

Aerial Video Survey of the Lower
Mississippi River on DVDs
Year One Report:
1996 Baton Rouge to the Gulf of Mexico

Technical Report Series _____

Aerial Video Survey of the Lower Mississippi River on DVDs Year One Report: 1996 Baton Rouge to the Gulf to the Gulf of Mexico

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CITATION

Suggested citation:

Westphal, K.A., Paulsell, R., Narayanan, P. 2003. 1996 Aerial video survey of the lower Mississippi River on DVDs Year One Report: 1996 Baton Rouge to the Gulf of Mexico. Louisiana State University. Louisiana Applied and Educational Oil Spill Research and Development Program, OSRADP Technical Report Series _____, 18 p.

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ACKNOWLEDGMENTS

We wish to thank Chris E. Zganjar, Karen E. Ramsey, Jennifer Maclean, Paul Connor, and Jaime Phillippe of Louisiana State University, Center for Coastal, Energy & Environmental Research; Spencer Knoebel of Industrial Helicopters, Inc.; and Tommy Mahon of Exxon USA for their support and services during the 1996 video acquisition.

Audio information quoted regarding revetments, facilities, lights, and mile markers was taken from *St. Francisville to Pilottown: The Lower, Lower Mississippi River* by Captain Michael Sanders, and the 1992 Flood Control and Navigation Maps of the Mississippi River by the U.S. Army Corps of Engineers, Lower Mississippi Valley District. The information was updated for this report to reflect information from the 1998 Flood Control and Navigation Maps of the Mississippi River by the U.S. Army Corps of Engineers, Lower Mississippi Valley District.

**Aerial Video Survey of the Lower Mississippi River on DVDs Year One
Report: 1996 Baton Rouge to the Gulf of Mexico**

Abstract

The goal of this two-year project is to produce a set of DVDs containing easily accessible aerial video imagery of both banks of the Mississippi River from the Arkansas/Louisiana state line to the Gulf of Mexico. Whenever possible, imagery of pipelines, facilities, and other features will be identified and linked to maps and lists by river mile. Both banks will be linked, so that either side can be viewed at a particular stretch of the river. The goals of Year One were to convert existing 1996 video of the lower part of the Mississippi River from analog videotape data to a digital video format, and to develop a two shoreline indexing system. During Year Two, new video will be acquired above Baton Rouge to the Arkansas state line, and this will be indexed on DVDs. The video is acquired by helicopter at an altitude of approximately 200 feet and a speed of 30 to 60 knots. Analog video was acquired instead of digital, because that equipment was already available and was integrated with navigation data as well as on-board audio recording. The realtime navigation data from a Global Positioning System (GPS) unit is presented on the bottom of the video image, so that each frame is referenced with latitude, longitude, compass heading of the aircraft, date and time. Year One involved working through several problems to refine the final product and to set the stage for Year Two. OSRADP representatives requested a change that caused a setback in the time schedule, but highly augmented the final product. A no-cost extension was approved for completion of the first stage of the project.

1.0 Introduction

1.1 Objectives

The goal of this two-year project is to produce a set of DVDs containing easily accessible aerial video imagery of both banks of the Mississippi River from the Arkansas/Louisiana state line to the Gulf of Mexico. Whenever possible, imagery of pipelines, facilities, and other features will be identified and linked to maps and lists by river mile. Both banks will be linked, so that either side can be viewed at a particular stretch of the river.

Because the project was large and potentially labor intensive, we decided to approach it in two phases. The goals of Year One were to convert existing 1996 video of the lower part of the Mississippi River from analog videotape data to a digital video format, and to develop a two shoreline indexing system. During Year Two, new video will be acquired above Baton Rouge to the Arkansas state line. The new video will be processed using the procedures developed in Year One. This will allow the study team to index the entire Louisiana reach of the Mississippi River on one set of DVDs.

1.2 Background

Periodically since 1984, a portion of the northern Gulf of Mexico shoreline including Louisiana has been videotaped from a helicopter by the Aerial Videotape Survey Program (AVSP) at Louisiana State University. The AVSP began as a research tool for

studying shoreline change and hurricane effects. The U.S. Geological Survey funded this effort as part of a Louisiana barrier island study.

After the Valdez oil spill cleanup efforts in 1989, videotape surveys were recognized by the oil industry as an extremely useful and efficient tool for documenting existing conditions, establishing baseline conditions, contingency planning, and field planning for actual spill events. As a result, our video coverage expanded to include most of the northern Gulf coast from Texas to Florida. Navigation data from a Global Positioning System (GPS) unit was added to the imagery in 1992. The surveys also began to include major waterways at in 1992. We have now completed 25 shoreline or waterway aerial videotape surveys in the Gulf of Mexico coastal zone. All overflights are archived at Louisiana State University, School of the Coast and Environment (formerly Center for Coastal, Energy, and Environmental Resources), Special Programs. The video archives are available for viewing on site. Copies may also be purchased. A list of previous LSU-conducted video surveys can be found in Appendix C.

