

**TECHNICAL SPECIFICATIONS AND SCOPE OF WORK/SERVICES  
FOR AERIAL IMAGE ACQUISITION AND IMAGE PROCESSING  
IN SUPPORT OF THE MC252 NRDA PROCESS:**

**FALL 2010 THROUGH SPRING 2012**

**September 24, 2010**

Aerial Imagery Technical Workgroup

On Behalf of the Shoreline and SAV Technical Workgroups\*

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\*Document prepared in cooperation with BP Exploration & Production, Inc. and their representatives.

## **1.0 Overview**

As part of the Natural Resource Damage Assessment (NRDA) effort for the Mississippi Canyon 252 (MC252) incident, this scope of work has been developed to support the needs of the Submerged Aquatic Vegetation (SAV) and Shoreline Technical Working Groups (TWG). For the SAV TWG, aerial imagery will be acquired in predefined Priority Areas on a six-month basis starting in the fall of 2010 (i.e. October through early November) and extending through the spring of 2012 (i.e. May through mid June), if needed. Processed images will be used to carry out change analysis, including changes in the location, aerial extent, and patchiness of SAV beds. For the Shoreline TWG, aerial imagery will be acquired in pre-defined Priority Areas on a six-month basis starting in the fall of 2010 (i.e. September through mid-October) and extending through the spring of 2012 (i.e. May through mid-June), if needed. Processed images will be analyzed to assess impacts to marsh vegetation, shoreline, beaches, and flats.

An accelerated review process for the initial virtual images shall be required where the selected contractor(s) is required to process SAV area virtual images within a week or less and after virtual images are created, send them for next day delivery to Earth Resources Observation and Science (EROS) data center in Sioux Falls, South Dakota. EROS personnel will load the images within 1-2 days for on-line review by SAV and Shoreline TWG experts. SAV experts will determine when reflights are needed in the SAV areas. Some images may be acceptable for shoreline and marsh mapping but not for SAV interpretation. The selected contractor(s) shall deploy sufficient aircraft and sensors to accommodate a 25% reflight expectation.

## **2.0 General Scope of Work/Services**

This work will be conducted to acquire high-resolution (native resolution aerial imagery that exceeds 1 ft ground sampling distance [GSD]), 4-band (visible color and near infrared [IR]), stereo (all bands), digital photogrammetric frame imagery and produce fully rectified and seamless ortho-image tiles and mosaics (1 ft GSD, 4-band) for the coastal areas shown in Appendix A.

Within each of the three Priority Areas indicated (red – primary, yellow – secondary, green – tertiary), sub-regions of submerged aquatic vegetation (SAV) are further delineated. More restrictive flight/environmental parameters will apply to these SAV sub-regions.

These ortho-image data sets shall meet the American Society for Photogrammetry and Remote Sensing (ASPRS) large-scale planimetric map accuracy standards for Class 2, 1:2,400 scale maps.

All data and intermediate work products shall be simultaneously delivered to BP Exploration & Production, Inc (BP herein) and the NRDA Trustees, which include the state trustees for Alabama, Florida, Louisiana, Mississippi and Texas as well as the United States federal trustees, namely the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Department of Interior, represented through U.S. Fish and Wildlife Service (hereinafter collectively referred to as "NRDA Trustees"), with no licensing restrictions for private, public domain, civil, state and federal government agency use.

No data or derived products can be resold or reused by the selected contractor(s) under any circumstances.

## **2.1 Aircraft**

The selected contractor(s) shall provide all aircraft, which shall be maintained and operated in accordance with regulations of the Federal Aviation Administration. All aircraft must be inspected and approved by BP Aviation prior to commencement of acquisition unless otherwise approved in writing by BP. If the project is in restricted or controlled air space, acquisition must be coordinated with the appropriate Air Traffic Control Center.

## **2.2 Camera Systems**

The selected contractor(s) shall acquire high-resolution (1 ft GSD), 4-band (visible red, green, blue and near IR), near-vertical aerial imagery utilizing a calibrated, large-format, digital aerial mapping camera (Z/I DMC or comparable) with electronic forward motion compensation and gyro-stabilized camera mount.

## **2.3 Image Control**

Dual-frequency carrier-phase Global Positioning System (GPS) data shall be logged and post-processed along with IMU measurements to determine precise external orientation parameters of individual image frames with respect to the coordinate reference systems identified below.

- Ground control shall be as needed to meet horizontal accuracy requirements with respect to the National Spatial Reference System (NSRS) and shall consist primarily of National Geodetic Survey (NGS) Continuously Operating Reference Station (CORS).
- Additional base stations, properly connected to the NSRS via direct connection to the CORS network, shall be used if the required accuracies cannot be met using CORS alone.
- A complete report of CORS or other base stations used and the CORS files used to reduce the airborne GPS (ABGPS) data to accurate positions shall be delivered.
- Geoid09 shall be used to reduce NAD83(NSRS2007) ellipsoidal heights to NAVD88 orthometric heights.
- All GPS data shall be collected with a position dilution of precision (PDOP) of less than 5 at an elevation mask of 10 degrees.
- All ABGPS solutions shall be the result of ionospheric-free, carrier-phase combinations with phase ambiguities resolved to their integer values.
- ABGPS solutions shall be obtained independently from not less than two ground control stations. These independent solutions should be compared to ensure that the required positional integrity was maintained throughout acquisition.

