

MEMORANDUM THRU CEMVN-CD-LA, Area Engineer (Eilts)
CEMVN-CD-LA, Project Engineer (Brouillette)
CEMVN-CD-LA, Asst. Project Engineer (LeBlanc)
CEMVN-CD

FOR: C/ENGR DIV, Attn: CEMVN-ED-C

SUBJECT: Narrative Completion Report, Contract No. W912P8-06-C-0192, Calcasieu River and Pass, Maintenance Dredging, Approx. Mile 22.8, C/L Sta.1201+75 to Approx. Mile 5.0, C/L Sta. 260+00, including Devil's Elbow (Non-Continuous) and Coastal Wetlands Planning, Protections and Restoration Act, 8th Priority Project List, Sabine Refuge Marsh Creation Cycle 3 Project, CS-28-3, Cameron and Calcasieu Parishes, Louisiana

1. **SIGNIFICANT DATES/NUMBERS:**

Acknowledge of NTP: 22 September 2006
Commencement Date: 25 October 2006
Original Completion Date: 30 May 2007
Original Days on Contract: 250 Days
Revised Days on Contract: 255 Days
Revised Completion Date 4 June 2007 :
Date Completed: 29 August 2007
Original Contract Amount: \$ 14,162,500.00
Est Final Contract Amount: \$ 15,143,935.98

2. **PRIME CONTRACTOR/SUBCONTRACTOR**

Prime Contractor: Mike Hooks, Inc.
409 Mike Hooks Road
West Lake, Louisiana. 70669

Responsible for dredging of the Calcasieu River and Devil's Elbow at elevation - 42.0' MLG by 400' wide and for proper maintenance of disposal areas use on the project, including all upland disposal areas and the marsh creation site in Sabine NWR.. Work consisted of about 83% of the contract amount.

Subcontractor: Dean Equipment
2240 Peters Road
Harvey, Louisiana 70058

Responsible for the dike construction and installation of spill boxes, with training and retaining dikes. Work was performed in Disposal Areas 12-B, #11, #13, #22, #23, "D", "E", "H", and "M" and Sabine Cycle 3 site. Work consisted of about 17 % of the contract amount.

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3. ITEMS OF WORK:

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount	Amount Earned
0001	Mob & Demob	1	LS		\$2,190,000.00	\$2,190,000.00
0002	Dredging-Main Channel					
	AA First 2,850,000	2,850,000	CY	\$ 2.60	\$7,410,000.00	\$7,410,000.00
	AB All Over 2,850,000	500,000	CY	\$ 0.50	\$ 250,000.00	\$ 250,000.00
		+ 709,504	CY	(Over-run)		+ \$ 354,752.00
0003	Dredging – Devil’s Elbow					
	AA. First 585,000	585,000	CY	\$ 2.90	\$ 1,696,500.00	\$ 1,696,500.00
	AB All Over 585,000	103,000	CY	\$ 1.00	\$ 103,000.00	\$ 103,000.00
		+579,940	CY	(Over-run)		+ \$ 579,940.00
0004	Sabine National Wildlife Refuge Cycle 3 Dikes & Weir Construction	1	LS		\$260,000.00	\$260,000.00
0005	Sabine National Wildlife Refuge Cycle 2 Dike Construction Mod for Surveys in SNWR (CIN 004)	1	LS		\$253,000.00	\$253,000.00 + \$ 3,000.00
0006	All other Dike Construction (Upland)	1	LS		\$1,850,000.00	\$1,850,000.00
0007	Sabine National Wildlife Refuge Staging Areas	1	LS		\$150,000.00	\$150,000.00
0008	MOD on Clearing Disposal Area 11 (CIN001)		LS		\$ 43,743.98	+ \$ 43,743.98
CIN 003.	MOD on Disposal Area 13 Still Pending				\$???	<u>\$???</u>
Total Amount of Contract.....					\$ 15,143,935.98	

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4. EQUIPMENT USED ON THE PROJECT:

Prime Contractor: (Mike Hooks Inc.)

