearshore environment in a stationary or advancing mode. It provides a rated daily recovery capacity of 4,100 barrels. An additional boom reel with 440' of offshore boom can be deployed along with the FRU, and a second support vessel for boom towing, to extend the swath width when attached to the end of the fixed boom. The range and sustainability offshore is dependent on the PIDV that the unit is placed on, but generally these can stay offshore for extended periods. The FRU works well independently or assigned with other on-water recovery assets in a task force. In either case, it is most effective when a designated aircraft is assigned to provide tactical direction to ensure the best placement in recoverable oil.

MAXIMUM SEA CONDITIONS

Under most circumstances the FRU can maintain standard oil spill recovery operations in 2' to 4' seas. Ultimately, the Coast Guard licensed Captain in charge of the PIDV (with input from the CGAS Supervisor assigned) will be responsible to determine when the sea conditions have surpassed the vessel's safe operating capabilities.

SKIMMER PARTICULARS

Contstruction:	Steel	Max Seas:	2' to 4'
Size:	(l/h/w): 21'/9'/8'	Speed (vessel transit):	10 knots (planning)
Draft:	3'3" skimmer draft (not vsl)	Crane:	6 tons
Weight:	16,000 lbs	Power:	HPU 46 hp
Range:	Gulf of Mexico	Transportation:	Semi-truck

ACCOMMODATIONS

Dependent on PIDV specifications

COMMUNICATIONS

PIDV dependent

OIL SPILL DETECTION

PIDV dependent, hand held camera

OIL SPILL EQUIPMENT

Skimmer:	Foilex 250 (weir)	Swath Width:	30' plus ½ PIDV beam (max) 200' in enhanced skimming mode with 440' of sea sentry boom
Daily Recovery Capacity:	4,251 BBLS	Pumps (skimmer/offload):	620/827 GPM
Boom:	75'/53" air inflatable	RO Storage:	100/200 BBL portable tank

SUPPORT VESSELS

100' to 165' Offshore Supply Vessel

< 165' Utility Vessel (gunwale height restrict)

LOGISTICAL SUPPORT*

1 QTY – PIDV (100' to 165' Utility or Supply Vessel)

1 QTY – Boom reel w/support vessel for towing

4 QTY - Personnel (1 CGAS/3 OSRO)

ADDITIONAL FEATURES

ICS form 213 Resource Request

CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	VSL PROC. TIME	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	MILES/35 MPH		5HRS	NM/10 KTS	1HR

PIDV

LOCATION

V-LA
H-LA
L-LA
MC-LA
PV-LA
LC-LA
G-TX
AP-TX

WORK METHODS

WM

OWR

95’ FAST RESPONSE VESSEL (95’ FRV)

DESCRIPTION

The 95’ Fast Response Vessel (95’ FRV) is an aluminum hulled, designated, oil spill recovery vessel with state of the art oil spill detection and recovery equipment onboard. An integrated infrared camera and x-band radar system gives it day and night oil spill detection, tracking, and oil recovery capability. On each side of the vessel, an outrigger holds a 32’ long section of air inflatable boom creating a swath width of about 100’ that directs free oil on the surface of the water to an oleophilic 3-brush skimmer deployed over the side in a track attached to the hull. These high capacity skimmers maximize efficiency by allowing the free oil to stick to the bristles while excess water is repelled. The oil is scraped off into a sump then pumped into the 249 barrel recovered oil (RO) tank. Once full, the recovered oil can be offloaded using the FRV’s 2/827 GPM offload pumps to be disposed of in accordance with an approved disposal plan.

TACTICAL OVERVIEW

MECHANICAL RECOVERY

The 95’ FRV is designed for locating and recovering oil 24 hours a day in the offshore and nearshore environments. With a top speed of 25 knots, it is a highly mobile and efficient OSRV with a rated daily recovery capacity of 22,885 barrels that can get on scene quickly and provide sustainable initial oil detection and recovery operations. Its mobility allows it to remain on scene and recover oil or follow streamers of oil as needed. It works well independently or in a task force with multiple resources. Recovery efforts will be most effective with the tactical direction of a designated aircraft making sure it is best positioned to recover free oil. It can stay out for a couple weeks at a time.

MAXIMUM SEA CONDITIONS

Under most circumstances the 95’ FRV can maintain standard oil spill recovery operations in 3’ to 5’ seas. Ultimately, the CGAS Captain onboard will be responsible to determine when the sea conditions have surpassed the vessels safe operating capabilities.

COMMAND AND CONTROL

With a transit speed of 25 knots, and its ability to locate and recover oil both day and night, the 95’ FRV is designed to be a first vessel on scene capable of maintaining the initial Command and Control function for on water recovery operations as long as needed while other assets are enroute.

VESSEL PARTICULARS

Contstruction:	Aluminum	Size (length/beam):	95’/21’
Draft:	5’	Weight:	90 tons
Range:	Gulf of Mexico	Speed (transit):	24 kts
Power:	65 KW generator	Crane Capacity:	2,500 lbs @ 15’
Fuel:	2,500 gals. (diesel)		
Water:	2,000 gallons (potable)		

ACCOMMODATIONS

Bunks:	6	Galley:	1 full function
Head:	2		

COMMUNICATIONS

Radios:	VHF-FM and Aviation	Tracking:	AIS
Satellite:	Phone, data		

OIL SPILL DETECTION

Aptomar SECurus (Infrared Camera, HD Digital Video Camera, High Output Spotlight, and Rutter X-band Radar)

OIL SPILL EQUIPMENT

Skimmer:	2/3-brush Lamor	Daily Recovery Capacity:	22,885 BBLS
Boom:	2/32’x3’ air inflatable	Swath Width:	100’ (max)
RO Storage:	249 BBLS	Pumps:	2/827 GPM

SUPPORT VESSELS

N/A

LOGISTICAL SUPPORT*

1 QTY – Designated spotter aircraft

6 QTY – Personnel (2 CGAS/4 OSRO)

1 QTY – Offshore tank barge

*95’ FRV is well suited to work with other skimming vessels in a single task force

ADDITIONAL FEATURES

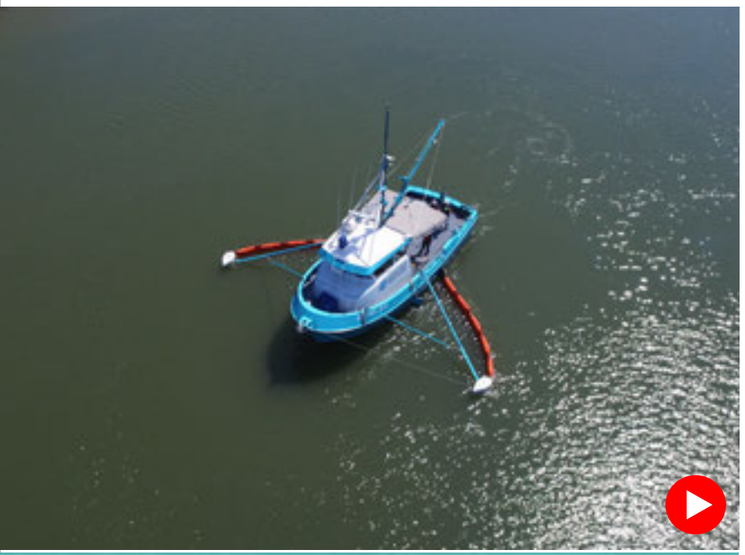
ICS form 213 Resource Request

CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	VSL PROC. TIME	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	N/A		N/A	NM/17 KTS	1HR

46’ FAST RESPONSE VESSEL (46’ FRV)



DESCRIPTION

The 46’ Fast Response Vessel (46’ FRV) is an aluminum hulled, designated, oil spill recovery vessel with a swath width of about 50’. On each side of the vessel, an outrigger holds a 23’ long section of positive floatation hard boom that directs free oil on the surface of the water into a recovery trough via thru-hull doors at the waterline. The free communication created with the doors open allows the oil to contact a turning, oleophilic 2-brush skimmer designed to maximize efficiency by allowing the oil to stick to the nylon bristles while any excess water is repelled. The oil is then scraped off the brushes where it drops into a sump that free flows into the 65 barrel recovered oil (RO) tank. Once full, the recovered oil can be offloaded using the FRV’s 160 GPM offload pump to be disposed of in accordance with an approved disposal plan.

TACTICAL OVERVIEW

MECHANICAL RECOVERY

The 46’ FRV is designed primarily to recover oil in the nearshore (out to 30 NM) and inshore environments where water depths exceed 6’, but could go slightly beyond 30 NM at the captain’s discretion if needed. With a top speed of 25 knots, it is a highly mobile and efficient OSRV with a rated daily recovery capacity of 15,257 barrels. The FRV is well suited to be deployed at the source or chase streamers as a final attempt at recovery prior to the oil impacting the shoreline. It works well in a task force of multiple resources or independently. Recovery efforts will be most effective with the tactical direction of a designated aircraft making sure it is best positioned to recover free oil. The 46’ FRV can stay out a night or two if needed (temporary accommodations for 3 people onboard), but is better used to skim during daylight hours and return to a support platform or dock at night to offload and refuel.

MAXIMUM SEA CONDITIONS

Under most circumstances the 46’ FRV can maintain standard oil spill recovery operations in 2’ to 4’ seas. Ultimately, the Coast Guard licensed CGAS Captain onboard will be responsible to determine when the sea conditions have surpassed the vessel’s safe operating capabilities.

VESSEL PARTICULARS

Contstruction:	Aluminum	Size (length/beam):	46’/16’
Draft:	5’	Weight:	29 tons
Range:	350 to 470 NM (30 NM out)	Speed (transit):	25 knots
Power:	5 -10 KW generator	Hoist Capacity:	1,500 lbs.
Davit:	1,500 PSI	Fuel:	700 to 925 gals. (diesel)
Water:	50 to 100 gals. (potable)		

ACCOMMODATIONS

Bunks:	3	Galley:	Microwave
Head:	1		

COMMUNICATIONS

Radios: VHF-FM, Satellite Phone, Aviation, AIS

OIL SPILL EQUIPMENT

Skimmer:	2/2-brush Lamor	Daily Recovery Capacity:	15,257 BBLS
Boom:	2/23’x3’ air inflatable	Swath Width:	50’ (max)
RO Storage:	65 BBLS	Offload Pumps:	160 GPM

SUPPORT VESSELS

N/A

LOGISTICAL SUPPORT*

1 QTY – Designated spotter aircraft

4 QTY – Personnel (2 CGAS/2 OSRO)

1 QTY – 40’ shuttle barge (offloading)

**46’ FRV is well suited to work with other skimming vessels in a single task force*

ADDITIONAL FEATURES

ICS form 213 Resource Request

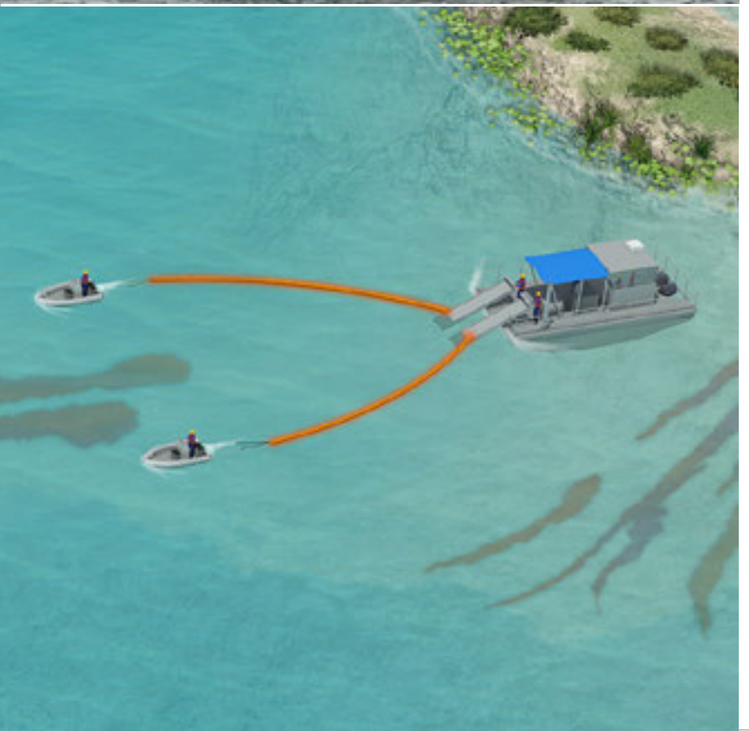
CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	VSL PROC. TIME	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	N/A		N/A	NM/23 KTS	1HR

OWR

56’ SHALLOW WATER FAST RESPONSE VESSEL (56’ SW FRV)



DESCRIPTION

The 56’ Shallow Water Fast Response Vessel (56’ SW FRV) is an aluminum hulled designated oil spill recovery vessels with 2/36” belt skimmers on the bow and twin 350 hp outboards on the stern. Two 75’ long sections of 3’ air inflatable boom can be deployed in a “V” pattern from each side of the vessel to direct oil to the skimmers. Without the boom, the skimmers can also be deployed over containment boom to recover oil and debris already contained. As oil and/or debris are channeled to the oleophilic skimming belts, the oil sticks to the belt and water is repelled. The belt rotates allowing the sticking oil to be scraped off into a sump and any debris to fall off into recovery disposal bags. The oil is then pumped into a 249-barrel storage tank where it can be offloaded with the skimmers 827 GPM offload pump to temporary storage for disposal in accordance with an approved disposal plan. Any bagged debris can be offloaded to a separate vessel for transport to a disposal location.

TACTICAL OVERVIEW

MECHANICAL RECOVERY

Used in an inshore environment, the 56’ SW FRV can be used like a mini HOSS barge with boom extended in a “V” pattern directing oil to the barge in open canals or bays, or without the boom, the belts can be lowered into contained oil for oil and debris removal. It is ideal for work just outside the jetties in and around the barrier islands, etc. because its speed allows it to get back into protected waters should weather conditions change. It can operate in waters as shallow as 2’.

MAXIMUM SEA CONDITIONS

Calm waters are ideal, anything more than a foot or so of chop and the SW FRV must return to calm waters.