- The root mean square (RMS) error of the post-processed horizontal and vertical differences of the independent ABGPS solutions shall not exceed 30cm horizontally or 50cm vertically.
- Regardless of the ABGPS RMS error achieved, the resulting orthophotos must still meet the ASPRS Class 2, 1:2,400 scale accuracy requirement
- The final ABGPS solution shall be the average of the independently derived solutions.

## **2.4 Flight Plan**

A flight plan or pre-plot will be designed by the selected contractors and approved in consultation with the Aerial Imagery TWG lead or his operational designee for the NRDA Trustees prior to acquisition. The pre-plot shall be simultaneously delivered to BP and the NRDA Trustees in the form of ESRI shape files that depict the proposed flight lines, photo centers and footprint of each frame (with provisional flight line and frame number attributes).

## **2.5 Progress Reporting**

The flight map or a more detailed flight and ortho tile layout map shall be used to provide BP and the NRDA trustees a web-enabled weekly status of flight progress and deliverables.

## **2.6 Acquisition Flight Parameters**

The selected contractor(s) shall acquire all new aerial imagery in accordance with the flight parameters specified below, weather and stated flying constraints permitting:

- Flying Height - As required to acquire color and color IR stereo (all four bands) imagery with a 1 foot GSD
- End and Side Lap – Consecutive images in a flight line shall have an end lap of no less than 60% plus or minus 5%. Side lap between images acquired on adjacent parallel flight lines shall be 30% plus or minus 5%.
- Flight lines shall be planned and flown in cardinal directions (East-West and/or North-South) unless otherwise approved in writing.

## **2.7 Acquisition Areas of Interest and Priorities**

The extent of image acquisition and priorities therein are as depicted in Appendix A (red – primary, yellow – secondary, green – tertiary). Interspersed within the imaging priorities are SAV areas which have more restrictive flight/environmental conditions but use the same flight plans. The selected Contractor(s) is asked to acquire images according to these ordered priorities where practical given the additional weather and flight condition restraints. Shape files of Priority and SAV areas shown on Appendix A may be downloaded from the following site: (you may need to cut and paste the link into a browser)

<https://www2.ibackup.com/qmanager/servlet/share?key=mnnro03154>

## **2.8 Acquisition Dates**

The selected contractor(s) shall acquire new aerial imagery over the entire area specified within each of the following time frames weather and flight conditions permitting:

- September-October 15, 2010, for non-SAV areas unless otherwise extended in writing and September-November 10, 2010 for SAV areas unless otherwise extended in writing
- May-June 15, 2011, unless otherwise extended in writing (area of interest may be revised/reduced and timing changed based on previous year's data analysis.)
- September- November, 2011, unless otherwise extended in writing (area of interest may be revised/reduced and timing changed based on previous year's data analysis.)
- May-June 15, 2012, unless otherwise extended in writing (area of interest may be revised/reduced based on previous year's data analysis.)

## **2.9 Imaging Conditions**

Because shoreline features of interest and SAV beds frequently occur in close proximity to one another in the areas of acquisition, it is the intent of this project to collect imagery of emergent (marsh, shoreline) and submerged coastal (SAV) features simultaneously where image quality is accepted to both TWGs. However, these limiting considerations must also be met:

- The emergent (marsh, shoreline) imagery acquisition in fall 2010 must be acquired by mid-October before vegetation senescence.
- Due to differing phenology, submerged coastal SAV imagery can be collected through November 10, 2010.
- Because submerged coastal SAV features are below the water, collection requirements, including sun angle, wind, water clarity and (to a lesser extent) tide (see specifications below) are more restrictive.
- Each season the precise collection dates shall be determined by the working group chairs prior to each flight operation.

As a result, as outlined below, it might be possible to collect shoreline and SAV imagery simultaneously in some locations, and on some dates, but it will likely be necessary to schedule additional flights specifically tasked to imagery acquisition of only one feature. If two flights are needed (one to collect shoreline and marsh features in timely fashion and a second flight is needed to better satisfy SAV area requirements, the additional SAV flight frames will be additionally compensated as per the section labeled "Reflights" below.

*General Imaging Conditions for emergent marsh, shoreline* (environmental condition requirements for all Priority Areas):

- No image shall contain more than 5% cloud cover.

- Imagery shall be acquired only under conditions that have limited specular reflection. If the specular reflectance dominates a scene and cannot otherwise be largely removed during mosaicking into ortho tiles, the imagery shall be reflight.
- Imagery shall not be collected during strong onshore winds, high waves or other anomalous weather conditions (haze, smoke, etc.) unless approved in writing in consultation with the operational designee of the SAV TWG for the NRDA Trustees.

