

Mississippi Canyon 252 Incident

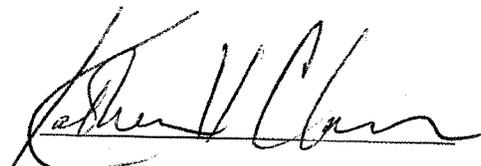
Shoreline/Vegetation NRDA Pre-Assessment Plan

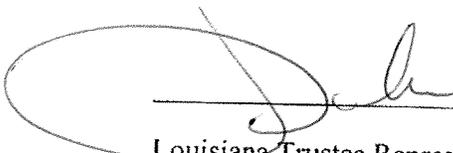
July 12, 2010

Approval of this work plan is for the purposes of obtaining data for the Natural Resources Damage Assessment. Parties each reserve its right to produce its own independent interpretation and analysis of any data collected pursuant to this work plan.

APPROVED:

 July 28, 2010
BP Representative: Date

 7/30/10
NOAA/Trustee Representative: Date

 8/1/10
Louisiana Trustee Representative: Date

*FOR
ROLAND
GUILLET*

Deepwater Horizon/MC252/BP
Shoreline/Vegetation NRDA Pre-assessment Data Collection Plan
July 12, 2010

Introduction

The purpose of conducting this pre-assessment is to determine the shoreline areas that were exposed to potentially harmful levels of oil and to characterize those shoreline resources exposed (including the habitat, vegetation and fauna) resulting from oil released by the MC 252 incident. It should be recognized that other Natural Resource Damage Assessment (NRDA) Technical Working Groups are responsible for assessing impacts to the human use of the shorelines, impacts to the nearshore resources, and direct impacts to birds and other wildlife. Due to the nature of this release, there is a potential for a chronic/ongoing exposure to shoreline ecosystems over a broad spatial area extending throughout the Gulf coast. Thus, characterization of shoreline exposure will be an ongoing effort throughout the duration of the release and as long as there is oil on the water. Conducting NRDA studies to quantify injury over all of the affected shorelines throughout the release could be an unmanageable challenge given the intensity of effort often required by such studies. Therefore, the pre-assessment is being utilized to collect the information necessary to map the extent of shoreline exposure to oil and to select locations (monitoring stations) in which to conduct potential injury assessment studies.

The intent of this study is to use all available data including Shoreline Cleanup Assessment data and other aerial imagery available to map oil on exposed shorelines. This study will not determine the impacts of the oil on shoreline resources but will categorize the shoreline in terms that describe the level of exposure to oil (i.e. by percent cover and thickness of oil etc.) and aid in the selection of locations that will later be assessed to characterize impacts to shorelines exposed to different levels of oiling. The next phase of the NRDA effort for intertidal shoreline will be to develop assessment plans that will define how to collect data needed to quantify the damage to a particular ecosystem based on demonstration of exposure and effects at selected monitoring stations. In order to determine the quantity and type (for each degree of oiling or type of habitat) of monitoring stations, it is necessary to have an adequate characterization of the shoreline exposure obtained in the pre-assessment phase.

The pre-assessment is divided into two phases or tiers of effort including aerial surveys and ground surveys of intertidal shoreline. The aerial surveys are meant to provide a general characterization of large spatial areas. The ground surveys are meant to validate the results of the aerial surveys and also provide additional details on shoreline exposure over more limited spatial areas. It may be unnecessary for aerial surveys to be conducted by NRDA teams if the aerial surveys conducted for the response are consistent with the efforts described in this plan. To further make effective use of resources, this pre-assessment plan is meant to build upon the data collected during Shoreline Clean-up Assessment Team (SCAT) efforts for the response, assess the need and location for additional aerial and/or ground surveys, and implement selective ground surveys of shoreline areas, as warranted, to collect additional data necessary to better inform the NRDA effort.

