



"Walker, William T SAW"
<William.T.Walker@usace.army.mil>

03/11/2009 04:32 PM

To Tom Welborn/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, "Ron Sechler"
<ron.sechler@noaa.gov>, "Pace Wilber"
cc "Jolly, Samuel K SAW" <Samuel.K.Jolly@usace.army.mil>,
"Lamson, Brooke SAW"
<Brooke.Lamson@saw02.usace.army.mil>

bcc

Subject PCS

History:

📧 This message has been forwarded.

All,

We have scheduled a teleconference with Pete Benjamin tomorrow @ 1330 to discuss potential permit conditions. Since we all seem to be talking to one another individually, I think it would be a great idea to talk collectively. I spoke with Ron and he cannot make tomorrow so I have set up a second time with him at 0930 Friday morning. I would encourage as many of you as can to join us on one or both calls. If you would like to, please let me know and give me the best number at which to reach you and I will initiate a conference call from here.

thanks

Tom Walker



"Heather"
<riverkeeper@ptrf.org>

03/12/2009 12:53 PM

To Rebecca Fox/R4/USEPA/US@EPA

cc

bcc

Subject FW: Petition has been filed, release is pending

History:

✉ This message has been replied to and forwarded.

FYI

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
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www.ptrf.org
Waterkeeper Alliance Member

From: Geoff Gisler [mailto:ggisler@selcnc.org]

Sent: Thursday, March 12, 2009 12:51 PM

To: 'Heather'; 'David Emmerling'; David McNaught; 'Sam Pearsall'; toddm@nccoast.org; 'Jim Stephenson'; 'Molly Diggins'

Cc: Derb Carter; Kathleen Sullivan

Subject: Petition has been filed, release is pending

All,

The petition was just filed. I have attached a copy. The press release will go out shortly.
Geoff

Geoff Gisler
Staff Attorney
Southern Environmental Law Center
200 W. Franklin St. Suite 330
Chapel Hill, NC 27516
Ph: (919) 967-1450
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www.southernenvironment.org

PLEASE PRINT CLEARLY OR TYPE

STATE OF NORTH CAROLINA

IN THE OFFICE OF
ADMINISTRATIVE HEARINGS

COUNTY OF (1) Wake

(2) Pamlico-Tar River Foundation, North Carolina Coastal
Federation, Environmental Defense Fund, and Sierra Club

(your name) PETITIONERS,

v.

(3) North Carolina Department of Environment and Natural
Resources - Division of Water Quality

RESPONDENT.

(The State agency or board about which you are complaining)

**PETITION
FOR A
CONTESTED CASE HEARING**

I hereby ask for a contested case hearing as provided for by North Carolina General Statute § 150B-23 to challenge the actions of the Department of Environment and Natural Resources - Division of Water Quality in issuing Water Quality Certification No. 3771 to PCS Phosphate Company on January 15, 2009. The Water Quality Certification authorizes an expansion of PCS's phosphate mine in violation of water quality standards and the designated existing uses within the affected area. (Please see attached statement)

This petition challenges the Division of Water Quality's issuance of Water Quality Certification No. 3771 to PCS Phosphate's Aurora operation, the permitted facility in the recent contested case U.S. Department of the Interior v. N.C. Department of Environment and Natural Resources (08 EHR 1067-Morrison).

(If more space is needed, attach additional pages.)

(4) Because of these facts, the State agency or board has: (check at least one from each column)

deprived me of property;

ordered me to pay a fine or civil penalty; or

x otherwise substantially prejudiced my rights;

AND

x exceeded its authority or jurisdiction;

x acted erroneously;

x failed to use proper procedure;

x acted arbitrarily or capriciously; or

x failed to act as required by law or rule.

(5) Date: March 12, 2009

(6) Your phone number: (919) 967-1450

(7) Print your full address: 200 W. Franklin St., Suite 330 Chapel Hill, NC 27516

(street address/p.o. box)

(city)

(state)

(zip)

(8) Print your name: Geoff Gisler

(9) Your signature: Geoff G. G.

You must mail or deliver a COPY of this Petition to the State agency or board named on line (3) of this form. You should contact the agency or board to determine the name of the person to be served.

CERTIFICATE OF SERVICE

I certify that this Petition has been served on the State agency or board named below by depositing a copy of it with the United States Postal Service with sufficient postage affixed OR by delivering it to the named agency or board:

(10) Mary Penny Thompson

(name of person served)

(11) N.C. Department of Environment and Natural Resources

(State agency or board listed on line 3)

(12) 512 North Salisbury Street, 14th Floor

(street address/p.o. box)

Raleigh

(city)

NC

(state)

27604

(zip code)

(13) This the 12th day of March, 2009

(14) Geoff G. G.

(your signature)

When you have completed this form, you MUST mail or deliver the ORIGINAL AND ONE COPY to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714.

I. INTRODUCTION

The Pamlico-Tar River Foundation, North Carolina Coastal Federation, Environmental Defense Fund, and Sierra Club (collectively "Citizen Groups") respectfully submit this Petition for a Contested Case Hearing ("Petition") to formally object to a final action of the North Carolina Division of Water Quality ("DWQ") approving and issuing Water Quality Certification No. 3771 ("Water Quality Certification" or "401 Certification") to PCS Phosphate, Inc. ("PCS") for its proposed expansion of its strip-mining operation northwest and west of Aurora in Beaufort County. The Citizen Groups respectfully file this petition because the Water Quality Certification authorizes PCS to expand its mining operation into nearly 4,000 acres of wetlands and approximately 5 miles of streams in violation of state water quality standards. A copy of the Water Quality Certification issued on January 15, 2009 is included as Exhibit 1 to this Petition.

II. JURISDICTION AND STANDING

A. This Petition is Timely

The North Carolina Administrative Procedure Act sets forth a 60-day general limitation for filing a petition in a contested case, which "shall commence when notice is given of the agency decision." N.C. Gen. Stat. § 150B-23(f). DWQ approved the Water Quality Certification on January 15, 2009. Therefore, Citizen Groups timely file this Petition for a Contested Case Hearing within the 60-day limitation prescribed by N.C. Gen. Stat. § 150B-23(f) and stated within the terms of the Water Quality Certification.

B. Citizen Groups are Entitled to Bring this Contested Case as "Persons Aggrieved" Within the Meaning of North Carolina's Administrative Procedure Act

North Carolina's Administrative Procedure Act, N.C. Gen. Stat. § 150B-23, provides that a contested case may be brought by a "person aggrieved." The Act defines "person aggrieved" as "any person or group of persons of common interest directly or indirectly affected substantially in his or its person, property, or employment by an administrative decision." N.C. Gen. Stat. § 150B-2(6). A "person" is defined to include "any natural person, partnership, corporation, body politic and any unincorporated association, organization, or society." N.C. Gen. Stat. § 150B-2(7). As alleged in further detail below, DWQ has substantially prejudiced Citizen Groups' rights by issuing the Water Quality Certification for the mine expansion.

1. Pamlico-Tar River Foundation

The Pamlico-Tar River Foundation, Inc. ("PTRF") is a North Carolina non-profit corporation founded in 1981. For generations, the Tar-Pamlico River has supported life in the watershed, and its future health is directly tied to impacts from future development.

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PTRF strives to preserve the high quality of life of residents in the Tar-Pamlico watershed by protecting the river's environmental resources.

PTRF has approximately 2,000 members, most of whom live and work on or near the Pamlico and Tar Rivers. PTRF has its principal office in Washington, Beaufort County, North Carolina. Many PTRF members visit, recreate, fish, hunt, boat, swim, view wildlife, and otherwise use and enjoy the waters of the Pamlico River.

Protecting the quality of the nutrient-sensitive waters of the Pamlico River is one of PTRF's central missions. The organization is involved in educational initiatives, documenting environmental impacts on the river, legislative efforts, and submitting comments during regulatory rulemaking. PTRF has sought to protect the water quality of the Pamlico River during the process leading to this 401 Certification by participating in the Review Team that provided input during the environmental impact statement ("EIS") process as well as commenting on the draft EIS, supplemental EIS, final EIS, and 401 Certification application.

The 401 Certification would substantially affect the interests of PTRF and its members in protecting the water quality of the Tar-Pamlico River basin. Specifically, the Water Quality Certification would allow destruction of wetlands, surface waters, and riparian buffers that are integral to PTRF's efforts to protect basin-wide water quality and would impair the use of waters in the Tar-Pamlico River basin and downstream for commercial and recreational fishing, recreational boating, wildlife, and fish and aquatic life propagation and survival.

2. North Carolina Coastal Federation

The North Carolina Coastal Federation ("Coastal Federation") is a non-profit corporation dedicated to the promotion of better stewardship of coastal resources. The Coastal Federation was founded in 1982 and has approximately 8,500 members, including numerous members who live near, shellfish or fish in, or regularly visit the Pamlico River estuary, Pamlico Sound, and nearby coastal waters.

Part of the Coastal Federation's purpose is to protect coastal waters and estuaries for the use and enjoyment of all of the citizens of the state. As part of this work, the Coastal Federation has played a lead role in investigating, documenting, publicizing, and seeking enforcement of violations of state and federal sedimentation, stormwater, water quality, and wetlands laws. In addition, to protect coastal waters from degradation from stormwater-borne pollutants, the Coastal Federation is working extensively through the state regulatory process to improve and strengthen the State's stormwater control program applicable to coastal areas.

The Coastal Federation has actively participated in the deliberations and rulemaking proceedings initiated by the Coastal Resources Commission and the Environmental Management Commission that relate to wetlands, stormwater, water quality, coastal outstanding resource waters, and shellfish issues, and has been a party to

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several administrative and judicial appeals related to these matters. Through regular participation in informal and formal proceedings and through its broader public education efforts, the Coastal Federation represents its members' interests in the appropriate stewardship of North Carolina's coastal resources, including its public trust waters.

To further those environmental protection goals, the Coastal Federation joined PTRF, Environmental Defense Fund, and other organizations as intervenors in PCS's variance request before the Water Quality Committee in September 2008. That challenge built on the Coastal Federation's long track record of direct participation in permit decisions involving the phosphate mining operations now managed by PCS. In the mid-1980s it was instrumental in identifying, and pushing for adoption of, significant enhancements to the operation's National Pollution Discharge Elimination System wastewater permit. DWQ required the facility to implement the recycling technology that the Coastal Federation advocated for, resulting in reduced pollution discharges from the site.

The 401 Certification would substantially affect the interests of the Coastal Federation and its members in protecting the water quality, wetlands, and nursery areas that are essential to a productive coastal ecosystem. The impacts to wetlands, streams, and riparian buffers approved by the 401 Certification will have long-term impacts on finfish and shellfish in the Pamlico River, Pamlico Sound, and coastal North Carolina. Those impacts will impair Coastal Federation members' use of waters downstream for fishing, recreational boating, wildlife, and fish and aquatic life propagation and survival.

3. Environmental Defense Fund

The Environmental Defense Fund ("EDF"), representing a national board and membership of more than 300,000 individuals, is dedicated to protecting the integrity and function of important ecosystem resources and processes, including wetlands and other aquatic systems. With more than 9,000 members in North Carolina, EDF has had a formal presence in the state since 1987. Since the establishment of the North Carolina office, EDF has been intimately engaged in the environmental affairs of eastern North Carolina and specifically with the issues related to protection of wetlands and water quality at the PCS facility site.

Since 1987, EDF has been directly engaged in multi-agency discussions relating to proposed mining advance scenarios, which would disrupt thousands of acres in the central Pamlico watershed. EDF has reviewed and commented on a series of mine advance and mitigation documents, including those produced in the inter-agency discussions held by the U.S. Army Corps of Engineers ("Corps") since 2001. EDF has been a member of the Corps' Review Team convened to provide input during PCS's Clean Water Act permit process and the development of the environmental impact statement. EDF submitted substantive comments on the draft EIS for the proposed mine expansion and has consistently expressed reservations about the company's most recent alternative which is the basis for the current 401 Certification.