VESSEL PARTICULARS

Contstruction:	Aluminum	**Size (length/beam):**	56’ / 14’
Draft:	2’	**Weight:**	32,000 lbs
Range:	Inland (3 NM into GoM dep wx)	**Speed (transit):**	17 knots
Fuel:	250 to 350 gals. (gasoline)	**Water:**	N/A

ACCOMMODATIONS

None — **Head:** 1 portable

COMMUNICATIONS

VHF — AIS

OIL SPILL EQUIPMENT

Skimmer:	2/36” belt	**Daily Recovery Capacity:**	21,5000 BBLS
Boom:	2/75’x3’ air inflatable	**Swath Width:**	60’ (max)
RO Storage:	249 BBLS	**Offload Pumps:**	827 GPM

LOGISTICAL SUPPORT*

2 QTY – 14’ to 16’ flat bottom work boats for boom tending

4 QTY – 8 Personnel (2 CGAS/2 OSRO) for belt only operations; or (2 CGAS/6 OSRO) for full boom deployment

ADDITIONAL FEATURES

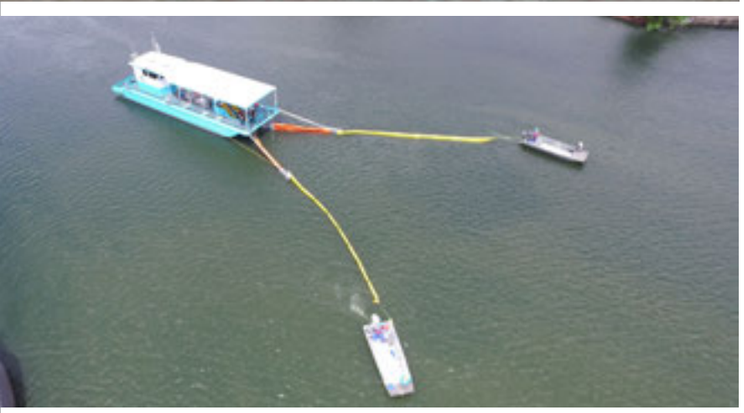
ICS form 213 Resource Request — CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	VSL PROC. TIME	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	N/A		1HR	NM/17 KTS	30 MIN

OWR

60’ SHALLOW WATER FAST RESPONSE VESSEL (60’ SW FRV)



DESCRIPTION

The new 60’ Shallow Water Fast Response Vessels (60’ SW FRV) are aluminum hulled skimming vessels with slight “V” hulls and triple outboard Yamaha 350 hp engines. Each has 2/4 brush nylon skimmer inserts and 2/17’ 24” inflatable boom sections that use outriggers to hold a “V” pattern out in front of the vessel to direct oil to the skimmers. Oil sticks to the brushes as they rotate through a nylon scraper that releases the oil into a sump where it can be pumped to a 249 BBL recovered oil tank. Debris is removed by a grating above the sump and disposed of. All 3 vessels have offloading pumps that operate at 827 GPM.

TACTICAL OVERVIEW

MECHANICAL RECOVERY

Used in an inshore environment, the 60’ SW FRV is designed to operate in an advancing mode with boom extended in front of the vessel using outriggers to direct oil to the brush skimmers built into the bow and lowered into the oil to skim. The slight “V” shaped hull and triple outboards give it a top speed of near 30 knots which provides a high level of range and flexibility. The shallow draft gives it access to shallow water skimming environments up until now reserved for smaller Marco skimmers with less than a quarter of the 60’ SW FRV’s capability while maintaining the ability of larger vessels to work offshore between barrier islands and the shoreline.

MAXIMUM SEA CONDITIONS

Calm waters are ideal, but the 60’ SW FRV’s slight “V” hull allows it work in choppier seas than other smaller skimmers.

ENHANCED SKIMMING MODE

OSRO small boats and sections of 18” contractor boom can be connected to the ends of the 60’ SW FRV boom to increase the swath width and increase the oil encounter rate.

VESSEL PARTICULARS

Contstruction:	Aluminum	Size (length/beam):	60’ / 14’
Draft:	2’	Weight:	68,900 lbs
Range:	Inland (3 NM into GoM dep wx)	Speed (transit):	25 knots
Fuel:	600 gals. (gasoline)	Water:	N/A

ACCOMMODATIONS

None — Head: 1

COMMUNICATIONS

VHF/Aircraft — AIS

OIL SPILL EQUIPMENT

Skimmer:	2/3 Nylon LAMOR brush	Daily Recovery Capacity:	22,885 BBLS
Boom:	2/17’ x 3’ air inflatable	Swath Width:	75’
RO Storage:	249 BBLS	Offload Pumps:	827 GPM

LOGISTICAL SUPPORT*

1 QTY – Personnel CGA

2 QTY – OSRO

ADDITIONAL FEATURES

ICS form 213 Resource Request — CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	VSL PROC. TIME	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	N/A		1HR	NM/17 KTS	30 MIN

OWR

MARCO SHALLOW WATER SKIMMER (MARCO SWS)

DESCRIPTION

The Marco Shallow Water Skimmer is a designated oil spill recovery vessel with a single belt skimmer. It is powered by outboard engines for skimming in the shallow water environments of harbors, coastal areas, rivers, and lakes. A single 12" wide oleophilic marco belt recovers oil that sticks to the belt and repels water to maximize efficiency. The belt rotates and the recovered oil is scraped off into a sump where it is pumped into a 20 to 34 barrel recovered oil storage tank. It is equipped with a water spray system to herd oil to the recovery belt. It can skim in advanced or stationary modes depending on the conditions. The skimmers are stored on flatbed trailers to facilitate a rapid response. They need a permit for transport over the road.

TACTICAL OVERVIEW

MECHANICAL RECOVERY

Shallow water skimmers can be used to recover free oil in the inshore environment including the very shallow water (1.5'). Either in a fixed capacity or moving forward, free oil can be recovered. The Marco has a rated daily recovery capacity of 3,588 barrels. Once full, a shuttle barge (249 BBLS) can be used to unload the skimmer without removing it from the skimming area.

MAXIMUM SEA CONDITIONS

Shallow water skimmers must be operated in calm water conditions.

VESSEL PARTICULARS

Contstruction:	Aluminum	Size (length/beam):	34' to 38'/10'
Draft:	1.5'	Weight:	7,000 to 15,500 lbs
Range:	Inshore (6 hour run time)	Speed (transit):	15 to 20 knots
Fuel:	200 gal (gas)		75 gal (diesel)

ACCOMMODATIONS

Hoist Capacity:	1,500 lbs	Water:	50 to 100 gals. (potable)

COMMUNICATIONS

None

OIL SPILL EQUIPMENT

VHF

Skimmer:	1/12" belt	Daily Recovery Capacity:	3,588 BBLS
Boom:	N/A	Swath Width:	8' (max)

SUPPORT VESSELS

RO Storage:	20 to 34 BBLS	Offload Pumps:	160 GPM

LOGISTICAL SUPPORT*

N/A

1 QTY – Designated spotter aircraft (if available)

3 QTY – Personnel (1 CGAS/2 OSRO)

** MSWS is well suited to work with other skimming vessels in a single task force*

ADDITIONAL FEATURES

ICS form 213 Resource Request

CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	VSL PROC. TIME	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	MILES/35 MPH		1HR	NM/10–20 KTS	30 MIN

OWR

EGMOPOL SHALLOW WATER SKIMMER (EGMOPOL SWS)

DESCRIPTION

The Egmopol Shallow Water Skimmer is a designated oil spill recovery vessel with a single belt skimmer. It is a hydraulically powered self-propelled barge for skimming in harbors, coastal areas, rivers, and lakes. It is equipped with a high volume conveyor belt and swab system that pulls oil out of the water where it is scraped off the belt into an open top 90-barrel storage tank. Once full, the tank can be offloaded via a 827 GPM offload pump to a 249 barrel shuttle barge for disposal in accordance with an approved disposal plan. Boom may be attached to increase the swath width and increase the encounter rate with free oil on the water's surface. The Egmopol is stored on a flatbed trailer for rapid deployment and requires a permit for transport over the road.

TACTICAL OVERVIEW

MECHANICAL RECOVERY

Shallow water skimmers can be used to recover free oil in very shallow water (1.5'). Either in a fixed capacity or moving forward, free oil can be recovered. It has a rated daily recovery capacity of 3,000 barrels. Once full, a shuttle barge (249 BBLS) can be used to unload the skimmer without removing it from the skimming area

MAXIMUM SEA CONDITIONS

Shallow water skimmers must be operated in calm water conditions.

VESSEL PARTICULARS

Contstruction:	Steel	Size (length/beam):	36'6"/13'4"
Draft:	2'2"	Weight:	25,000 lbs
Range:	Inshore	Speed (transit):	6 knots
Fuel:	34 gals. (diesel)		

ACCOMMODATIONS

None

OIL SPILL EQUIPMENT

Skimmer:	1/26" belt	Daily Recovery Capacity:	3,000 BBLS
Boom:	N/A	Swath Width:	8' (max)
RO Storage:	90 BBLS	Offload Pumps:	827 GPM

SUPPORT VESSELS

N/A

LOGISTICAL SUPPORT*

1 QTY – Designated spotter aircraft (if available)

3 QTY – Personnel (1 CGAS/2 OSRO)

** The Egmopol is best used in a task force with other shallow water recovery assets.*

ADDITIONAL FEATURES

ICS form 213 Resource Request

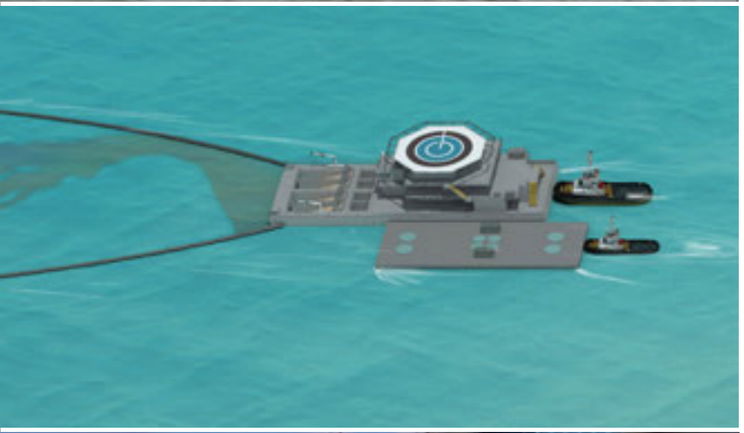
CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	MILES/35 MPH (PERMIT)	1HR	NM/17 KTS	30 MIN

TEMPORARY STORAGE (STO)

STO TEMPORARY STORAGE (BARGES)



DESCRIPTION

CGA maintains agreements with 4 independent barge companies to provide its members with over 3 million barrels of temporary recovered oil storage. Barges can be activated via these agreements and provide barges ranging from small, inland barges (20,000 BBLS) upward to large offshore tug and barge combinations (over 100,000 BBLS) to provide temporary storage of recovered oil and transport it to the designated disposal or reuse facility as designated by the member company.

In addition, CGA maintains (4) 249-barrel aluminum hulled shuttle barges to support shallow water skimming operations by offloading at the skimmer recovery location to minimize skimmer travel.

TACTICAL OVERVIEW

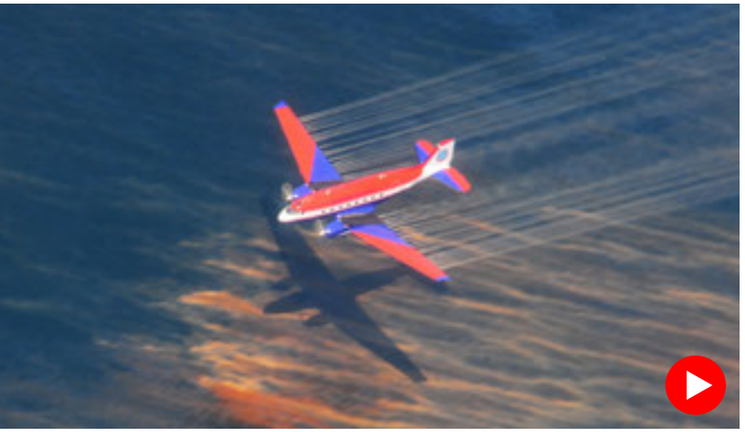
Tank barges are assigned to the CGA offshore on water recovery task forces to provide on site temporary storage. Smaller barges, 22,000 barrel to 35,000 barrel capacity, remain on site with skimming assets until full and then rotate out to offload into a larger, 80,000 barrel and larger barge assigned to the on water recovery group.

The smaller 249 barrel shuttle barges are used in conjunction with CGA shallow water skimming assets to allow temporary storage on site. These barges will "shuttle" oil from the site of skimming operations to larger inland tank barges moored near by.

VESSEL PARTICULARS	Steel hulled USCG certificated tank barges, ocean going and inland canal, equal to up to 3 million barrels of temporary storage.
	4 – 249-Barrel CGA shuttle barges
	Steel hulled tank barges
SUPPORT VESSELS	1 tug per barge as size requires
AGREEMENTS	T&T Salvage, LLC, Houston TX
	Genesis Marine, Houston TX
	Kirby Offshore Marine (former K-Sea Transportation assets) Houston/New Jersey
	Canal Barge, New Orleans

ALTERNATIVE RESPONSE TECHNOLOGIES (ALT)

AERIAL DISPERSANT (DSP)



DESCRIPTION

Clean Gulf provides aerial dispersant application capabilities to its members via a contract with Airborne Support Inc. (ASI) located in Houma, LA. A CGA funded Basler BT-67 and a Twin Commander spotter aircraft are maintained at ASI to provide the ability to apply 2,000 gallons of dispersant (per load) onto oil spills in the Gulf of Mexico within hours. Clean Gulf has a combined stockpile of Corexit 9500 and Accell Clean DWD totalling 180,651 gallons. The Basler has a 200 mph flight speed and an adjustable spray application rate (5 gallon/acre rule of thumb). Because of relatively low application heights (less than 100') the Twin Commander flies above to provide direction of when to spray. All application of dispersants is done with the approval of the Federal On-Scene Coordinator (FOSC) and monitored by the Coast Guard SMART team. All four CGA 46' FRVs have the capability to apply dispersant as well.

TACTICAL OVERVIEW

ALTERNATIVE RESPONSE TECHNOLOGIES

Aerial dispersant application can be used either when mechanical recovery is not feasible or when it must be augmented. Even when operating in a pre-approved zone in the Gulf of Mexico, it is necessary make sure the initial checklist has been completed and submitted to the USCG. Once approval is given, an initial spray can be conducted and monitored by the Coast Guard SMART team to verify effectiveness. ASI is capable of being wheels up within 2 hours with an on-scene time usually within an hour, give or take, based on the location of the spill. Dispersant application is usually targeted toward the leading edge of a spill and/or in the largest quantities of freshest oil. It is important not to spray dispersants within 1 mile of mechanical recovery operations and to ensure that treated oil is given the time to break down and disperse into the water column. Surface application can be done using the FRVs or portable skid units on utility vessels as directed by the Unified Command, most often if suppression of VOCs is needed in particular areas.

MAXIMUM SEA CONDITIONS

Dispersant application is most effective when there is enough wave action to ensure the mixing of dispersant and oil. Wind and visibility are also important factors to consider.