Goal

Determine spatial extent and degree of oiling on intertidal shoreline resources over the duration of time that shorelines are exposed to the release. Tier 1 aerial surveys will result in maps that produce a general overview of the extent of shoreline oiling. Tier 2 ground surveys will build upon the Tier 1 maps and result in the creation of more detailed shoreline maps that will be used to identify monitoring stations for any subsequent injury assessment studies. Monitoring stations for assessment of injury should be representative of the major shoreline habitat types and degree of oiling observed. It will be necessary during the pre-assessment to identify locations of the major habitat types and degree of oiling found on the affected shorelines to determine which locations will be appropriate for future monitoring.

Budget

Costs are given on a per-day, per-team basis and assumed to occur for 3 months. At the time of writing, the only state expecting contract costs associated with preassessment is Louisiana. The only Federal agency that is expecting contract costs at the time of this writing is NOAA. Costs do not include data management costs, planning or cost of supplies (field gear, camera, GPS).

Tier 1

Item	Estimated cost for 28 hours
Helicopter (Entrix): \$15000/4 hours	\$ 105,000.00

Tier 2

Item	Estimated cost for 90 days (5 teams/day)
Boats (Entrix): \$1200/boat/day	\$ 540,000.00
Contract labor (NOAA, 12 hrs/day): \$1080/person/day	\$ 486,000.00
Contract labor (LA, 2 Sr scientist, 4 staff Scientists, 2 Project Managers, 1 Project Controls/Procurement staff, 1 clerical staff): \$9,861.44/day	\$ 887,529.60
Estimated total Tier 2	\$1,913,529.60
Estimated total Tier 1 and 2	\$2,018,529.60

Tier 1 – NRDA Aerial Surveys (Aerial Teams)

Purpose: To visually delineate extent of oil on intertidal shorelines that will assist the trustees and Responsible Parties (RPs) in the selection of locations for ground survey pre-assessment characterization.

Product: Pre-assessment maps with geo-referenced delineation of the spatial extent and degree of oiling of potentially impacted shoreline segments will be produced throughout the duration of the release and response activities to reflect changes in oil distribution on affected shorelines.

Equipment:

Helicopter	GPS unit
Aerial photo/map of shoreline	markers/pens
Camera	clip board

Procedure:

- Review the results of SCAT survey efforts or other aerial imagery for potentially impacted shoreline areas to identify shoreline areas that warrant further assessment for NRDA purposes. If the data produced by the SCAT surveys meet the documentation requirements described below it will not be necessary to conduct separate aerial surveys for NRDA purposes. In addition, it may be necessary to obtain GIS support staff to translate the SCAT data or other aerial imagery into a map format that would be more informative to the NRDA team.
- Conduct low level (~300 feet or less) helicopter aerial surveys daily (weather permitting) of the entire shoreline area of interest within two hours of low tide (before or after), to observe the extent of visible oiling. The area of interest is the intertidal shoreline potentially impacted by the oil or in the projected oil trajectory. Use USGS 7.5 minute topographic quadrangles, vertical aerial photographs, or other detailed maps to record observations. Use GPS with active track log where possible for capture.
- Document the:
 - Grid box being observed (tied to response grids or section number from USGS Quad Map)
 - Draw observed oiling levels on photographs of the shoreline.
 - Name of shoreline segment (by water way, division, etc.)
 - locations and approximate lengths of oiled segments
 - approximate width and degree of oiling along different segments of shoreline
 - obvious shoreline/vegetation zonation
 - GPS locations (will be approximate) of differing degrees of oil/vegetation/shoreline type
 - Spatially referenced photographic documentation
 - Access points, major landmarks, and locations for reference stations

- Surveys should be conducted periodically throughout the release to capture visibly noticeable changes in impact conditions to shorelines resulting from cleanup activities or the movement of oil (due to change in wind direction or other physical processes).

Tier 2 – NRDA Ground Surveys (Ground Teams)

Purpose: To collect pre-assessment data from potentially exposed intertidal shorelines identified in the Tier 1 aerial surveys. Tier 2 ground surveys will more precisely characterize the degree of oiling along shoreline/vegetation, aid in the determination of the potential for injury and describe any observed impacts to vegetation and biota encountered. Ground survey teams will also be used to validate the results of the Tier 1 aerial surveys (or SCAT/response surveys) and will calibrate the results for various habitat types and degrees of oiling observed in the aerial surveys. Tier 2 characterization should lead to the identification of stations for shoreline assessment studies conducted for the injury assessment phase.