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This involvement by EDF fits within the organization's overall goal to protect the health of the Albemarle-Pamlico estuary. An essential ingredient in this effort is to protect habitats and water quality that serve as the nurseries for juvenile finfish and shellfish that supply the commercial and recreational fisheries on the North Carolina coast and beyond. The plan also includes promoting efforts to control nutrient inputs into the Tar-Pamlico River basin.

The mine expansion approved by the 401 Water Quality Certification includes the destruction of wetlands, streams, and buffers in locations and on a scale that will thwart EDF's efforts to protect this estuarine system. Moreover, the impacts of the mine expansion will impair use of waters downstream for fishing, recreational boating, wildlife, and fish and aquatic life propagation and survival. These impacts will adversely affect both EDF's organizational purpose and the interests of its members in fishing, swimming, paddling, and recreating in the Pamlico River.

4. Sierra Club

The Sierra Club is a national grassroots conservation organization with over 1.3 million members nationally and approximately 16,500 members in North Carolina. The organization has a three tier structure, with national, state, and local bodies. The Sierra Club has had a statewide chapter in North Carolina for over 20 years and a chapter office in North Carolina since 1997. That statewide chapter oversees 13 local groups, including the Greenville-based Cypress Group. The Cypress Group represents more than 1,000 members in the 23 counties of northeastern North Carolina, including Beaufort County.

The mission of the Sierra Club is to protect "communities, wild places, and the planet itself." At the state level, the organization advocates for strong water quality and coastal protection through the development of policy positions, education of the public and the media, grassroots organizing, and direct advocacy to elected and appointed officials. At a local level, the Cypress Group educates members and local citizens through educational programs; monthly meetings; and hiking, kayaking, and wildlife viewing trips, including trips on the Pamlico River in the vicinity of the PCS site.

The 401 Certification authorizes impacts to wetlands, surface waters, and riparian buffers that will adversely affect the efforts of the national, state, and local levels of the Sierra Club. As permitted, the mine expansion will have significant impacts to water quality, wildlife habitat, and downstream fisheries and will consequently impede the purpose of the national, state, and local levels of the Sierra Club as well as substantially affecting the interests of its members.

This substantial harm to PTRF's, NCCF's, EDF's, Sierra Club's, and their respective members' interests can only be redressed by a decision vacating the 401 Water Quality Certification issued to PCS Phosphate and remanding consideration of the permit to the Division of Water Quality.

III. GROUNDS FOR OBJECTION

In issuing the 401 Certification, DWQ exceeded its authority, acted erroneously, failed to use proper procedure, acted arbitrarily and capriciously, and failed to act as required by law or rule. Thus, DWQ issued a Water Quality Certification for the destruction of nearly 4,000 acres of wetlands and close to 5 miles of streams that will not protect water quality or existing uses of the Pamlico River and its watershed. Because Citizen Groups and their members live, work, and recreate in the area affected by the 401 Certification, DWQ's final agency decision will substantially prejudice Citizen Groups' rights. Therefore, Citizen Groups object to DWQ's issuance of the Water Quality Certification on the following non-exclusive grounds:

A. Factual Background

The Pamlico River carries the freshwater of the Tar River into the Pamlico Sound, where it joins with the Albemarle Sound to create the nation's second largest estuary system. In addition to its great scenic beauty and widespread recreational opportunities, the Pamlico River hosts commercially and recreationally important fish and shellfish species as well as waterfowl, shorebirds, and other migratory birds. The Albemarle-Pamlico estuary system functions as a nursery for more than 90 percent of the commercial seafood species caught in North Carolina, a \$1 billion annual industry. The stretch of the Pamlico River within Beaufort County alone contributes nearly \$3 million annually in commercial fish and shellfish.

In the Water Quality Act of 1987, Congress identified the Albemarle-Pamlico Sound as an estuary in need of priority actions to address water quality problems. 33 U.S.C. § 1330(2)(B). In October 1987, the State of North Carolina and the U.S. Environmental Protection Agency ("EPA") designated the Albemarle-Pamlico estuary as an estuary of national significance and convened a management conference to assess water quality and recommend measures to control sources of pollution. Albemarle/Pamlico Sounds: State/EPA Conference Agreement for National Estuary Program Designation Under the Water Quality Act of 1987 (Oct. 20, 1987). In designating the Albemarle-Pamlico estuary, the state and EPA identified wetland loss, excessive nutrients, decline in fisheries productivity, and fish diseases as major sources of environmental stress.

PCS applied to expand its strip-mining operation along the Pamlico River in Beaufort County in November 2000 and modified that permit application the following August to request a mine expansion into 3,500 acres, including 2,400 acres of wetlands and 7 miles of streams, as well as 3 creeks identified as primary nursery areas for juvenile finfish and shellfish. The site of the proposed expansion is immediately adjacent to the Pamlico River and South Creek, a special secondary nursery area. Because of the project's proposed impacts to wetlands and streams, the U.S. Army Corps of Engineers initiated the development of an environmental impact statement in early 2001. That evaluation compared PCS's preferred 15-year mine expansion to other alternatives in a draft EIS released in October 2006. That draft was supplemented in November 2007 to

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add two new alternatives, including Alternative L. The Corps released the final EIS ("FEIS") on May 23, 2008.

One month before the final EIS was released, in April 2008, PCS abandoned its 15-year preferred alternative and requested a 37-year permit for mine expansion from the Corps. That 37-year mine expansion alternative, Alternative L, was also the subject of the company's 401 Water Quality Certification application to DWQ. In it, the company requested authorization to mine more than 11,000 acres, including 4,135 acres of wetlands and approximately 5 miles of streams.

DWQ granted PCS's 401 Certification request on December 5, 2008, authorizing the destruction of 3,789 acres of wetlands, 3.5 miles of streams, and 28 acres of streamside, riparian buffers. That Certification is attached as Exhibit 2. PCS objected to that Certification, requesting that DWQ relax its terms to allow additional mining. DWQ issued a modified 401 Certification on January 15, 2009 incorporating PCS's requested modifications.

That Certification, which Citizen Groups challenge in this petition, authorizes PCS to destroy 3,953 acres of wetlands, 4.9 miles of streams, and 48 acres of riparian buffers that are protected under the Tar-Pamlico Riparian Buffer Rules. Within those wetland acres, the 401 Certification approves the destruction of more than 50 acres of a hardwood wetlands forest that is a nationally significant natural heritage area as defined by the N.C. Natural Heritage Program. The remaining parts of the forest would be bisected by a 1,200 foot wide corridor as part of a plan that includes mining on three sides of both of the remaining forest segments.

B. Legal Framework

1. Water Quality Certification Requirements

This case arises under Clean Water Act § 401 and North Carolina's water quality and pollution control regulations. Under § 401 of the Clean Water Act, the Corps cannot issue a § 404 permit for impacts to surface waters and wetlands unless DWQ first certifies that the project will comply with all applicable water quality standards. Section 401(a)(1) provides:

Any applicant for a Federal license or permit to conduct any activity . . . which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate . . . that any such discharge will comply with the applicable provisions of [the Clean Water Act].

33 U.S.C. § 1341(a)(1).

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According to the federal Clean Water Act and North Carolina law, DWQ must ensure compliance with all applicable state water quality standards before issuing a § 401 water quality certification. If expansion of PCS's strip-mine would violate water quality standards and cannot reasonably be expected to meet water quality standards through remedial actions, DWQ must deny certification. See 33 U.S.C. § 1341(a)(1), (3). The federal Clean Water Act also authorizes DWQ to conditionally approve a § 401 certification by imposing any conditions or "any other appropriate requirement of State law" necessary to ensure compliance with water quality standards. See 33 U.S.C. § 1341(d).

The North Carolina Environmental Management Commission has adopted rules that control DWQ's issuance of 401 certifications. Those procedures require DWQ to evaluate specific factors before issuing a 401 certification for wetland and stream impacts. Before issuing the certification, the state must find that the project:

- 1) has no practical alternatives;
- 2) will minimize adverse impacts to surface waters;
- 3) does not result in the degradation of groundwaters and surface waters;
- 4) does not result in cumulative impacts that will cause a violation of water quality standards;
- 5) protects downstream water quality standards with on-site stormwater control measures; and
- 6) provides for replacement of existing uses through wetland or stream mitigation.

15A N.C. Admin. Code 02H .0506(b), (c). In addition to these factors, if the applicant proposes impacts to wetlands of exceptional state or national significance, the state must find that those impacts are necessary to meet a demonstrated public need before a 401 certification can issue. 15A N.C. Admin. Code 02H .0506(e).

Because of the location of PCS's proposed project, the Tar-Pamlico Buffer Rules also apply to this 401 Certification. Those rules, implemented to protect water quality in the Tar-Pamlico River, provide protection for 50-foot streamside, riparian buffers within the Tar-Pamlico watershed. See 15A N.C. Admin. Code 02B .0259. Under those rules, PCS's proposed mine plan requires buffer mitigation for every acre of buffer impacted according to established ratios. Buffers that are destroyed within the 30 feet closest to the surface water must be mitigated at a 3:1 ratio. When the section of buffer from 30 to 50 feet from the surface water is impacted, it must be mitigated at a 1.5:1 ratio. 15A N.C. Admin. Code 02B .0259(4). Further, the rules specify that mitigation must be done at least as close to the Pamlico estuary as the proposed impact and as close to the impact as feasible. 15A N.C. Admin. Code 02B .0260(4).

2. Federal and North Carolina Law Require Restoration and Protection of Water Quality and Existing and Designated Uses

Congress enacted the Clean Water Act not merely to preserve existing water quality, no matter how degraded, but to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). One of the goals of the Act is to achieve, “wherever attainable . . . water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water.” *Id.* at § 1251(a)(2).

The Act further requires states to develop standards and measures to meet these goals. Under § 303 of the Clean Water Act, state water quality standards must “consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based on such uses.” 33 U.S.C. § 1313(c)(2)(A). The U.S. Supreme Court has made clear that “§ 303 is most naturally read to require that a project be consistent with *both* components, namely the designated use *and* the water quality criteria.” *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700, 715 (1994) (emphasis in original). Thus, “a project that does not comply with a designated use of the water does not comply with the applicable water quality standards.” *Id.* It is therefore beyond question that DWQ is prohibited from approving a water quality certification for a project that will not protect water quality and designated uses.

North Carolina’s General Assembly has acted to protect the water quality and beneficial uses of the State’s waters by declaring “the public policy of this State to provide for the conservation of its water and air resources.” N.C. Gen. Stat. § 143-211(a). Further, “[i]t is the public policy of the State to maintain, protect, and *enhance* water quality within North Carolina.” N.C. Gen. Stat. § 143-211(b) (emphasis added). The EMC has promulgated regulations to implement the General Assembly’s mandate to develop “[s]tandards of water and air purity . . . designed to protect human health, to prevent injury to plant and animal life, to prevent damage to public and private property, to insure the continued enjoyment of the natural attractions of the State . . . and to secure for the people of North Carolina, now and in the future, the beneficial uses of these great natural resources.” N.C. Gen. Stat. § 143-211(c).

To ensure protection of the existing uses as well as designated uses based on a water’s classification, the regulations further provide that any “sources of water pollution which preclude any of these uses on either a short-term or long-term basis shall be considered to be violating a water quality standard.” 15A N.C. Admin. Code 02B .0211(2). In the 401 certification process, DWQ must ensure that “existing uses are not removed or degraded” for waters and wetlands. 15A N.C. Admin. Code 02B .0506(b), (c), (e).