*Submerged Aquatic Vegetation (SAV) Imaging Conditions* (additional environmental condition requirements):

Within Priority Area 1, Priority Area 2 (Florida/Alabama) and Priority Area 3 (Florida/Alabama) these SAV environmental condition requirements shall apply to image acquisition over designated SAV sub-regions. The selected contractor(s) shall make a consistent good-faith effort to adhere to these environmental condition requirements for image acquisition over designated SAV sub-regions.

- Sun Elevation Angle – Shall be between 25 and 40 degrees for optimum quality imagery. For online sun angle solutions, refer to <http://www.usno.navy.mil/USNO/astronomical-applications/data-services/alt-az-us>
- Surface Winds – Surface winds shall generally be less than 10mph.
- Tide height – Acquisition at or about low astronomic tide preferred. The tides are around 1 foot, so this restriction is of lesser importance.
- The Contractor(s) flight crews shall make a legitimate effort to call SAV experts (Trustees optionally to provide a list with point of contact information and area SAV expert is located) to advise the flight crews about water clarity and wind conditions to assist the crews in deciding whether or not to fly SAV areas each morning of each reasonable flying day for each aircraft for each target area.
- Contractor(s) are further encouraged to use MODIS satellite coverage to help decide acceptable levels of Turbidity. See: <http://modis.marine.usf.edu/>
- Examples of acceptable SAV imagery can be reviewed at <ftp://ftp.floridamarine.org/users/har/Marsh%20and%20SAV%20Imagery/>

To expedite acquisition within the time-frame allotted, these more restrictive requirements may be temporarily waived in favor of the less stringent general imaging conditions described for shoreline and marsh mapping, by written authorization from BP and/or the NRDA Trustees, for initial acquisition of the interspersed SAV sub-regions.

Both BP and the NRDA Trustees recognize that the desire to achieve complete coverage of all areas each season will be balanced with the need for low turbidity in select SAV areas to improve the likelihood of full coverage in all areas. Regardless, SAV area reflights will be

authorized and completed at the reasonable discretion of the SAV working group in concert with BP and the NRDA trustees.

## **2.10 Tiling Scheme for DOQQQ Production**

The orthos shall be delivered and planned using digital orthophoto quarter quarter quadrangle (DOQQQ) tiles extended as needed to include all coverage areas. These tiles are roughly 3.5 km in the North-South direction and 3.0 km in the East-West direction.

- A DOQQQ index map in ESRI shapefile format depicting the DOQQQ footprints shall be provided. These polygons shall include all relevant DOQQQ metadata, including identification of the specific image frames contributing to each DOQQQ. One hard copy and one digital copy in jpg format shall be provided as well.
- Organization – DOQQQ image tiles shall be organized in accordance with the Louisiana Geographic Information Center's "1:6,000 Grid" and named in accordance with the "LA6K\_CODE" as follows: Concatenate the USGS standard codes for one degree block identifier (5 digit, Lat+0+Long for SE block corner) + 7.5 minute quad reference number (2 digit, 01-64) + DOQQQ quadrant abbreviation (3 digit, "nws", "nes", "sws", or "ses") + LAGIS 6K Numeric identifier (1 digit, 1-4 for a given quadrant from northwest to southeast). Refer to [http://lagis.lsu.edu/data/losco/quad6k\\_losco\\_2007\\_faq.html](http://lagis.lsu.edu/data/losco/quad6k_losco_2007_faq.html).
- Ortho planimetric fixes – There is a very limited requirement to edit planimetric details such that the seamlines should be mostly transparent to the user. Bridges/vertical surfaces do not need to be fixed. Mismatches between adjacent images should never exceed 6 pixels and should average less than 3 pixels.
- The selected Contractor(s) is encouraged to process every other frame to create orthos if this efficiency does not compromise any other contractual requirement.
- Partial DOQQQ tiles are acceptable.
- Radiometric Balance – After the original images have been delivered and archived, a second copy of the images shall be dodged and color balanced within each frame and have reasonable continuity across flight lines and across the project area when mosaiced into DOQQQs.
- Format - DOQQQ tiles shall be formatted within ArcGIS as uncompressed 8-bit, 4-band Geotiff files, pyramided with associated .rrd files and include .aux files containing projection parameters.

## **2.11 Pricing Provision**

Contractors are asked to complete the attached pricing spreadsheet. There are tabs for five flight seasons.

Appendix A depicts five unique acquisition/imaging priority areas which are line items A, B, C, D and E within an attached pricing spreadsheet. Some of the areas have more difficult conditions

due to the extent, location, flight line geometry and amount of SAV areas to be flown. Each of the 5 areas shall have two pricing components; a) line mile costs for the particular area and set of conditions, and b) DOQQQ production and delivery costs. The prices for each of the 5 areas (with two pricing components per area) should be all inclusive for managing and delivering all items associated with pricing components, FOB destination. Separate acquisition area pricing will allow BP and the Trustees to consider using more than one Contractor.

