



Florida Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 17, 2010

U.S. Army Corps of Engineers
Attn: Eric Summa, Chief
Environmental Branch
Jacksonville District
P.O. Box 4970
Jacksonville, FL 32232

Permit Modification No. 0129260-005-JN Permit No. 0129260-002-JC, Brevard County Canaveral Harbor Federal Maintenance Dredging – Add Dredge Areas

Dear Mr. Summa:

Your request to modify Permit No. 0129260-002-JC, which was received by the Department on February 10, 2010, has been reviewed by Department staff. The proposed minor modification is to include maintenance dredging of Barge Canal Zones 4, 13 and 14, which had been withdrawn from the application for Permit No. 0129260-002-JC due to the Department's concerns about potential unionized ammonia levels. No other changes to the permit have been requested.

Permit History

On January 15, 2010, the Department issued Permit No. **0129260-002-JC** to the U.S. Army Corps of Engineers (USACE) to maintenance dredge up to 1,500,000 cubic yards of sediment annually from the federally-authorized portions of the Port Canaveral navigational complex, including the entrance channel to the east of the port and the barge canal to the west of the port. The majority of the dredged material was to be deposited in the Canaveral Ocean Dredged Material Disposal Site (ODMDS), although smaller portions of the material were authorized to be placed in the West Confined Disposal Area (CDA-C) or the Barge Canal Disposal Area (CDA-B). The permit also authorized disposal into the designated Nearshore Disposal Area of sediment found to be suitable for placement in the nearshore portion of the beach. Dredging of Zones 4, 13 and 14 of the Barge Canal were included in the original application, but the Permittee withdrew these areas after the Department expressed concerns about the potential for releasing acutely toxic substances into state waters due to elevated ammonia concentrations. Variance No. **0129260-004-BV** was issued to the USACE, concurrently with the permit, to establish a maximum allowable turbidity level of 12 NTUs above background beyond the

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approved mixing zone for work within the Outstanding Florida Waters associated with the Banana River Aquatic Preserve and Merritt Island National Wildlife Refuge.

Elutriate samples obtained in 2008 from Zones 4, 13 and 14 had total ammonia concentrations ($\text{NH}_4^+ + \text{NH}_3$) that were similar to concentrations correlated to acute toxicity at other Florida ports, based on EPA criteria and mortality rates in bioassays. The acute toxicity is specifically associated with the portion of the total ammonia that is unionized (NH_3). During the review period of the permit, the USACE asserted that:

The elutriate analysis is intended to simulate the dredging and the comprehensive mixing process that occurs when material is discharged from pumping operations of cutterhead dredging. Therefore, the interpretation of the results is limited to the discharge end of the dredging process for cutterhead dredging, after the sediments have been thoroughly mixed. It should not be applied to the dredging side of the process, where very little mixing occurs, especially with a clamshell dredge.

However, because the USACE could not provide bioassay data or a reliable model to simulate the reaction and dispersion rate of ammonia released by the dredging process, the Department had no assurance that the elevated ammonia levels would not result in acutely toxic discharges into state waters at the dredge location. Based on this lack of assurance, staff recommended that these zones be withdrawn from the application until results of additional analyses could be provided, and the USACE complied. For additional background and summaries of Permit No. 0129260-002-JC, and previously issued permits related to the project, please see the *Consolidated Notice of Intent to Issue* for Permit No. 0129260-002-JC, dated January 15, 2010, available at the Bureau website:

http://bcs.dep.state.fl.us/env-prmt/brevard/issued/0129260_Canaveral_Harbor_Maintenance_Dredging/

Modification Justification

At the time the permit was being reviewed, the Permittee was unable to provide information or data that would reasonably assure the Department that acutely-toxic levels of (unionized) ammonia would not be introduced into surface waters at the dredge location. In their request for this modification, however, the Permittee has submitted results from the DREDGE module of the Automated Dredging and Disposal Alternatives Modeling System (ADDAMS), which was updated to simulate ammonia concentrations at various distances from the dredge using “worst-case” conditions as model inputs. The Permittee states that the results of the model indicate that the dredging of Zones 4, 13 and 14 would not cause the release of acutely toxic substances into the water column, pursuant to Rule 62-302.500, F.A.C. Therefore, the Permittee believes that these results justify the reinstatement of Zones 4, 13 and 14 into the authorized dredge areas.