C. Practical Alternatives Exist to the 35-Year Mine Expansion Plan Authorized by the Water Quality Certification

The Division of Water Quality can only approve a 401 certification if it finds there are no practical alternatives to the proposed project, yet issued this 401 Certification for a 35-year project that has practical alternatives. Because the 401 Certification issued to PCS relies on the fundamentally flawed economic analysis presented in the Corps' FEIS, DWQ's analysis of practical alternatives is both incomplete and erroneous.

It is undisputed that DWQ did not conduct a practical alternatives analysis for the last 20 years of mining that is authorized by the 401 Certification. Because DWQ must find that no practical alternatives with less adverse impact to surface waters or wetlands exist for the entire project, DWQ cannot approve a project based on a practical alternatives analysis of only part of that project. But in issuing this 401 Certification, DWQ relied on the practicability analysis in the FEIS, an analysis that only considered potential reconfiguration of the first 15 years of PCS's mine expansion. Based on that analysis – and absent any evaluation of alternative mine plans in years 16 through 35 – the 401 Certification authorizes 35 years of mine expansion. Moreover, when compared to the original 401 Certification, the modified 401 Certification approved additional wetland and stream impacts during this time period without any evaluation of the practical alternatives to that expanded impact.

DWQ's reliance on the FEIS's analysis of practical alternatives over the first 15 years is also erroneous. The Corps's economic analysis that is at the heart of the FEIS's practicability analysis is arbitrarily limited to 15 years, relies on erroneous analyses, and omits important factors. Because of these flaws, the analysis favors more environmentally destructive mine plans at the expense of reasonable alternatives. DWQ's reliance on the fundamentally flawed analysis in the FEIS is misplaced.

Indeed, practical alternatives to the 35-year mine expansion exist. Economic analyses submitted during the EIS process both identified the flaws of the FEIS's practicability analysis and demonstrated that PCS can economically mine substantially fewer acres of waters and wetlands by implementing alternative mine plans to avoid the most sensitive environmental areas.

D. The 401 Certification Approves Buffer Impacts That Are Not Mitigated as Required by the Tar-Pamlico Buffer Rules

The 401 Certification must, but does not, provide reasonable assurance that PCS's mine expansion complies with state water quality standards, including the Tar-Pamlico Buffer Rules. See 15A N.C. Admin. Code 02B .0259, et seq. The 401 Certification authorizes 48 acres of riparian buffer impacts, which require more than 100 acres of mitigation, yet does not include any mitigation that complies with the state water quality standards established by the rules.

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It is undisputed that PCS cannot provide adequate mitigation to offset the buffer impacts authorized by the 401 Certification under existing mitigation rules. The Certification fails to disclose the amount of mitigation required under existing rules, but PCS has conceded that it cannot comply with existing riparian buffer mitigation requirements by twice requesting a variance from the Environmental Management Commission that would allow the company to bypass the requirements. PCS's initial request was denied and the second request was withdrawn. The 401 Certification acknowledges this violation, conditioning the approved impacts on anticipated rulemaking by the EMC and PCS's future compliance with these currently nonexistent rules through the eventual submission of plans and DWQ's approval of those plans under authority that will presumably be granted by the to-be-developed rules. DWQ's conditioning of the 401 Certification on compliance with standards that do not yet exist violates the basic purpose of the certification process, to assure federal permitting agencies that the project complies with state water quality standards, and in fact confirms that the project does not comply with state law.

Even the buffer mitigation DWQ approved fails to meet the requirements of the Tar-Pamlico Buffer Rules. Those rules require all buffer mitigation to be done at least as close to the estuary as the proposed impacts. Despite this requirement, DWQ did not assess the proximity of the 24.4 acres of buffer mitigation accepted in the 401 Certification or determine whether the proposed buffer mitigation is at least as close to the estuary as the impact as required by the rules. Instead, DWQ relied on a new draft interpretation of the buffer mitigation rules released for public comment one day before the original 401 Certification was issued. That draft interpretation, however, conflicts with both the enabling legislation for riparian buffer mitigation and the history of the Tar-Pamlico Buffer Rules. Without this unlawful interpretation, none of PCS's proposed buffer mitigation meets the rule's location requirements.

E. The 401 Certification Authorizes the Destruction of Wetlands of Exceptional National Significance Without the Required Determination of Public Need

The Division of Water Quality failed to make the mandatory public need determination before authorizing impacts to wetlands of exceptional national ecological significance in the 401 Certification. The nonriverine wet hardwood forest that is within the proposed mine expansion represents one of the top five examples of nonriverine wet hardwood forests that remain in the nation. The N.C. Natural Heritage Program has designated the forest a nationally significant natural heritage area. Thus, under the elevated standards for wetlands of exceptional national ecological significance, DWQ must conduct an analysis of the public need for mining impacts to the wet hardwood forest. DWQ did not conduct that analysis. There is no public need for the impact to these wetlands of exceptional ecological significance and authorizing these impacts therefore violated water quality standards.

F. The 401 Certification Would Impair Existing Uses of Surface Waters and Wetlands

The impacts approved by the 401 Certification will degrade existing uses of surface waters and wetlands in violation of water quality standards. As described above, the Pamlico River plays an important role in the entire coastal ecosystem of North Carolina. The tributaries to the Pamlico River are integral to the river's natural and economic value. The mine expansion authorized by the 401 Certification will reduce the drainage basins of nine creeks within the project area by at least half of their existing basins, including four creeks that the N.C. Wildlife Resources Commission has identified as primary nursery areas because of the habitat they provide for juvenile finfish and shellfish. Three of those primary nursery areas, as well as other creeks that will be affected by mining, flow into a special secondary nursery area, South Creek.

Impacts to these sensitive areas will affect food webs within the estuarine ecosystem, alter the rate of nutrient loading into the estuary, and reduce important freshwater inputs from the drainage basins. The mine expansion will have significant adverse impacts to public trust waters, fish habitat, and water quality. The indirect effects of the project include negative impacts associated with heavy metal contamination, drainage basin reductions, long-term water quality impacts from mining, and loss of wetland functions. Because of these significant adverse impacts to natural resources, the N.C. Division of Marine Fisheries, N.C. Wildlife Resources Commission, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and South Atlantic Fisheries Management Council recommended denial of a permit for the mine expansion authorized by the 401 Certification.

Further, the authorized mine expansion would degrade existing uses within the nationally significant nonriverine wet hardwood forest. The 401 Certification approves mining on three sides of the remnant segments of this forest, an excavation scheme that will disturb the existing hydrological structure that supports this rare forest.

Rather than modifying the mine plan to avoid these impacts, the 401 Certification requires monitoring to confirm these adverse effects. But monitoring for the loss of existing uses, and therefore violations of water quality standards, does not fulfill DWQ's obligation to provide reasonable assurance that the project will not violate water quality standards.

In addition, the proposed mitigation will not replace existing uses that will be eliminated by the mine expansion. A substantial portion of the proposed mining impacts will occur adjacent to the Pamlico River, eliminating wetlands and surface waters that currently buffer the river from the impacts of PCS's mine operation. The location of these wetlands and tidal creeks is important in determining the uses they provide. PCS's proposed mitigation sites are not near the estuary, will not perform the same functions as the existing streams and wetlands, and cannot replace the existing uses that will be lost under this 401 Certification.

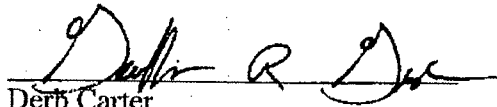
**G. The Modified 401 Certification Was Issued Without Public Notice
Required by the Original 401 Certification**

The 401 Certification that DWQ issued on December 5, 2008 required DWQ to provide public notice under the standards established in 15A N.C. Admin. Code 02H .0503. That rule requires that the agency follow established procedures before taking action on a 401 certification. Those procedures require DWQ to inform the public of the specific plan under consideration and provide a minimum of 15 days of notice before taking agency action. Despite this requirement, the agency issued the modified 401 Certification on January 15, 2009 without public notice.

IV. CONCLUSION

For the foregoing reasons, DWQ exceeded its authority, acted erroneously, failed to use proper procedure, acted arbitrarily and capriciously, and failed to act as required by law or rule in approving and issuing the Water Quality Certification. Accordingly, the Water Quality Certification for PCS Phosphate's mine expansion must be vacated and remanded to DWQ.

Respectfully submitted this 12th day of March, 2009.



Derb Carter

Geoff Gisler

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Attorneys for the PAMLICO-TAR RIVER FOUNDATION,
NORTH CAROLINA COASTAL FEDERATION,
ENVIRONMENTAL DEFENSE FUND, and SIERRA CLUB



Beverly Hayes Perdue, Governor

Dee Freeman, Secretary
North Carolina Department of Environment and Natural Resources

Coleen H. Sullins, Director
Division of Water Quality

January 15, 2009

Mr. Ross M. Smith, Manager
Environmental Affairs
PCS Phosphate Company, Inc.
P.O. Box 48
Aurora, NC 27808

Re: PCS Phosphate Mine Expansion, Beaufort County
DWQ #2008-0868, version 2.0; USACE Action ID. No. 200110096
MODIFIED APPROVAL of 401 Water Quality Certification with Additional Conditions

Dear Mr. Smith:

Attached hereto is a copy of Certification No. 3771 issued to PCS Phosphate Company, Inc. of Aurora, NC, dated January 15, 2009. In addition, you must get any other federal, state or local permits before you proceed with your project including (but not limited to) Solid Waste, Sediment and Erosion Control, Stormwater, Dam Safety, Mining, Non-discharge and Water Supply Watershed regulations. This Certification completely replaces one issued to you on December 6, 2008.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Coleen H. Sullins

CHS/jrd

Attachments: Certificate of Completion

cc: Mr. Tom Walker, U.S. Army Corps of Engineers, Asheville Regulatory Field Office
Dave Lekson, US Army Corps of Engineers, Washington Regulatory Field Office
Scott McLendon, Wilmington District, USACE
Kyle Barnes, DWQ, Washington Regional Office
Al Hodge, DWQ, Washington Regional Office
DLR Washington Regional Office
File Copy
Matt Matthews, DWQ Wetlands and Stormwater Branch
Cyndi Karoly, DWQ
John Payne, NC Attorney General's Office, Environmental Division
Mike Schafele, NC Natural Heritage Program

Linda Pearsall, NC Natural Heritage Program
Jimmie Overton, DWQ
Jeff Fumess, PCS Phosphate
Stephen Rynas, NC Division of Coastal Management
Shannon Deaton, NC Wildlife Resources Commission
Derb Carter, Southern Environmental Law Center
Geoffrey Gisler, Southern Environmental Law Center
Heather Jacobs, Pamlico Tar River Foundation
Sean McKenna, NC Division of Marine Fisheries
Eric Kulz, DWQ
Tammy Hill, DWQ
Becky Fox, US Environmental Protection Agency
Tom Welborn, US Environmental Protection Agency – Region 4 Atlanta
Melba McGee, DENR
Dee Freeman, DENR
Coleen Sullins, DWQ
Chuck Wakild, DWQ
Paul Rawls, DWQ
Ted Strong, Washington Daily News
Susan Massengale, DWQ
Julia Berger, CZR
George House, Brooks, Pierce, McLendon, Humphrey and Leonard, LLP
Jim Stanfill, EEP
Mary Penny Thompson, DENR
Susan Massengale, DWQ
Ann Deaton, NC Division of Marine Fisheries
John Hennessy, DWQ
Ted Strong, Washington Daily News
Wade Rawlins, News and Observer

Filename: 20080868v2PCSPhosphate(Beaufort) 401 modified

NORTH CAROLINA 401 WATER QUALITY CERTIFICATION

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H, Section .0500 to PCS Phosphate Company, Inc. of Aurora, NC based on an application to fill 4,124 acres of jurisdictional wetlands, 29,288 linear feet of streams, 19 acres of ponds and 55.14 acres of stream buffers in the Pamlico River Basin, associated with the expansion of PCS Phosphate's mining operation including the relocation of Highway 306 and Sandy Landing Road in Beaufort County, North Carolina, pursuant to an application filed on the 22nd day of May of 2008 through the published Public Notice by the US Army Corps of Engineers, and in additional correspondence received September 5, 2008 (dated September 4, 2008), November 3, 2008 (received November 5, 2008), December 19, 2008 (received December 22, 2008) and proposed impact maps dated January 6, 2009.