## **2.12 Negotiations**

The selected contractor(s) likely to provide the best range of services and product quality at reasonable prices on a timely basis will be selected. BP has contractual control as they are responsible for the contracting and have control over any contract that is let. BP will then work with the selected contractor(s) to improve the proposed solution and pricing to best meet the needs and expectations of the Trustees.

## **2.13 Quality Control**

The selected contractor(s) shall exercise quality control continuously through the performance of the contract. In addition, the selected contractor(s) must prepare and submit a self-inspection and quality control plan that shall include but is not limited to documentation of the methods and procedures that will be used to ensure that all geospatial and radiometric requirements have been met and that full coverage has been obtained to the specified flight parameters and environmental conditions.

Quality checks to be submitted include:

- Flight plan approved by BP and NRDA Trustees at least one week prior to each flight season.
- ABGPS processing reports and confirmation that all observations and processing results meet or exceed specifications.
- Report of flight conditions that were being adhered to each day and flight logs delivered.
- Review and confirmation that photos have been inspected to meet required cloud cover minimums, proper end laps and side laps, low spectral reflectance, proper color balance within and between frames and flight days.
- Review and confirmation that orthos meet horizontal accuracy specifications (ASPRS Class 2, 1:2,400 scale with limiting RMS error in X or Y of 4 feet) and are checked against other ground control sources or maps of higher accuracy in accordance with the testing procedure described in the Federal Geographic Data Committee's (FGDC) "Geospatial Positioning Accuracy Standard – Part 3: National Standard for Spatial Data Accuracy."
- Review and confirmation that seamlines of all mosaiced products match spatially within 6 pixels or better and are feathered spectrally

- Review and confirmation that all files contain the proper metadata and are able to be viewed using ArcGIS

## **2.14 Reflights**

The selected contractor(s) at no additional fee must correct aerial imagery that does not meet the specifications defined within this document as further qualified regarding emergent shoreline vs SAV area reflights. All re-flights must be centered on the plotted flight lines and must be taken with the same camera system within the specified acquisition period.

In the event acquisition of SAV sub-regions was undertaken under a written waiver exempting the selected contractor(s) from the more stringent SAV environmental condition requirements for initial acquisition, and if the subject SAV imagery is confirmed to have met the emergent shoreline imaging condition environmental requirements but is unsatisfactory for the more stringent SAV requirements, BP and NRDA Trustees may request that the specific SAV image frames be reacquired to the more stringent SAV environmental condition requirements. If so requested, the selected contractor(s) shall re-fly the SAV areas and be compensated at an averaged per frame rate calculated from the original pricing.

## **2.15 Standards**

All materials and management for the production of color digital orthoimagery at a native GSD of 1 foot or better and meeting or exceeding the ASPRS large-scale planimetric map accuracy standards for Class 2, 1:2,400 scale maps with limiting RMS error in X or Y of 4 feet, this being consistent with the National Standard for Spatial Data Accuracy (NSSDA) horizontal accuracy of 9.8 feet at the 95% confidence level.

## **2.16 Metadata**

The selected contractor(s) shall provide a full metadata record that is compiled to the current standard endorsed by the Federal Geographic Data Committee (FGDC) for each category of data deliverable. Metadata should specifically state that, "This work adheres to FGDC Geospatial Positioning Accuracy Standards - Part 3: National Standard for Spatial Data Accuracy (NSSDA)."

## **3.0 Chain of Custody**

All data collected pursuant to this scope of work must adhere to a strict Chain Of Command (COC) protocol to ensure the utmost integrity of all data, methods, control and documentation. All data will remain in the documented physical control of the selected contractors at all times. Complete documentation of this COC must follow the standard NRDA COC for aerial imagery (Appendix B), including acceptance and release signature for this physical control chain. Original copies of all documentation will be provided to the signatories, or their designated representative, of this scope of work for aerial imagery acquisition.

#### **4.0 Period of Agreement**

The term of any contract resulting from this solicitation shall begin on or about September 30th, 2010 or upon award, whichever is later, and to continue through ***December 30, 2012***. BP, in consultation with the NRDA Trustees, has the right to extend the contract for additional periods.

#### **5.0 Deliverables**

The deliverables listed in this section are the minimum desired from the successful prospective contractor(s). In cooperation with USGS, the deliverables shall be posted on-line as well. Every prospective contractor shall describe what deliverables will be provided per their proposal and how the proposed deliverables will be provided. Each flight season, staggered deliveries shall be scheduled.