- 1- 27 inch Cutterhead- **DREDGE 32** – Diesel Powered Hydraulic
- 1 - Dredge Tenders “Elaine” “TY” “Capt. Hayes” “Linda L”
- 1- Crane Barge w/108 Link Belt Dragline
- 2- A-Framed Derrick Barges (Skaggit Barges)
- 2 –Skidder Barges
- 1- Welding Barge
- 2- Supply Barges
- 1 – Crane Barge w/3500 Manitowac Dragline
- 40,000’ of submergible pipeline
- 5,000’ of Shore pipe /5000’ Floating
- 1 - Work Skiff w/50 HP OB
- 1 – Survey Boat “Survey II” w/ 2 -125 HP OB
- 1 – Komatsu 150 Marsh Buggy, (Long Reach)

- 1 – 27 inch Cutterhead- Dredge **MIKE HOOKS** – Diesel Powered Hydraulic
- 3 – Dredge Tenders “Ryan” “Nicholas” “Nolan”
- 1 – Crane Barge w/98 Link Belt Dragline
- 2 – A- Framed Derrick Barges (Skaggit Barges)
- 2 – Supply Barges
- 2- Skidder Barges
- 1 – Welding Barge
- 1 – Work Skiff w/50 HP OB
- 1 – Survey Boat “Survey I” with 2- 125 HP/ OB
- 1 – Hitachi MX-150 Marsh Buggy Excavator
- 6,000 ‘of Floating Pipeline
- 6,000’ of Submergible Pipeline
- 3,000’ of Shore pipe

Subcontractor: (Dean Equipment)

- 2- 330 Caterpillar Long Reach Marsh Buggies
- 2 – 325 Caterpillar Long Reach Marsh Buggies
- 1-3400 Long Reach Link Belt Marsh Buggy
- 1 – 61PX Komatsu Dozer
- 2- Arco Buggy Transporters
- 1-D-6 Caterpillar Wide Track Dozer
- 1 – 61 Bucyrus Erie Dragline with mats
- 1-320 Caterpillar Short Reach Excavator
- 1-22 Caterpillar Short Reach Excavator
- 2-Air Boats/ 2-16’ Work Skiffs with 50 HP/OB
- 1-21’ Work skiff w/150 OB

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5. CONTRACT REQUIREMENTS:

The contract was for the removal of shoaled material in the Calcasieu Ship Channel from Mile 5.0, Station 260+00 to Station 892 +00, Mile 17.0 and for the channel at Mile 22.7, Station 1201+75 to Station 1159+88, Mile 22.0. Also Station 0+00 to Station 152+45, in Devil's Elbow, which includes the turning basin.

The project depth was -42.0' MLG by 400' wide with 1 on 2.5 Slopes in the Main Channel and Devil's Elbow. In the reach from Station 858+50 to Station 874+50, vicinity of Mile 16.8, the channel width narrowed to 350 feet.

The plans and specs also included provisions for the excavation of two navigation gaps at Stations 426+00 and 287+00. No dredging was necessary since existing depths and widths were below the required template.

6. ITEMS OF WORK:

Item 0001. Mobilization and Demobilization: The subcontractor, Dean Equipment, commenced dike construction in Disposal Area "H", located on the Lower Limits on 25 October 2006. The prime contractor's **Dredge 32** mobilized on the Lower Limits on 18 December 2006. The prime contractor was paid 80% upon arrival of **Dredge 32** and the remaining 20 percent was paid upon demobilization of the Dredge **Mike Hooks** on 29 August 2007. Under this item, the prime contractor was paid \$2,190,000.00.

Item 0002AA. Dredging Main Channel (First 2,850,000 Cys). The prime contractor started work in the main channel on the lower limits with the **Dredge 32** on 18 December 2006. The Dredge excavated materials from Station 417+30, heading downstream to Station 300+00, placing materials in disposal area "H". No dredging was necessary from Station 300+00 to Station 260+00. The Dredge reached Station 300+00 and then turned around and resumed work at Station 380+00, working towards the pipelines at Station 382+53; which had been skipped while heading downstream..

The Dredge reached Station 435+00 and was 5,000 feet of pipeline short in order to pump into Sabine Refuge; so the Dredge continued digging upstream using Disposal Area H. Once the pipeline arrived, the Dredge started pumping in Sabine National Refuge in Cycle 3 Disposal on 12 Feb. The reach from Station 435+00 to Station 565+00 was designated for placement in Sabine NWR.

The reach from Station 260+00, Mile 5.0 to Station 530+00, Mile10.0, had to be completed by 1 March 2007 because of the oyster beds in the area. Work in this reach was completed on 3 March with an extension granted by Wildlife and Fisheries. No work was to be done in these reaches from 1 March to 30 June.