Videotape surveys have been utilized in several oil spill response training drills and to document several oil spill events, including the 1992 Timbalier Bay oil spill in Louisiana, the 1995 San Jacinto River oil spill in Texas, the 1997 Lake Barre Oil Spill in Louisiana, and a spill in the lower Mississippi River in 2002. Copies of tapes (and now DVDs) are sent at the request of any agency responding to an emergency.

There are several advantages to oblique, aerial video data.

- 1) The **aerial viewpoint** shows the relationships among surrounding features and interactive associations on both sides of the levee. Ground features not evident on maps can be picked out for a particular area, such as dirt track access to the shoreline, a field that could be used as a staging area, nearshore posts that can be used to secure booms, and so on.
- 2) The **continuous nature and resolution** of video ensures that nothing is overlooked.
- 3) The **oblique angle** and **continuous movement** or change in perspective produces a **3-D effect**, accentuating relief and the position of features for a better understanding of the landscape.

Figure 1. The GPS data bar as it appears on the video image. Top line: date. Bottom line, left to right: latitude, longitude, helicopter track relative to true north, time in local Central Daylight Time (CDT).

- 4) **GPS data on the image** gives a constant reference to every image (Figure 1). The bottom strip on the video image is realtime navigation data from a GPS unit showing latitude, longitude, compass heading of the aircraft, date, and time. This information is recorded at the same time as the video and based on the position of the aircraft.

1.3 Waterway Surveys

Video imagery along a major waterway provides information for many applications, including :

- pre-event documentation, or as a baseline in case of a spill along the river. If the same area experiences multiple spills, video documentation can help sort liabilities.
- graduate theses or dissertations
- classroom discussions
- special television news reports
- verification of habitat delineations and shoreline types for GIS studies
- verification of shoreline conditions for planned boat landings: derelict structures, rock or marsh shoreline, trees, etc.
- identification of specific features: possible staging areas, access points, and areas of concern for special protection
- identification of landmarks on the levee side for access to specific river areas
- review of boat launch conditions, dirt road access, size and condition of docks, presence of trees to the waterline, etc.

The aerial videotape surveys of the major waterways began in 1992 with a demonstration tape of the Mississippi River between Baton Rouge and Plaquemine. This effort illustrated the potential usefulness of video surveys to oil spill response planning along the Mississippi River. The tape was produced for the Exxon LMR ELIRT at Baton Rouge.

The demonstration tape was followed by another MSR survey in 1994, taken by ship instead of helicopter. Exxon USA Baton Rouge arranged for us to stay aboard the *Louisiana Responder* as the Marine Spill Response Corporation took the vessel for a demonstration cruise along the MSR from Venice to Baton Rouge. We were allowed to test our video equipment from a different platform, and set up a very comfortable station on the 4th deck, roughly 40 feet above the water, underneath the overhang of the pilot house. The equipment consisted of the video camera on a tripod; and the recorder, monitor, and GPS translator unit on a small table. This was a very stable platform to work from; only minor adjustments were needed to adjust the position of the camera.

Unfortunately, there were a few drawbacks to the method used in this survey. First of all, filming was tied to the ship's schedule. Sometimes the ship cruised at night for a morning appearance, and large areas of the shoreline were missed. However, despite the ship's rapid cruising speed and the significant gaps in recorded shoreline footage, we still acquired 11 two hour tapes. A second drawback involved our position 40 feet above the river, which did not allow much of a view past the trees along the shore and levee. Third, the system was stationed on the right side instead of our usual left, and the imagery was confusing to use. We also had to film whenever the ship was underway, regardless of lighting conditions or weather.

In February 1995, we conducted a survey of the Gulf Intracoastal Waterway. This survey was funded by a consortium of the Minerals Management Service, the Coastal Marine Institute, and the Marine Spill Response Corporation. Coverage was from Baton Rouge to New Orleans via the Morgan City to Port Allen Alternate Route and from New Orleans to the Houston Ship Channel.

In November 1996, we conducted our most recent major waterway survey, again of the Mississippi River. This time the survey was conducted by helicopter with our traditional method. This survey included continuous imagery of both banks from Baton Rouge to the Gulf of Mexico, including the three main distributaries used for navigation: Pass au Loutre, South Pass, and Southwest Pass. This survey generated the five two hour tapes used in this project.