APPLICATION AIRCRAFT PARTICULARS

Balser BT-67 (N932H)

Wingspan:	95'8"	Length:	67'1"	Height:	16'11"
Range:	2,140 NM	Speed:	220 Kts	Duration:	9-11 Hrs
Crew:	1 Captain	1 Co-pilot	Room for 3 Crew		
Capacity:	Dispersant 2,000 gallons			Fuel:	10,332 lbs.

2 - DC-3S (N64766) & (N64767)

Wingspan:	95'	Length:	64'5"	Height:	16'11"
Range:	1,040 NM	Speed:	130 Kts	Duration:	7 Hrs, 15 min
Crew:	1 Captain	1 Co-pilot	Room for 2 Crew		
Capacity:	Dispersant 1,200 gallons			Fuel:	802 gallons

SPOTTER AIRCRAFT PARTICULARS

Twin Commander 690A (N38WA)

Wingspan:	46'7"	Length:	44'4.25"	Height:	14'11.5"
Range:	1,615 NM	Speed:	260 Kts	Duration:	6 Hrs, 30 min
Crew:	1 Captain	No Co-pilot	Room for 7 passengers		
Capacity:	Fuel: 2,573 lbs.			Gear: 600 lbs.	

DISPERSANT

Types: Corexit 9500 and Accell Clean DWD — Total Stockpile: 180,651 Gallons

LOGISTICAL SUPPORT*

- 1-4 Spray aircraft
- 6 – personnel for ground support (loading, etc.)
- 1 – Utility vessel (monitoring team)
- 1 – Wildlife observer
- 1 – Coast Guard SMART team

ADDITIONAL RESOURCES

ICS form 213 Resource Request — CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	N/A	2HRS	NM/200 KTS	7–10 MIN

ALT HYDRO FIRE BOOM

DESCRIPTION

The Elastec Hydro-Fire Boom system is comprised of a 500' long section of 32" specialized fire retardant boom that is water cooled via 2 1000 GPM water pumps. Each system is rated to be capable of 12-16 burns before it becomes necessary to refurbish. The boom is stored on a hydraulic boom reel and the water system monitored via flow meters, pressure gauges, and suction strainer manifolds. Also included in the system are two towing packages, each with 400' of towline and 400' fire hose assemblies.

TACTICAL OVERVIEW

ALTERNATIVE RESPONSE TECHNOLOGIES

Each fire boom system is designed to burn pooled oil in primarily the offshore, or outer edges of the nearshore environment to augment mechanical recovery or when mechanical recovery may not be possible. ISB is most effective when deployed as soon as possible after the spill occurs so that volatile compounds can be utilized to ensure the effectiveness of the burn. The general strategy is to use vessels of opportunity to work in tandem on each end of the boom to locate fresh pockets of oil and coral into burnable thicknesses (2-3 mm). Once approval has been obtained from the Federal On-Scene Coordinator, and an assigned wildlife observer verifies there are no animals within the burn area, an accelerant/ignition system can be floated into the oil and the operation monitored for burn control and safety. Several tons of oil an hour can be burned without the need for disposal. Once the burn is complete, any residues left over must be disposed of in accordance with a written disposal plan.

MAXIMUM SEA CONDITIONS

Sea conditions of 1' - 3' in choppy conditions can begin to affect the ability to coral and contain oil in the boom, but burning can be done as long as the contained oil is not splashing over and can be controlled. In a non choppy, rolling swell, conditions up to 6' may still be manageable and allow for burning operations, again, as long as splash over isn't a factor and the oil can be controlled.

Also, winds over 20 knots will reduce the ability to control the oil and resulting smoke plume therefore limiting the ability to conduct burning operations. Burn operations should be at least ½ mile from other operations.

SYSTEM PARTICULARS (PER SET)

Number:	2 full systems; 1 extra boom (500')	Size (l x h):	500' x 32"
Weight:	8 lbs/ft	Pumps:	2/600 GPM
Speed (vessel transit):	10 knots (planning)	Max Seas:	1' - 3'
Loadout Crane:	10 tons	Power: HPU	
Transportation:	Semi-truck		

ACCOMMODATIONS

Dependent on PIDV specifications

COMMUNICATIONS

PIDV dependent

OIL SPILL DETECTION

PIDV dependent

OF SYSTEMS & LOCATIONS

2 Systems: Harvey, LA

LOGISTICAL SUPPORT*

2 – PIDV boom towing vessels
2 – Utility vessels (1 Command; 1 Igniter)
4 – Personnel (1 CGAS/1 Elastec/2 OSRO)
1 – Wildlife observer

**Multiple systems can be deployed in a task force*

ADDITIONAL RESOURCES

ICS form 213 Resource Request

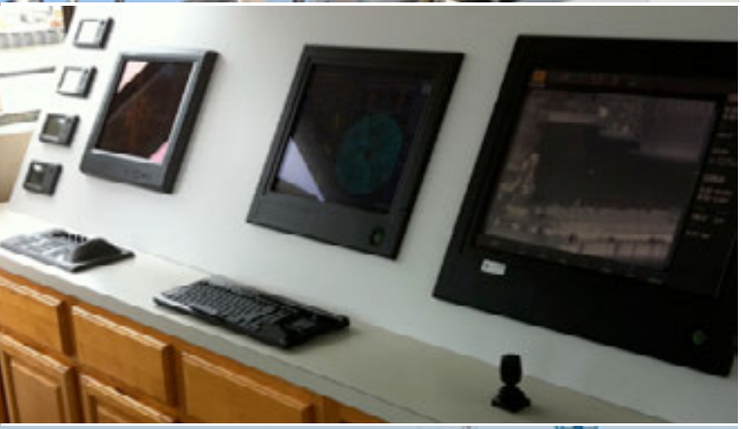
CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	MILES/35 MPH	+6HRS	NM/10 KTS	2HRS

OIL SPILL DETECTION (OSD) & SURVEILLANCE

OIL SPILL DETECTION: INFRARED CAMERA, X-BAND RADAR



DESCRIPTION

CGA 95' FRVs and the HOSS Barge are equipped with two State-of-the-Art oil spill detection systems. On these vessels a Rutter X-band oil detection radar is integrated with an Aptomar oil detection system which includes a 3-axis motion stabilized pointing unit that houses a military grade nitrogen cooled infrared camera; a HD digital video camera; and a high output spotlight for detecting oil spills in limited visibility and low-or no light conditions. Both the Aptomar and Rutter X-band radar oil detection systems are displayed onto a marine touch screen user interface that can record and display real time geographic positions with video imagery overlaid onto a marine (ENC) electronic navigational chart. Together these two systems aid in on scene coordinating of resources and oil spill recovery operations, while also giving it's operator the ability of relaying its imagery and information to a shore based command by e-mail.

TACTICAL OVERVIEW

These oil spill detection systems can automatically detect, track, and outline marine oil slicks in real-time across a range of visibility conditions and sea states. This complete oil spill response and management system and nitrogen cooled infrared cameras, unlike air-cooled ones, are capable of reporting relative thickness of an oil slick making spill offshore skimming response more effective and efficient. Can facilitate 24 hour oil spill recovery operations when approved by the Unified Command and provide digital video and images via satellite link to ICPs as needed.

SYSTEM PARTICULARS

Aptomar SECurus System:

Infrared Camera		Rutter X-Band Radar	
Height about waterline:	26' on the 95' FRV	Height about waterline:	39' on 95' FRV
	36' on the HOSS Barge		56' on the HOSS Barge
Oil Detection Distance:	4-6 NM	Oil Detection Distance:	9-10 NM

Can detect as little as 200 liters of oil

Resolution: 640x512

LINKS

SECurus & Rutter

CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)				
PREP (AT SITE)	TRANSPORT (OTR)	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
1HR	N/A	N/A	NM/410 KTS	N/A

OIL SPILL DETECTION:
AERIAL SURVEILLANCE

DESCRIPTION

Clean Gulf has access to spotter/surveillance aircraft out of Houston/Galveston, TX capable of providing aerial recon information to the Spill Management Team (SMT). This information can be used by the SMT to provide tactical direction to the on-water recovery assets deployed in the field.

In addition, the Airborne Support Inc. Twin Commander aircraft can be used for aerial surveillance activities as well, available out of Houma, LA

SYSTEM PARTICULARS

Plane Types:	
2 – CJ3 Citation	Tail Number N706RT
Speed: 410 knots	Passengers: 6
1 – Twin Commander 690A	Tail Number: N38WA
Passengers: 7	Wingspan: 46’7” Length: 44’4.25”
Height: 14’ 11.5”	Crew: 1 Captain
Seating: Seating for additional 7 personnel	Max Luggage 600 lbs.
No spray capability	
Max Fuel Load: 2,573 lbs.	Weight:
Speed: 260 knot true airspeed	Range: 1,468 NM – 1,615 NM
Duration: approx. 5-6.5 hours	Max Altitude: 31,000’

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
1HR	N/A	N/A	NM/410 KTS	N/A

WILDLIFE REHABILITATION EQUIPMENT (WLE)

WLE WILDLIFE REHABILITATION EQUIPMENT

DESCRIPTION

A mobile wildlife rehabilitation system comprised of a rehabilitation trailer, a husbandry trailer, 3 supply trailers, and 10 dozen propane fired bird scare cannons. The system is capable of being rapidly positioned in a wildlife-impacted location in order to provide logistical support to wildlife recovery and rehabilitation specialists as listed in the member companies Oil Spill Response Plan (OSRP). The self-sustainable system provides 4/4-stage wash tables and 2/2-stage rinse tables.

TACTICAL OVERVIEW

The wildlife equipment is easily mobile to be moved to any area of impact along the gulf coast. CGA personnel will be assigned to assist in the set up of the trailers, the support equipment, and the wash/rinse tables. They will then remained assigned to provide logistical support and to ensure the proper water temperatures are maintained, the needed PPE is available, and also work to support the entire wildlife rehabilitation operation. Bird scare cannons (propane fired) are also available to be placed in the field to provide bird hazing in the attempt to deter birds from entering an oil-impacted area.

SYSTEM PARTICULARS

- 1 QTY – Rehabilitation Trailer
- 1 QTY – Husbandry Trailer
- 3 QTY – Supply Trailers
- 10 QTY – Dozen bird scare cannons
- 2 QTY – Inline water heaters (electric)
- 4 QTY – Wash stations
- 2 QTY – Rinse stations
- Requires shore power or 30 KW (quiet) generator
- Refrigerator
- Freezer (carcass storage)
- Comms – 2 phone jack lines, fax, handheld radios
- 4 QTY – personnel (2 CGAS/2 OSRO)
- Rehabilitation specialists will need to be contracted to clean wildlife.

SUPPORT VESSELS

1 QTY – Utility Vessel – Impacted wildlife recovery

EQUIPMENT LOCATIONS

- 1 QTY – Rehabilitation Trailer (Harvey, LA)
- 1 QTY – Husbandry Trailer (Harvey, LA)
- 3 QTY – Supply Trailers (Harvey, LA)

ADDITIONAL RESOURCES

ICS form 213 Resource Request

CGA Website

ESTIMATED TIME OF ARRIVAL (ETA)

PREP (AT SITE)	TRANSPORT (OTR)	LOADING(STAGING)	TRANSIT (O/S)	DEPLOYMENT
2HRS	MILES/35 MPH	N/A	N/A	2HRS

TASK FORCE MODEL (TFM)

TASK FORCE MODEL (TFM)

ON WATER RECOVERY GROUP

When the first skimming vessel arrives on scene, a complete site assessment will be conducted before recovery operations begin. Once it is confirmed that the air monitoring readings for O2, LEL, H2S, CO, VOC, and Benzene are all within the permissible limits, oil recovery operations may begin.

As skimming vessels arrive, they will be organized into Task Forces (TF) to ensure the proper span of control is maintained within the Incident Command Structure (ICS) and assigned to work in areas that allow for the most efficient vessel operation and free vessel movement in the recovery of oil. Each Task Force will vary in structure as determined by the Operations Section of the Unified Command, but could generally consist, at a minimum, of the following dedicated assets:

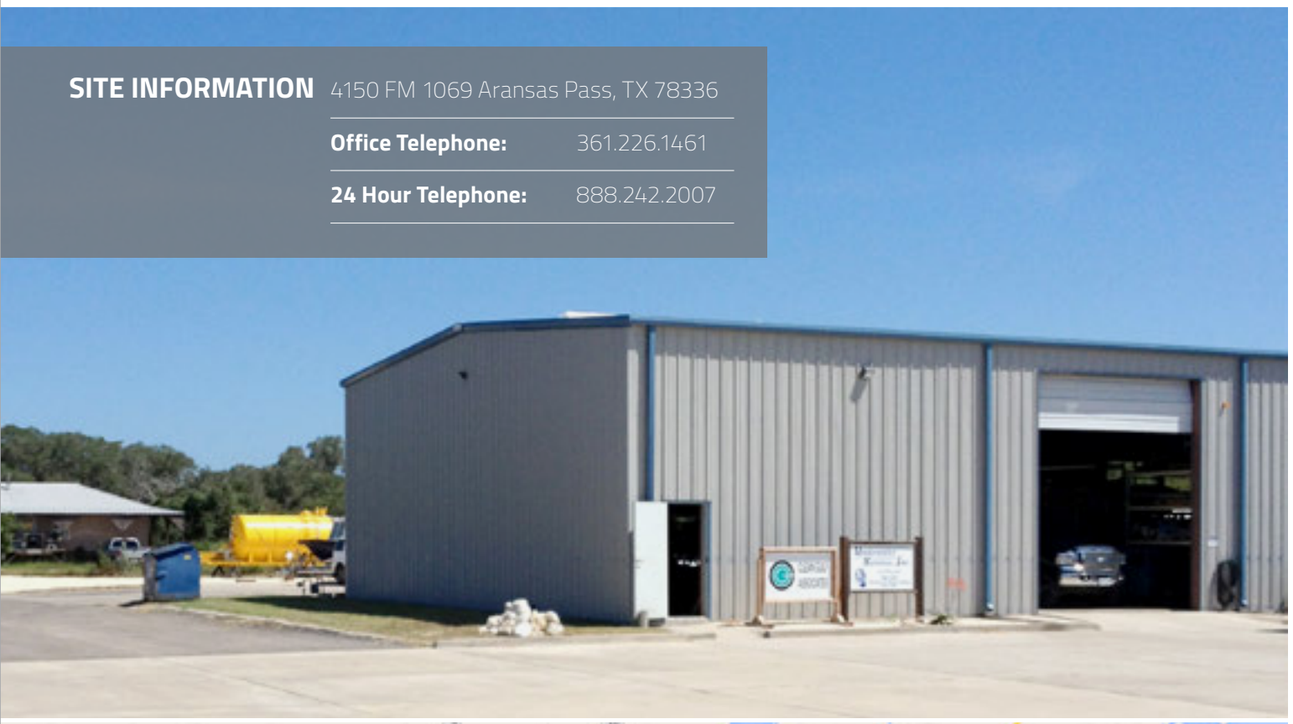
- 4 QTY – Offshore skimming vessels (recovery)
- 1 QTY – Tank barge (temporary storage)
- 1 QTY – Air asset (tactical direction)
- 2 QTY – Support vessels (crew/utility for supply)
- 6 QTY – Boom vessels (enhanced booming

FIELD GUIDE (FG)

Map provided by Google.