The application and supporting documentation provide adequate assurance that the proposed work will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application, the supporting documentation, the additional correspondence noted above and conditions hereinafter set forth.

This approval is only valid for the purpose and design submitted in the application materials, additional correspondence and as described in the Public Notice. If the property is sold after the Certification is granted, the new owner must be given a copy of the Certification and approval letter and is thereby responsible for complying with all conditions of this Certification. Any new owner must notify the Division and request the Certification be issued in their name. Should wetland, buffer or stream fill be requested in the future, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). If any plan revisions from the approved site plan result in a change in stream, buffer or wetland impact or an increase in impervious surfaces, the DWQ shall be notified in writing and a new application for 401 Certification may be required and a modified 401 Certification may be required. For this approval to be valid, compliance with all the conditions listed below is required.

Conditions of Certification:

1. Impacts Approved

The following impacts are hereby approved as long as all of the other specific and general conditions of this Certification are met. No other impacts are approved including incidental impacts other than listed in this table. Also, please note that these impacts are those approved by DWQ and are only a portion of the impacts that were originally applied for and listed in the Public Notice. These impacts are depicted on maps entitled "PCS Phosphate Mine Continuation - Modified Alt. L - NPCS, Bonneron and South of 33 Proposed Impact" dated January 6, 2009.

	Amount Approved (Units)	Plan Location or Reference
Streams	25,727 feet	Final EIS, page e as well as June 6, 2008 and December 19, 2008 submittals to DWQ
404/CAMA Wetlands	3,953 acres	Final EIS, page e as well as June 6, 2008 and December 19, 2008 submittals to DWQ
Waters	19 acres	Final EIS, page e as well as June 6, 2008 and December 19, 2008 submittals to DWQ
Buffers	47.87 acres	Final EIS, page e as well as June 6, 2008 and December 19, 2008 submittals to DWQ

Sediment and Erosion Control:

2. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act or Mining Act of 1971 (as amended).
3. No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the 404/401 Permit Application. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices, shall be performed so that no violations of state water quality standards, statutes, or rules occur.
4. Sediment and erosion control measures shall not be placed in wetlands or waters without prior approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or stream beds or banks, adjacent to or upstream and down stream of the above structures. All sediment and erosion control devices shall be removed and the natural

grade restored within two (2) months of the date that the Division of Land Resources or locally delegated program has released the project.

Continuing Compliance:

5. PCS Phosphate Company, Inc. shall conduct construction activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with section 303(d) of the Clean Water Act), the 401 Water Quality Certification rules (15A NCAC 2H .0500) and any other appropriate requirements of State law and federal law. If the Division determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the Division may reevaluate and modify this Certification to include conditions appropriate to assure compliance with such standards and requirements in accordance with 15A NCAC 2H .0507(d). Before modifying the Certification, the Division shall notify PCS Phosphate Company, Inc. and the US Army Corps of Engineers, provide public notice in accordance with 15A NCAC 2H.0503 and provide opportunity for public hearing in accordance with 15A NCAC 2H.0504. Any new or revised conditions shall be provided to PCS Phosphate Company, Inc. in writing, shall be provided to the United States Army Corps of Engineers for reference in any Permit issued pursuant to Section 404 of the Clean Water Act, and shall also become conditions of the 404 Permit for the project. This condition is intended to conform with the provisions of 15A NCAC 2H .0507 (d).

Mitigation:

6. Wetland and stream mitigation shall be done as follows and in accordance with mitigation as approved by the US Army Corps of Engineers. DWQ shall be copied on all draft mitigation plans and copied on all annual reporting on mitigation success. In addition, buffer mitigation shall be done in accordance with condition 7 below. In addition, DWQ shall be copied on a final accounting of the amount and type of proposed wetland, stream and buffer mitigation within 60 days of the issuance of the 404 Permit from the US Army Corps of Engineers. Any mitigation done outside the 8-digit HUC where PCS is located should follow the guidance for out of HUC mitigation as described in "Guidance on the Use of Compensatory Mitigation in Adjacent Cataloging Units" dated May 20, 2005 or its update by DWQ. Conservation easements or similar mechanisms to protect these mitigation sites shall be recorded on all mitigation sites to the written satisfaction of the US Army Corps of Engineers.
7. Buffer mitigation shall be conducted by PCS Phosphate at those mitigation sites with riparian buffer credit which total about 24.4 acres of buffer credit. If the Environmental Management Commission approves a flexible buffer mitigation program, then PCS Phosphate may submit a list and description of those sites to DWQ for written approval. If no additional riparian buffer mitigation sites and no flexible buffer mitigation sites are approved by DWQ and/or the NC Environmental Management Commission, then disturbance of buffers in the NCPC, Bonnerton or South of 33 tracts shall not be done beyond the limits of the 2014 impact area shown on PCS' Project Impact Schedule Year 2008-2016 (generally south of Drinkwater Creek) (see Attachment One). DWQ shall be copied on all buffer mitigation site plans and written approval from DWQ is required for these plans before planting or land grading occurs.

8. Porter Creek enhancement – Additional written approval is required from DWQ for a wetland enhancement and stream restoration plan as well as a monitoring plan for the stream, headwater forest and hardwood flat at the upper end of Porter Creek. This plan shall include plugging or filling the existing ditch in order to reestablish surface flow into the wetland and stream channel. DWQ acknowledges wetland functional uplift for the 3.4 acre hardwood flat that is located between the stream and existing ditch and will count 1.7 acres of functional uplift of these non-riparian wetlands in order to account for DWQ's mitigation requirement in 15A NCAC 2H .0506 (h)(6). Stream mitigation credits are also available for the restoration of flow into the existing channel with appropriate monitoring and wetland mitigation for the functional uplift of the headwater forest if additional analysis documents that uplift.

Additional Minimization of impact:

9. Hardwood Flat Avoidance and Minimization – Impact to the 135 acre ("135 A" on Attachment Two) portion, the 58 acre ("58 A" on Attachment Two) portion and the 20 acre secondary connection between these two locations ("20 acre connect" on Attachment Two) of the Bonnerton Road Non-Riverine Wet Hardwood Forest as depicted on Exhibit A of the letter dated October 20, 2008 from George House of Brooks, Pierce, McLendon, Humphrey and Leonard, LLP to Paul Rawls of the NC Division of Water Quality shall be avoided and the area not mined or cleared since this wetland is a "wetland of exceptional state or national ecological significance" in accordance with 15A NCAC 2H .0506(e) except that a 1,145 foot wide mining and utility corridor is allowed in the narrowest part of the Bonnerton Road Non-Riverine Wet Hardwood Forest. Mining is also allowed in the northeast triangle of "58A" WHR area as outlined in exhibit 14 of PCS's December 19, 2008 letter. In order to protect the uses of this Non-Riverine Wet Hardwood Forest wetland that will not be mined, a conservation easement shall be placed on the wetland and restored mining and utility corridor to preclude impacts including mining, logging and any other disturbance of the vegetation or soils that would result in its delisting as a state or nationally significant wetland area. This conservation easement shall be sent to DWQ within 60 days of the issuance of the 404 Permit and the Division must review and approve this easement before it is recorded. Eventual donation to a local land trust or similar organization is acceptable to DWQ with DWQ's written approval.

The exact location of this 1,145 foot wide mining corridor shall be submitted to DWQ and the Corps of Engineers for written approval. A detailed stratigraphy study shall be done on both sides and throughout the area to be mined in order to determine the presence, extent and permeability of any aquitards and aquicludes (mainly clay-based) within the mining corridor. A plan for restoration of each of these aquitards and aquicludes shall be included with the revegetation plan in order to ensure that pre-mining hydrology is reestablished in the mining corridor. Additional written approval is needed from DWQ before this stratigraphic study is done or restoration is initiated. Groundwater monitoring shall be done before, during and after mining and restoration for at least 10 years post-mining in order to ensure that restoration has established reference hydrology for this site. In addition, a reclamation and revegetation plan for the mining corridor shall be submitted to DWQ for written approval. The reclamation plan for the mining corridor shall include the installation of appropriate topsoil on the site within the rooting zone of the restored hardwood flat. The width of the reclamation zone shall ensure that a continuous hardwood flat is restored to reconnect the two undisturbed hardwood flats with a width similar to the width of the remnant, undisturbed hardwood flats. Revegetation shall be done with native tree species. The mining corridor shall be restored and replanted within ten (10) years of the initiation of mining preparation

for the area. DWQ shall be copied on a letter once that mining preparation begins on the mining corridor in order to establish this ten year clock.

10. Additional minimization of appx. 3 acres of wetland impact shall be provided for the NCPC tract as depicted on the letter from PCS Phosphate dated November 3, 2008 to John Dorney of the NC Division of Water Quality.
11. South of 33 tract – The impact boundaries for the South of 33 tract shall be as outlined in an email from Mr. Tom Walker of the US Army Corps of Engineers dated August 19, 2008 (forwarded to Mr. John Dorney of the Division of Water Quality on December 13, 2008).

Monitoring

12. Groundwater monitoring – Additional written approval is required from DWQ for a final groundwater monitoring plan that supplements and complements the existing groundwater monitoring that is being conducted by PCS for various state and federal agencies. In addition to other parameters subject to groundwater standards, cadmium and fluoride shall be monitored in the final groundwater monitoring plan. This plan shall include groundwater monitoring of the protected portion of the Bonnerston Road Non-Riverine Wet Hardwood Forest as noted in condition 9 above in order to ensure that the existing hydrology of this site is maintained. This monitoring shall focus on the "58A" area of the Bonnerston Road Non-Riverine Wet Hardwood Forest to ensure that its groundwater hydrology is maintained.
13. Stream and watershed monitoring – The existing water management and stream monitoring plan for water quality, water quantity and biology (macroinvertebrates and fish) shall be continued for the life of the Permit by the applicant. Additional monitoring shall be proposed by the applicant and approved by DWQ for tributaries in the Bonnerston and South of 33 tracts before land clearing or impacts occur to those locations. This additional monitoring plan shall collect data from a representative number of streams in each tract and be designed to assure the protection of downstream water quality standards including Primary and Secondary Nursery Area functions in tributaries to South Creek, Porter Creek, Durham Creek and the Pamlico River adjacent to the mine site. Monitoring locations shall include the upper end of Porter Creek in the "58A" portion of the Bonnerston Road Non-Riverine Wet Hardwood Forest in order to ensure that hydrology of this wet hardwood forest is maintained.

The plan shall identify any deleterious effects to riparian wetland functions including by not limited to water storage, pollutant removal, streambank stabilization, as well as resident wetland-dependent aquatic life and resident wetland-dependent wildlife and aquatic life in wetlands and streams tributary to the Pamlico River in the NCPC, Bonnerston and South of 33 tracts. If necessary, management activities to protect or restore these uses will be required for all the tributaries of these three tracts.

PCS shall notify DWQ in writing at least one month in advance of any biological sampling so DWQ biologists can accompany PCS biologists as needed. Also a certified lab is required for the identification of freshwater benthic macroinvertebrate samples. For estuarine samples, a knowledgeable lab shall be used until such time as DWQ certifies laboratories for estuarine analysis and after that time, only suitably certified labs shall be used. Finally a fish monitoring plan shall be included in the final monitoring plan submitted to DWQ for written approval.

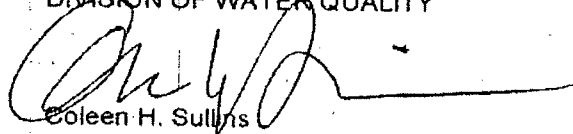
January 15, 2009

This stream and watershed monitoring plan shall be submitted to DWQ for written approval within six months of the issuance of the 404 Permit. Seven copies (two hard copies and five CD's) of the draft plan and annual reports shall be submitted to DWQ for circulation and review by the public and other federal and state agencies.