2.0 Methodology

2.1 Video Acquisition

The 1996 survey was conducted from a Bell 206 Jetranger III helicopter (Industrial Helicopters, Inc.). A Panasonic WV-F250 color video camera connected to a Panasonic AG-7450 Super-VHS portable video cassette recorder was used to record the imagery on analog videotapes. An integrated communication system devised to minimize wind and helicopter noise recorded the onboard communications between crew members. A Trimble Pathfinder Professional unit provided GPS information. The GPS data were recorded on the image through a Compix LP701 LoranPlot Cation System. The GPS was also downloaded to a computer and archived for GIS use. Power was supplied directly from the helicopter auxiliary. The camera head was supported by a Greenlee Space Ace camera mount to minimize helicopter vibration and to keep the camera operator from becoming fatigued.

The survey was conducted at an altitude of approximately 200 ft. and a speed of 40-60 knots. The flight path paralleled the river bank as much as possible to provide continuous oblique imagery. Overlap footage was acquired at each tape change or pause to insure that there were no omissions in the coverage. The camera is always operated on the left side of the helicopter so that the shoreline data is acquired from left to right, and corresponds to the typical buttons on a video player. That way, fast-forward speeds the viewer virtually to the right in the direction of the fast-forward arrows, and rewind speeds the viewer backwards to the left. This seemingly minor point helps reduce confusion when using the data.

We typically use an onboard video crew of three. The camera operator sits in the seat on the floor facing out of the left rear door, and the flight technician/navigator sits behind the pilot on the right side of the helicopter. The flight tech has to navigate, operate the GPS unit, monitor the video image, and keep notes on the flight. The third person sits in the copilot's seat on the left of the helicopter to take 35mm slides, and to help navigate and pass information to the pilot in-flight (Figure 2).

Figure 2. The camera operator sits in the seat on the floor facing out of the helicopter's left rear door (left), and the flight technician /navigator sits behind the pilot (right).

The audio commentary on the DVD is the original field commentary from the film crew aboard the helicopter. It has only been lightly edited to remove location information that was in error, or to insert information that might be useful. The references made to "tape number" or "beginning" or "end of tape" on the audio refer to the original video tapes. The pilot could isolate himself for radio transmission so that these were not recorded other than as interference on the video image.

2.2 Data Conversion

Most of the basic groundwork was done for the digital aspects of this project during the previous, 2001-2002 Oil Spill Research & Development Program project, entitled Digital Access to Aerial Videotape Survey Data. Methods were explored for conversion of the analog video data to digital video (DV); and for squeezing that data onto as few DVDs as possible. A simple indexing system was developed for accessing imagery along a single, continuous shoreline. Video segments and links were based on simple geographic units. Seven videotapes and close to 10 hours of coastal video imagery were sorted onto eight DVDs and presented in one slim binder.

We intended for the current project to be based upon the working methodology from the 2001 project. However, the Mississippi River is a two-shoreline system. Both banks needed to be linked so that either side could be cross checked for features and information. In addition, the video needed to be referenced by geography or by feature. Hence, a new methodology had to be established.

The Aerial Video Survey of the Lower Mississippi River Year One Report used existing 1996 data from five two hour videotapes. This included 235 river miles plus 60 distributary miles, doubled for both banks. This resulted in 543 minutes, or nine hours and five minutes, of analog video that needed to be converted to digital video (DV), then indexed, and organized.

An Apple G4 733mHz computer with 80GB hard drive and a Super-drive DVD burner was used to handle the project. Two external hard drives with 120GB of digital storage each were purchased for backup and storage of the enormous digital video files. A Sony DVMC-DA2 media converter was used to convert analog video to DV.

The DV was brought into the computer in iMovie. Uncompressed, this generated around 109 GB of digital video. The DV was broken into clips that corresponded to the coverage of each Index Map. The video clips were edited in iMovie, and any labels on the video

imagery were added at this step. The DV was exported to QuickTime Pro, and then exported to mpeg2 format. Mpeg2 was required by the DVD Studio Pro software that was used to create and organize the DVDs. “Mpeg” is video’s version of “jpeg.” Mpeg2 format is a compression code that reduced the original 109 GB to roughly 24 GB. The resulting files could then be divided onto seven 4.7GB DVDs.

Maps, menus, and word pages used on the DVD were created with Adobe PhotoShop. The maps, menus, video tracks, and other assets were all organized and linked through DVD Studio Pro software. The organization and indexing system was based on river miles throughout. The location of river miles was established by plotting the latitude and longitude of each mile from the U.S. Army Corps of Engineers (USACE) 1998 Flood Maps⁴. Video imagery and specific features could be indexed through maps for the geographic area, or by lists for specific features.