Note: In the electronic version of the Equipment Guidebook & Tactics Manual the above logos are activated links and the Reader can directly access the information when clicked.

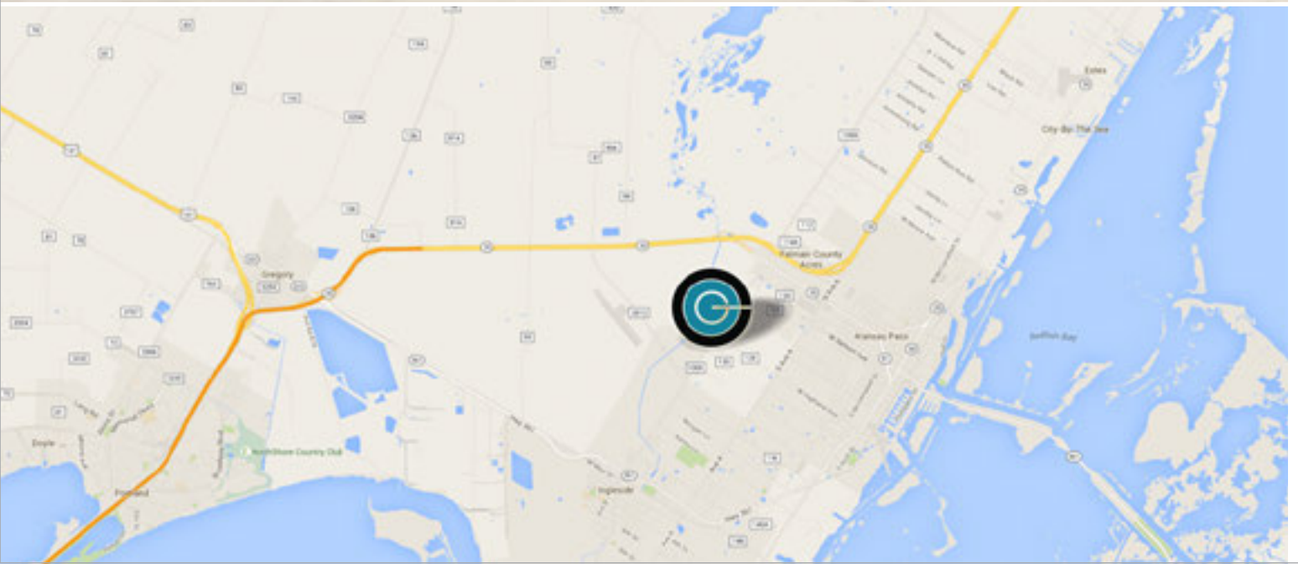
FIELD GUIDE ARANSAS PASS, TX (AP-TX)



SITE INFORMATION 4150 FM 1069 Aransas Pass, TX 78336

Office Telephone: 361.226.1461

24 Hour Telephone: 888.242.2007



CONTRACTOR SUPPORT

COMPANY NAME	PHONE
Miller Environmental	361.289.9800
T&T Marine	409.744.1222
Corpus Christi Area Oil Spill Control Association	361.882.2656
Underwater Services (Spill Support & Diving Services)	361.758.7487

TRUCKING SERVICE

ACME Truck Line Inc.	361.289.0844
Ainsworth Trucking	361.241.0616
Sharkey Trucking [Goose Neck Trailers/Hot Shot Only]	361.215.5885

CRANE SERVICE

Bay	361.693.2854
TNT Crane	361.289.5438
JM Davidson (Local Aransas Pass Cherry Picker that can handle spare FRU Tank)	361.758.3447
Martin Midstream (Port O'Connor)	361.983.2631

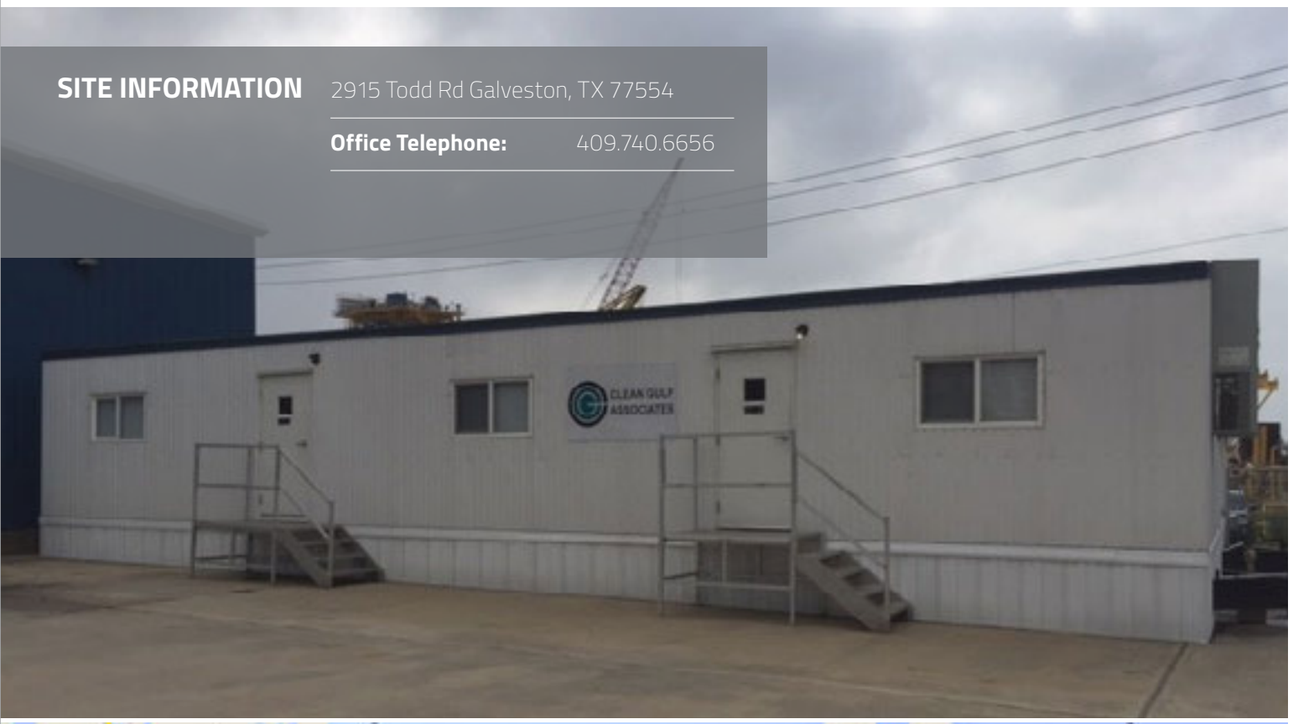
FUEL DOCKS

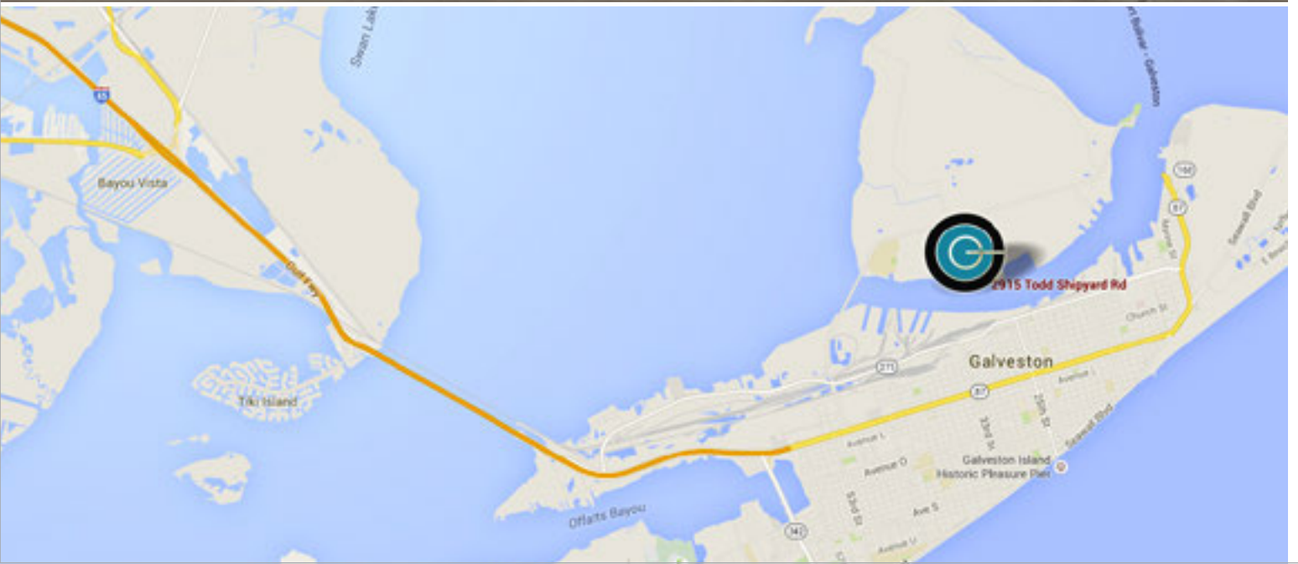
Martin Midstream (Aransas Pass at Harbor Island)	361.758.0296

EQUIPMENT LIST

NAME	QTY	WM
46' FRV (Timbalier Bay)	1	WM
Fast Response Unit (FRU 8341)	1	WM
440' / 67" Sea Sentry boom reel	1	
Tank - 100 bbl. (Primary)	1	
Tank - 100 bbl. (Secondary)	1	
Corexit 9527 (Tote Tank)	1	
Dispersant Spray Skid	1	
Wildlife Scare Cannons (12)	1	

FIELD GUIDE GALVESTON, TX (G-TX)





CONTRACTOR SUPPORT

COMPANY NAME	PHONE
T&T Marine	409.744.1222
Garner	985.639.3591
Ampol	504.361.4321
ES&H	713.921.7600
OMI	985.397.3673
USES	888.279.9930 or 281.867.4100
Phoenix	281.838.340
Clean Harbors	281.478.7703
CTI	855.774.5669

TRUCKING SERVICE

ACME Trucking, Galveston, TX	409.933.0015 or 888.662.1249

CRANE SERVICE

T&T Marine, Pelican Island	409.744.1222
Martin Marine & Fuel; Dispatch Pelican Island	409.744.7126
Ryan Marine, Galveston Island	409.763.1269
Pier 77 Marine Service, Galveston Island	409.740.4000

FUEL DOCKS

Martin Marine Lube & Fuel, Pelican Island	409.744.2888
Dispatch (24/7)	409.744.7126
Talen's Fuel dock, Pelican Island (7AM – 7PM)	409.740.3359
Galveston Yacht Basin, (Afterhours)	800.866.2869 409.539.9775
Pelican Rest Marina, Galveston Island	409.744.2618

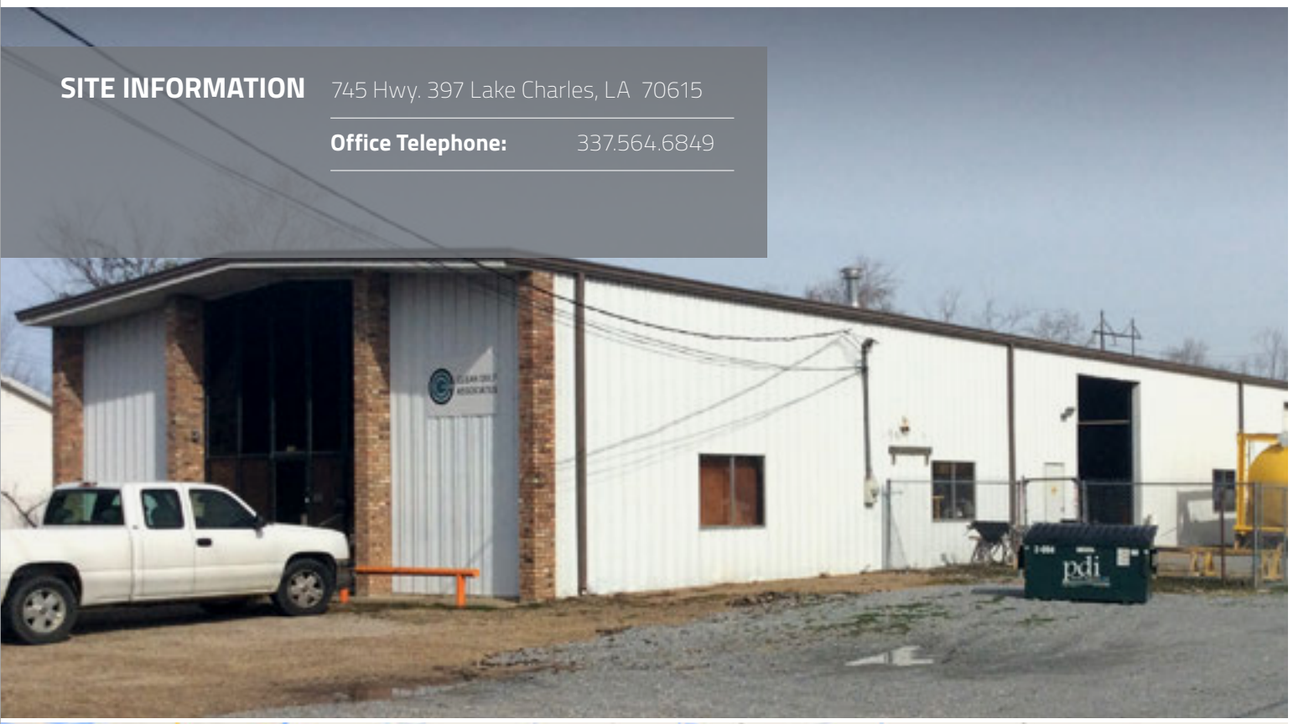
BOATS

Ryan Marine, Galveston, TX	409.763.1269 (Dispatch)
Otto Candies, LA	504.469.7700 (Dispatch)
Southern States Offshore, Houston, TX	409.209.2871 (Dispatch)

