CESAW-TS-PE 12 December 2007

MEMORANDUM FOR RECORD:

SUBJECT: W912HN-08-C-0002, FY~~07~~ 08 Maintenance Dredging, Wilmington Harbor Ocean Bar, Brunswick County, NC - Sea Turtle Compliance Inspection Trip Report

1. Representatives from the district office (Doug Piatkowski and Murray Degnan) met with representatives from Great Lakes (GLDD) (Theo Shefferlie – Site Manager, Al Josephson – CQC; Louie Cole - Safety) and Coastwise consulting (Stacie Knight and Nikki Doyle) aboard the Liberty Island hopper dredge working in the Wilmington Harbor Ocean Bar. A sea turtle compliance inspection was conducted on board the Liberty Island in accordance with the attached COE Sea Turtle Inspection Checklist, within 24 hours of dredging commencement.

2. Turtle deflector submittals, as required in the EPP, were reviewed with the dredge Captain, Site Manager, and CQC and compared to the on-dredge deflector configuration relative to the site specific project dredging depths. Link adjustment measurements were performed on both dragheads and associated approach angle calculations were confirmed with the dragtender operations during dredging. For the dredging depths required under this contract, the Contractor installed a 13.25" link on the draghead, which was consistent with the turtle deflector drawings that were submitted with the EPP as well as the 25º draghead approach angle maintained during operations by the dragtender. Furthermore, a paint test was performed on both the starboard and port dragheads. The paint test further confirmed that the documented approach angle and gimble depths were accurate to keep the turtle deflector plowing at ~6" for the given project depths. Considering the muddy material being dredged, the paint was not 100% worn after the first load; however, enough wear was evident to assume 6" plowing efficiency. The captain and site manager performed a walkthrough of the dredge verifying that all required screening measures (inflow baskets) were in place and consistent with the project specifications; however, modifications to overflow were requested to alleviate plugging from floating wood debris (see comment 5). Minor fixes (link re-attachments) were performed on the 4 X 4 chain on the draghead to comply with contract specifications. Though incompliance was not documented, two areas of interest were noted on the draghead (photos 1 & 2). Specifically, the turtle deflectors that were installed on the Liberty Island have ~2" x 4" holes cut into them. Though these were not noted as incompliant with the contract, there are some operational components of this draghead configuration that should be considered by the Corps as it relates to turtle deflecting draghead efficacy. Also, on the top aft (left and right) portions of the draghead there are unscreened compartments that may lend to potential entrapment concerns. Large debris was noted to be accumulated in these spaces. The site manager indicated that the only purposes for these compartments was to reduce weight of the draghead. Additional 4"X4" screening may need to be considered for these areas on the draghead.

2. As a component of the sea turtle compliance inspection walkthrough, a safety concern was noted at the entry point of the inflow hatch into the inflow box (photo 3). There are four entry

points into the inflow box, none of which had chain attachments to put up when the inflow box hatch was open to prevent a fall hazard. The Contractor was made aware of this concern and indicated that necessary actions would be taken to install appropriate chain in order to prevent someone stepping through the inflow box hatch when it is left open for inspection. Also, during the inspection, it was noted that no oversight occurred when the observer was inside the inflow box. The Contractor indicated that appropriate oversight would be provided at all times when the observers are inside the inflow box.

3. Once the physical inspection of equipment was complete an evaluation of the dragtender was performed and questions related to the ability to comply with contract specifications were asked (i.e. reduce the slurry velocity before the dragheads come off the bottom for any reason, keeping the dragheads on bottom to minimize take risk, maintaining appropriate approach angles, etc.). The dragtender was knowledgeable with the contract specification requirements and how to operate the dragarms on the Liberty Island in compliance with the contract requirements.

4. The Silent Inspector (SI) data monitoring computer on board Liberty Island was up and running and was receiving data from the Contractor's DSS system; however, specific contract information was never loaded by the Contractor as discussed in the pre-con. The necessary Project, Sub-project, contract #, etc. was added to the SI data explorer following the guidelines outlined in the SI user manual. Data will be uploaded on a daily basis by the contractor exported to the SI database. As of 12 December, the Contractor satellite link was not operational; thus, the Corps is not receiving load summary reports.

5. GLDD requested that the port and starboard overflow screening be removed to alleviate concerns with wood debris plugging the screens and reducing production (photos 4 and 5). With current overflow screening measures in place the dredge was operating at about a 25% efficiency. Considering that 100% inflow screening was being implemented with 100% observer coverage and the existing overflow screening measures only offered about a 20% observer coverage efficiency, it was decided among representatives from the Corps and GLDD that the 4 X 4 screening on the overflow could be increased to 8 X 8 screening. This measured was implemented for about 24 hours; however, wood debris plugging was still occurring. GLDD was later authorized on 11 December to remove overflow screening on the port and starboard sides. Overflow screening is not required (only recommended) by the 1995 and 1997 Regional Biological Opinion's assuming 100% inflow screening and 100% observer coverage. The 2003 SAD protocol requires overflow screening; however, its removal can be approved by SAD with justification. At the time of the inspection, overflow skimmers were not in use.

6. The COE Sea Turtle Inspection Checklist for Hopper Dredges and photographs of the Liberty Island dragheads, screening measures, and safety concerns are attached for informational purposes.