- Raw data files as it comes off the plane copied onto a NRDA-specific hard drive and handled according to the COC in Appendix B.
- Virtual image files in uncompressed, 4-band, 8-bit per channel, TIFF format with Geotiff header (and TFW world file), untiled and without overviews that have not been further processed or dodged or otherwise adjusted radiometrically. All frames that would depict a stereo view shall be delivered even if not all of the original frames were used within the optional AT process or for orthorectification.
- DOQQQs
- DEM – The final DEM surface used for orthorectification shall be delivered as ASCII text files with mass points and breaklines (if present).
- A seamlines file extending across all DOQQQs shall be delivered as a shapefile.
- CORS or other base station data (Rinex) along with ABGPS data files used to reduce exterior orientation data
- Copy of each mission's flight logs with an indication of weather conditions regarding wind, estimated wave heights, tide level and time of day.
- Optional aerotriangulation file and report containing control used, residuals, RMSE, model set-up parameters.
- Exterior orientation data for each frame used for orthorectification or optional AT processing (as database attribution as part of shape file)
- Certification by an ASPRS Certified Photogrammetrist (CP) that the work conforms to these specifications.
- Brief formal report (signed by CP explaining the tools and technology used to create the work product and meet the chain of custody requirements.

- An online and eventually a final flight index map in ESRI shapefile format of the image photo-centers and footprints (use as-flown image photo centers) shall be provided. These points and polygons shall include metadata pre-approved by the NRDA trustees that include image frame number, date and time of imagery capture, etc. Two plotted hard copies and one digital copy in jpg format shall be provided as well.
- All raw imagery and airborne GPS/IMU, processed trajectory files, ground control and raw virtual imagery and other observation data, and all other intermediate and supplemental data sets.
- Coordinate Reference Systems - Data within the boundaries of the States of Louisiana and Texas shall be referenced to NAD83(NSRS2007)/UTM Zone 15 in meters. Data within the boundaries of the States of Mississippi, Alabama, and Florida shall be referenced to NAD83(NSRS2007)/UTM Zone 16 in meters. Elevations shall be recorded in meters, relative to North American Vertical Datum of 1988 (NAVD88).
- The deliverables listed in this section are the minimum desired from the successful prospective contractor(s). Every prospective contractor shall describe what deliverables will be provided per their proposal and how the proposed deliverables will be provided. Each flight season, staggered deliveries shall be scheduled.
- Media – All raw and final data and products, including all necessary metadata, generated as part of this scope of work shall be simultaneously delivered via external hard drives to both BP and to the NRDA Trustees. This includes five State representatives, two Federal Agencies, BP, the EROS Data Center and the NOAA's Ocean Service SE DARRP Office (for COC). Specifically, for the State of Louisiana, one external hard drive shall be delivered to a designated representative from the Louisiana Oil Spill Coordinator's Office (LOSCO). Specific representatives for each state shall be identified.