EQUIPMENT LIST

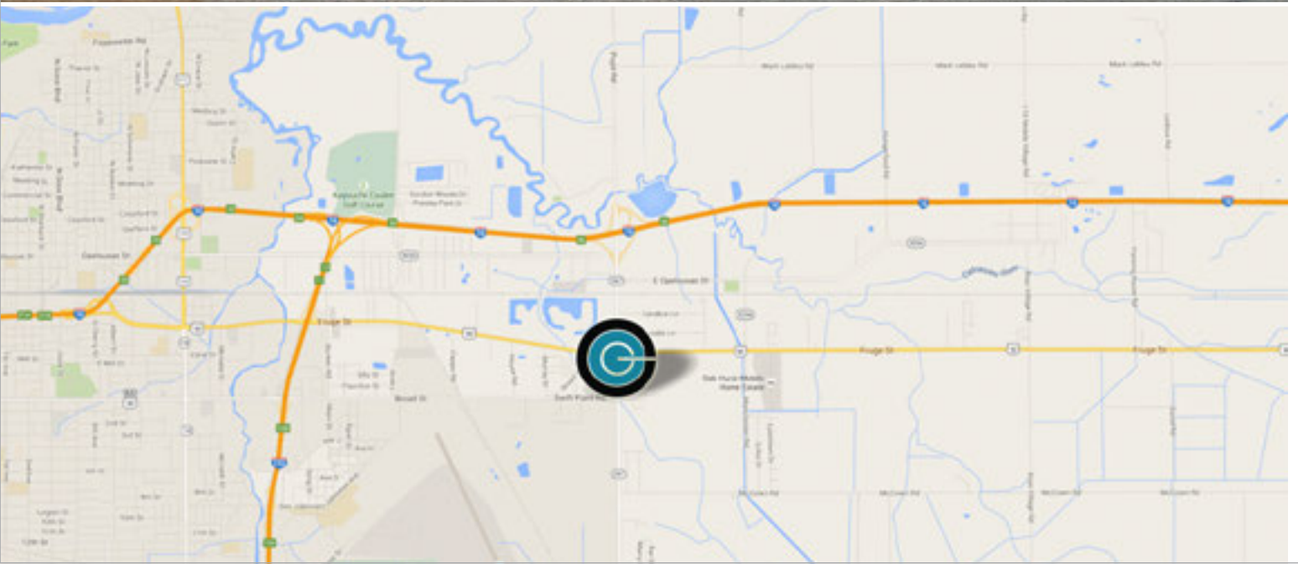
NAME	QTY	WM
95' FRV (Galveston Island)	1	WM
56' SW FRV (CGA 71)	1	WM
38' Egmopol SWS (CGA 54)	1	WM
Fast Response Unit (FRU 8335)	1	WM
Rigid Skimming Arms (KOSEQ)	6	
Foilex Skim Package (TDS 150)	1	
Aqua Guard Skimmer	2	
440'/67" Sea Sentry boom reel	1	
Tank – 100 bbl. (Secondary)	1	
Tank – 50 bbl.	1	
249 Barrel Storage Barge (CGA 10)	1	
Wildlife Scare Cannons (12)	1	
Tank - 100 bbl. (Secondary)	1	

FIELD GUIDE LAKE CHARLES, LA (LC-LA)



SITE INFORMATION 745 Hwy. 397 Lake Charles, LA 70615

Office Telephone: 337.564.6849



CONTRACTOR SUPPORT

COMPANY NAME	PHONE
T&T Marine	409.744.1222
ES&H	713.921.7600
Ampol	504.361.4321
OMI	985.397.3673

TRUCKING SERVICE

American Eagle Trucking	337.540.8868
Or American Eagle	337.839.3500
ACME	337.439.9830

CRANE SERVICE

Leevac	337.474.0069

FUEL DOCKS

Nalmar (Office)	337.540.0393
Martin (Boat)	337.309.7132

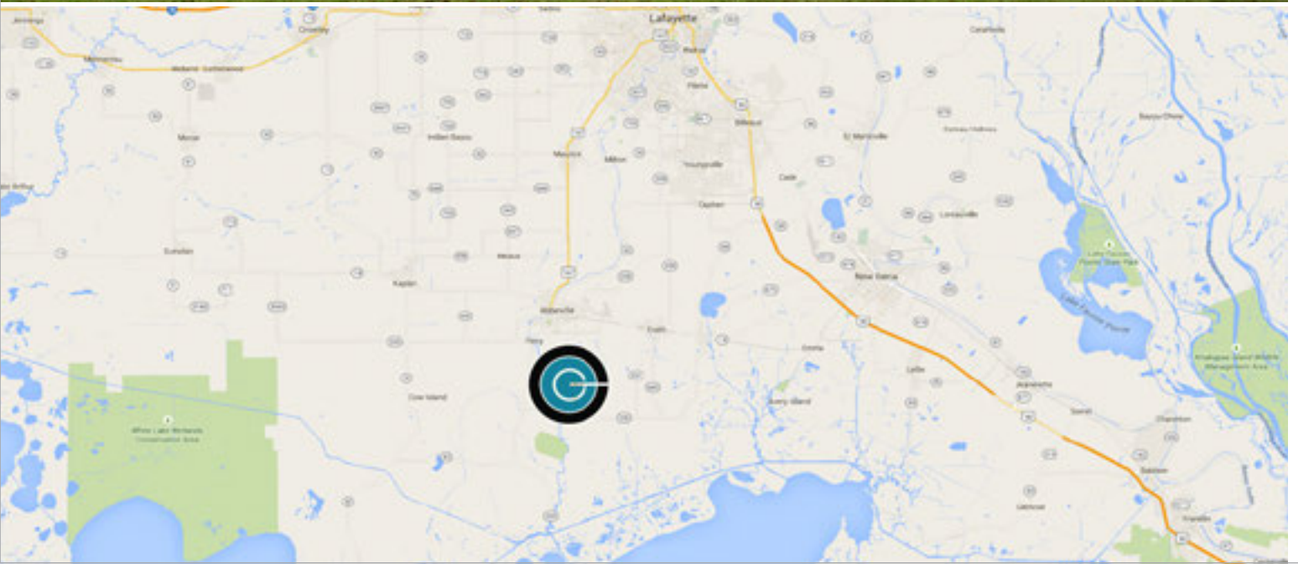
EQUIPMENT LIST

NAME	QTY	WM
46' FRV (Bastian Bay)	1	WM
56' SW FRV (CGA 73)	1	WM
Fast Response Unit (FRU 3190)	1	WM
Marco (CGA 51)	1	WM
249 Barrel Storage Barge (CGA 9)	2	
Foilex TDS 150	1	
TDS 118	1	
Magnum 100	1	
440'/67" Sea Sentry boom reel	1	

FIELD GUIDE PORT OF VERMILION, LA (PV-LA)

SITE INFORMATION 9507 Engineers Road Abbeville, LA 70510

Office Telephone: 888-242-2007



CONTRACTOR SUPPORT

COMPANY NAME	PHONE
Ampol	504.361.4321
OMI	985.397.3673
T&T Marine	409.744.1222
ES&H	877.437.2634
Lawson	985.876.0420

TRUCKING SERVICE

United Vision – Lafayette	337.291.6700
ACME Truck Line – Abbeville	337.892.6749
Venture Transport	800.880.8482
Broussard	337.839.0828

CRANE SERVICE

Grand Isle Shipyard	337.893.6511
Gulf Coast Marine Fab	337.893.1799

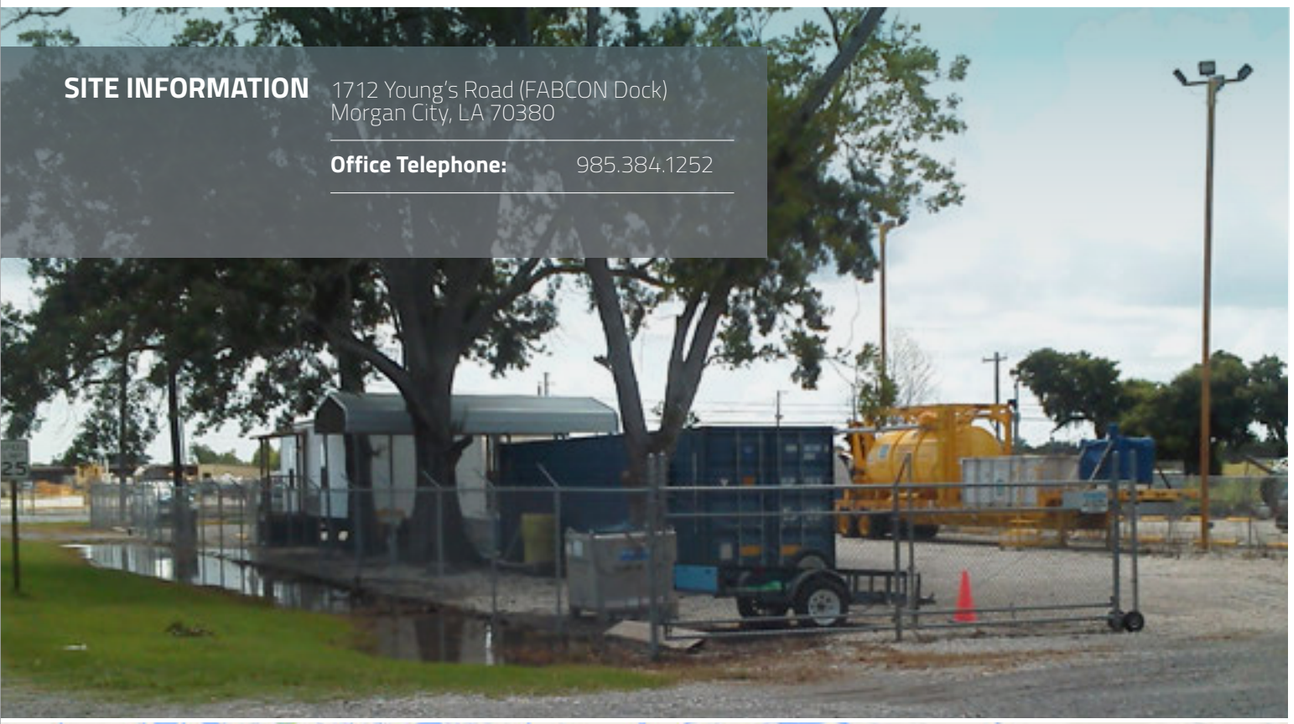
FUEL DOCKS

L&L Abbeville	337.893.6084
Martin Energy Services	337.737.2440

EQUIPMENT LIST

NAME	QTY	WM
56' SW FRV (CGA 74)	1	WM
Fast Response Unit (FRU 3193)	1	WM

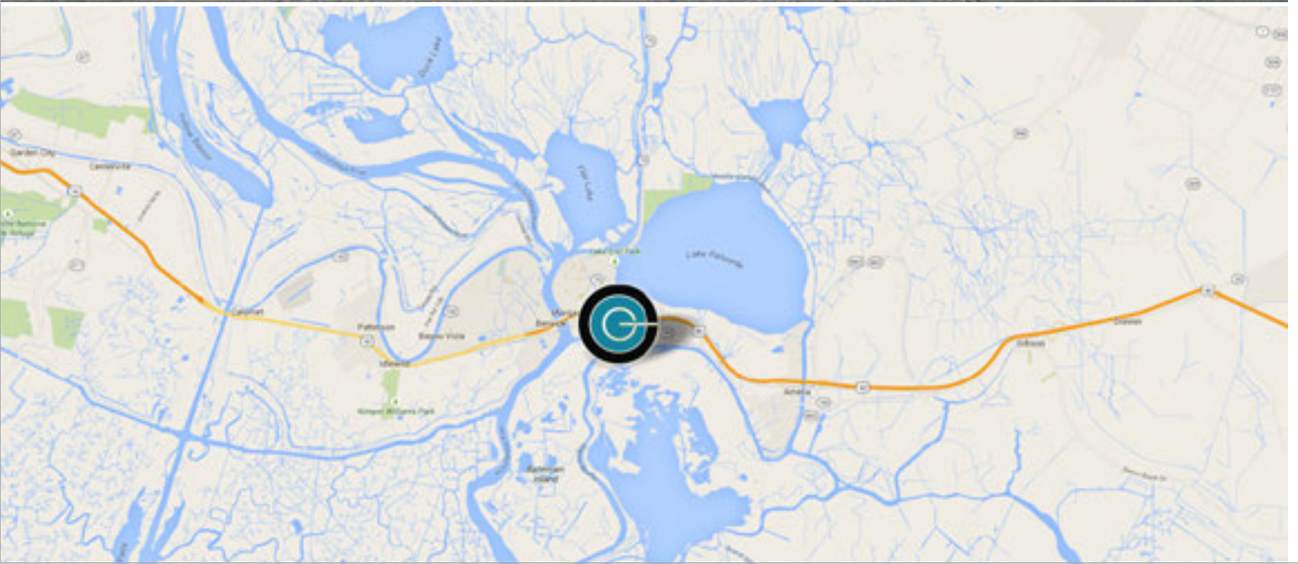
FIELD GUIDE MORGAN CITY, LA (MC-LA)



SITE INFORMATION

1712 Young's Road (FABCON Dock)
Morgan City, LA 70380

Office Telephone: 985.384.1252



CONTRACTOR SUPPORT

COMPANY NAME	PHONE
Lawson	985.876.0420
Ampol	504.361.4321
EE & I	985.868.3100
OMI	985.397.3673
T&T Marine	409.744.1222
Fab – Con	985.380.1022
ES & H	985.851.5350

TRUCKING SERVICE

King Trucking - Amelia	985.631.0525
United Vision - Houma	985.879.2482 or 985.209.2326
United Vision - Sulphur	337.625.6767 or 337.540.8868
ACME Truck Line – Morgan City	985.702.0090
Venture Transport	800.880.8482
ACME	985.868.760