Pumping in Sabine NWR commenced on 12 February and was completed on 31 March 2007. The **Dredge 32** had to go to Station 625+00, Mile 11.8, in order to provide the yardage from the original limits of work for Sabine NWR.

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Approval for the change on the reach to be placed in Sabine Cycle 3 site was made after discussions with NOD and other resource agencies. Upon completion of work in Sabine NWR, the **Dredge 32** continued pumping in the channel from Station 625+00, Mile 11.8, to Station 892+00, Mile 17.0, in the main channel. The Dredge continued placing material in Disposal Areas 22, 23, "D" and "E" completing the lower reach.

Item 0002AB. Dredging Main Channel (All Over 2,850,000 Cys – Quantity 500,000 Cys). The **Dredge 32** completed the reach of work from Station 892+00, Mile 17.0 to Station 260+00, Mile 5.0, on 28 June 2007. The Dredge **Mike Hooks** completed the upper reach, from Station 1201+75, Mile 22.7 to Station 1159+88, Mile 22.0, in the Main Channel while doing Devil's Elbow on 29 August 2007.

There was a 709,504 cubic yards over-run under this item. Total dredged was 1,209,504 CYs at \$0.50 per yard which totaled to \$ 604,752.00.

Item 0003AA. Dredging Devil's Elbow (First 585,000 Cys). The Dredge **MIKE HOOKS** mobilized on the upper limits, Mile 22.7, on 27 May 2007. The Dredge started in the main channel at Station 1201+75l and eventually working in the flair in Devil's Elbow. The Dredge worked at the intersection using Disposal Area 12-B. Dredge worked to Station 45+00 temporarily skipping area west of the Chevron Pipeline up to Station 81+00. The Dredge then continued from Station 84+00 to Station 151+45 in the turning basin, completing this area on 21 July. The Dredge resumed work at Station 84+00, digging over the Chevron pipeline and continuing west, using Disposal Area 12-B. On 28 July, the Dredge switched over to Disposal Area 13.

Under this item, the prime contractor was paid \$ 2.90 per yard, which amounted to \$1,696,500.00.

Item 0003.AB Dredging Devil's Elbow (All Over 585,000 Cys – Quantity 103,000 Cys). Due to an over-run in Devil's Elbow, the prime contractor was paid \$ 1.00 per yard for the additional 579,940 cubic yards. Total dredged was 682,940 CYs which amounted to \$ 682,940.00.

Item 0004. Sabine National Wildlife Cycle 3 Dikes and Weir Construction. The prime contractor was paid a Lump Sum of \$260,000.00 under this item. The subcontractor, Dean equipment mobilized 2 marsh buggies (330 Cat, 325 Cat, and 3400 Link belt long reach marsh buggies) with 2 air boats. Work started on 20 December 2006 and was completed on 28 January 2007. As the dike construction progressed, percentages were paid of the Lump Sump Price.

Item 0005 Sabine National Wildlife Cycle 2 Dike Construction: The prime contractor was paid a Lump Sump of \$ 253,000.00. The subcontractor, Dean Equipment, used two marsh buggies to do the work. (325 Caterpillar and 3400 Link Belt). Two Airboats were also used for transportation. Work commenced on 29 Jan 2007 and was completed on 31 March 2007 Contractor was paid percentages of the Lump Sum as the work progressed. Dikes were built according to X and Y co-ordinates shown on the contract drawings.

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A modification was issued for survey work for a proposed pipeline route for future access to Sabine NWR in the amount of \$ 3,000.00. (CIN 004)

Item 0006. All Other Dike Construction (Upland) The prime contractor was paid a Lump Sum price of \$ 1,850,000.00 under this item. Work began in Disposal Area “H” on 25 October, 2006 and was completed on 21 April 2007 in Disposal Area 12-B. The subcontractor, Dean Equipment was responsible for the construction of dikes in Disposal Areas “H” , “M” , 22, 23, D, E, & 12 B. The prime contractor picked the areas from Corps established disposal areas available along the main channel in the Calcasieu River. The prime contractor chose to build these areas. Disposal Area 13 had to be built under a modification which is still pending, due to the over-run in Devil’s Elbow. (CINoo3)

Item 0007. Sabine National Wildlife Refuge Staging Area. The prime contractor was paid a Lump Sum price of \$ 150,000.00 for two staging areas used. The upper staging area was used only by the subcontractor for an access landing for the two air boats used on the job. The main staging area used was Staging Area 2 which was located at the West Cove Canal structure. The north side of the area was used to assembly the 14,000 feet of pipeline which was used to reach the Cycle 3 Disposal Site. The south side of the staging area was used for dredge crew parking and boat landing. A contractor used limestone to dress the areas where the pipe line staging area was on the north side of Staging Area 2, the south side of Staging Area 2, and in Staging Area 1, which was also used for parking and access for the air boats.