Expiration of Certification – This approval to proceed with your approved impacts or to conduct impacts to waters as depicted in your application shall expire upon expiration of the 404 Permit with the proviso that changes to this Certification may be made in accordance with condition 5 (Continuing Compliance) above.

If this Certification is unacceptable to you, you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this modified Certification. Since as noted above, this Certification completely replaces the one issued to you on December 6, 2008, the sixty (60) day appeal period is for all the conditions of this modified Certification. Any request for adjudicatory hearing must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 15th day of January 2009
DIVISION OF WATER QUALITY



Coleen H. Sullins

CHS/jrd



Michael F. Easley, Governor

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Coleen H. Sullins, Director
Division of Water Quality

December 5, 2008

Mr. Ross M. Smith, Manager
Environmental Affairs
PCS Phosphate Company, Inc.
P.O. Box 48
Aurora, NC 27808

Re: PCS Phosphate Mine Expansion, Beaufort County
DWQ #2008-0868, version 2.0; USACE Action ID. No. 200110096
APPROVAL of 401 Water Quality Certification with Additional Conditions

Dear Mr. Smith:

Attached hereto is a copy of Certification No. 3771 issued to PCS Phosphate Company, Inc. of Aurora, NC, dated December 5, 2008. In addition, you must get any other federal, state or local permits before you proceed with your project including (but not limited to) Solid Waste, Sediment and Erosion Control, Stormwater, Dam Safety, Mining, Non-discharge and Water Supply Watershed regulations.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Coleen H. Sullins

CHS/jrd

Attachments: Certificate of Completion

cc: Mr. Tom Walker, U.S. Army Corps of Engineers, Asheville Regulatory Field Office
Dave Lekson, US Army Corps of Engineers, Washington Regulatory Field Office
Scott McLendon, Wilmington District, USACE
Kyle Barnes, DWQ, Washington Regional Office
Al Hodge, DWQ, Washington Regional Office
DLR Washington Regional Office
File Copy
Matt Matthews, DWQ Wetlands and Stormwater Branch
Cyndi Karoly, DWQ
John Payne, NC Attorney General's Office, Environmental Division
Mike Schafele, NC Natural Heritage Program
Linda Pearsall, NC Natural Heritage Program

401 Oversight/Express Review Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: <http://h2o.enr.state.nc.us/newwetlands>

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EXHIBIT 2

Jimmie Overton, DWQ
Jeff Furness, PCS Phosphate
Stephen Rynas, NC Division of Coastal Management
Shannon Deaton, NC Wildlife Resources Commission
Derb Carter, Southern Environmental Law Center
Geoffrey Gisler, Southern Environmental Law Center
Heather Jacobs, Pamlico Tar River Foundation
Sean McKenna, NC Division of Marine Fisheries
Eric Kulz, DWQ
Tammy Hill, DWQ
Becky Fox, US Environmental Protection Agency
Tom Welborn, US Environmental Protection Agency – Region 4 Atlanta
Melba McGee, DENR
Bill Ross, DENR
Coleen Sullins, DWQ
Chuck Wakild, DWQ
Paul Rawls, DWQ
Ted Strong, Washington Daily News
Susan Massengale, DWQ
Julia Berger, CZR
George House, Brooks, Pierce, McLendon, Humphrey and Leonard, LLP
Jim Stanfill, EEP
Mary Penny Thompson, DENR
Susan Massengale, DWQ
Ann Deaton, NC Division of Marine Fisheries
John Hennessy, DWQ

Filename: 20080868v2PCSPhosphate(Beaufort) 401

NORTH CAROLINA 401 WATER QUALITY CERTIFICATION

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H, Section .0500 to PCS Phosphate Company, Inc. of Aurora, NC based on an application to fill 4,124 acres of jurisdictional wetlands, 29,288 linear feet of streams and 55.14 acres of stream buffers in the Pamlico River Basin, associated with the expansion of PCS Phosphate's mining operation in Beaufort County, North Carolina, pursuant to an application filed on the 22nd day of May of 2008 through the published Public Notice by the US Army Corps of Engineers, and in additional correspondence received September 5, 2008 (dated September 4, 2008) and November 3, 2008 (received November 5, 2008).

The application and supporting documentation provide adequate assurance that the proposed work will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application, the supporting documentation, the additional correspondence noted above and conditions hereinafter set forth.

This approval is only valid for the purpose and design submitted in the application materials, additional correspondence and as described in the Public Notice. If the property is sold after the Certification is granted, the new owner must be given a copy of the Certification and approval letter and is thereby responsible for complying with all conditions of this Certification. Any new owner must notify the Division and request the Certification be issued in their name. Should wetland, buffer or stream fill be requested in the future, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). If any plan revisions from the approved site plan result in a change in stream, buffer or wetland impact or an increase in impervious surfaces, the DWQ shall be notified in writing and a new application for 401 Certification may be required and a modified 401 Certification may be required. For this approval to be valid, compliance with all the conditions listed below is required.

Conditions of Certification:

1. Impacts Approved

The following impacts are hereby approved as long as all of the other specific and general conditions of this Certification are met. No other impacts are approved including incidental impacts other than listed in this table. Also, please note that these impacts are those approved by DWQ and are only a portion of the impacts that were originally applied for and listed in the Public Notice.

	Amount Approved (Units)	Plan Location or Reference
Streams	18,621 feet	Final EIS, page e and June 6, 2008 submittal to DWQ
404/CAMA Wetlands	3,789 acres	Final EIS, page e and June 6, 2008 submittal to DWQ
Waters	19 acres	Final EIS, page e and June 6, 2008 submittal to DWQ
Buffers	28.14 acres	Final EIS, page e and June 6, 2008 submittal to DWQ

Sediment and Erosion Control:

2. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act or Mining Act of 1971 (as amended).
3. No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the 404/401 Permit Application. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices, shall be performed so that no violations of state water quality standards, statutes, or rules occur.
4. Sediment and erosion control measures shall not be placed in wetlands or waters without prior approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or stream beds or banks, adjacent to or upstream and down stream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources or locally delegated program has released the project.

Continuing Compliance:

5. PCS Phosphate Company, Inc. shall conduct construction activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with section 303(d) of the Clean Water Act), the 401 Water Quality Certification rules (15A NCAC 2H .0500) and any other appropriate requirements of State law and federal law. If the Division determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the Division may reevaluate and modify this Certification to include conditions appropriate to assure compliance with such standards and requirements in accordance with 15A NCAC 2H .0507(d). Before modifying the Certification, the Division shall notify PCS Phosphate Company, Inc. and the US Army Corps of Engineers,

provide public notice in accordance with 15A NCAC 2H.0503 and provide opportunity for public hearing in accordance with 15A NCAC 2H.0504. Any new or revised conditions shall be provided to PCS Phosphate Company, Inc. in writing, shall be provided to the United States Army Corps of Engineers for reference in any Permit issued pursuant to Section 404 of the Clean Water Act, and shall also become conditions of the 404 Permit for the project. This condition is intended to conform with the provisions of 15A NCAC 2H.0507 (d).

Mitigation:

6. Wetland and stream mitigation shall be done as follows and in accordance with mitigation as approved by the US Army Corps of Engineers. DWQ shall be copied on all draft mitigation plans and copied on all annual reporting on mitigation success. In addition, buffer mitigation shall be done in accordance with condition 7 below. In addition, DWQ shall be copied on a final accounting of the amount and type of proposed wetland, stream and buffer mitigation within 60 days of the issuance of the 404 Permit from the US Army Corps of Engineers. Any mitigation done outside the 8-digit HUC where PCS is located should follow the guidance for out of HUC mitigation as described in "Guidance on the Use of Compensatory Mitigation in Adjacent Cataloging Units" dated May 20, 2005 or its update by DWQ. Conservation easements or similar mechanisms to protect these mitigation sites shall be recorded on all mitigation sites to the written satisfaction of the US Army Corps of Engineers.
7. Buffer mitigation shall be conducted by PCS Phosphate at those mitigation sites with riparian buffer credit which total about 23.2 acres of buffer credit. If the Environmental Management Commission approves a flexible buffer mitigation program, then PCS Phosphate may submit a list and description of those sites to DWQ for written approval. If no additional riparian buffer mitigation sites and no flexible buffer mitigation sites are approved by DWQ, then disturbance of buffers in the NCPC, Bonnerton or South of 33 tracts shall not be done beyond the limits of the 2014 mining tract shown on PCS' Project Impact Schedule Year 2008-2016 (generally south of Drinkwater Creek) (see Attachment One). DWQ shall be copied on all buffer mitigation site plans and written approval from DWQ is required for these plans before planting or land grading occurs.
8. Porter Creek enhancement – Additional written approval is required from DWQ for a wetland enhancement and stream restoration plan as well as a monitoring plan for the stream, headwater forest and hardwood flat at the upper end of Porter Creek. This plan shall include plugging or filling the existing ditch in order to reestablish surface flow into the wetland and stream channel. DWQ acknowledges wetland functional uplift for the 3.4 acre hardwood flat that is located between the stream and existing ditch and will count 1.7 acres of functional uplift of these non-riparian wetlands in order to account for DWQ's mitigation requirement in 15A NCAC 2H.0506 (h)(6). Stream mitigation credits are also available for the restoration of flow into the existing channel with appropriate monitoring.

Additional Minimization of impact:

9. Hardwood Flat Avoidance – Impact to the 135 acre ("135 A" on Attachment Two) portion, the 58 acre ("58 A" on Attachment Two) portion and the 20 acre secondary connection between these two locations ("20 acre connect" on Attachment Two) of the Bonnerton Road Non-Riverine Wet Hardwood Forest as depicted on Exhibit A of the letter dated October 20, 2008 from George House of Brooks, Pierce, McLendon, Humphrey and Leonard, LLP to Paul Rawls of the NC Division of Water Quality shall be avoided and the area not mined or

cleared since this wetland is a "wetland of exceptional state or national ecological significance" in accordance with 15A NCAC 2H .0506(e). In order to protect the uses of this wetland, a conservation easement shall be placed on the wetland to preclude impacts including mining, logging and any other disturbance of the vegetation or soils that would result in its delisting as a state or nationally significant wetland area. This conservation easement shall be sent to DWQ within 60 days of the issuance of the 404 Permit and the Division must review and approve this easement before it is recorded. The only exception to this avoidance is that a dragline walkpath with a width of no more than 250 feet shall be allowed in order to allow equipment to travel from the northern part of the Bonnerton tract to the southern part of the Bonnerton tract. The exact location of this walkpath shall be submitted to DWQ for written approval. In addition, a revegetation plan for the walkpath shall be submitted to DWQ for written approval and revegetation shall be done with native tree species once the walkpath has been accessed and is no longer needed for equipment access.

10. Additional minimization of appx. 3 acres of wetland impact shall be provided for the NCPC tract as depicted on the letter from PCS Phosphate dated November 3, 2008 to John Dorney of the NC Division of Water Quality.
11. South of 33 tract – The boundaries for the SCR alternative shall be followed for the South of 33 tract.

Monitoring

12. Groundwater monitoring – Additional written approval is required from DWQ for a final groundwater monitoring plan that supplements and compliments the existing groundwater monitoring that is being conducted by PCS for various state and federal agencies. In addition to other parameters, cadmium and fluoride shall be monitored in the final groundwater monitoring plan. This plan shall include groundwater monitoring of the protected portion of the Bonnerton Road Non-Riverline Wet Hardwood Forest in order to ensure that the existing hydrology of this site is maintained.
13. Stream and watershed monitoring – The existing water management and stream monitoring plan for water quality, water quantity and biology (macrobenthos and fish) shall be continued for the life of the Permit by the applicant. This plan shall be designed to assure the protection of downstream water quality standards including Primary and Secondary Nursery Area functions in all tributaries to South Creek, Porter Creek, Durham Creek and the Pamlico River adjacent to the mine site. Additional monitoring shall be proposed by the applicant and approved by DWQ for tributaries in the Bonnerton and South of 33 tracts before land clearing or impacts occur to those locations.