Staff Assessment

The DREDGE module estimates the rate and concentration at which bottom sediments become resuspended into the water column as the result of dredging operations. The module allows the

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user to input known information about dredge equipment and site conditions to simulate, in this case, the concentrations of dissolved ammonia concentrations at various locations within the water column. The Permittee was assisted in the specific application of the ADDAMS model by the USACE Engineering Research and Development Center, which developed the model. Staff review of the modeling was conducted using the DRAFT “Dredge Module User’s Guide”, by Donald F. Hayes and Chung-Hwan Je, Department of Civil and Environmental Engineering, University of Utah, July 2000, as a guide.

Model Assumptions

The modeling was conducted using a 7 m³ bucket size, which (though small) seems appropriate for the shallow (12-foot deep) canal. An average bucket cycle time of 60 seconds, which is typical, was assumed. The Permittee has stated that the input assumptions used in the modeling represent a “worst-case scenario,” meaning that the model was run using values for important variables that would be expected to overestimate ammonia concentrations, and thus toxicity, at the dredge head and points downcurrent. Specifically:

- An *in-situ* dry density of 500 kg/m³ was used in the model. This density is less than that of most recently-deposited unconsolidated sediments that are encountered during maintenance dredging, which are typically about 700kg/m³. The lower value used in the model is indicative of sediments having a high organic content, a composition which has been found to correspond to elevated ammonia levels in other Florida ports;
- An initial concentration (dry value) of 450 µg/g was used in the model. In comparison, this figure was considerably higher than concentrations that were observed at Port Manatee, in areas having acutely-toxic elutriate samples. The value was rounded up from the 412 µg/g dry value that was associated with the highest elutriate value reported (27.6 mg/L) for total ammonia in the “Canaveral Harbor Section 103 Evaluation - 2003 Report.” Although a substantially lower maximum elutriate value of 21.9 mg/L was recently reported for the Canaveral Barge Canal, the Permittee used the higher 2003 report value, rounded upward, to ensure that the model assumption was conservative but realistic;
- “R74” values and turbidity generation units used in the model correspond to sediments that are considerably finer in texture than the sandy sediments that actually exist in Zones 4, 13 and 14. The R74 value used for the model was 0.9, meaning that 90% of the sediments to be dredged are classified as “fine,” or less than 74 µm in diameter. Data collected in other ports, notably the Mayport Turning Basin near Jacksonville Harbor, have shown that the capacity to entrap and retain ammonia has been shown to be higher in finer textured sediments, as opposed to sands;
- A lateral diffusion coefficient of 1000cm²/s was used in the model. According to the “Dredge Module User’s Guide”, typical values for unbounded water bodies range from 10⁵ cm²/s to 10⁷ cm²/s, meaning that the input assumption value, which is intended to

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represent a narrow, laterally-bounded water body, may represent a sediment diffusion rate that is orders of magnitude lower than what might be observed in unbounded waters. This low rate of diffusion would seem to correlate with contaminants remaining in the immediate dredging area for longer periods of time, thus increasing contaminant concentration levels and the potential for toxicity in the effluent;

- An ambient water velocity of 0.02 m/s was used in the model. The Indian River Lagoon Joint Reconnaissance Report (SJRWMD/SFWMD, 1987) indicates that the northern portion of the Indian River Lagoon, in which the project is located, is minimally influenced by tidal currents, and generally has current velocities of 0.1 m/s or less associated with wind and surface water runoff. Lower water velocities would cause increased ammonia retention at the dredge area. The effect of manipulating ambient water velocities in the model was demonstrated by a second run of the model using a higher velocity, as explained below.