This plan will be implemented consistent with existing trustee regulations and policies and property access should be coordinated in advance. All applicable state and federal permits must be obtained prior to conducting work. If surveys are to be conducted on tribal state federal or private lands, it will be necessary to coordinate access to the property.

Product: Spatially referenced data that characterizes the degree and extent of oil exposure to shoreline habitats and describes observed impacts to vegetation and biota. This data is generated by completion of the pre-assessment data sheet for intertidal shoreline (attached). Oil samples may also be collected from a sub-set of shoreline locations surveyed.

Equipment:

- Boat
- Preassessment datasheets
- 30-50 m fiberglass tape measure, marked in cm
- GPS unit
- Field notebook (water-proof paper)
- Pens (all datasheets should be filled out in ink), permanent markers
- Percentage estimation charts
- Plant identification guides
- 35 mm cameras, video camera
- Digital media cards, film, video tapes
- Photo scales
- Chain of custody forms for analytical and non-analytical samples
- Labels for samples
- 8 oz. pre-cleaned glass jars and equipment for oil samples
- Cooler and ice
- Shovel and/or spatula
- Guidelines for Completing NRDA Shoreline Preassessment Datasheet

Procedure: Conduct a systematic ground survey of a subset of the area of oiled shoreline based on oiling maps generated during Tier 1 aerial surveys. Initially, the effort will entail review of existing oiling information, including:

- Identify segments of potentially exposed shoreline based on results of aerial survey in Tier 1 and available SCAT information (and confirm with detailed GPS data).
- Determine the logistical needs to conduct ground surveys for representative areas of potentially impacted shorelines. It will be necessary to determine whether surveys can be conducted by boat or vehicle, how many teams are needed to complete the survey of the impacted area, how to access the shoreline, and how many people will be needed on each team. Teams should include representatives from the state trustee, federal trustee and PRP.
- If surveys are to be conducted on tribal, state, federal or private lands it will be necessary to coordinate access to the property.
- Coordinate with the Incident Operations by completion of the NRDA shore ops tracker form to alert Ops to the field activities.

Once representative shorelines are identified, the field effort will include:

- Have one team member complete the pre-assessment survey data form (attached). Another team member should be responsible for photo documentation and GPS handler. Designate another member for sample collection (where performed) and any other necessary tasks.
- When evaluating pre-assessment ground stations representative of the shoreline being surveyed :
 - Record station location using a GPS unit (see datasheet). A handheld Garmin unit or similar is adequate.
 - Photo document each station. Photograph all pre-assessment stations prior to completion of data forms. Use a GPS photo tracking program that links GPS data (by time) with photographs (available programs include Garmin MapSource used in connection with GPS Photo-Link). All photos should be noted on the data sheet. Photos should include:
 - ❖ the general station location and setting, showing permanent stakes
 - ❖ tidal stage, date, time
 - ❖ examples of plant zonation
 - ❖ stations where datasheets were completed (see attached)
 - ❖ representative examples of the extent and degree of oiling on shoreline, vegetation and waters
 - ❖ the extent and degree of trampling, burning, or other disturbance in the area
 - ❖ examples of services provided by the habitat (animal use, shoreline protection, etc.).

- Collect data per pre-assessment datasheet (see attached) to achieve the following goals:
 - ❖ delineate the thickness characterization, and distribution of oil on the vegetation, sediment, and nearby water.
 - ❖ identify shoreline and vegetation types
 - ❖ where possible, identify areas affected by different types of response disturbances
 - ❖ record presence or absence of fauna/wildlife
 - ❖ recommend potential sample collection (e.g., water or sediment)
 - ❖ characterize the areas which are not clear on the aerial photographs (e.g., covered by shadows).
- Data sheets, GPS waypoints and tracklog, and photos will be scanned and downloaded by NRDA data collectors at the end of the field day.
- Completed data sheets will be electronically entered by a NRDA data manager into a spread sheet. The data obtained from the pre-assessment effort will assist in developing a statistically representative sample design for any injury assessment studies for each of the impacted habitat types.
- Identify unoiled potential reference locations based on the available data.