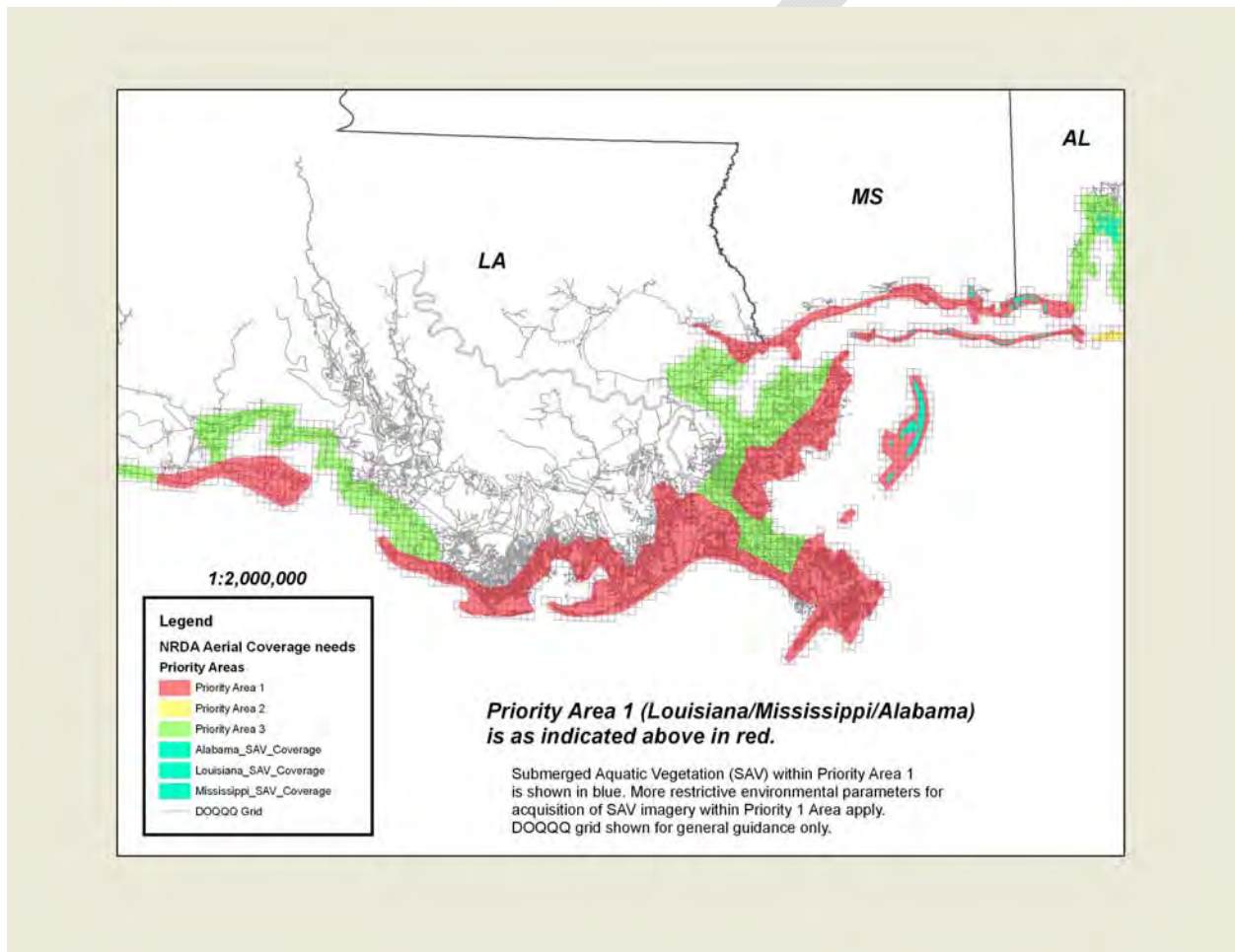
## **6.0 Delivery Schedule**

- Flight Plans – Within 2 days of contract
- Virtual Images – Ship virtual image data of SAV areas within 4-7 calendar days of acquisition, to Brenda Jones, EROS Data Center for subsequent loading into HDDS. This rapid 4-7 delivery assumes an average flow of images over a multi-week period (not all in the same week)
- Orthophotos – Within 60 days of acquisition
- Survey Data – Within 60 days of acquisition
- All Remaining Deliverables – Within 75 days of acquisition

## Appendix A

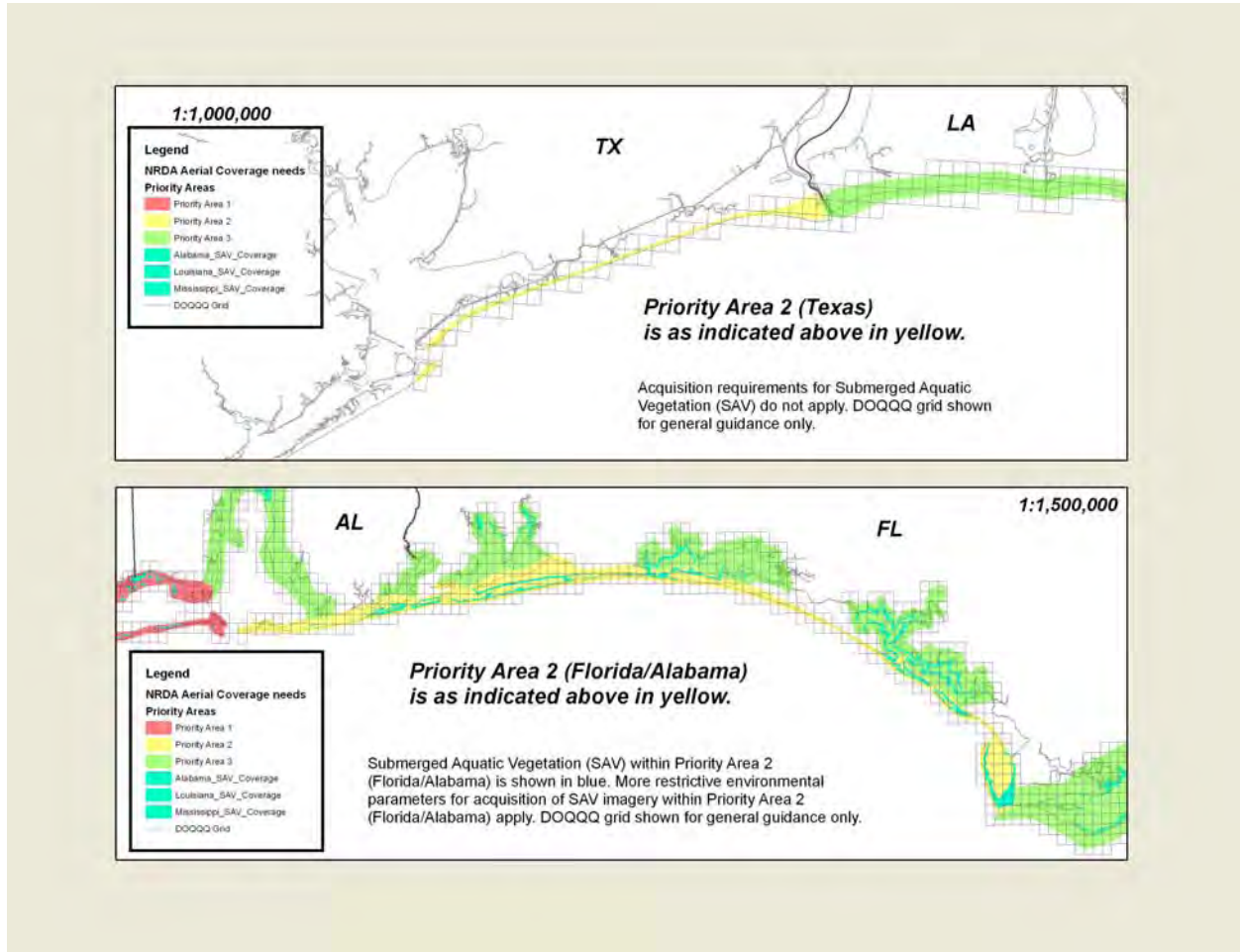
### Acquisition Area of Interest and Priorities