Item 0008. Clearing Disposal Area 11. Contractor was paid a Lump Sump Price of \$ 43,743.98 for the clearing of trees in Disposal Area 11. This would prevent any nesting area or rookery in the disposal area, which would be needed for future projects. The subcontractor used a 330 Cat. (long reach) marsh buggy to perform the work. This was a modification under CIN 001.

7. DISPOSAL AREAS: (Upland Disposal Sites)

There were several disposal areas used throughout the project. These were the ones that the prime contractor elected to build, which would be at his convenience for dredge disposal operations. They were Disposal Area “H” “M” 22- 23-D -E and 12-B. These disposal area were all paid under item 0006. Disposal Area Construction, (Upland Disposals). Sabine Refuge Cycle 3 and 2 Dikes were paid under Items 0004 and 0005. The following disposal areas were used on the project..

Disposal Area “H” was the first one used when the dredging commenced. This disposal area is located between Mile 9.1 to Mile 8.2, Calcasieu River on right descending bank; south of the West Cove Canal, which is part of Sabine National Wildlife Refuge. Approximately 1,102,740 gross cubic yards were pumped in the area; with shore connections at Stations 441+00, 444+00, and 493+00. The reach of work from Station 595+00 to Station 300+00 was pumped in the area. The dredge encountered much sand from Station 417+00 to 300+00; this filled south end of the area, almost to retaining levee height. There was a dike failure around Station 435+00 on the channel side; however was no threat of any material returning to the channel.

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The channel side slope of the disposal area dike slide into the river. The berms and slopes are impacted daily by ship traffic making waves causing erosion along the shoreline. The prime contractor used 5,260 feet of floating pipeline, 12,200 feet of sub-line, and 500 feet of shoreline to reach the area. Material from Station 300+00 to Station 484+00 was pumped in to this disposal area.

Disposal Area "M". Dikes for the area were constructed but the disposal area was not used. The prime contractor didn't have enough pipe line to reach the area when the **Dredge 32** commenced operations on 18 December. Then later, the prime contractor found that there was no required dredging on the lower reach from Station 300+00 to 260+00. (See Problems encountered) This disposal area is located around Station 260+00 to Station 200+00, Mile 3.8 to Mile 5.0 on left descending bank of Calcasieu River.

Disposal Area #22 was also used by the **Dredge 32**. It is located at Mile 16.8, Station 875+00 to Mile 17.6, Station 925+00, on the left descending bank along the Calcasieu River. Only 376,815 gross cubic yards were pumped in the area. There was a dike failure on the north east side along Calcasieu Lake. Very little material was lost, because it was mostly clear water that was impounded in the far north corner of the disposal area. Dredged material from the channel from Station 892+00 to Station 856+00 was pumped into this area; with a shore connection at Station 875+00. The weir was located at Station 905+50 along the main channel. Approximately 2,700 feet of floating pipeline and 920 feet of shoreline were used to reach this area. The contractor was required to make dike repairs to the failure area to prevent loss of water or material from the area.

Disposal Area # 23 was another area used. Approximately 414,944 gross cubic yards of materials were pumped in the area from Station 856+00 to Station 825+00 in the ship channel. It is located just south of Disposal Area #22 from Station to Station 873+00, Mile 16.8 to Station 825+00, Mile 15.8 on the left descending bank. It adjoins Disposal Area "D". A shoreline connection was located at Station 873+70 with the weir at Station 825+00. Approximately 4,480 feet of floating pipeline and 1,320 feet of shoreline was used to reach the area.

Disposal Area "D" adjoins Disposal Area 23 on the south end. It is located on the left descending bank from Station 825+00, Mile 15.8 to Station 710+00, Mile 13.3. Approximately 641,226 gross cubic yards were pumped into this area. Material from Station 825+00 to Station 745+00 in the main channel was pumped into this area. Approximately 4,250 feet of floating pipeline, 1,500 feet of sub-line, and 300 feet of shoreline was used to reach the area. The shore connection was located in the far upstream corner at Station 825+50 with the weir at Station 762+60. A shoreline was also placed at Station 733+00 for a short period. There was a dike failure on the back slide of the disposal area, on the Lake Calcasieu side. The retaining dike was relocated and repaired prior to any pumping in the area. No other problem occurred, once pumping operations began.