Analytical chemistry

All samples will be sent to laboratories agreed upon by the trustees and BP. Each laboratory shall simultaneously deliver raw data, including all necessary metadata, generated as part of this work plan as a Laboratory Analytical Data Package (LADP) to the trustee Data Management Team (DMT), the Louisiana Oil Spill Coordinator's Office (LOSCO) on behalf of the State of Louisiana and to ENTRIX (on behalf of BP). The electronic data deliverable (EDD) spreadsheet with pre-validated analytical results, which is a component of the complete LADP, will also be delivered to the secure FTP drop box maintained by the trustees' Data Management Team (DMT). Any preliminary data distributed to the DMT shall also be distributed to LOSCO and to ENTRIX. Thereafter, the DMT will validate and perform quality assurance/quality control (QA/QC) procedures on the LADP consistent with the authorized Quality Assurance Project Plan, after which time the validated/QA/QC'd data shall be made available to all trustees and ENTRIX. Any questions raised on the validated/QA/QC results shall be handled per the procedures in the Quality Assurance Project Plan and the issue and results shall be distributed to all parties. In the interest of maintaining one consistent data set for use by all parties, only the validated/QA/QC'd data set released by the DMT shall be considered the consensus data set. The LADP shall not be released by the DMT, LOSCO, BP or ENTRIX prior to validation/QA/QC absent a showing of critical operational need. Should any party show a critical operational need for data prior to validation/QA/QC, any released data will be clearly marked "preliminary/unvalidated" and will be made available equally to all trustees and ENTRIX.

Data sheet changes

Through changing circumstances and conditions, the data sheet may need to be modified. Trustees and the RP representative will coordinate and agree to any worksheet changes and the modified worksheet appended to this plan.

Changes to the Work Plan

Through changing circumstances of this incident, procedures may need to be adjusted. State and Federal Trustees and the RP will coordinate and agree to any changes in procedure, and these changes will be appended to this work plan.

Health and Safety Plan

A health and safety plan has been coordinated with USCG and is attached to this plan. All field team members will complete the BP online safety training and read and sign the plan. Team members will comply with required safety checks. The shoreline team lead will complete a team tracker for site activities

Attachments

Attachment 1: Field data sheet

Attachment 2: Site Safety Plan

**MS Canyon 252 NRDA
Shoreline Preassessment Plan
Attachment 1**

NRDA Shoreline/Vegetation Preassessment Data Sheet: Deep Water Horizon Incident, p. 1 of 2

Team: _____ Station: _____

1 Date: _____ Time: _____ (military time) Tide Height: L M H

Marsh Flooding: _____ cm

Data Recorder and Affiliation (Trustee): _____

GPS Operator/Photographer and Affiliation (Trustee): _____

Other Team Members and Affiliation: _____

2 SCAT Map Information

SCAT Grid ID: _____

Location Description: _____

3 Sample Location (Point Data Descriptions 50' each side of waypoint)

GPS Unit: _____ (Datum: WGS 84, Decimal Degrees)

Waypoint #: _____ Lat. _____ Long. _____

4 Photo Information

Photo taken of GPS unit: Photo Number: _____

Additional cameras, owners, affiliations taking pictures on trip: _____

Photo on shoreline facing vegetated line looking: left # _____ 90° down# _____
right # _____ from Offshore # _____