The plan shall identify any deleterious effects to riparian wetland functions including by not limited to water storage, pollutant removal, streambank stabilization, as well as resident wetland-dependent aquatic life and resident wetland-dependent wildlife and aquatic life in streams tributary to the Pamlico River in the NCPC, Bonnerton and South of 33 tracts. If necessary, management activities to protect or restore these uses will be required for all the tributaries of these three tracts.

PCS shall notify DWQ in writing at least one month in advance of any biological sampling so DWQ biologists can accompany PCS biologists as needed. Also a certified lab is required for the identification of freshwater biological samples. For estuarine samples, a

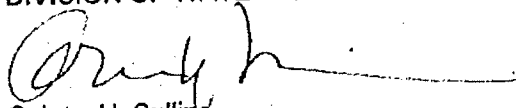
knowledgeable lab shall be used until such time as DWQ certifies laboratories for estuarine analysis and after that time, only suitably certified labs shall be used. Finally a fish monitoring plan shall be included in the final monitoring plan submitted to DWQ for written approval.

This stream and watershed monitoring plan shall be submitted to DWQ for written approval within six months of the issuance of the 404 Permit. Seven copies (two hard copies and five CD's) of the draft plan and annual reports shall be submitted to DWQ for circulation and review by the public and other federal and state agencies.

Expiration of Certification – This approval to proceed with your proposed impacts or to conduct impacts to waters as depicted in your application shall expire upon expiration of the 404 Permit with the proviso that changes to this Certification may be made in accordance with condition 5 (Continuing Compliance) above.

If this Certification is unacceptable to you, you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

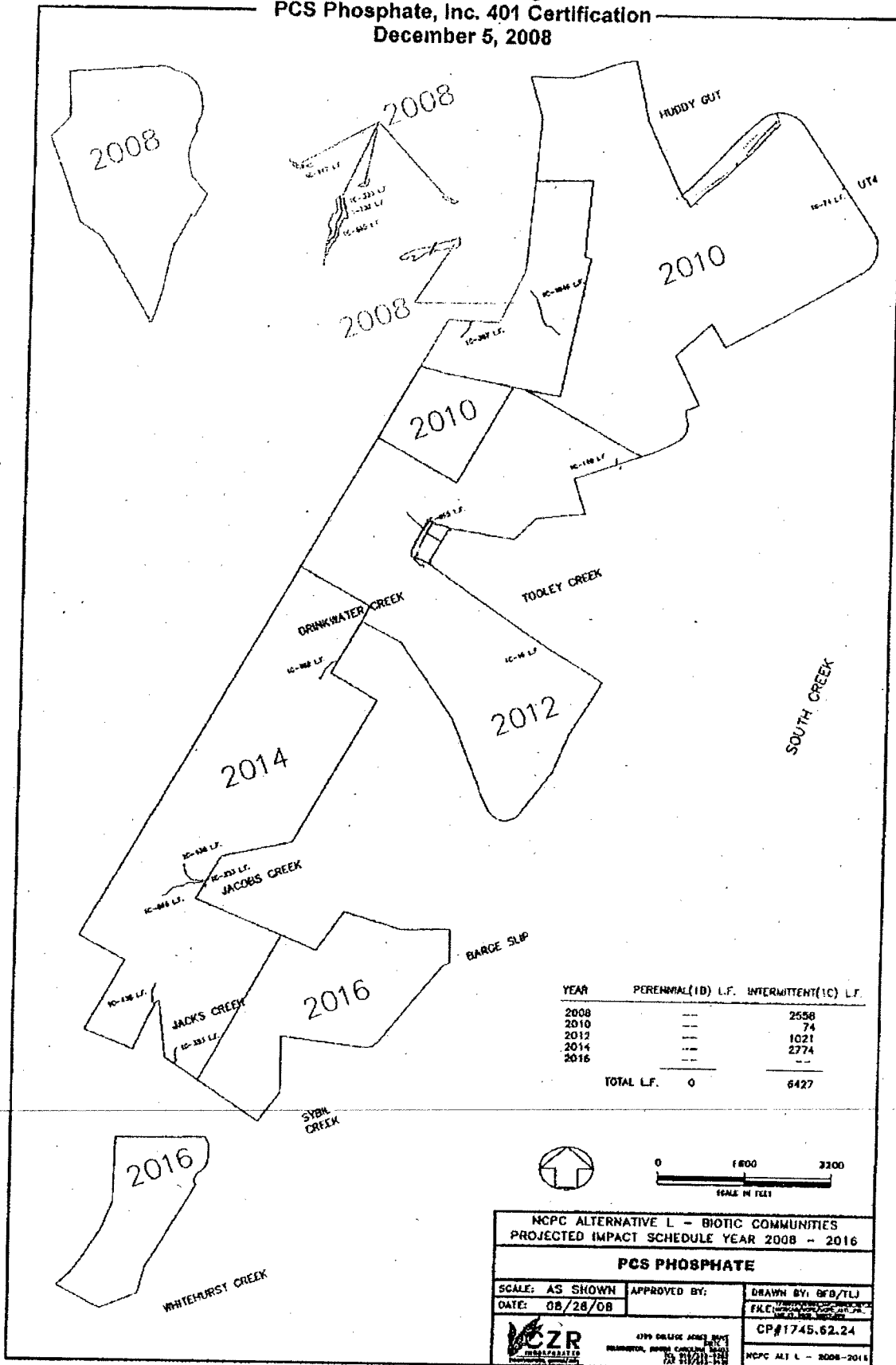
This the 5th day of December 2008
DIVISION OF WATER QUALITY



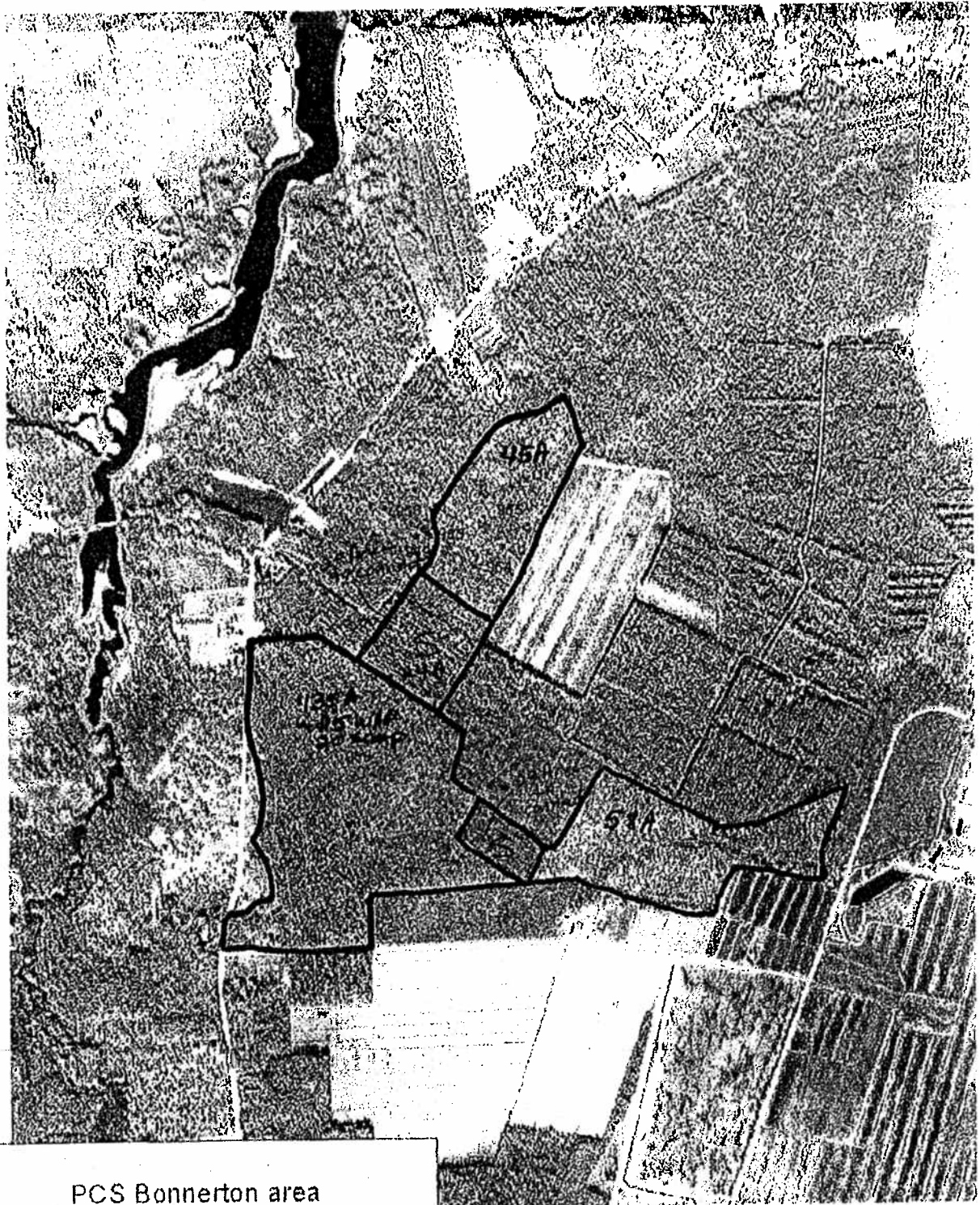
Coleen H. Sullins

CHS/jrd

Attachment One
Riparian Buffer Mitigation
PCS Phosphate, Inc. 401 Certification
December 5, 2008



Attachment Two
Hardwood Flat Avoidance
PCS Phosphate, Inc. 401 Certification
December 5, 2008



PCS Bonnerton area

S = Secondary areas for connection
Heavy black line = SNHA (Sign. nat. heritage area)

CERTIFICATE OF SERVICE

I hereby certify that I delivered the foregoing Petition for a Contested Case Hearing, with attachments, by electronic mail and by U.S. mail, first-class postage prepaid, to the following:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
oah.clerks@oah.nc.gov

I further certify that I served the foregoing Petition for a Contested Case Hearing, with attachments, on the following in the manner indicated:

Mary Penny Thompson.
General Counsel and Registered Agent
N.C. Department of Environment and
Natural Resources
512 North Salisbury St.
14th Floor
Raleigh, NC 27604
Via certified mail

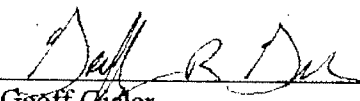
PCS Phosphate Company, Inc.
c/o Corporation Service Company,
Registered Agent
327 Hillsborough Street
Raleigh, NC 27603
Via certified mail

Ross Smith
PCS Phosphate Company, Inc.
PO Box 48
Aurora, NC 27808
Via first-class mail

George W. House
Brooks, Pierce, McLendon, Humphrey
& Leonard
2000 Renaissance Plaza
230 North Elm Street
Greensboro, NC 27401
Via first-class mail

John A. Payne
Assistant Attorney General
State of North Carolina
Dept. Of Justice
PO Box 629
Raleigh, NC 27602
Via first-class mail

This the 12th day of March, 2009.



Geoff Gisler
Southern Environmental Law Center



Tom Welborn/R4/USEPA/US

03/13/2009 05:41 AM

To "Ken Jolly" <samuel.k.jolly@usace.army.mil>, "Tom Walker" <William.t.walker@usace.army.mil>

cc Rebecca Fox/R4/USEPA/US@EPA, Jennifer Derby/R4/USEPA/US@EPA

bcc

Subject Conf call on PCS

History:

☞ This message has been replied to.