3.0 Product Design

The product consists of a set of seven DVDs, with corresponding text, and appendices that may be useful in finding specific information. Appendix A lists the physical aspects of the DVDs, including lengths of video, file sizes, and the beginning and end points of each clip used in the DVDs. Appendix B contains a detailed list of items identified on these DVDs, with reference to the list’s arrangement.

Figure 3. The title page for the seven DVDs shows the geographic area and river miles of each DVD. The background image is from the OSRADP Digital Map of the State.

All imagery and information on the DVDs are organized by river mile and Left Descending Bank (LDB) or Right Descending Bank (RDB), using the time code provided by the GPS unit to reference the video imagery. When there is a choice, the LDB side is set as the default. Each line of the table in Appendix B represents a “marker” that has been linked to something else at least once on the DVDs.

The title page for the DVDs of the 1996 Mississippi River acts as the table of contents for choosing which DVD is needed. Between 30 and 40 miles of the river, including both banks, fit on one DVD. The title page also offers links to information pages on the sponsor (OSRADP), the project, or the project developers (LSU). The DVD has been set to automatically cycle through these information pages if nothing specific from the title is selected. The area contained on each DVD is highlighted by a red box, and its title and mile range are presented in larger lettering. The background image was taken from the OSRADP Digital Map of the State (Figure 3).

Each DVD has a main menu specific to the area contained on that DVD (Figure 4). From the main menu, further narrowing of the search area is possible. The various introduction pages act as “zooms” that allow the user to work toward a specific point. Each box on the Main Menu is linked to an Index Map, and represents the specific reach of the Mississippi River covered by that map. Each box is also labelled by the river miles covered by the specific Map Index. This allows a search by geography or general location information. The blue box on the Main Menu links to the first list of a series to allow a search by specific features.

Figure 4. The main menu for DVD Disc 2 with the map for Miles 195-189 highlighted with a red box. When selected, a map of this reach of the river will appear. Selecting the blue box pulls up the first of a series of specific feature lists.

The Index Maps are linked so that the user can scroll through them using the “previous” or “next” buttons to quickly locate an area by geography or river mile. There are usually five to six maps to a DVD. The first list that corresponds to the specific map coverage can be accessed by the blue “See List” button. A mile box selected from the map links directly to rolling video at the approximate location of that river mile, with the LDB as the default side (Figure 5). Links to the opposite side have been added at every mile and every major crossing so that access to both sides of the river is relatively easy (Figure 6). The base maps used for the Index Maps were modified from the 1998 Flood Control Maps of the Lower Mississippi River produced by the USACE. All river mile positions and features were plotted based on the latitude and longitude from these maps. The maps are always oriented so that north is toward the top of the image.

Figure 5. An example of an Index Map showing the various items that can be selected. Mile 190 is highlighted and would initiate video imagery at this point of the river when selected. The Left Descending Bank is the default side and is always presented first.

Figure 6. An image taken from the DVD showing the “Opposite Bank” button. Selecting this button links to the opposite side of the river at this approximate point, or at the other end of a major crossing such as a ferry or bridge.

The List of Features can be selected from the Main Menu or from the Index Map. There are anywhere from one to five lists that correspond to each Index Map, depending on the number of features that need to be listed. The lists can be scrolled through to search for

specific pipelines or other features. Features on both sides of the river are organized on the list based on river mile, heading downriver. Pipelines are shown in blue, and power lines are shown in red to help users rapidly recognize features. Both RDB and LDB features can be selected from the list by selecting from the column to the right or left of the feature on the computer or by scrolling down the list in the DVD player. Selected items are highlighted in yellow, and when activated, video is initiated at that feature or at the approximate area where the feature is listed (Figure 7). Not all features listed in the USACE maps could be identified or accurately located. The GPS data on the imagery were used to plot the location of items listed on the USACE flood maps, and then verified if possible by signs or other landscape features. Unidentified features are often linked with other items known to be in the general area and will show up as multiple highlighted bars on the list.

Figure 7. A list from DVD Disc 2 showing a feature highlighted in yellow. If selected, this feature would link directly to the video at Mile 190.0 on the Left Descending Bank of the river, either showing the feature or the general area where it should be. The double highlight means the features occur close together, or that one feature was not located.

4.0 Problems Encountered

Several problems were overcome in the course of this project.