Results

The total ammonia concentrations predicted by the ADDAMS model are well below levels that have been observed to correspond to acute toxicity in bioassay testing conducted at other Florida ports. The model predicted a total ammonia concentration of 0.088 mg/L above the background level at a distance of 10 meters downcurrent from the dredge bucket, with concentrations decreasing rapidly with distance: at 20 meters the ammonia concentration is 0.051 mg/L above background; at 50 meters the level is only 0.019 mg/L above background. Adding the estimated background total ammonia level of 0.048 mg/L, which was derived from a Department model using, again, “worst-case” values as input variables for temperature, salinity and pH, resulted in a predicted unionized ammonia level of 0.068 mg/L at a distance of 10 meters downcurrent from the dredge bucket. This is below even the 0.072 mg/L unionized ammonia level that is being reviewed for adoption as a state water quality criterion, in association with potentially chronic toxicity effects on certain aquatic species. The Permittee then ran the ADDAMS model using an ambient water velocity increased by a factor of five, which may simulate site conditions on certain days better than the slower velocity used in the first model run. This increase in velocity resulted in a modeled total ammonia concentration of 0.046 mg/L above background at a distance of 10 meters downcurrent of the dredge bucket, approximately half the level observed at the slower velocity.

The ADDAMS model was developed in response to requests by USACE field offices for a state-of-the-art computer-based tool that increases the accuracy, reliability, and cost-effectiveness of dredged material management activities. Department staff agrees that the ADDAMS model is suitable for analysis of the given project conditions, and is assured that the model is adequate to predict ammonia concentrations in the dredge area within reasonable limits. The Department also concurs with the Permittee that the assumption inputs used in the model are sufficiently conservative to provide reasonable assurance that ammonia concentrations exceeding the model predictions would be unlikely to occur even under unusual circumstances. Thus, the Department concludes that the model results adequately support a determination that neither acutely nor

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chronically toxic levels of unionized ammonia would be released at dredge locations within the Barge Canal, including Zones 4, 13 and 14, in accordance with state water quality standards.

The Activity Description shall be revised as follows (~~strike throughs~~ are deletions, underlines are additions):

ACTIVITY DESCRIPTION:

The proposed project is to maintenance dredge up to approximately 1,500,000 cubic yards of sediment annually from the federally-authorized portions of the Port Canaveral navigational complex, including the entrance channel to the east of the port and the barge canal to the west of the port, not to exceed an allowed dredging tolerance that extends six (6) feet deeper than the federally-authorized depths identified in the table below (except for the Barge Canal west of the port locks, where the tolerance is limited to three (3) feet deeper than the authorized pay depth). ~~However, Zones 4, 13 and 14 of the Barge Canal are currently excluded from the project.~~ The majority of the dredged material will be deposited in the Canaveral Ocean Dredged Material Disposal Site (ODMDS), and smaller portions of the material may also be placed in the West Confined Disposal Area (CDA-C) or the Barge Canal Disposal Area (CDA-B). If some of the sediment is suitable for placement in the nearshore portion of the beach, pursuant to Rule 62B-41.007(2)(k), F.A.C., it may be deposited in the designated Nearshore Disposal Area, at depths between approximately -10 feet and -25 feet, mean lower low water (MLLW).

After thorough review of your application, staff finds that the proposed modification is not expected to adversely affect water quality and would not change the Department's determination that the project is clearly in the public interest. Since the proposed modification is not expected to result in any adverse environmental impact or water quality degradation, the **permit is hereby modified** as stated above. By copy of this letter and the attached drawings, we are notifying all necessary parties of the modifications.

This letter of approval does not alter the **January 15, 2020**, expiration date, other Specific or General Conditions, or monitoring requirements of the permit. This letter and the accompanying drawings must be attached to the original permit.