CRANE SERVICE

Fab – Con	985.380.1022

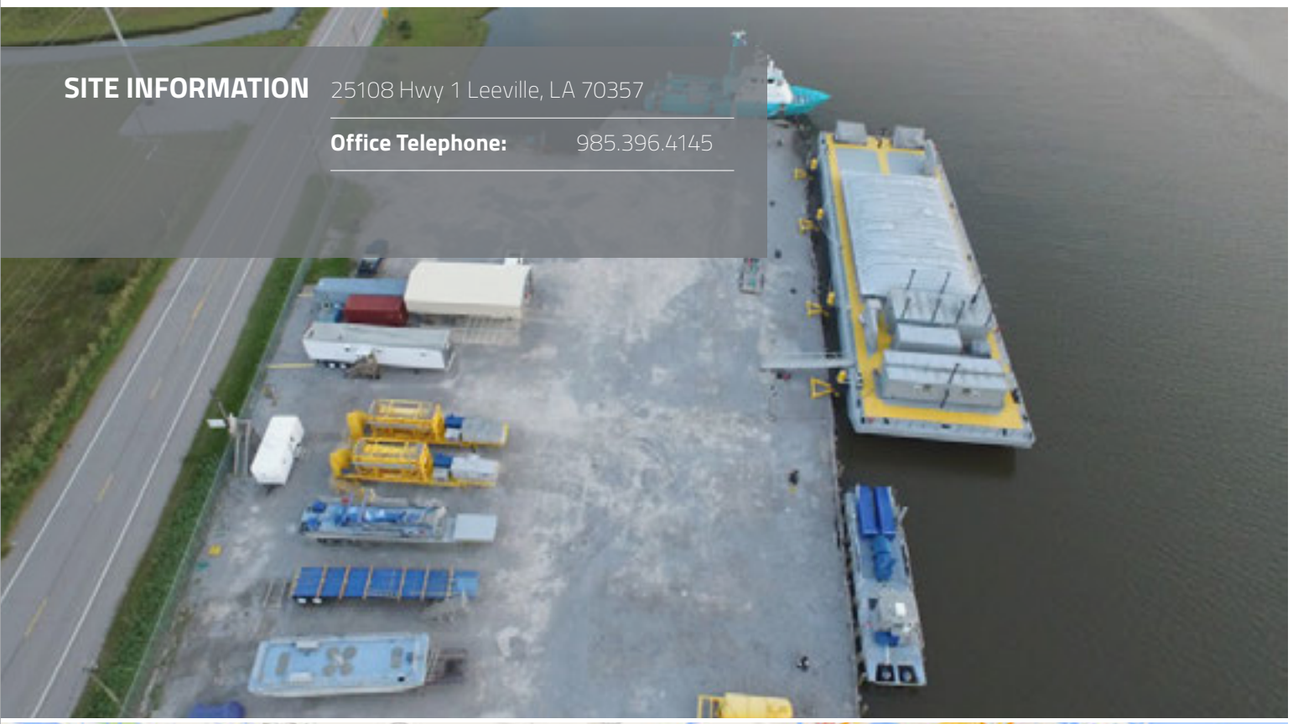
FUEL DOCKS

Rio Fuel – Morgan City	985.384.8090
Midstream Fuel Services – Berwick	985.384.3822

EQUIPMENT LIST

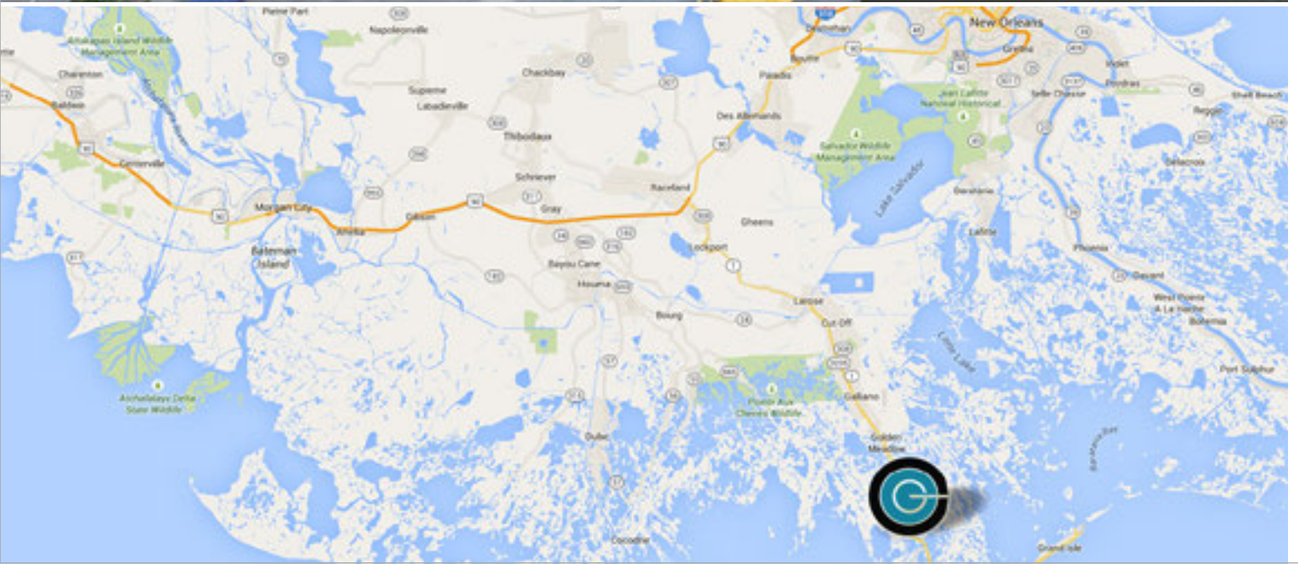
NAME	QTY	WM
Fast Response Unit (FRU 3188)	1	WM
56' SW FRV (CGA-72)	1	WM
Egmopol (CGA-55)	1	WM
46' FRV (R.W. Armstrong)	1	WM
440'/67" Sea Sentry boom reel	1	

FIELD GUIDE LEEVILLE, LA (L-LA)



SITE INFORMATION 25108 Hwy 1 Leeville, LA 70357

Office Telephone: 985.396.4145



CONTRACTOR SUPPORT

COMPANY NAME	PHONE
Lawson	985.876.0420
Ampol	504.361.4321
Danos	985.258.9267
OMI	985.397.3673
GIS	985.278.1475
T&T Marine	409.744.1222
ES&H	985.851.5350

TRUCKING SERVICE

United Vision	985.209.2326
Venture Transport	800.880.8482
ACME	985.868.7600

CRANE SERVICE

Gator Equipment and Crane Services	985.991.9929
Pitre Industries	985.475.6888
Ray Shipyard Inc. (RSI)	985.396.2771
Lafayette Steel Erectors	337.257.3441

FUEL DOCKS LEEVILLE, LA

Griffin's Station Marina (Diesel/Gas)	985.396.2415
Bobby Lynn's Marina (Gas Only)	985.396.2678

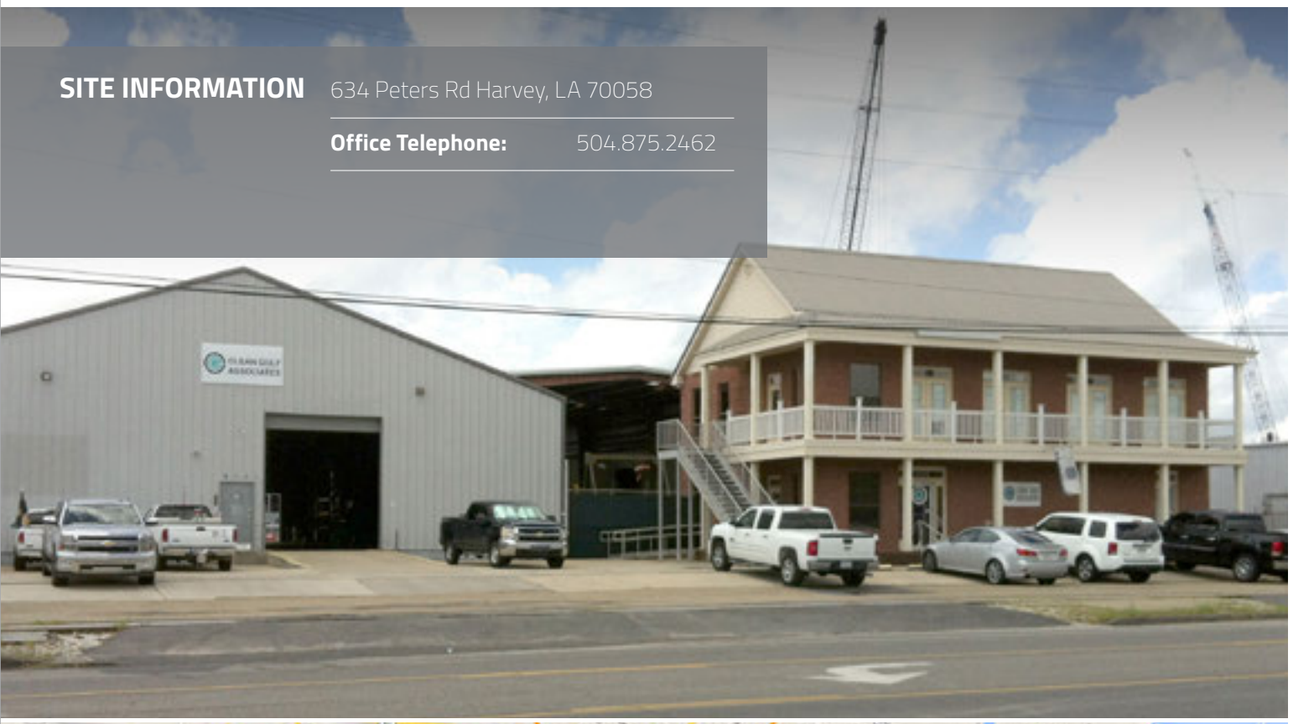
FUEL DOCKS FOURCHON, LA (DIESEL ONLY)

L&L Oil and Gas Services	985.396.2035
Martin Energy Services	985.396.2177
Martin Energy Services Dock 15	985.396.2846
Midstream Fuel Services	985.396.2742
John W. Stone Fuel and Oil	985.396.2210
Talens Marine & Fuel	985.396.3843 or 985.396.3804

EQUIPMENT LIST

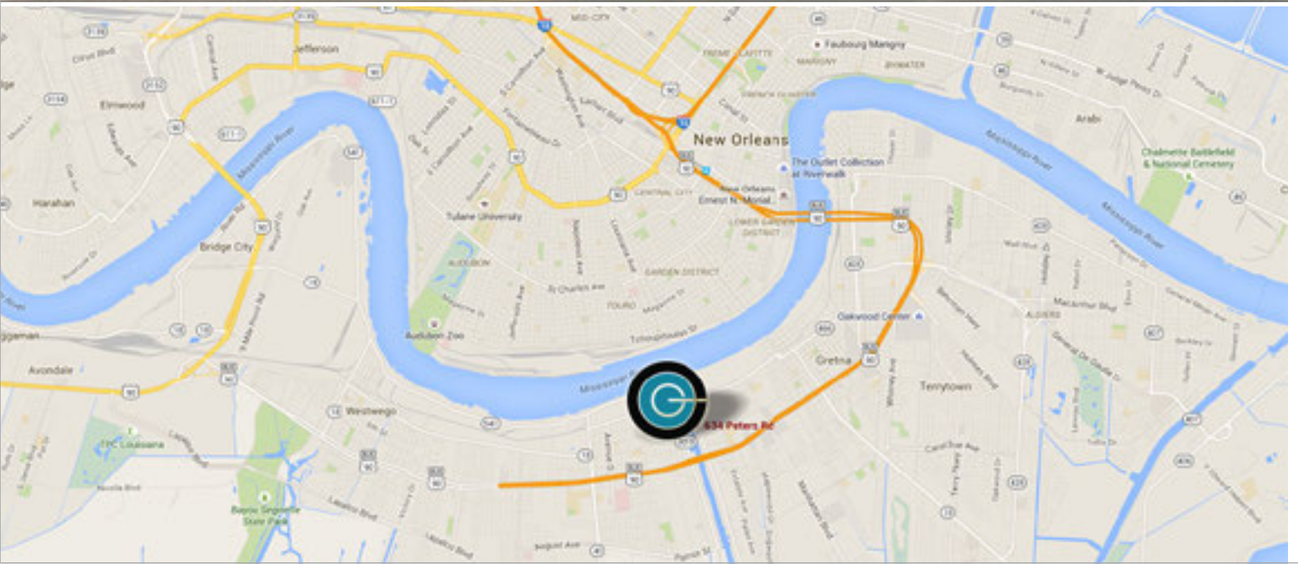
NAME	QTY	WM
Fast Response Units (FRU 1221 & 1222)	2	WM
95' FRV (H.I Rich.)	1	WM
60' SW FRV (CGA 78)	1	WM
249 Barrel Storage Barge (CGA 8)	1	
Marco SWS (CGA 53)	1	WM
Boom Barge (CGA 300)	1	
25,000'/43" Autoboom	1	

FIELD GUIDE HARVEY, LA (H-LA)



SITE INFORMATION 634 Peters Rd Harvey, LA 70058

Office Telephone: 504.875.2462



CONTRACTOR SUPPORT

COMPANY NAME	PHONE
ES&H	877.437.2634
Lawson	985.876.0420
Ampol	504.361.4321
OMI	985.397.3673
T&T Marine	409.744.1222

TRUCKING SERVICE

United Vision: Al Domangue	985.209.2326
Venture Transport	800.880.8482
ACME	985.868.7600