4.1 Problem 1: Linking Both Sides

With a two shoreline system, it would be useful to be able to view both sides of the river for a spill or other incident. For consistency, the LDB was set up as the default side anytime video of an area was selected. Therefore, there had to be an easy way to access the RDB. The original plan was to use a function of the DVD Studio Pro software (DVDSP) called “angle.” Two clips of video of the same length could be linked, and the user would be able to jump between the two at any point. However, because of the river’s curves and the difficulty of maintaining constant ground-speed, imagery of the two banks was seldom equal in length. In addition, one side was recorded while transiting downriver and the other side was recorded going up-river. This was done because the camera is always on the left of the aircraft, and because of the need to minimize helicopter costs. The only place an angle jump would actually occur at the same spot on two clips was the very middle of each clip (Figure 8). We could reverse the RDB video digitally, but the audio would then be useless, and some of the movement in the video would be confusing. The audio contains a great deal of information that helped to verify or clarify what was being seen.

Figure 8. The LDB was flown down-river, and the RDB was flown up-river. The only place an angle jump would actually occur at the same spot on two clips was the very middle of each clip.

Therefore, we located every mile based on the GPS data recorded on the imagery and the latitude and longitude from the USACE maps. A cross-link was created between the two banks at every mile, and at every major crossing such as bridges, ferries, and aerial power lines. As a result, any time a “button” shows up at the top left-hand corner of the screen, the user can jump to the other side of the river at a corresponding point. A mile marker, and therefore a button, occurs every 40 to 60 seconds of video. The LDB button is black, and the RDB button is red to help when switching back and forth. We considered linking across the river at each pipeline, but implementing that measure would have exceeded the resources of this project. The 295 miles along the river already required that 590 individual buttons be created. Many of the pipelines were unmarked and crossed the river at angles, making identity verification beyond the scope of this project.

4.2 Problem 2: Locating and Identifying Features

The second problem arose because of discrepancies in the data. Most of the information on the lists was taken directly from the USACE 1998 flood maps and applied to 1996 video data. Two years made a difference as to where some of the navigation markers were located. In addition, some facilities weren't yet built in 1996 or were abandoned in 1998. Many pipelines did not have signs to mark their locations. Most of the signs that were visible could not be read from the helicopter's altitude, so verification was an issue. We tried to correlate the pipeline information from several other sources, but found that in many cases, the sources did not agree. In addition, pipeline ownership and use change so frequently, it was not clear which data should be used: 1996 for the video? 1998 for the maps? 2002 for the most recently updated information?

We recognized that the USACE dredges the river periodically and should know where all utilities cross, even if they don't know who they belong to. The USACE maps are also known and used by a widespread group of agencies. Therefore, we decided to use the information from the USACE maps unless we could be absolutely certain a correction was indicated. If there is time and funding in the future, we can change the data relatively easily to add or correct information. Pipelines were located by comparing the lat/long plotted from the map to the GPS data on the video image, with some help from mapped features, and an occasional sign. The links are set up to show the general area where each pipeline should be, as well as our best estimate as to which pipeline is being shown. Unfortunately, verification of facilities listed was also beyond the resources of this project. All features and locations should be considered approximate and not definitive (Figure 9).

Figure 9. The approximate location of specific pipelines on the video was established by comparing the latitude and longitude of the image to that of the published position on the USACE 1998 flood maps.

4.3 Problem 3: Image Location

In January/February 2003, we were finishing the fifth DVD of the intended seven DVD set. We were well ahead of schedule and looking toward the final product. An OSRADP representative and future user were invited to come review the product. They were impressed, but had many suggestions and questions. Although valuable, most of their ideas were beyond the scope and resources of this project. One suggestion stood out though, something we had overlooked by being too close to the data.

Although there were GPS navigation data on the bottom of each image, there was no way to know, intuitively, which area was being viewed once the video was running. And if the user had been switching from one bank to the other, it was easy to get confused as to which direction the user was viewing. In other words, even though users knew where they began, they couldn't always tell what they were viewing later unless they took the time to plot the latitude/longitude.

The solution was to add a label to the video with additional location information. To label the video meant going back to the original DV files, plotting the location of each point on the map, locating the video using the GPS data on the imagery, editing the DV files, reconverting to Quicktime and mpeg2, replacing all the video tracks in the almost finished DVD files, and relinking the thousands upon thousands of links. The original suggestion was to label every tenth of a mile. We compromised by labeling every half mile, and by including the LDB or RDB and an arrow indicating the direction of river flow. Since the location of each mile was an approximation anyway, based on the USACE maps, this system was deemed appropriate.

With these changes made, approximately every 20 to 30 seconds a label pops up next to the GPS data to show which side is being viewed, the approximate half-mile, and an arrow to show the direction of river flow. The arrow also shows that the miles will be counting down on the LDB as a “greater than sign” and up on the RDB as a “less than sign” (Figure 10).

Figure 10. An example of the label added to the video to help identify the area being viewed along the river. RDB or LDB shows which bank is being viewed, and the > or < shows the direction of the river flow toward the Gulf of Mexico.