Shape files of Priority and SAV areas indicated above may be downloaded from the following site: <https://www2.ibackup.com/qmanager/servlet/share?key=mnnro03154>



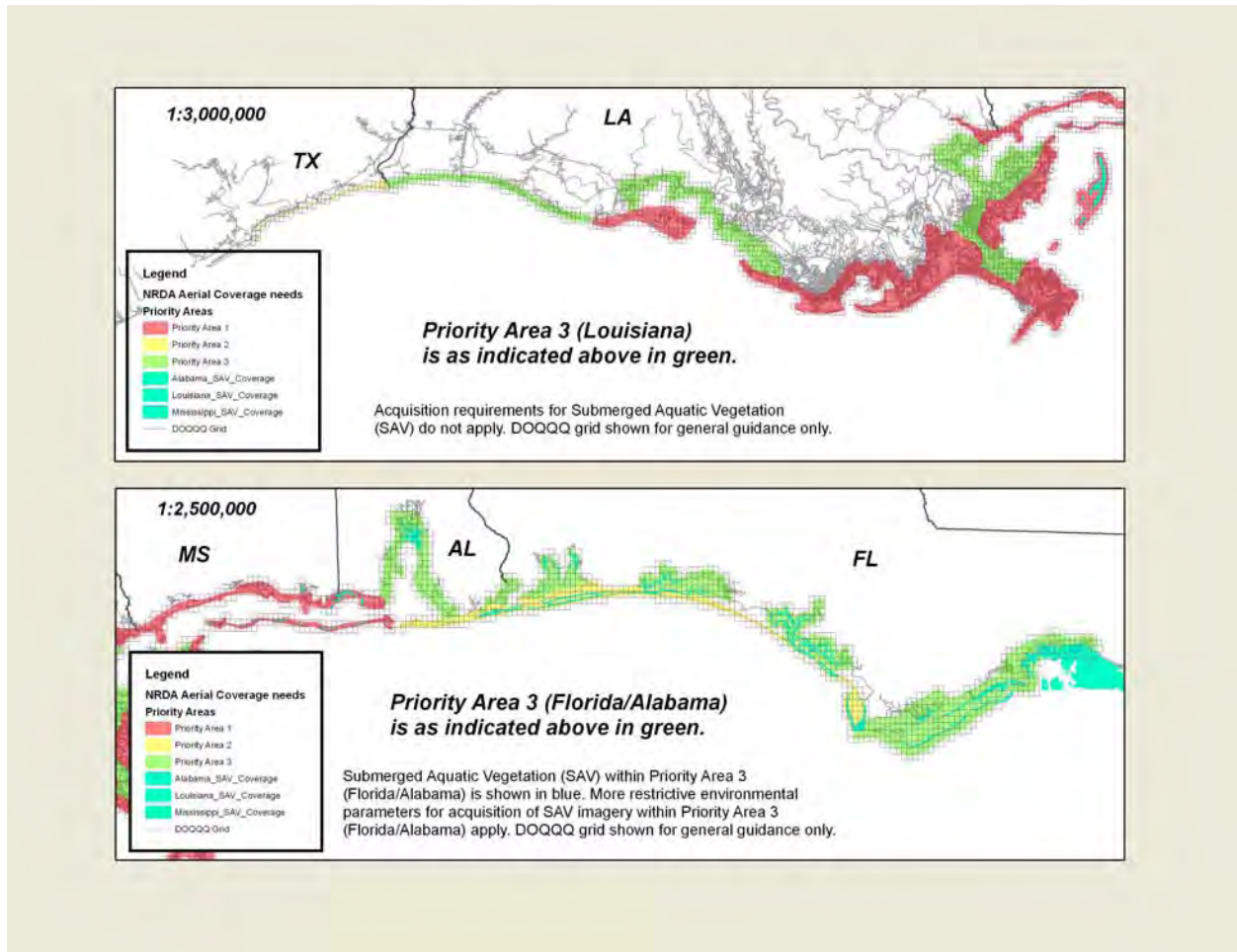
Appendix A (continued)