5 Intertidal Shoreline/Marsh Type (check all that apply):

Marsh Beach (sand/shell/gravel) Mud/tidal flat Rip rap Mud scarp/ clay bluff

Dune Bulkhead/manmade structures Debris Forested wetland Other (specify) _____

6 Vegetation Type (check all that apply):

Salt marsh Brackish marsh Intermediate marsh Fresh marsh SAV

Scrub/shrub Floating vegetation Vegetated mat Mangrove Other (specify) _____

Dominant Species: _____

7 Presence of oil on vegetation (check one): Yes No (If yes, continue below)

Average Vegetation Height: _____ cm (from base of vegetation)

Number of oiling bands (complete below for each band):

Vegetation Oiling Characterization: (Band 1 = band at vegetated line)

	Band 1	Band 2	Band 3
*Band Starting At:	_____ cm	_____ cm	_____ cm
Band Ending At:	_____ cm	_____ cm	_____ cm
Penetration depth in marsh:	_____ cm	_____ cm	_____ cm
Vegetation Oil Thickness:	**FL ST CT CV	**FL ST CT CV	**FL ST CT CV
Horizontal Distribution:	_____ %	_____ %	_____ %

* band measurement needs to be from base of vegetation in order to determine where on the stem the band is located
**FL=Film ST=Stain CT=Coat CV=Cover

NRDA Shoreline/Vegetation Preassessment Data Sheet: Deep Water Horizon Incident, p. 2 of 2

Team: _____ Station: _____ Date: _____

8 Presence of oil on sediment (check one): Yes No N/A if flooded

	Band 1	Band 2	Band 3
Sediment Oil Band Width:	_____ cm	_____ cm	_____ cm
Sediment Oil Penetration Depth:	_____ cm	_____ cm	_____ cm
Sediment Oil Distribution:	_____ %	_____ %	_____ %
Sediment Oil Thickness (circle one):	**FL ST CT CV PO	**FL ST CT CV PO	**FL ST CT CV PO
Sediment Oil Type*			

*Fresh, Mousse, Tar, Asphaltene, Tar Balls (<10 cm), Mousse Patties (10-50 cm), Mousse Mats (>50 cm)
 **FL=Film ST=Stain CT=Coat CV=Cover PO=Pooled

9 Presence of oil on water (check one): Yes No (If yes continue below)

	Biological	Silver	Rainbow	Droplets	Globules
Distribution (%):	_____	_____	_____	_____	_____
Distance to vegetated line (cm):	_____	_____	_____	_____	_____

10 Release of oil to water when sediments disturbed (check all that apply):

Surface Expression: None Silver Rainbow Droplets

11 Observation of Disturbance Caused by Response Activities (check one): Yes No

(If yes, then take photo(s) of disturbance)

Photo Number(s) _____

Description of Disturbance: _____

12 Presence of Fauna/Wildlife (check one): Yes No

Notes (where found and observations. Oiled? Unoiled? Oiling undetermined? Live? Dead?):

Photo Number(s) _____

13 Samples collected (if yes, include waypoint, lat/long, matrix, analysis): Yes No

Reason: _____

Note: Samples collected must be logged on sample data sheet and kept under chain of custody

14 Notes:

15 Signatures for Field Quality Assurance and Legibility:

Responsible Party Representative: _____

Federal Representative: _____

State Representative: _____

**MS Canyon 252 NRDA
Shoreline Preassessment Plan
Attachment 2**

MS CANYON 252 SAFETY CONFIRMATION

NAME: _____

CELL PHONE NUMBER: _____

EMAIL ADDRESS: _____

I HAVE READ AND UNDERSTAND THE MS CANYON 252 SITE SAFETY PLAN

SIGNATURE

DATE

I HAVE COMPLETED THE FOLLOWING LEVEL OF HAZWOPER TRAINING:

NONE 24 HOUR 40 HOUR

I HAVE COMPLETED THE FOLLOWING BP SAFETY TRAINING MODULE(S):

***NOTE: IF YOU HAVE COMPLETED THE ON-LINE TRAINING, YOU HAVE COMPLETED MODULE 3**

MODULE 1 MODULE 2 MODULE 3

I HAVE COMPLETED FACE-TO-FACE TRAINING DURING THIS RESPONSE AT HOUMA

YES NO

EMERGENCY CONTACT INFORMATION

NAME: _____

PHONE NUMBER: _____

Please return this form, completed in its entirety, to either:

- The drop box in Room G401 at the Houma Command Center, or*
- The following email address:* [REDACTED]

SUBJECT: Safety Plan

PREPARED FOR: NRDA (Natural Resources Damage Assessment),
Shore Survey Operations

1. INTENT

- 1.1.** The intent of this Field Safety Plan is to establish a structured process and disciplined approach to the mitigation of health, safety and environmental risks associated with our operations and activities. This safety plan applies to the Natural Resources Damage Assessment (NRDA) Team.

2. COMMUNICATIONS

- 2.1.** A daily pre-operations meeting will be conducted on-site with each team. Job Hazard Analysis' are located at the end of this document. Specific topics of discussion will include:
 - Lessons learned from the prior day's mission.
 - Current weather and short-term forecast.
 - PPE requirements.
 - Communications.
 - Food and Water.
 - Potential hazards to watch out for.
- 2.2.** Each team is equipped with a cellular phone and/or a satellite phone. NRDA Field Teams will contact NRDA Operations (located at ICP Houma) as identified below to help ensure personnel accountability.
 - 2.2.1.** Departing for field sampling area.
 - 2.2.2.** Arriving field sampling area.
 - 2.2.3.** Four hour intervals during operations.
 - 2.2.4.** Departing field sampling area for day/shift.
 - 2.2.5.** Termination of operations (e.g. transition to over-the-road vehicle and/or arrival place of lodging).
 - 2.2.6.** As soon as practical to report any health, safety, security, or environmental incident.

2.2.7. Use one of the following NRDA Ops (ICP Houma) contact numbers:

2.2.7.1. PRIMARY - [REDACTED]

2.2.7.2. For non-routine issues and the above number can not be reached, CALL Nir Barnea (NOAA Safety) - [REDACTED]

2.3. NRDA Team Members at ICP Houma will update the Shore Survey Teams Status Display upon notification from a NRDA Shore Survey Field Team.

2.4. Each NRDA Shore Survey Field Team will be provided with a copy of this safety plan.

3. VEHICLE SAFETY

3.1. Pre-Trip Plan (Maps, directions)

3.2. Seat Belt use is mandatory

3.3. Observe posted safety notifications and speed limits.

3.4. DRIVER - Cell phone use both hand-held and hands-free, texting, and e-mailing is prohibited while driving. If necessary, park in a safe location (off the road) and use while parked.

4. ACCIDENTS – INJURIES – SPILLS – NEAR MISSES

4.1. Accidents, injuries, spills or near misses must be reported to the NRDA Operations Supervisor as soon as practical. Required documentation will be managed by the NRDA Operations Supervisor with assistance by involved personnel. The NRDA Operations Supervisor will notify appropriate Incident Management Team personnel including the BP Safety Officer at the Incident Command Post in Houma.

5. TRAINING

5.1. Any member of a NRDA Field Team is required to have the following Safety Training.

- Required BP Safety Training
- HAZWOPER Certification
- PHI Helicopter Pre-Flight Safety Briefing

6. PERSONAL PROTECTIVE EQUIPMENT

- 6.1. Each NRDA Field Team Member is expected to utilize Personal Protective Equipment as appropriate for the activity being performed (refer to the Job Hazard Analysis incorporated within this document).

7. LEADERSHIP

- 7.1. While on an aircraft, boat or airboat, NRDA Team Members will follow pilot/co-pilot/captain/operators safety related instructions at all times. The NRDA Operations Supervisor is responsible for directing team activities and will help decide if safety issues preclude scheduled activities. All team members are responsible for individual and collective safety.