4.4 Problem 4: Time Schedule Change

Because of the time needed to add labels to all of the video, the lack of additional funding for the labor involved, and other contracts running concurrently, the project schedule had to be severely altered. By the end of June, three of the seven DVDs were completed, with approximately three months of work still to be done. As a result, Year One deliverables were finished while Year Two was underway.

5.0 Year Two

Year Two will involve acquiring new video imagery of the Mississippi River above Baton Rouge to the Arkansas line. All new, up-to-date video of approximately 272 river miles will be added to the set. This will result in an additional seven to nine DVDs (Figure 11).

Figure 11. The estimated arrangements of DVDs to contain the 2003 aerial video imagery of the Mississippi River from Baton Rouge to the Arkansas/Louisiana state line.

When both years of the project are complete, the Louisiana portion of the Mississippi River from the Arkansas state line to the Gulf of Mexico will be organized and indexed on one set of DVDs, which will be stored in one slim binder. This should provide an excellent resource for anyone working along the Mississippi River.

6.0 DVD OPERATING INSTRUCTIONS

These DVDs can be operated in computers with the appropriate DVD drive or built-in DVD player, and in most DVD players. CD drives cannot play a DVD.

These DVDs contain no subtitles or angles. The original format is DVD-R General, 4.7GB, one-sided.


- “**bold**” indicates virtual buttons on the Computer DVD Player controller.
- [CAPITALS] indicates buttons on the DVD Video Player.
- “Name” indicates specific items found on the DVD screen.

6.1 Computer Operating Instructions

The DVDs that make up the 1996 Aerial Video Survey of the Lower Mississippi River from Baton Rouge to the Gulf of Mexico will play on computers that have a DVD-R drive. CD drives cannot play a DVD.

The following instructions apply to the Apple DVD Player. Other computer DVD players may vary from these instructions.

When a DVD is inserted into the computer DVD drive, the Apple DVD Player automatically opens. Make sure the “Controller” is in view, and that the “Viewer” is open and on screen (a large black screen). If these are not showing, go to “View” at the top of the screen to choose “Show Controller” and “Show Viewer” from the Apple DVD Player drop-down menu.

If the title screen does not appear automatically in the “Viewer”, press “**Play**” or (Othmane—need “play” symbol here from hardcopy)  on the “Controller.”

Choices are identified on the “Title Page” by moving the cursor across the screen with the mouse. Available choices will be highlighted on-screen by bolder writing, the appearance of a box and/or a change in box, text, or line color. Selectable areas will usually be within a box, text within a box, or on text indicated with a red arrow.

On the “Title Page,” only four choices are available:


- 1) The highlighted red box opens the “Main Menu” for the specific area on the DVD.
- 2) “Project Information” will display text with brief background information on the data.
- 3) “Louisiana State University” provides contact information on developers.
- 4) “Oil Spill Research and Development Program” provides contact information for the sponsor.

Click on highlighted choice. The red box illustrates the geographic extent of the Mississippi River covered by the current DVD. The river miles for that stretch of the river are included for further clarification. When the red box is selected, it opens the next screen or the “Main Menu.” After 45 seconds, if nothing is selected from the title screen, the DVD will automatically display the information page, then the OSRADP credits, the LSU credits, and stop on the Main Menu. Clicking the “Enter” key will click through these pages.

The “Main Menu” serves as an index to the maps and lists available to further narrow the search area. Disc 7 is the only DVD that requires submenus, because of the complexity of the Mississippi River distributaries. Each box outline on the Main Menu represents an “Index Map,” which can be used to search for data by geography, bends of the river, River Miles, or nearness to a particular location. The blue box on the Main Menu links to the first of a series of “Lists of Features,” which lists specific features such as utilities, facilities, and bridges that are directly linked to video at that location.

The “Index Maps” are linked and can be scrolled through by clicking “Enter.” Clickable items on the Index Maps are each river mile with a box, “Next” for the next map in the series (down-river), “Previous” for the previous map in the series (up-river), or “See List” for the first list that corresponds to the area covered by the Index Map. Selecting a box for the river mile links directly to the rolling video starting at that mile on the Left Descending Bank (LDB). If the Right Descending Bank (RDB) is desired, selecting the “Opposite Bank” button on the top left corner of the image jumps to the other side at the same mile.

The “Lists of Features” are linked and can be scrolled through by clicking “Enter.” Clickable items on the lists are any line that highlights in yellow, or the four buttons at the bottom of the image labeled “Previous (List),” “Main Menu,” “Map,” or “Next (List).” The “Map” is the Index Map that corresponds to the particular list of features being viewed. Selecting from the main body of the list will default to the LDB if there is a choice. To insure selecting the RDB, the column under “Right Descending Bank” with an “RDB” next to the item of interest should be used to select RDB footage. By moving the cursor over the list, highlighted lines will show which side of the river will be selected by highlighting either the LDB or RDB column.