Ken, as we discussed yesterday, we are still briefing EPA management on the potential elevation of the PCS permit but would like to discuss some options and regional management have asked me to talk with you and your staff next week when you are back in the office. Tom, Ken indicated he would be out today but if you could give me some times that Ken and yourself may be available on Monday or Tuesday for a call I would appreciate hearing back as soon as possible so we can let EPA staff know. Thanks.
Sent by EPA Wireless E-Mail Services



"Heather"
<riverkeeper@ptrf.org>
03/13/2009 09:36 AM

To Rebecca Fox/R4/USEPA/US@EPA
cc
bcc

Subject RE: FW: Petition has been filed, release is pending

History: This message has been replied to.

Absolutely, it's public now.

Thanks.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Thursday, March 12, 2009 7:38 PM
To: Heather
Subject: Re: FW: Petition has been filed, release is pending

Can I share this with FWS and NMFS?

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

03/12/2009 12:53 PM

To Rebecca Fox/R4/USEPA/US@EPA
cc
Subject
FW: Petition has been filed,
release is pending

FYI

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org.
Waterkeeper Alliance Member

From: Geoff Gisler [mailto:ggisler@selcnc.org]
Sent: Thursday, March 12, 2009 12:51 PM
To: 'Heather'; 'David Emmerling'; David McNaught; 'Sam Pearsall';
toddm@nccoast.org; 'Jim Stephenson'; 'Molly Diggins'
Cc: Derb Carter; Kathleen Sullivan
Subject: Petition has been filed, release is pending

All,
The petition was just filed. I have attached a copy. The press release
will go out shortly.
Geoff

Geoff Gisler
Staff Attorney
Southern Environmental Law Center
200 W. Franklin St. Suite 330
Chapel Hill, NC 27516
Ph: (919) 967-1450
Fax: (919) 929-9421
www.southernenvironment.org

[attachment "03-12-09 - Petition for Contested Case Hearing.pdf"
deleted by Rebecca Fox/R4/USEPA/US]

>
> Becky Fox
> Wetland Regulatory Section
> USEPA
> Phone: 828-497-3531
> Email: fox.rebecca@epa.gov

--

Pace Wilber, Ph.D.
Atlantic Branch Chief, Charleston (F/SER47)
Southeast Regional Office, NOAA Fisheries
PO Box 12559
Charleston, SC 29422-2559

843-953-7200
FAX 843-953-7205
pace.wilber@noaa.gov

<http://sero.nmfs.noaa.gov/dhc/habitat.htm>



"Heather"
<riverkeeper@ptrf.org>
03/13/2009 10:51 AM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject: RE: FW: Petition has been filed, release is pending

History: This message has been replied to.

When I asked Geoff before, his first response was that it really does nothing-- there is no automatic stay. I've asked for him to confirm and will let you know if any different.

I guess the only thing is that if the 401 is overturned or thrown out, then any 404 that would be issued would then be invalid.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Friday, March 13, 2009 10:26 AM
To: Heather
Subject: RE: FW: Petition has been filed, release is pending

Thanks, that's what I thought. I sent it on. NMFS and FWS both thought it would help them with their upper mgmts. Do you know what this does to 404 process while this is being resolved???

Still no definite from our RA... b

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"

<riverkeeper@ptrf.org>

03/13/2009 09:36 AM

To
Rebecca Fox/R4/USEPA/US@EPA
cc
Subject
RE: FW: Petition has been filed,
release is pending

Absolutely, it's public now.

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Heather Jacobs Deck
Pamlico-Tar Riverkeeper
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Sent: Thursday, March 12, 2009 7:38 PM
To: Heather
Subject: Re: FW: Petition has been filed, release is pending

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Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

03/12/2009 12:53 PM

Rebecca Fox/R4/USEPA/US@EPA

To

cc

Subject

FW: Petition has been filed,
release is pending

FYI

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation

Phone: (252) 946-7211
Cell: (252) 402-5644
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www.ptrf.org.
Waterkeeper Alliance Member

From: Geoff Gisler [mailto:ggisler@selcnc.org]
Sent: Thursday, March 12, 2009 12:51 PM
To: 'Heather'; 'David Emmerling'; David McNaught; 'Sam Pearsall';
toddm@nccoast.org; 'Jim Stephenson'; 'Molly Diggins'
Cc: Derb Carter; Kathleen Sullivan
Subject: Petition has been filed, release is pending

All,
The petition was just filed. I have attached a copy. The press release
will go out shortly.
Geoff

Geoff Gisler
Staff Attorney
Southern Environmental Law Center
200 W. Franklin St. Suite 330
Chapel Hill, NC 27516
Ph: (919) 967-1450
Fax: (919) 929-9421
www.southernenvironment.org

[attachment "03-12-09 - Petition for Contested Case Hearing.pdf"
deleted by Rebecca Fox/R4/USEPA/US]




"Walker, William T SAW"
<William.T.Walker@usace.army.mil>

03/13/2009 12:16 PM

To "Pace.Wilber" <Pace.Wilber@noaa.gov>, "Ron Sechler" <ron.sechler@noaa.gov>, <Pete_Benjamin@fws.gov>, <Mike_Wicker@fws.gov>, Tom
cc "Jolly, Samuel K SAW" <Samuel.K.Jolly@usace.army.mil>, "Lamson, Brooke SAW" <Brooke.Lamson@saw02.usace.army.mil>

bcc

Subject

History:  This message has been forwarded.

All,

Thanks for talking with us yesterday. I think we decided to forego our call this morning in lieu of talking by phone next Monday (3/16) and meeting in person next Friday (3/20). Ron, Pace said he would give you a call this morning to brief our discussion yesterday. As always, if you guys have any questions or need anything, please give me a call.

To sum up yesterday, I believe we decided to talk next week about overall agency concerns and potential measures that could reasonably/practicably be taken at this point to further minimize project impacts. A couple of key points discussed were:

- 1) Need for biological monitoring to ensure that avoidance efforts incorporated are successful in mitigating the long term impacts to the estuarine creek communities.
 - Need to better define targets
 - Need to look at NCDWQ requirements (attached is pertinent part of monitoring plan from last permit) and potentially build on them to provide adequate sampling, analysis and reporting protocol.
- 2) Assurance that reclamation efforts are completed and successful.
 - Vegetation monitoring
 - Sampling / monitoring of current reclamation areas
 - Techniques and management for future reclamation (i.e. capping and/or planting requirements)

I have set up a conference call in line, the number is 1-866-717-3308 and the pass code is 1227026. I have reserved the line from 1300 - 1600 Monday afternoon. I would suggest we try to get on-line at 1330. Please let me know if this works within your schedule.

thanks
Tom Walker
(910) 251-4631

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality



James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
A. Preston Howard, Jr., P.E., Director

October 28, 1998

MEMORANDUM

To: Deborah Sawyer; DWQ Washington Regional Office
Larry Eaton; DWQ
Doug Rader; Environmental Defense Fund
Katy West; NC Division Marine Fisheries
Frank McBride; NC Wildlife Resources Commission
Jim Stephenson; Tar-Pamlico River Foundation
Steve Benton; NC Division of Coastal Management

From: John R. Dorney *JRD*
Re: Final approved Stream Monitoring Plan
PCS Phosphate mine expansion
Beaufort County
DWQ # 961120

NOV 2 1998
File 12-01-004-27
pc: WAS
WTC
SRP/00-14-000
TJR
TCY

Enclosed for your future reference is the final stream monitoring plan as required by condition #4 of Water Quality Certification No. 3092 issued to PCS Phosphate Company, Inc.

As we discussed, PCS will prepare annual reports of the data collected by this plan and send them to DWQ by March 1st of each year. These plans will then be sent to (1) the NC Science Advisory Committee, (2) several state agencies (DMF, WRC, DCM), (3) several federal agencies (COE, EPA, NMFS, and USFWS), (4) DWQ internal review and (5) private groups (EDF, PTRF) for a one month review. DWQ will then determine whether the comments warrant a meeting of all review parties of changes in the water management plan.

Thank you for your past assistance in this effort and we look forward to continue working with you in the future. Please call me at 919-733-1786 if you have any questions.

cc: Jeff Furness, PCS Phosphate
Bruce Bolick; CZR
Central Files
David Franklin; Wilmington COE
Dennis Ramsey

NCPC TRACT STREAM MONITORING PROGRAM FOR PCS PHOSPHATE COMPANY, INC.

Prepared by:

**CZR Incorporated, Wilmington, North Carolina
Dr. Wayne Skaggs, P.E.**

Prepared for:

**PCS Phosphate Company, Inc.
Aurora, North Carolina**

Prepared for review by:

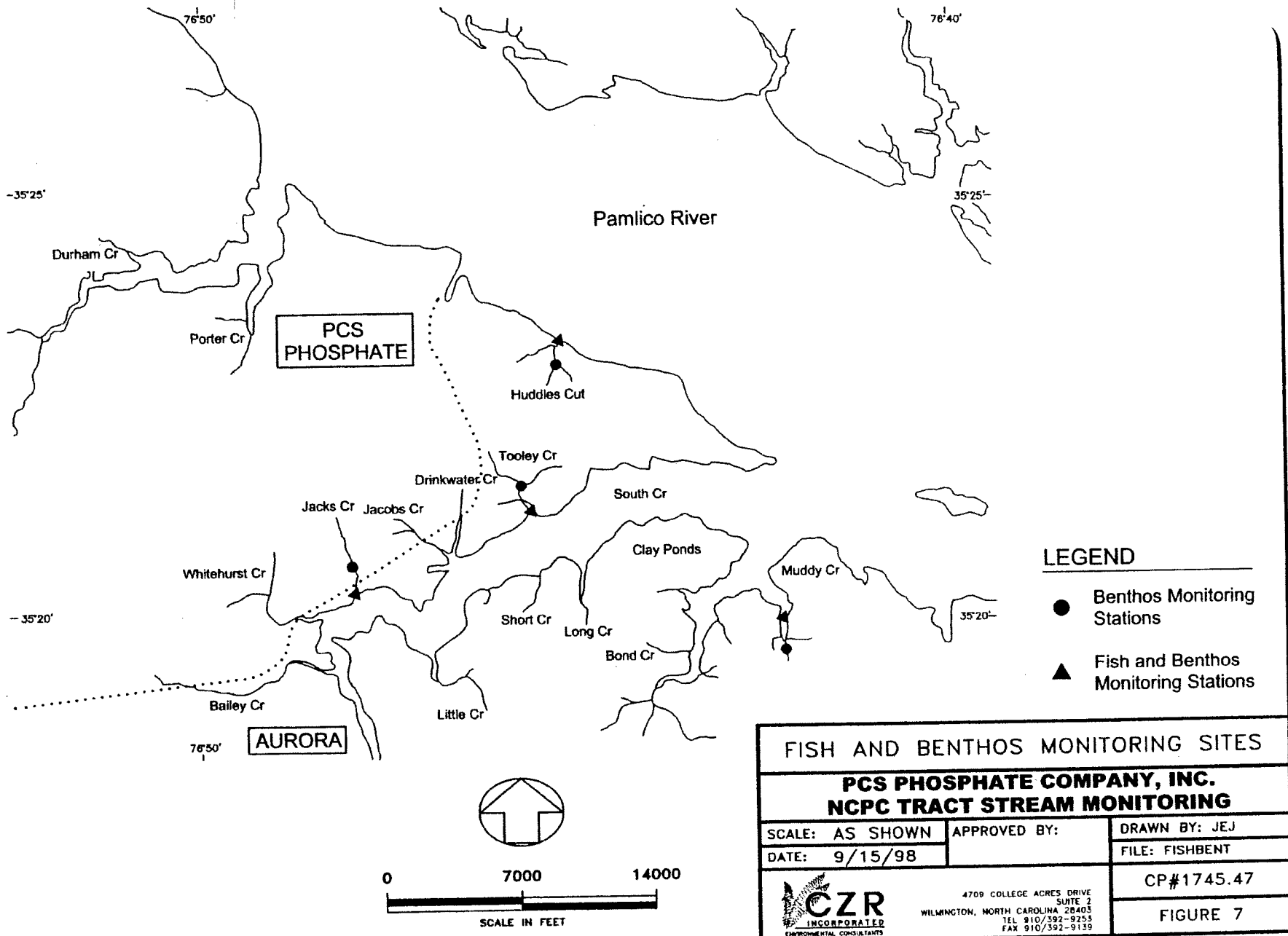
**U.S. Army Corps of Engineers
North Carolina Division of Water Quality
North Carolina Division of Land Resources**

**As revised per agency reviews
October 1998**



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- Particulate phosphorus
- Nitrogen
 - Nitrate nitrogen
 - Ammonia nitrogen
 - Particulate nitrogen
 - Dissolved Kjeldahl nitrogen

The chlorophyll a and nutrient analyses will be done under Dr. Donald W. Stanley's direction at the laboratories of East Carolina University. Dr. Stanley will assist CZR with water quality data analyses and reporting.