Acquisition Area of Interest and Priorities



Appendix A (continued)

Acquisition Area of Interest and Priorities



## Appendix B

### DWH MC252 – Chain of Custody Procedures – Aerial Imagery

#### PURPOSE:

Provide understanding of the process used to collect aerial images for the DWH MC252 incident and a modified Chain of Custody form / procedure to accommodate their process and data

#### PROCESS:

1. Contract staff plans and performs overflight. At the end of the flight they have raw imagery in a format that is proprietary and difficult to open/alter. They have the flight track information also.
2. The data is on hard drives that are removed from the plane and brought to a hotel room (locked?) where they are downloaded and processed by the data processing team.
3. Images are eventually output in georectified high resolution TIFF's and lower resolution JPG's.

#### CHAIN OF CUSTODY:

For the purposes of the MS Canyon Case, the NRDA team needs to maintain an archive copy of the raw data as it came off the plane along with the track file. This provides the trustees a copy of the data in its most unedited state in a format that is very difficult to alter. The addition of the track completes a data set that will allow independent future processing if we ever have to use the data.

The data needs to be copied immediately after the flight onto a NRDA specific hard drive. The hard drives should be kept in a secure location accessible only to the data custodians (data processing team). They should also be labeled clearly and uniquely (e.g. 2010-0505-Contractor\_Name-1 -- YYYY-MM-DD-NAME-Running #).

When the drive is full or it contains one week of data (whichever comes first), the data custodian should start a fresh drive and arrange for shipping the full drive to a NOAA long-term custodian (NMFS SE Regional Office).

Each time the data changes hands, the COC form must be signed and dated. Each custodian should keep a copy of the signed forms while keeping the originals with the drives themselves.

The form is setup to track one day's data or "sample". Each hard drive will have up to 7 forms that will accompany it – just like a cooler of water samples has multiple COC forms associated with it.

**Chain of Custody Form**

*Aerial Image Data*

**NOAA | NOS | OR&R | Assessment and Restoration Division**

7600 Sand Point Way NE  
Seattle, WA



lan.j.zelo@noaa.gov  
(v) 206.526.4599 (f) 206.526.6665

<b>Project: MS Canyon</b>	
<b>Flight Date:</b>	
<b>Flight Description:</b>	
<b>Data Description:</b> <input type="checkbox"/> Raw <input type="checkbox"/> Track	
<b>File / Folder Name:</b>	<b>Archive Hard Drive ID:</b>
<b>Data Processing Team</b>	<b>Name / Agency</b>

On Plane Data Collector		Custodian who made archive copy	
Collected By: <i>(signature)</i>	Received By: <i>(signature)</i>	Condition of Drive:	Date/Time:
Name – Agency <i>(printed)</i>	Name – Agency <i>(printed)</i>		

COC for file while on archive drive			
Relinquished By: <i>(signature)</i>	Received By: <i>(signature)</i>	Condition of Drive:	Date/Time:
Name – Agency <i>(printed)</i>	Name – Agency <i>(printed)</i>		

**Chain of Custody Form**

**NOAA | NOS | OR&R | Assessment and Restoration Division**

7600 Sand Point Way NE  
Seattle, WA



lan.j.zelo@noaa.gov  
(v) 206.526.4599 (f) 206.526.6665

<b>Project:</b>
<b>Flight Date:</b>

COC for file while on archive drive  
Continued

Relinquished By: <i>(signature)</i> Name – Agency <i>(printed)</i>	Received By: <i>(signature)</i> Name – Agency <i>(printed)</i>	Condition of Drive:	Date/Time:

Relinquished By: <i>(signature)</i> Name – Agency <i>(printed)</i>	Received By: <i>(signature)</i> Name – Agency <i>(printed)</i>	Condition of Drive:	Date/Time:

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Relinquished By: <i>(signature)</i> Name – Agency <i>(printed)</i>	Received By: <i>(signature)</i> Name – Agency <i>(printed)</i>	Condition of Drive:	Date/Time:

Relinquished By: <i>(signature)</i> Name – Agency <i>(printed)</i>	Received By: <i>(signature)</i> Name – Agency <i>(printed)</i>	Condition of Drive:	Date/Time:

# Mississippi Canyon 252 Incident

Technical Specifications and Scope of Work/Services for Aerial Image Acquisition and Image Processing in Support of the MC252 NRDA Process

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## Signature Page

*\*\*\*Approval of this technical specifications and scope of work/services is for the purposes of obtaining data in support of the Natural Resource Damage Assessment process for the Mississippi Canyon 252 Incident. Parties reserve their rights to produce their own independent interpretations of any data collected pursuant to this technical specifications and scope of work\*\*\**

APPROVED:

\_\_\_\_\_  
BP Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
AITWG Chair

\_\_\_\_\_  
Date

\_\_\_\_\_  
Federal Trustee Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
State of Louisiana Trustee Representative

\_\_\_\_\_  
Date

DRAFT