Disposal Area "E" joins Disposal Area "D" on the south side, separated from "D" by a dike separating the two cells, at Station 710+00. The disposal area reaches from Station 710+00, Mile 13.3 to Station 648+00, Mile 12.0, on the left descending bank.

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The shore connections were located at Stations 657+00 and 709+00. The weir was located at Station 671+50 along the main channel. Material from Station 745+00 to Station 625+00 was pumped into this disposal area. Approximately 769,689 gross cubic yards were pumped into this area. Approximately 4,000 feet of floating pipeline, 1,000 feet of sub-line, and 660 feet of shoreline was used to reach the area.

Disposal Area 12-B. This disposal area was used for Devil's Elbow. It is located just upstream of Devil's Elbow and Main Channel, Mile 22.5. Approximately 1,223,470 gross cubic yards were pumped into this disposal area. There were 3 shoreline connections used to reach the disposal area. One was located at Station 1203+85, along the main channel; the other two were located at Station 16+50 and Station 60+00, in Devil's Elbow. Material from the main channel from Station 1201+75 to Station 1180+00 was deposited in this disposal area. Also material from the upper part of the intersection of Devil's Elbow and the main channel from Station 14+00 to Station 45+00; then from Station 61+00 to Station 150+45 in the turning basin, was deposited in this disposal area.. The weir was located on the far northwest corner along the main channel at Station 1282+50. Dike failure, prior to pumping, in the northeast corner created extra work and the dike had to be relocated in the area.

Disposal Area 13 was used for the remaining material dredged in the main channel from Station 1184+00 to Station 1160+00. Also in Devil's Elbow from Station -15+00 to Station 14+00 and from Station 45+00 to Station 61+00. Approximately 504,680 gross cubic yards were pumped in this area. A shore Connection was installed at Station 36+80 in Devil's Elbow. The weir was located at Station 62+50 also in Devil's Elbow. Approximately 4,500 feet of floating pipeline, 2,860 feet of sub-line, and 200 feet of shore pipe was used to reach the area.

Sabine NWR Cycle 3 Disposal Site was located adjacent to Brown's Lake, as shown in as-builts Drawings on page 11 of 15. Prior to pumping, retaining dikes were constructed to elevation +6.5 by the subcontractor. The over-flow weir, approximately 8,000 feet, was constructed to elevation +3.5 MLG. Dikes were constructed from USCE furnished co-ordinates.

Approximately 828,767 gross cubic yards of material was pumped into the area. The effluent was pumped to elevation +4.2 MLG at the end of discharge pipe. The material tapered off to elevation +2.6, with the slurry reaching + 3.2 MLG in the far northwest corner. Material from the reaches in the main channel from Station 484+00 to Station 624+00 was pumped into this area. The original area of the main channel from Station 435+00 to Station 565+00 was revised. (See Item 14- Problems encountered.)

During the pumping operations in this area, 6 staff gages were maintained throughout the pumping cycle. These gages were monitored from 12 February through 31 March 2007. There was no pumping in the disposal area from 23 February to 3 March, due to the dredge encountering sand, which was undesirable for marsh creation.

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Approximately 41,470 feet of some floating and some submergible pipeline was used to reach the area from the ship channel. The pipe line route was from the main channel, through the West Cove Canal; around the control structure, under Highway 27, though the failed freshwater impoundment area, and into the Cycle 3 Disposal site. Approximately 800 feet of shore pipe was added at the end of the discharge in the disposal area.

Once all of the pumping was completed in Cycle 3 Disposal, the over-flow weir was breached every 500 feet to elevation +3.0 MLG as requested by the Sabine NWR personnel .

8. PIPELINE & UTILITY CROSSING ON PROJECT:

The following pipelines were on the project. A pipeline representative was aboard the dredge during its operations over the pipelines. The pipelines and utility crossings near Highway 27 were not excavated. However owners were contacted during the work over the submerged lines, while doing work in Sabine National Wildlife Refuge. A sunken object in Devil’s Elbow was encountered. See Below... Believe to be a steel piling, which was reported on earlier contracts.