The video footage or “Tracks” have markers placed at least a half a mile apart, or at every feature of interest for use with the “skip” or  buttons. This will rapidly skip through the video track to assist in finding a particular area or feature. Every half mile of the video image is labeled with LDB or RDB, the approximate mile, and an arrow to indicate the direction of river flow to the Gulf of Mexico. This arrow also indicates that the miles will be counting down on the LDB as a “greater than” sign and up on the RDB as a “less than” sign.


Pressing “**menu**” at any time will return to the “Main Menu” screen.
Pressing “**title**” at any time will return to the “Title” screen.


6.2 DVD Video Player (DVP) Operating Instructions

Not all DVD video players are compatible with the DVD-R format. The most updated information can be found at <http://www.apple.com/dvd/compatibility/>

“If your player is not on the list, that does not mean it is not compatible, only that [it has not been] tested yet.”

Follow the instructions that came with the DVP equipment.

The DVD should auto-play when inserted into the DVP. However, some DVPs may require you to push the [PLAY] or  button to initiate play.

Use the cursor buttons [/▶] or [▲/▼] to move between on-screen choices. Press [ENTER] or [SELECT] when the desired choice is highlighted. Available choices will be highlighted on-screen by bolder writing, the appearance of a box and/or a change in box, text, or line color. Selectable areas will usually be within a box, text within a box, or on text indicated with a red arrow.

On the “Title” screen, only four choices are available:

- 1) The highlighted red box opens the “Main Menu” for the specific area on the DVD.
- 2) “Project Information” will display text with brief background information on the data.
- 3) “Louisiana State University” provides contact information on developers.
- 4) “Oil Spill Research and Development Program” provides contact information for the sponsor.

Select when the chosen item is highlighted. The red box illustrates the geographic extent of the Mississippi River covered by the current DVD. The river miles are included for further clarification. When the red box is selected, it opens the next screen or the “Main Menu.” After 45 seconds, if nothing is selected from the title screen, the DVD will automatically display the information page, then the OSRADP credits, the LSU credits, and stop on the Main Menu. Clicking [ENTER] or [SELECT] will speed through these pages. Selecting [TITLE] will return to the title screen.

The “Main Menu” serves as an index to the maps and lists available to further narrow the search area. Disc 7 is the only DVD that requires submenus, because of the complexity of the Mississippi River distributaries. Each box-outline on the Main Menu represents an “Index Map” that can be used to search for data by geography, bends of the river, river miles, or nearness to a particular location. The blue box on the Main Menu links to the first of a series of “Lists of Features,” which lists specific features such as utilities, facilities, and bridges that are directly linked to video at that location.

The “Index Maps” are linked and can be scrolled through by clicking [ENTER] or [SELECT]. Selectable items on the Index Maps are each River Mile with a box, “Next” for the next map (down-river) in the series, “Previous” for the previous map (up-river) in

the series, or “See List” for the first list that corresponds to the area covered by the Index Map. Selecting a box for the river mile, links directly to the rolling video starting at that mile on the Left Descending Bank (LDB). If the Right Descending Bank (RDB) is desired, clicking [SELECT] or [ENTER] when the “Opposite Bank” button shows on the top left corner of the image, will jump to the other side at the same mile. The “Opposite Bank” button is black on the LDB and red on the RDB. Both sides highlight in yellow when selected.

The “Lists of Features” are linked and can be scrolled through by clicking [ENTER] or [SELECT]. Clickable items on the “Lists of Features” are any line of text that highlights in yellow, or the four buttons at the bottom of the image labeled “Previous (List),” “Main Menu,” “Map,” or “Next (List).” “Map” is the Index Map that corresponds to the particular list of features being viewed. The up/down [▲/▼] or left/right [◀/▶] cursors will scroll through the list of features to the “Next” list button at the bottom or to the “Previous” list at the top. Cursors to the right and left [◀/▶] will scroll through the four buttons at the bottom of the screen. Selecting from the main body or middle column of the list will default to the LDB video if there is a choice. To insure selecting the RDB, the column under “Right Descending Bank” with an “RDB” next to the item of interest should be used to select RDB footage. By moving the cursor up and down the list, highlighted lines will show which side of the river will be selected by highlighting either the LDB or RDB column. Some items will be linked to each other because they were physically close to each other on the river, or the location of some items were approximations.