This permit is hereby modified unless a sufficient petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, Florida Statutes, as provided below. The procedures for petitioning for a hearing are set forth below. Mediation under Section 120.573, F.S., is not available for this proceeding.

NOTICE OF RIGHTS

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of

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General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35,
Tallahassee, Florida 32399-3000.

Because the administrative hearing process is designed to redetermine final agency action on the application, the filing of a petition for an administrative hearing may result in further modification of the permit or even a denial of the application. If a sufficient petition for an administrative hearing or request for an extension of time to file a petition is timely filed, this permit modification automatically becomes only proposed agency action on the application subject to the result of the administrative review process. Accordingly, the applicant is advised not to commence construction or other activities under this permit modification until the deadlines noted below for filing a petition for an administrative hearing or request for an extension of time has expired.

Under Rule 62-110.106(4), Florida Administrative Code, a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon. If a request is filed late, the Department may still grant it upon a motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect.

In the event that a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Any intervention will be only at the discretion of the presiding judge upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the applicant must be filed within 21 days of receipt of this written notice. Petitions filed by any persons other than the applicant, and other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first.

Under Section 120.60(3), F.S., however, any person who has asked the Department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication.

The petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition for an administrative hearing within

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the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S.

In accordance with Rule 28-106.201, F.A.C., a petition that disputes the material facts on which the Department's action is based must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
- (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action;
- (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C. Under Sections 120.569(2)(c) and (d), F.S., a petition for administrative hearing must be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed.

This action is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above. Upon the timely filing of a petition this order will not be effective until further order of the Department.

This permit modification constitutes an order of the Department. The applicant has the right to seek judicial review of the order under Section 120.68, F.S., by the filing of a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within

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30 days from the date when the final order is filed with the Clerk of the Department. The applicant, or any party within the meaning of Section 373.114(1)(a), F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under Section 373.114(1), F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the final order is filed with the Clerk of the Department.

The Department does not require notice of this agency action to be published. However, the applicant may elect to publish notice as prescribed in Rule 62-110.106, F.A.C., which constitutes notice to the public and establishes a time period for submittal of any petition. When there has been no publication of notice of agency action or notice of proposed agency action as prescribed in Rule 62-110.106, F.A.C., a person may request a copy of the agency action. The Department shall upon receipt of such a request, if agency action has occurred, promptly provide the person with notice.

If you have any questions regarding this matter, please contact Michael Carothers at the letterhead address or by telephone at (850) 413-7765.

Sincerely,



Martin K. Seeling
Environmental Administrator
Bureau of Beaches & Coastal Systems

MKS/jmc

cc (via electronic mail):

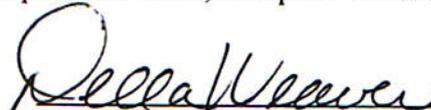
Matthew Miller, USACE, Jacksonville
James McAdams, USACE, Jacksonville
Mary Duncan, FWC, ISMS
Carol Knox, FWC, ISMS
Robbin Trindell, FWC, ISMS
Alex Kropp, FWC, ISMS
Lori Morris, St. Johns River WMD
Laura Herren, DEP, CAMA
Ralph Lloyd, USFWS, Merritt Island NWR
Robert Musser, Jr., Canaveral Port Authority
Subarna Malakar, BBCS, CE
Dave Herbster, DEP, Central District

Paden Woodruff, BBCS, BECP
Steven MacLeod, BBCS, JCP
Michael Barnett, Chief, BBCS
Michael Carothers, BBCS, JCP
Robert Brantly, BBCS, CE
Elizabeth Kromhout, BBCS, CE
Jillian "Alex" Reed, BBCS, BECP
William "Guy" Weeks, BBCS, BECP
Roxane Dow, BBCS, BECP
JCP Compliance Officer
BBCS Permit File (hardcopy)

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FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.


Debra Weaver 6/17/2010
Deputy Clerk Date