<u>Utility or Pipeline</u>	<u>Approximate Station or Location</u>	<u>Elevation (MLG)</u>	<u>Name & Address of Owners</u>
6-inch Oil P/L	Sta. 939+40 (Main Channel)	48.0’ MLG	Gulfport Energy Corp. P.O. Box 331 Hackberry, LA 70645 Mrs. Marlene Landry 337-762-3388
36-inch Gas P/L	Sta. 424+72 (Main Channel)	-50.0’ MLG	Natural Gas Pipeline Co. of America Route 1, Box 224 Gueydan, LA 70542 Mr. Eugene Thim (318)774-5975
30-inch Gas P/L	Sta. 424+24 (Main Channel)	-55.0’ MLG	
12-inch Gas P/L	Sta. 382+53 (Main Channel)	-50.0’ MLG	Columbia Gulf 1622 S. Lake Arthur Road Jennings, LA Miss Jody Faulk (318)824-3592
6-inch Gas P/L	Sta. 81+99 (Devil’s Elbow)	-55.0’ MLG	Chevron Pipeline Co. (Formerly Texaco) Environmental & Technical Services 4800 Fournace Place Bellaire, Texas 77401 (713) 432-3595 (832) 978-0739

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Utility or Pipeline	Approximate Station or Location	Elevation (MLG)	Name & Address of Owners
12-Water Line	West of Hwy 27 (Approx. 5’ off Hwy Edge) Approx. 3-4’ below natural ground surface		Cameron Water District Mr. George Bailey (337) 478-1615 (Office) or (337)496-1980 (Cell)
Telephone Cable Fiber Optic Telephone Cable Copper Wire	East of and adjacent to Hwy 27 (Approx. 50’ off Hwy Edge) Approx. 40’ below ground surface		Cameron Comms. 153 West Dugas Road Sulphur, LA 70665 Mr. Robert Bult (337)583-8312
Overhead Powerline 16.2Kv	Approx. 8’ east of Low Sag Elev. West of Hwy 27 Approx. 25’ above ground surface		Jefferson Davis Elec Cameron Office Mr. Mike Johnson (337)775-5332(Office) (337)775-9311(Cell) (337)490-0518 (Pager)
Overhead Powerline 16.2 Kv	Approx. 50’ east of East shoulder of Hwy 27	Low Sag, Elv. Approx 25’ Above ground Surface	Entergy Mr. Dudley Clark (337)431-6110 or Mr. Doug Wilburn (337) 431-6131
Sunken Object (Unknown) (Believe to be a steel piling)	Sta. 144+50 Range 800 in (Evil’s Elbow Turning Co-ordinates)	Encountered at Elev. -42.0’ MLG	Possible Owner TTSI
	X- 2663280.60 Y- 589798.32		

9. TIME EXTENSIONS/LIQUIDATED DAMAGES

The original time period for completion of contract work was 250 days. The contract lasted 341 days. The contractor was granted 5 extra days for weather. Work was completed 86 days after the revised completion date. Time extensions for the overrun in dredge quantities for the Main Channel and Devil’s Elbow are being evaluated to determine whether liquidated damages will be assessed..

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10. QUALITY CONTROL/QUALITY ASSURANCE:

Quality Control was administered by the prime and the subcontractor, and was considered to be Satisfactory. The prime and the subcontractor submitted Quality Control Reports on the daily basis. The prime also submitted Eng Form 4267 on the daily basis during the two dredges operations. The reports with limited information were used by the project inspector to construct the Daily Log of Construction.

A Mutual-Understanding Meeting was held by COE with the prime and subcontractor, prior to commencing work on the project. The Three Phase Inspection was conducted throughout the duration of the project. A Preparatory Meeting was conducted prior to commencement of each item of work followed by an Initial Meeting, once the work started. Follow-up inspections were conducted daily as the work progressed. The Quality Assurance was administered by the project inspector on the site.

11. SURVEYS:

All surveys taken on the project used GPS. Government established co-ordinates points from the Contract drawings were provided to the prime contractor.

Cycle 3, Disposal Area surveys were taken prior to pumping in Sabine National Wildlife Refuge. Upon completion of pumping operations in SNWR, final surveys were taken. On Cycle 2 Disposal, before and after surveys of the constructed dike were taken. A profile was taken of the West Cove Canal, before and after all work was completed.