7. If there are any questions, contact Doug Piatkowski at 910-251-4908.

POC's: Stacie Knight (Coastwise) – 912-604-6244
Nikki Doyle (Coastwise) – 530957-1957
Theo Schefferlie (GLDD) – 214-415-2388

Al Josephson (GLDD) – 954-684-6377
Louie Cole (Safety) – 607-760-5927

COE SEA TURTLE INSPECTION CHECKLIST FOR HOPPER DREDGES
For
COE Projects or COE/Army Permitted Project

1. Read contract plans and specs and/or all applicable permits (Dept. of the Army Permit, State Permits) to determine the contract or permit requirements for the protection of endangered sea turtles (each District specs or permit may be different).
2. Read the Biological Opinion and any COE Protocol if available.
3. Develop a list of inspection requirements:
    a. Deflector leading edge angle (90 degrees or less).
    b. Approach angle or leading edge plowing depth (6 inches or more).
    c. Aft rigid attachment of deflector to the draghead (hinged or trunnion).
    d. Forward deflector attachment point (adjustable pinned or cable/chain with stop).
    e. Opening between drag head and deflector (4”X 4” max).
    f. Is screening of dredged material required?
    g. Are inflow screens or overflow screens or both required?
    h. Are inflow basket screen openings 4”X 4” max and is 100% of the dredged material being screened.
    i. Lighting of inflow and overflow screens and proper access for cleaning (must meet EM 385-1-1).
    j. Structural design of deflector (per approved deflector submittal).
    k. Dredge operational requirements (starting /stopping dredge pump, draghead plugging, razing draghead, turning the dredge).
    l. Is dredging data recording, Silent Inspector, (drag elevation, slurry density & velocity) required by specs or permit? If so is it being collected or is Silent Inspector turned on and is data being submitted?
    m. Is turtle trawling required by specs or permit? If so is it being performed?
    n. Turtle observer requirements (12 or 24 hours req.)
    o. Assure a copy of the approved turtle deflector submittal is on board the vessel.
    p. Assure a copy of the contract plans and specs or Dept. of the Army permit is on board the vessel.
4. Review turtle deflector submittal (do not allow dredging to start until submittal is approved):
    a. Structural soundness
    b. Deflector leading edge angle (90 degrees or less).
    c. Is the approach angles submitted for this project dredging depths.
    d. 4”X 4” opening between deflector and draghead.
    e. Aft rigid deflector attachment to draghead (hinged or trunnion).
    f. Forward deflector attachment point (adjustable pinned or cable/chain with stop).
5. Assure the CQC performs a pre-dredging inspection:
    a. CQC is required to review and inspect all items in paragraph 3.
6. Assure the CQC performs a startup-dredging inspection:
    a. CQC is required to check the turtle deflector to see if the deflector is installed and adjusted for required dredge depth of this project in accordance with the approved deflector submittal.

b. CQC is required to assure the drag tenders are operating the dredge pump and draghead in accordance with the specs/permit.
c. CQC should perform a paint test to assure the deflector is plowing at least 6" into the dredge material while the dragtender is consistently maintaining the (approved, submitted) approach angle to a tolerance of + 0 to – 4 degrees.
d. CQC should note the inspection results in his QC Daily Report.

7. QA should perform dredging operation inspection soon after the dredge starts dredging:
    a. Review and inspect all items in paragraph 3.
    b. Inspect the turtle deflector to assure the deflector is installed and adjusted for the required dredge depth of this project in accordance with the approved deflector submittal.
    c. Require the contractor to perform paint test to assure the deflector is plowing at least 6" into the dredge material while the dragtender is consistently maintaining the (approved, submitted) approach angle to a tolerance of + 0 to – 4 degrees (over penetration of the deflector could reduce production and may increase fuel consumption of the dredge but is allowed).
    d. Ride the dredge though at least one dredging cycle (dredging, to the dump, and back to the dredge site).
    e. Watch the dragtender to assure he is operating the dredging equipment in accordance with the plans and specs:
        i. Starting the dredge pump only when the draghead is firmly on the bottom by watching the slurry specific gravity & swell compensator.
        ii. Reducing the slurry velocity by reducing the dredge pump RPM to idle speed before raising the draghead off the bottom.
        iii. Consistently maintaining the approach angle to a tolerance of + 0 to – 4 degrees when ever the draghead is on the bottom and the dredge pump is operating
        iv. Watch to see if the dragtender is raising the draghead off the bottom because of plugging of the draghead, ship crabbing or draghead tracking under or away from the dredge.
    f. Lockout tagout procedure for cleaning the inflow and overflow screens (must meet EM 385-1-1).
    g. Talk to turtle observers to assure they are aware of contract and permit requirements and are performing inspection of screens and deflectors and reporting any maintenance required to the dredge personnel. Assure that correct turtle observer forms are being used and filled out properly.
    h. Talk to Dredge Captain about maintaining the screens and deflectors.
    i. Assure Silent Inspector data is being sent to ERDC.
    j. All pre-dredge/post-dredge and follow up inspections should be noted in the QC and QA the Daily Reports.

Project Location: __ Brunswick County, NC_____

Contract No.: ____W912HN-08-C-0002_____

Dept. of the Army Permit No.: _____NA_____

Dredging Company Name: ___Great Lakes Dredge nad Dock Company (GLDD)_____

Dredge Name: ____Liberty Island_____

Contractor CQC Inspector's Name: _Theo Shefferlie and Al Josephson_____

USACE Inspector Name: ___Doug Piatkowski and Murray Degnan_____
Office Symbol __CESAW-TS-PE_____Date of Inspection___10 December 2007_____

COMMENTS:___See trip report dated 11 December 2007_____

Photo 1: 2” X 4” grating on turtle deflecting draghead.

Photo 2: Large opening on the top aft portion of the draghead located on both sides. Concern for potential entrapment of turtles. 4”X4” Screening may be recommended.

Photo 3: Fall concern when inflow hatch is open. Recommend installing chain around entry point when hatch is open.

Photo 4: 100% plugging of overflow screening with wood debris resulting in the inability to manage the load and subsequent reduced production.

Photo 5: Example of minimum flow being released through starboard overflow. Overflow screening is about 100% plugged after ~30-45 minutes into the load cycle.