CRANE SERVICE

G&T Crane Service	504.367.7464

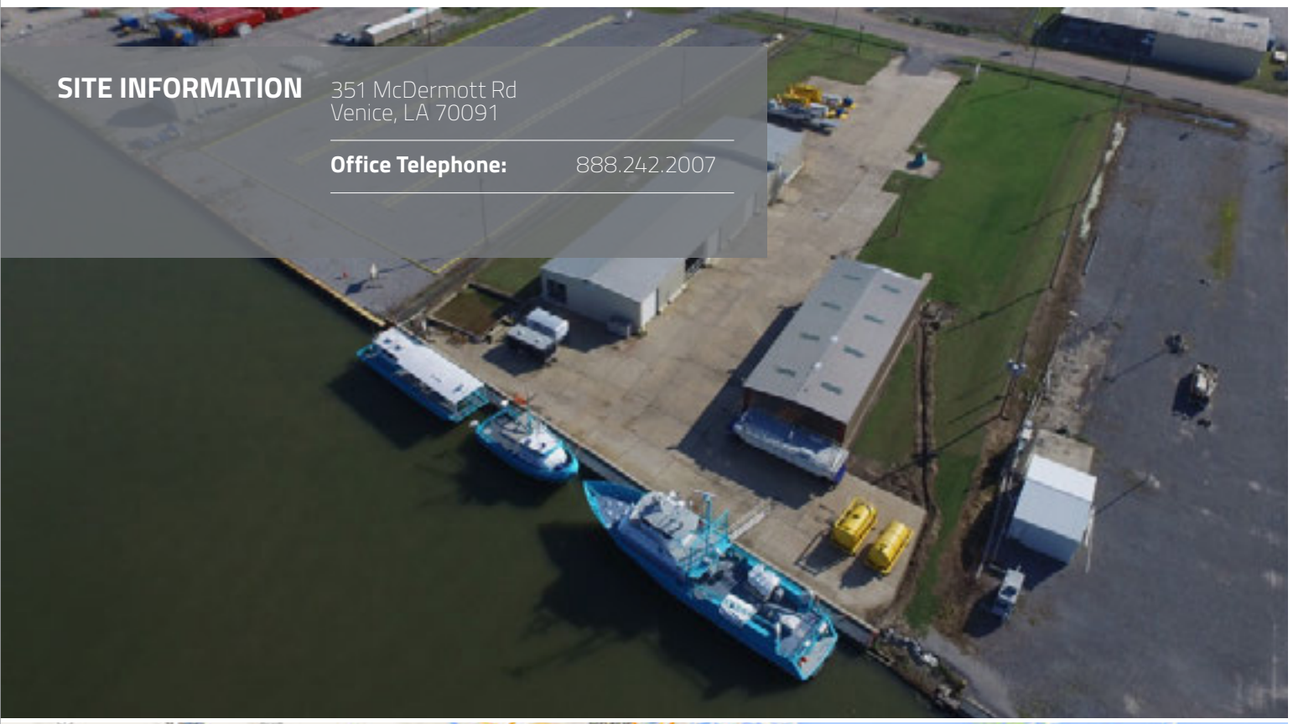
FUEL DOCKS

Stone Fuel Service	504.366.3401

EQUIPMENT LIST

NAME	QTY	WM
HOSS	1	WM
Rigid Skimming Arms (KOSEQ)	6	
Rope Mop Skimmer/Mini VOSS	1	
Floiex Skim Package (TDS 150)	1	
Foilex 250 Skimmer	3	
Drum Skimmer Package "4-Drum"	1	
1,430' Containment Boom–67" (Sea-Sentry)	1	
30,000 Containment Boom–43" (Oil Stop)	1	
Fire Boom	3	
Dispersant Spray Skid	1	
Primary Rehabilitation Trailer	1	
Husbandry Trailer	1	
Supply Trailer	1	
Wildlife Scare Cannons (Sets of 12)	2	

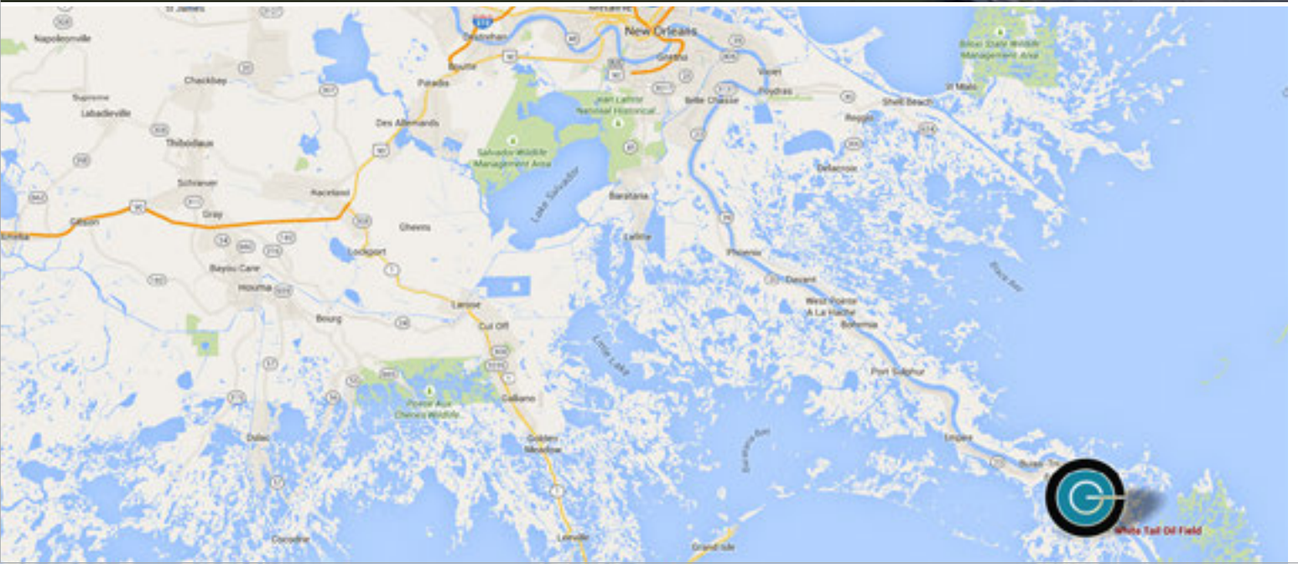
FIELD GUIDE VENICE, LA (V-LA)



SITE INFORMATION

351 McDermott Rd
Venice, LA 70091

Office Telephone: 888.242.2007



CONTRACTOR SUPPORT

COMPANY NAME	PHONE
Oil Mop	504.912.6092
USES	504.279.9934 or 504.654.9007
Lawson	985.876.0420
Ampol	504.361.4321
OMI	985.397.3673
T&T Marine	409.744.1222

TRUCKING SERVICE

United Vision	504.915.1957 or 985.209.2326
Venture Transport	800.880.8482
ACME	985.868.7600

CRANE SERVICE

Newman Crane	985.534.7507
Premier	504.390.3446
Grand Isle Shipyard	985.258.6952

FUEL DOCKS

Martin Fuel Dock	504.534.7402
John W. Stone	504.534.2613 or 504.394.5158

EQUIPMENT LIST

NAME	QTY	WM
46' FRV (Grand Bay)	1	WM
95' FRV (Breton Island)	1	WM
Fast Response Units (FRU 18007 & 18013)	2	WM
60' SW FRV (CGA 77)	1	WM
Marco SWS (CGA 52)	1	WM
249 Barrel Storage Barge (CGA 7)	1	
440'/67" Sea Sentry boom reel	1	
100 BBL tanks	2	

WORK METHODS

INITIAL SITE ASSESSMENT & SITE SPECIFIC SAFETY PLAN (SSSP)

INITIAL SITE ASSESSMENT

These steps are for the initial site assessment once a CGA asset has arrived on scene. All response operations must be completed in accordance with CH 25 of the CGA Health and Safety Manual. These steps MUST be completed prior to beginning oil recovery operations. The recovery of oil cannot be started until a SSSP has been created and approved by the CGA Safety Officer and ALL crewmembers have reviewed and signed.

1. From a safe, upwind position, assign a minimum 2 member site assessment team
2. Designate a Team Leader and complete the Preliminary Evaluation Form
3. Establish who will take air monitoring readings and who will record findings
4. Once preliminary for is completed, team leader shall brief his team on hazards
5. Entire team must sign the preliminary evaluation form
6. Ensure meters are calibrated and bump tested, primary and backup
7. Ensure evacuation plan is discussed and necessary equipment is available if needed
8. Approach from upwind after a visual survey of area and approval to enter is granted
9. Ensure meter is functioning properly, take continuous readings on approach
10. A minimum of 6 readings shall be documented (unless Safety Officer deviates)
11. A minimum of 2 Benzene readings shall be taken (at the source and leading edge, and when total VOC > 5 PPM)
12. Ensure visual survey of area completed for additional, non respiratory, hazards
13. With help of Safety Officer, use findings to create the SSSP
14. Review approved SSSP with ALL response personnel and sign safety meeting roster
15. Begin skimming operations, continue air monitoring as directed by Safety Officer
16. Review SSSP daily, before each operational shift change and go over with response team. All changes in plan must be covered
17. Forward a copy of SSSP with Ops Manager and Safety Officer, keep hard copy accessible to crew and regulatory personnel on vessel at all times

CGA 300 BOOM BARGE AUTO BOOM

DEPLOYMENT

These are the steps to deploy 42" auto boom rapid packs from the boom barge.

1. Energize the barges hydraulic system
2. Use barge crane to remove aft hopper cover utilizing both set of slings attached to the lifting eyes and tag lines for control. Place on dock
3. Move palletized rapid pack (500' of 42" auto boom) to deck area with a pallet jack
4. Remove cover (and shrink wrap if applicable) and inspect for damage or missing caps
5. Loosen tied end of tow line and unravel for deployment vessel
6. Connect 2 "D" rings (same side) from lifting sling, place remain hooks in quick disconnect hook
7. Ensure all caps are tight
8. Lift boom from deck slowly and place in water
9. Pass tow line to deployment vessel, have them secure on deck
10. Repeat steps 3 – 9 with a second rapid pack, using separate deployment vessel
11. Deployment vessels will inflate and connect, if needed, using cable gate in apex
12. Repeat operation as many times as needed to support booming operations

RECOVERY

1. Energize boom recovery reel hydraulic power unit (HPU)
2. Loosen throttle knob and move to start position
3. Depress compression release lever on top of engine
4. Turn key to start position and adjust throttle lever to desired speed (rpm)
5. Install boom reel crossbars
6. Use hydraulics to move reel side inward (enough to allow install and removal of cross pieces)
7. Have second person hold all bars in place and close sides to secure bars
8. Attach towline from boom roll to crossbars and retrieve boom
9. Wind line around reel slowly taking slack until boom is reached
10. Wind with caps upward and chain to the port side
11. One person operate controls, two tend boom as it winds in
12. Remove END caps to allow air to escape prior to reaching reel
13. Loosen and retighten caps as needed to release trapped air
14. Remain tension on the towline to ensure a tight wrap and tie off end to coiled line
15. Move pallet into place at base of reel (in line with lifting table)
16. Place lifting harness where boom will fall in center
17. Raise lifting table and take on boom roll weight
18. Open both sides of reel and pull pins, rotate 90 degrees
19. Remove cross bars and ensure line is tight around boom
20. Lower lifting table so boom falls slowly onto pallet
21. Place lifting slings on top of roll and place cover over rapid pack
22. Move back into storage area with pallet jack

WM

HIGH VOLUME OPEN SEA SKIMMING SYSTEM (HOSS)

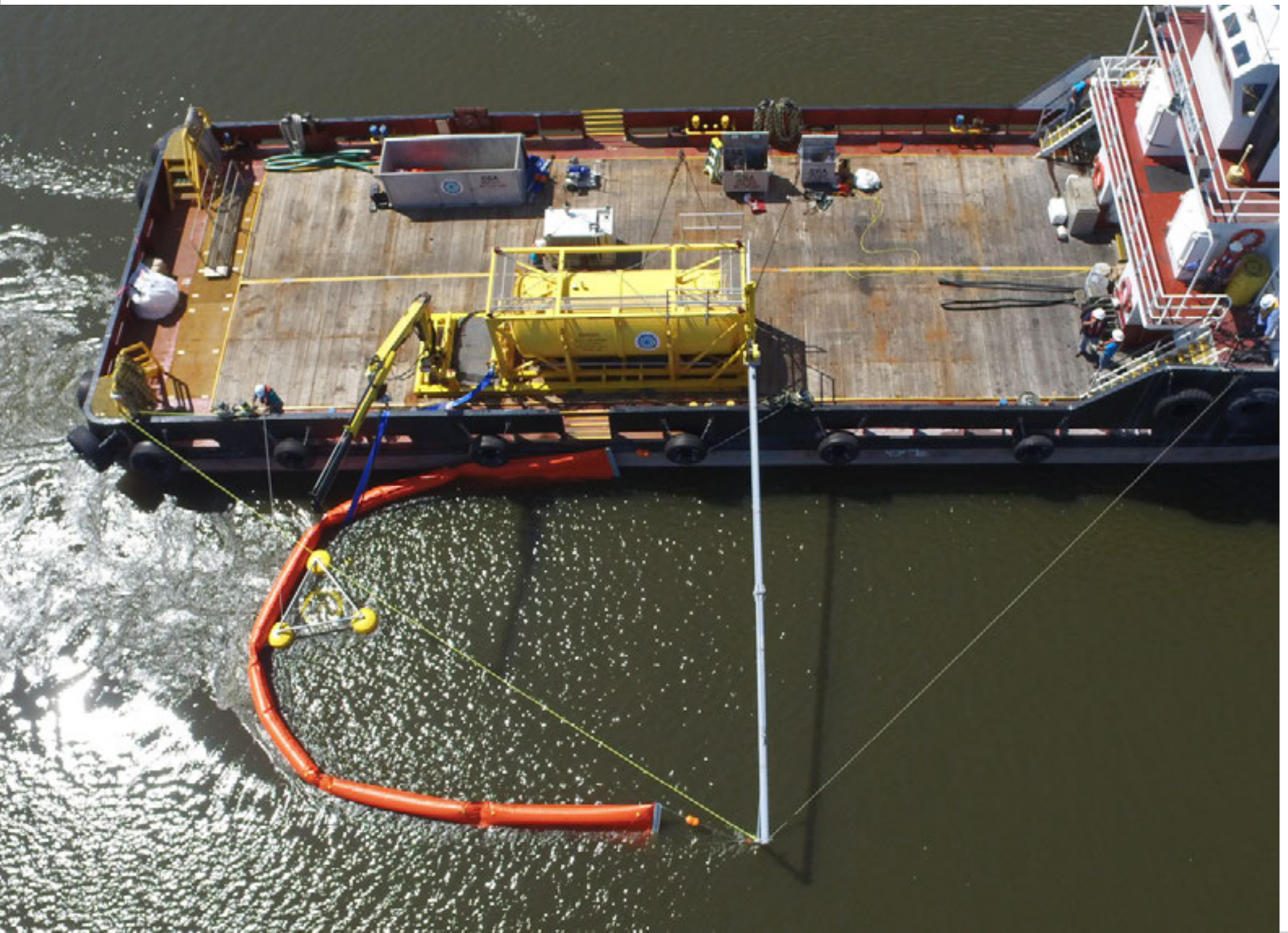
DEPLOYMENT

1. Energize the barges pneumatic system
2. Uncover boom reels
3. Unspool first section of boom onto deck and inflate
4. Deploy first section and secure boom with hold back deck chain and inflate boom
5. Repeat steps 3 and 4 until one side of boom has been deployed
6. Secure last section with safety chain and prepare end connector for use with crane
7. Using crane to assist, barge personnel attach end connector with nuts and bolts
8. Secure end connector to stern of barge
9. Repeat steps 3 – 8 for opposite side boom to create a "V" configuration

RECOVERY

1. Use crane to remove boom end connector from barge stern
2. Secure on deck with safety chain
3. Remove end connector nuts and bolts
4. Secure stern boom towline to boom reel
5. Remove safety chain and begin spooling boom onto reel
6. Remove the boom air chamber inflation valve covers immediately once on deck
7. Complete boom recovery
8. Repeat steps 1 – 7 on opposite side of barge
9. Secure pneumatic system
10. Replace boom reel covers

WM FAST RESPONSE UNIT (FRU) OUTRIGGER



These steps are for the loadout, deployment and recovery of the FRU skimming equipment deployed on the back deck of a utility vessel and using the outrigger booming configuration.