Surveys of upland disposal area dikes were taken prior to pumping in each area. X-sections were taken of the constructed dike, every 500 feet and a center line profile of the dike was taken every 50 feet.

Dredging Surveys, before and after, were taken by the prime contractor’s survey party. All surveys were witnessed by the project inspector on the site. Surveys of dikes in disposal areas were periodically verified by the site inspector.

The project control gage for the lower Calcasieu, from Station 892+00, Mile 17.0 to Station 260+00, Mile 5.0 was at a Staff Gage set at Davis Seafood, boat launch. . (Formally old American Oil Docks). The control gage for work in the Vicinity of Mile 22.5, Devil’s Elbow and the Main Channel was taken from the Staff gage at Calcasieu Lock west gage. A correction of +0.23 was applied to the Hackberry Gage at Davis Seafood.

Work in Sabine National Refuge, for Cycle 2 and 3 Dikes. The elevation was taken from the PBM list NGVD and NAVD 88 elevation for “Lost” Monument; located in the far west corner of the Cycle 3 Dikes.. All surveys were sent to the Lafayette Area Office, and later forwarded to New Orleans District.

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12. CHANNEL BOTTOM GRAB SAMPLES:

Grab Samples were taken prior to dredging in 4,000 intervals throughout the project. Samples were collected in 5 gallon buckets and delivered to New Orleans District within 96 hours after taking them. The prime contractor was responsible for the safe and timely delivery of the samples. Prior to leaving project; samples were checked by the project inspector, documented and forwarded to New Orleans District Lab. On this project a total of 24 Samples were taken.

13. WATER TESTING:

Water Sampling was taken every four hours at the spill boxes of each upland disposal area used, by the prime contractor. Samples were taken once the discharge water started flowing out of the spill boxes. Test was taken periodically by the project inspector. Testing methods used were the turbidity test and the suspended solid test.

14. MODIFICATIONS/CLAIMS:

There were several modifications on this project. Listed below are the mods on the project.

Modification CIN-001, for funding for clearing in Disposal Area 11, which amounted to \$ 43,743.98.

Modification, CIN-002, for funding for additional work in Disposal Area 12-B. This modification is still pending.

Modification CIN-003. for funding for the construction of an additional Disposal Area; Disposal Area #13, due to the over-run in Devil’s Elbow. This modification is still pending.

Modification CIN -004. for additional surveys in Sabine National Wildlife Refuge of proposed Pipeline route for future projects which amounted to \$ 3,000.00.

TE-001 was for 5 extra days added to contract due to weather delays

FM-001. An additional + \$ 969,627.50 for over-run in Main Channel and Devil’s Elbow.

VEQ-001 A change in the estimate quantities reducing final quantities to -\$ 34,935.50

The prime contractor plans on submitting a claim for the perceived excessive time lost due to ship traffic. The *Dredge 32* lost 558:40 hours to ship traffic. The Dredge *MIKE HOOKS* lost 262:05 hours to ship traffic while working on the project.

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15. ENVIRONMENTAL QUALITY CONTROL:

The prime and the subcontractor's concern towards Environmental Quality Control was Satisfactory. The prime and the subcontractor's authorized representatives made daily inspections. Upon completion of work in each disposal area, and dredged areas; visual inspections were conducted by the project inspector and the prime contractor. No evidence of any trash, equipment, or debris was left behind. There was no pollution at any time. All oils were pumped in containers and brought to prime contractor's yard for proper disposal. All garbage was put in dumpsters on shore. Very strict rules were applied to equipment working in Sabine National refuge. There were no violations. Inspections were conducted by the prime contractor's Quality Control Representative on the daily basis. All disposal areas were drained as much as possible, prior to leaving the site in regards to vector control. All boards in weirs were removed to the material level.

16. PROBLEMS ENCOUNTERED:

The **Dredge 32** arrived on the project without enough pipe to start pumping in SNWR once within the limits from Station 435+00 to Station 565+00. Material from Station 484+00 to Station 435+00 had to be pumped in Disposal Area "H". The reach from Station 565+00 to Station 260+00 had to be pumped by 1 March, due to the oyster beds in the area. The contractor had to get an extension on the deadline date and completed dredging that reach on 3 March.

The Dredge was on 40,000 feet of pipeline in SNWR Cycle 3 Disposal. With the long pipe line, the **Dredge 32's** pumping capability was minimized. The contractor added a nozzle, reducing the discharge to 20 inches instead of 27 inches. This created more velocity at the end of the discharge, which helped move the heavier material. The dredge's daily production was lower than expected. No booster was used; however, it would have helped for such a long distance.