The video footage or “Tracks” have markers placed at least a half a mile apart, or at every feature of interest for use with the [SKIP] or [◀/▶] ; ■ N L @ N 2 1 / 3 - 5 / 8 □ 1 / 8 5 / 8 1 / 8 % □ □ L F % u € H T □ L F R s N 2 3 1 0 % 1 / 3 2 1 / 3 € - L F N L @ 1 / 3 F R 3 / 8 1 / 8 1 H T R s ⚡ buttons. This will rapidly skip through the video track to assist in finding a particular area or feature. Every half mile of the video image is labeled with LDB or RDB, the approximate mile, and an arrow to indicate the direction of river flow to the Gulf of Mexico. This arrow also indicates that the miles will be counting down on the LDB as a “greater than” sign and up on the RDB as a “less than” sign. If nothing else is selected, video will run continuously from the point of initiation until it reaches the end of the LDB, then it will jump to the RDB, and finally to the Main Menu. Appendix B may be of some use when trying to locate specific features. This appendix lists everything identified and where it is found on specific disks.

Pressing [MENU] at any time will return to the “Main Menu” screen.

Pressing [TITLE] at any time will return to the “Title” screen.

Pressing [RETURN] usually will return to the “Main Menu”, but will go from a list or “track” to the corresponding “Index Map.”

Pressing [TRACK] at any time will start video at the beginning of the DVD on the LDB.

Many DVPs have a [ZOOM] button that focuses on the center of the image at varying magnifications. This can be useful for viewing “close-ups” of some areas. However, some image quality is lost in this mode, and the GPS data on the bottom of the screen will no longer be visible.

Some DVD Players have various controls and different features that may work differently from those described here. The project DVDs are organized to accommodate most common controls. Experimentation with controls of the DVD Player can't hurt the DVDs and could reveal hidden short cuts for negotiating the various links within the DVD.

6.3 Care and Handling of Discs

Do not touch the surface of the disc. Handle by the edges or center only. Dirt, dust, scratches, fingerprints, or warped discs may cause the player to malfunction.

Clean surface of a disc with a soft dry cloth, moving from the center outwards. If necessary, use cloth dampened with water, but never use record cleaners, alcohol, anti-static agents, or any kind of solvent.

Do not damage the label side or place paper or adhesive on its surface.

Store discs in their cases or sleeves.

Do not put discs where they may be exposed to direct sunlight, or in a place where the temperature or humidity is high.

7.0 References

1992. Flood control and navigation maps of the Mississippi River. U.S. Army Corps of Engineers, Mississippi Valley Division. 153 15" x 22" maps.

1998. Flood control and navigation maps of the Mississippi River below Hannibal, Missouri to the Gulf of Mexico. 61st edition. U.S. Army Corps of Engineers, Mississippi Valley Division. 153 15" x 22" map plates + 16 sheets.

OSRADP. Louisiana GIS CD: A digital map of the state.

Sanders, Michael W. 1992. St. Francisville to Pilottown: The lower, lower Mississippi River. Harahan, Louisiana. Prepared under the direction of the President, Mississippi River Commission.

Westphal, K.A., Paulsell, R., Wilkins, J.G. 1998. Aerial videotape survey of the Mississippi River: Baton Rouge, Louisiana to the Gulf of Mexico - 1996. Louisiana State University, Baton Rouge, Louisiana. Coastal Geology Map Series No. 21; Major Inland Waterways Series No. 3. 67 pp; 5 2-hr videotapes.

8.0 1996 Aerial Videotape Survey of the Lower Mississippi River from Baton Rouge to the Gulf: Year One DVDs

Othmane— insert MSR96 Title2.jpg here.

The coverage of each DVD is indicated by the red box and its description. Use this illustration as a reference when selecting DVDs

9.0 Appendix A DVD Information Matrices

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10.0 Appendix B DVD River Information

Each line of the following table represents a marker and at least one link within the DVDs. This was the master list from which the DVDs were organized and linked. It is arranged in the order the video was acquired: 1) the Left Descending Bank from Baton Rouge to the Head of Passes, 2) the Mississippi River Distributaries including both RDB and LDB, and 3) the Right Descending Bank from the Head of Passes to Baton Rouge.

LEGEND

each listing in the log is a marker on the video tracks

blue text	= pipeline crossing
red text	= power crossing
~	= approximate location, could not identify exact location
?	= unsure of feature identity
mile>	= opposite bank link to opposite side of the river at this point
204.4 (.6)	= feature listed at mile 204.4, but actually location closer to mile 204.6
*	= included on List of Features
(sign)	= a sign was observed to verify the location of a pipeline or cable crossing (we weren't always so fortunate).
▼	= accessed by same link from List of Features
▲	

11.0 Appendix C
LSU Aerial Video Survey Archive