LOADOUT, DOCKSIDE

1. Inspect trailered unit prior to transport to designated staging area
2. Load FRU skid on appropriately USCG certificated vessel (see deck layout picture)
3. Load associated equipment and support boxes (boom, hydraulic power unit, tools)
4. Use dockside crane to lift, set, and bolt the king pole and outrigger in place on unit
5. Attach snatch block and two shackles on king pole padeye
6. Connect hydraulic lines from FRU to HPU, energize and unspool winch cable through snatch block on king pole to center padeye on outrigger
7. Fill FRU tank ½ full with fresh water from dock or vessel if available, if not fill with salt water using vessel ballast or fire pump
8. Chain and bind all equipment and boxes to deck

DEPLOYMENT, ON SCENE

1. Assemble skimmer (attach arms and floats), connect hydraulic lines from skimmer to FRU skid
2. Attach 25' lay flat hose from skimmer to top manifold on FRU skid
3. Attach outrigger cable to end of outrigger pole, unroll cable toward bow bit of vessel (attaching a tow rope to the outrigger cable will make pulling easier)
4. Attach boom to the outrigger pole and a bit on the vessel, close to where the outrigger crosses bulwarks, valves to the outside of "J" configuration
5. Inflate boom sections as you deploy over the side, pulling outrigger in to place
6. Deploy skimmer into boom pocket using skid crane (detach if using a tag line)
7. Adjust skimmer and vessel advancing speed for best recovery of oil

RECOVERY

1. Recover skimmer using FRU skid crane
2. Detach bow cable and swing outrigger arm aft, allowing for recovery of boom
3. Deflate boom as it comes onboard and layout on deck
4. Set outrigger in the cradle on the FRU skid and secure
5. Equipment can be secured on deck until next skimming period or if job is complete for transit to decontamination site (decon)
6. During transit in, detach hoses and prepare for offload at decon. If not oiled, disassemble and stow all gear in preparation for offload

FAST RESPONSE UNIT (FRU) ENHANCED SKIMMING "J"

These steps are for deployment and recovery of offshore inflatable boom in con-junction with the FRU skimming equipment to increase the encounter rate with oil by using an enhanced "J" booming configuration.

DEPLOY

1. During transit to scene, ensure FRU has been loaded IAW CGA FRU Work Methods
2. On second "boom" vessel transit, ensure boom reel is properly loaded and secured for most effect deployment and recovery based on vessel particulars
3. Once on-scene, FRU vessel will set up skimming equipment on deck and prepare for retrieving line from boom vessel
4. At the same time, the boom vessel will begin inflation and deployment of the 440' of Sea Sentry boom:

   A. Connect all hydraulic hoses from HPU to reel and energize the HPU

   B. Deploy lead line with buoy and sea anchor off the stern of vessel

   C. Inflate each boom chamber on deck and deploy into water

   D. FRU vessel will retrieve boom line

   E. Boom vessel will detach from boom
5. FRU vessel will retrieve boom lead line and secure to bit
6. Once line is secured and FRU vessel is ready, boom vessel will pick up trailing edge
7. Vessels will maneuver into a "J" configuration, maintaining communications between vessel captains
8. FRU vessel will then deploy the skimmer into the "J" for oil recovery

RECOVERY

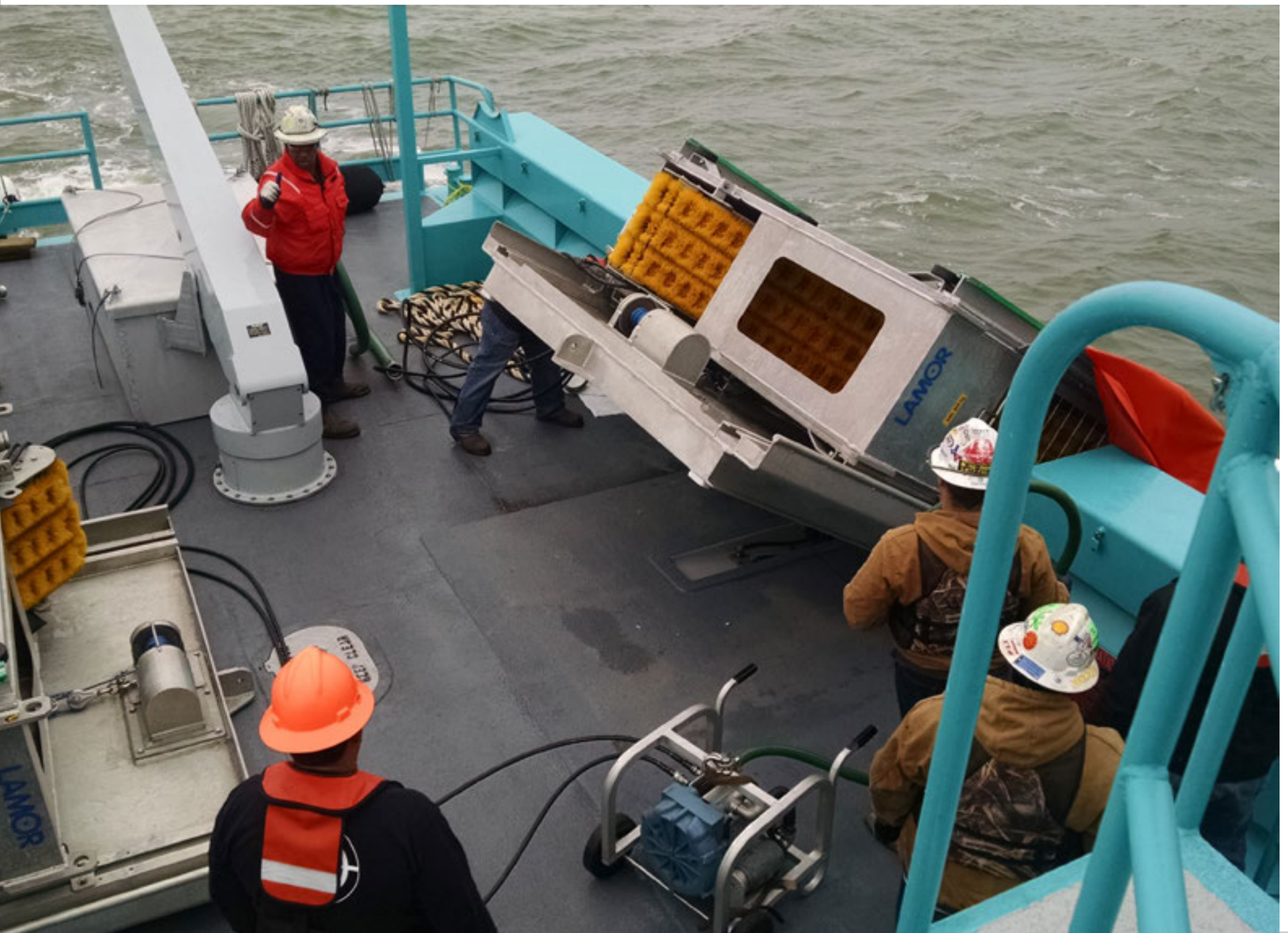
1. FRU vessel will recover skimmer and release boom line with buoy
2. Boom vessel will maneuver to a safe distance and recover boom onto reel

   A. Energize HPU and secure line to reel

   B. Maneuver vessel for easier recovery

   C. Deflate each section as recovered and secure reel for transit
3. FRU vessel will stow all gear and secure unit for transit in

95’ FAST RESPONSE VESSEL (95’ FRV)



DEPLOYMENT

These steps are for deployment and recovery of the boom and skimming equipment once the vessel has arrived on scene.

1. Energize the vessels hydraulic system
2. Remove covers from boom box and skimmers
3. Remove boom blower, rigging, and hydraulic hoses
4. Fasten outrigger cables to outriggers
5. Pull line end around “A” frame to swing outrigger
6. Pull boom line through float blocks then through mid-ship bit guide and tie off
7. Secure line to float through top hole, then go over rail and secure to stern bit (use to pull back on outrigger once deployed and secured to bow)
8. Deploy out riggers and secure to bow
9. Tighten stern line
10. Deploy boom and inflate using blower
11. Lift skimmer using hydraulic control and secure with angle brackets
12. Pull boom tight to float using mid-ship line and secure to bit
13. Repeat steps 5-12 for other side of vessel
14. Once in oil, adjust skimmer speed as needed

RECOVERY

1. Un-tie boom from mid-ship bit and raise skimmer out of water
2. Remove angle brackets and lower skimmer on deck
3. Deflate each boom section as you pull end over roller and onto the deck
4. Rack outrigger back in cradle by letting stern line loose and releasing bow cable
5. Flake boom on top of skimmer
6. Repeat steps 1 – 5 for other side of vessel
7. Disconnect and stow all lines, cables, and hydraulic hoses
8. Cover skimmers and boom box.

46’ FAST RESPONSE VESSEL (46’ FRV)

DEPLOYMENT

These steps are for deployment and recovery of the boom and skimming equipment once the vessel has arrived on scene.

1. Energize the vessels hydraulic system
2. Use davit to pull boom out of storage and place on deck
3. Place the port and starboard boom ends in the outrigger floats
4. Unstrap and open the skimming doors
5. Lift one float into water using davit then disconnect davit cable
6. Connect davit cable to boom end with sling
7. Insert boom into stern skimmer door using the davit
8. Secure boom to bit above door with a strap
9. Pull outrigger cable to bow and secure
10. Repeat steps 5 – 9 for other side of vessel
11. Once in oil, adjust skimmer speed as needed

RECOVERY

1. Secure power to skimmers
2. Disconnect outrigger cable
3. Walk cable aft and secure in hole at outrigger pivot assembly
4. Connect davit cable to sling on boom
5. Using davit, pull boom out of skimmer door and secure on deck
6. Connect davit cable to line on outrigger float and secure back in cradle
7. Close and secure skimmer doors
8. Repeat steps 2 – 7 for other side of vessel
9. Secure vessel hydraulic system
10. If not contaminated, stow boom back in stowage

WM

56’ SHALLOW WATER FAST RESPONSE VESSEL (56’ SW FRV)

DEPLOYMENT

These are the steps to deploy the 56’ SW FRV skimming system.

1. Close the air tank valves on the hydraulic power unit (HPU) and the compressor
2. Start generator, plug in air compressor and start, build up air pressure
3. Ensure boom reel hydraulic shut off valve is closed
4. Verify boom reel controls are all in neutral position
5. Energize the HPU
6. Once on scene, maneuver vessel into place and set spud to hold position
7. For advancing skimming ops, ensure support boats have blowers
8. Open the hydraulic shut off valve and feed boom section off the reel with valves facing aft
9. Support vessels will inflate boom as it is being deployed
10. Once deployed, attach boom end to skimmer
11. Repeat steps 8 – 10 for the other section of boom
12. Close boom reel hydraulic shut off valve
13. Attach skimming pads to the skimmer belts.
14. Slightly raise skimmers and remove stands located underneath
15. Manually slide the skimmers forward
16. Use hydraulic controls to lower skimmers into water
17. Lift spud, tow boom into “V” configuration in front of skimmer as needed
18. Remove & secure sump trough hatch covers on both sides of vessel
19. Attach yellow skirts which will funnel the oil into the sump troughs
20. Attach decantation pipe at bow using the cam locks, verify that it overlaps the skimmer
21. Align valves (use diagram) in pump room to pump oil from sumps to recovered oil tanks
22. Set skimmers to optimal recovery speed

RECOVERY

1. Cease skimming operations
2. Remove decanting pipe
3. Remove yellow skirts under the skimmers
4. Replace sump trough covers
5. Raise skimmers
6. Manually pull the skimmers back onto deck and set on stands
7. Detach boom from skimmer and secure to boom reel
8. Recover boom onto reel with the chain facing aft and the valves forward
9. Repeat steps 7 – 8 for other section of boom
10. Close hydraulic shut off valve
11. If necessary, raise and secure spud; retrieve anchor at stern

WM

60’ SHALLOW WATER FAST RESPONSE VESSEL (60’ SW FRV)

DEPLOYMENT

These steps are for deployment and recovery of the boom and skimming equipment once the vessel has arrived on scene.

1. Energize the hydraulic system
2. Unspool boom off reel
3. Attach Port/STBD boom to outrigger floats, hang boom on side of outriggers
4. Inflate Port/STBD boom
5. Attach Port/STBD outrigger cables
6. Put backup lines on Port/STBD outriggers
7. Lower bow door (remember to pull pins)
8. Lift (Port or STBD) outrigger, swing out, put vessel side connector in door slot, put cable on opposite side bit, pull backup line tight & secure.
9. Repeat #8 for opposite side
10. Unhook Safety chain and lower skimmer
11. Add water to sump as needed for ballast

RECOVERY

1. Pull boom ends out bow doors, hang on outrigger (Port & STBD)
2. Swing Port & STBD outriggers to cradles.
3. Raise and secure bow door.
4. Deflate and remove Port & STBD boom
5. Reel boom back onto reel.
6. Remove and stow outrigger cables and lines.

WM

MARCO SHALLOW WATER SKIMMER (MARCO SWS)

DEPLOYMENT

These steps are for deployment and recovery of the boom and skimming equipment once the vessel has arrived on scene.

1. Energize the vessel hydraulic system
2. Crank hand winch to lower skimming swath into water
3. Place pins through skimming swath to secure it to the vessel
4. Remove metal plate (splash guard while underway) from under skimming belt
5. Place pads onto Velcro skimming belt
6. Crank hand winch to lower skimming belt into the water.
7. Activate induction pump to draw oil into skimming belt.
8. Activate skimming belt to begin oil collection

RECOVERY

1. Disengage hydraulics to skimmer belt and induction pump
2. Shut down hydraulic power pack
3. Crank hand winch to raise skimmer belt
4. Remove pads from skimmer belt (If not contaminated, store on board)
5. Remove pins from skimming swath
6. Crank hand winch to raise skimming swath out of water
7. Place splash guard back under skimming belt

WM

EGMOPOL SHALLOW WATER SKIMMER (EGMOPOL SWS)

DEPLOYMENT

These steps are for the deployment and recovery of the skimming equipment once the equipment has arrived on scene.

1. Remove items from the recovered oil (RO) tank
2. Assemble and deploy oil trap at the bow if forward motion is required.
3. If forward motion is not utilized, use anchor system.
4. Verify drain is closed at aft, starboard RO tank
5. Energize the vessels hydraulic system
6. Lower skimmer to desired level
7. Activate skimmer to desired speed

RECOVERY

1. Stop skimming action
2. Raise skimmer to stop and secure
3. Secure hydraulic system
4. Remove oil trap at the bow and secure
5. Stow and secure all loose items for travel