8. JOB HAZARD ANALYSIS (see following pages)

- Shore Operations
- Small Boat / Air Boat Operations
- Helicopter Operations

TASK	NRDA Shore Survey Operations
LOCATION	Various locations of affected areas
DATE PREPARED	5/8/2010 <input checked="" type="checkbox"/> New <input type="checkbox"/> Revised

PERFORMED BY	Caleb T. King (Coast Guard - Safety)
REVIEWED BY	Lisa DiPinto (NOAA - NRDA Coordinator)
PPE REQUIREMENTS	Personal Flotation Device (PFD) Safety Glasses or Goggles (<i>tinted as necessary</i>) Tyvek Coveralls and Boot Covering Nitrile Gloves

Issue of Concern / Activity	Potential Hazards	Control Measures
Entering / Departing Boat	Wet surfaces, change in stability	Watch where you step; use available handrails; assistance by others.
Walking Shore	Heat Stress Sun Burn Insect Bites / Stings Eye strain (sun light) Animals (snakes, alligators, and other non-domestic types) Fall Into Water Loss of Communication Working alone	Stay hydrated and take breaks. Monitor each other. Know symptom of heat stress and how do address them. Apply sunscreen to exposed skin. Wear a hat with a brim to shade face. Use mosquito repellent; and maintain Sting Swabs in First Aid Kit. Wear tinted eyewear. Careful placement of feet and hands; No open toed shoes. Wear Personal Flotation Device when 10-feet or closer to water. Establish and maintain communications with ICP Houma, other vessels, and never separate NRDA workers from vessel where communications cannot be maintained. Maintain buddy system at all times, personnel should not work alone
Activity where Personal Contamination is Anticipated	Hand contamination and/or other exposed skin as well as clothing	Wear Tyvek (or similar) boot covering and coveralls; Nitrile gloves; Safety Glasses or Goggles depending on liquid splash potential.

Use of Tools

Cuts / Scrapes

Use tools as designed and refrain from over-exerting shovel tips where loss of control could happen.

TASK	Small Boat / Air Boat Operations		
LOCATION	Various locations of affected areas		
DATE PREPARED	5/8/2010	New <input type="checkbox"/>	Revised <input checked="" type="checkbox"/>

PERFORMED BY	Caleb T. King (Coast Guard - Safety)
REVIEWED BY	Lisa DiPinto (NOAA - NRDA Coordinator)
PPE REQUIREMENTS	Personal Flotation Device (PFD) Safety Glasses or Sun Glasses Hearing Protection

Issue of Concern / Activity	Potential Hazards	Control Measures
Entering / Departing Boat	Wet surfaces, change in stability	Watch where you step; use available handrails; assistance by others.
Vessel in Transit	Fall Overboard Collision, Allision, or Grounding Overloading Vessel Mechanical Issues Airborne Particulates and Insects Heat Stress Sun Burn Pinch Points Noise	Personal Flotation Device. Follow Navigational Rules of the Road; Maintain awareness; Know location; Maintain Communications. Distribute weight evenly and do not exceed vessel capacity plate. Keep spare parts, tools, etc. onboard and always know your fuel levels. Wear safety glasses, sun glasses, or prescription glasses. Stay hydrated and take breaks. Monitor each other. Know symptom of heat stress and how do address them. Apply sunscreen to exposed skin. Wear a hat with a brim to shade face. Maintain control of doors/hatches; Keep fingers and feet clear of lines/ropes Double hearing protection must be worn onboard air boats.

TASK	Air Operations
LOCATION	Heliports and along affected areas
DATE PREPARED	5/8/2010 New <input checked="" type="checkbox"/> Revised <input type="checkbox"/>

PERFORMED BY	Caleb T. King (Coast Guard - Safety)
REVIEWED BY	Lisa DiPinto (NOAA - NRDA Coordinator)
PPE REQUIREMENTS	Hearing Protection Personal Flotation Device (PFD)

Issue of Concern / Activity	Potential Hazards	Control Measures
Boarding Helicopter	Noise, Tail Rotor, Rotor Wash	Hearing Protection, Never walk behind helicopter, keep all items secured
In Flight	Noise, Water Landing, Motion Sickness	Hearing Protection, PFD, Medication
Departing Helicopter	Noise, Tail Rotor, Rotor Wash	Hearing Protection, Never walk behind helicopter