Due to the late arrival of the pipeline, this caused the dredging limits for SNWR to be revised. The dredge did pump from Station 494+00 to Station 484+00, which was part of the original limits for disposal in SNWR. The dredge encountered too much sand, instead of the fine silty-sand which was a valuable tool in the marsh creation. No dredging past Station 484+00, heading downstream, was pumped in the Cycle 3 disposal site.

Disposal Area #13 had to be constructed due to the over-run in Devil's Elbow. A modification is still pending. (CIN -003)

Cycle 2 Dikes were built in the wrong place on the extreme east side. The dikes were built using COE co-ordinates furnished to the subcontractor. See Page 12 of 15 on As-Built drawings showing more details.

Contractor built Disposal Area "M" and never used the area. This was poor planning on the prime contractor's part. Drawings show limits of work from Station 260+00, Mile 5.0, going upstream. There was no dredging required, according to preliminary surveys, from Station 260+00 to Station 300+00.

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The contractor did not use M, which was unnecessary cost to contractor. If the contractor would Have had enough pipe available upon commencement of dredging, some material which was placed in Disposal Area “H” could have been placed in area “M”.

The two Dredges used on the project were hindered by ship traffic. Some days has much as 6 hours per day was lost from Ship Traffic. Contractor plans on putting a claim for the perceived excessive time lost during dredging operations..

The dredge’s production was below average. The **Dredge 32** was good; prior to being on a long line in SNWR. As for the dredge **Mike Hooks** it was very poor. There were problems with the dredge pump and suction; however, repairs were not completed until after the project ended.

The disposal areas were a major problem.. The disposal area retaining dikes were built to a height approximately 6.5 feet above existing ground level. Prior to pumping in Disposal Area 12-B, the retaining dike in the northeast corner had to be relocated, because the subcontractor could never reach the required height of the retaining dike in the area. About five to six passes were done, which caused extra time which may lead to a claim for the extra work. This mod is still pending. (CIN002).

There was dike failure in Disposal 22 on the north side. The rear retaining dike slide into Calcasieu Lake. No material escaped; however, contractor had to return to the area to rebuild the dike after the dredging was completed.

Disposal Area “D” had similar problems on the back side along Calcasieu Lake. The retaining dike had to be relocated more inward; then the disposal area was used during dredging operations with no other problems.

Disposal Area “H” had a dike failure, where the east section of retaining dike failed. Due to the heavy ship traffic causing erosion, there is very little berm on the outside of the disposal area on the channel side. Again no material escaped and the dike was immediately repaired. This had no impact on the pumping operations in this area. Damage to the dike and this area continues due to wave wash and erosion from ship traffic.

17. SAFETY:

The prime and the subcontractor’s attitude towards safety was Satisfactory. A Total of **145,047 Accident Free** Man Hours were used to perform the work. The project lasted 341 days. The prime and the subcontractor held weekly safety meetings. On the dredges, drills were held monthly. Safety violations were monitored daily by QC & QA. There were no reported Lost Time Injuries on the project. Two SSHO (Site Safety Health Officers) were present on the project at all times.

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18. FINAL ACCEPTANCE:

After all final surveys with profiles were taken upon completion of the work; the work areas were visually inspected prior to releasing prime contractor of his duties. All work was completed on 29 August 2007. The final inspection of the disposal areas was conducted on 30 August 2007. All boards have been removed to material level in the disposal areas.

/pkb/
for AL MISTROT
Project Inspector

CF: CEMVN-CD-A (Reeves, W.)
CEMVN-CD-A (Lindholm)
CEMVN-CD-Q
CEMVN-CT
CEMVN-ED-LW (Broussard)
CEMVN-OD-F (Falk)
CEMVN-OD-T (Creef)
CEMVN-OD-T (Maunoir)
CEMVN-OD-C
CEMVN-OD-G
CEMVN-PA
CEMVN-PM-OR (Lachney)
CEMVN-CD-LA-E
CEMVN-CD-LA File
CEMVN-CD-LA (Mistrot)
LA Dept. of Natural Resources (Juneau)
US Fish and Wildlife Service (Sabine NWR- Attn: Walters)
US Fish and Wildlife Service (Trahan, A.)