In addition to the water quality monitoring above, a sediment sample will be collected from near the mouths of Jacks Creek, Tooley Creek, and Huddles Cut in August of each baseline year. The samples will be analyzed for cadmium and other metals.

D. Salinity Monitoring.

Data from the salinity monitors will be downloaded every two weeks in conjunction with the downloading of data from the flow monitors. The data will be retrieved using YSI 610-DM handheld computers. Maintenance (e.g., changing batteries, cleaning probes) will be performed on the salinity monitors as needed during the data retrieval visits.

The salinity data will be displayed graphically with the flow data, estuarine water level data, and USGS stream gauge data from the Tar River. This will allow analysis of the relative influence of these factors on salinity in the creeks. This analysis will be used to make qualitative predictions of the effects of drainage basin reduction on salinity.

E. Vegetation Monitoring.

Vegetation monitoring will be conducted during August of each monitoring year. Shrubs, defined as woody plants greater than 3.2 feet in height but less than 3 inches in diameter at breast height (DBH), will be inventoried in each of the ten 4-by-4 meter plots located in the vicinity of each WL-80 in the riparian wetlands. For each species, the number of stems present will be counted and percent cover will be estimated. Herbs, defined as all herbaceous vascular plants regardless of height and woody plants less than 3.2 feet in height, will be inventoried in each of the 1-square meter plots nested within the 4-by-4 meter plots. For each species, the number of stems present will be counted and percent cover will be estimated. Qualitative descriptions of the overstory will be made in the vicinity of each WL-80. For shrubs and herbs, the cover data, density data, and importance values calculated will be used to assess changes in vegetation structure and composition over time.

F. Fish and Benthos Monitoring.

Because of the timing of the beginning of the study, fish trawl sampling on Jacks Creek, Tooley Creek, and a control creek (Muddy Creek) was limited to May and June in 1998. In other monitoring years, fish trawl sampling will be conducted weekly on Jacks Creek, Tooley Creek, and Muddy Creek during the months of April, May, and June.

Each fish trawl sample will be conducted with a two-seam 10.5-foot otter trawl. The trawl is constructed with a 10.5-foot headrope, and 1/4-inch bar mesh wings and body, and an 1/8-inch bar mesh cod end. The trawl will be towed at 3.6 feet/second for a distance of 75 yards. Trawling will be conducted during daylight hours with a tow direction toward the creek mouth. This trawl and technique is the same design and methodology used by the DMF. Data will be reported in catch-per-unit-effort (CPUE) as number per minute trawl.

Because Huddles Cut is too shallow and narrow for trawling, an alternative methodology must be used there. A fyke net will be set at the station in Huddles Cut for one night per week during April, May, and June of each monitoring year, beginning in 1999. Data will be reported in CPUE as number per trap-night.

Submerged aquatic vegetation (SAV) provides habitat for fish and can reduce the capture efficiency of the trawl. Therefore, the species of SAV present and the approximate percent coverage of SAV at the surface of the water will be noted during each fish sampling visit.

Benthos will be collected at each station in May of each sampling year. Five replicate samples will be collected at each station with a standard ponar grab. Collected sediments will be placed in one-gallon plastic bags, and a full bag will constitute a replicate. Samples will be placed in coolers and transported to the laboratory to be sieved through a 0.5 mm mesh screen. All organisms retained on the screen will be preserved for sorting, enumeration, and identification (to the species level when practical).

In addition to the mid-stream benthic sampling using the ponar, the shoreline and near-shore habitats will be sampled using DWQ's estuarine sweep sample method. The timed sweep samples will consist of 10-minute collections with a D-frame net in representative shoreline and near-shore habitats near each of the grab sampling stations. Three replicate collections will be taken at each sample station. Organisms obtained will be preserved and returned to the laboratory for sorting, enumeration, and identification. One full replicate sample will be enumerated for each sampling station. A 25 percent subsample of the other two replicates will be enumerated to check for any major variation in benthic fauna among replicates. The data will be used to classify the sites according to DWQ's estuarine biocriteria. The biocriteria produce a rating of a site based on three indices produced by the sweep sample: Estuarine Biotic Index, Amphipoda and Caridian shrimp taxa, and total taxa. The estuarine biocriteria rating will be used to track changes in benthic macroinvertebrate diversity and abundance.

G. Photo Documentation of Monitoring Sites and Conditions.

During the vegetation sampling, two photographs will be taken at each WL-80 location in the riparian wetlands. Each photograph will feature a 10-foot range pole located at a fixed distance from the camera. The camera will be situated at the WL-80 location, and a picture will be taken facing upstream and downstream. Camera and range pole locations will remain constant throughout the duration of the monitoring program. The photographs will be included in the annual report, and will be used to provide visual documentation of changes over time.

During the fish and benthos sampling, a representative photograph will be taken of each sample station. The photograph locations will remain constant throughout the duration of the monitoring program. The photographs will be included in the annual report, and will be used to provide visual documentation of changes over time.

H. Soil Property Measurements.

Measurements of the soil properties, the soil water characteristics, and the saturated hydraulic conductivity in each of the three study drainages will be done by Skaggs in 1998. These data will be used in the hydrologic modeling of the three drainage areas. Measurements will be made at an estimated 12 locations (with three depths and three replications at each location). Hydraulic conductivity tests will be conducted at 75 to 100 locations. Soil property, site parameter, and vegetation data will be assembled into data sets for modeling the hydrology of the watersheds. Preliminary model simulations will be conducted in 1998 to make sure that all needed data are being collected.



"Heather"
<riverkeeper@ptrf.org>
03/13/2009 12:19 PM

To Rebecca Fox/R4/USEPA/US@EPA
cc
bcc

Subject RE: FW: Petition has been filed, release is pending

From Geoff:

No. There are timelines along the way for different actions (filing papers, decision of ALJ, etc), but no timeline that says the contested case has to be resolved in x days.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Friday, March 13, 2009 11:58 AM
To: Heather
Subject: RE: FW: Petition has been filed, release is pending

Is there a timeline specified in DWQ regs for resolution of the petition?

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

03/13/2009 10:51 AM

Rebecca Fox/R4/USEPA/US@EPA
To
cc

Subject
RE: FW: Petition has been filed,
release is pending

When I asked Geoff before, his first response was that it really does nothing-- there is no automatic stay. I've asked for him to confirm and will let you know if any different.

I guess the only thing is that if the 401 is overturned or thrown out, then any 404 that would be issued would then be invalid.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Friday, March 13, 2009 10:26 AM
To: Heather
Subject: RE: FW: Petition has been filed, release is pending

Thanks, that's what I thought. I sent it on. NMFS and FWS both thought it would help them with their upper mgmts. Do you know what this does to 404 process while this is being resolved???

Still no definite from our RA... b

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

03/13/2009 09:36 AM

Rebecca Fox/R4/USEPA/US@EPA

To

cc

Subject

RE: FW: Petition has been filed,
release is pending

Absolutely, it's public now.

Thanks.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
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www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Thursday, March 12, 2009 7:38 PM
To: Heather
Subject: Re: FW: Petition has been filed, release is pending

Can I share this with FWS and NMFS?

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

03/12/2009 12:53 PM

Rebecca Fox/R4/USEPA/US@EPA

To

cc

Subject
FW: Petition has been filed,
release is pending

FYI

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

From: Geoff Gisler [mailto:ggisler@selcnc.org]
Sent: Thursday, March 12, 2009 12:51 PM
To: 'Heather'; 'David Emmerling'; David McNaught; 'Sam Pearsall';
toddm@ccoast.org; 'Jim Stephenson'; 'Molly Diggins'
Cc: Derb Carter; Kathleen Sullivan
Subject: Petition has been filed, release is pending

All,
The petition was just filed. I have attached a copy. The press release
will go out shortly.
Geoff

Geoff Gisler
Staff Attorney
Southern Environmental Law Center
200 W. Franklin St. Suite 330
Chapel Hill, NC 27516
Ph: (919) 967-1450
Fax: (919) 929-9421
www.southernenvironment.org

[attachment "03-12-09 - Petition for Contested Case Hearing.pdf"
deleted by Rebecca Fox/R4/USEPA/US]

 Chris Hoberg /R4/USEPA/US

03/13/2009 12:52 PM

To Tressa Turner/R4/USEPA/US@EPA



cc Scott Gordon/R4/USEPA/US@EPA, Tom
Welborn/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, Duncan

bcc

Subject Fw: Memo - Request for Higher Level Review of Wilmington
District Permit

Tressa - Attached is a pdf copy of our NEPA letter on the FEIS. I am also enclosing an internal project summary sheet. THX

Chris..... for Heinz

 
COE-PCS.Final.FEIS.pdf COE-PCS.FEIS.Sum.doc

Christian M. Hoberg
Life Scientist
EPA Region 4
NEPA Program Office
Office of Policy and Management
Atlanta, Georgia 30303-8909
404/562-9619
hoberg.chris@epa.gov

----- Forwarded by Chris Hoberg/R4/USEPA/US on 03/13/2009 12:46 PM -----

Heinz Mueller /R4/USEPA/US

03/13/2009 12:44 PM


To Chris Hoberg/R4/USEPA/US@EPA

cc

Subject Fw: Memo - Request for Higher Level Review of Wilmington
District Permit

----- Forwarded by Heinz Mueller/R4/USEPA/US on 03/13/2009 12:44 PM -----

Tressa Turner /R4/USEPA/US

 03/13/2009 11:47 AM

To Rebecca Fox/R4/USEPA/US@EPA, Heinz
Mueller/R4/USEPA/US@EPA

cc Tom Welborn/R4/USEPA/US@EPA, Duncan
Powell/R4/USEPA/US@EPA, Scott
Gordon/R4/USEPA/US@EPA

Subject Memo - Request for Higher Level Review of Wilmington
District Permit
Permit AID 200110096, Potash Corporation of
Saskatchewan,
Phosphate Division, Aurora Operation Mine Continuation

Becky/Heinz,

Scott Gordon is requesting a copy of the July 23, 2008, letter that was sent to Colonel Ryscavage regarding this project's FEIS, which was reference in the memo sent down to the front office yesterday. I have not been able to locate a copy of the letter here in our reading files or a electronic copy under Becky's files under the PCS folder. Who generated the letter? Tom stated that it was possibly generated in Heniz's group. I have also telephones messages for the both of you just in case you do not have access to your emails. Please let me know where I can obtain a copy so that I can take it down to Scott who is waiting on the letter.

Thanks,

Tressa Turner

U.S. Environmental Protection Agency, Region 4

Wetlands Regulatory Section

61 Forsyth Street, SW

Atlanta, GA 30303

Telephone: 404-562-9366

Fax: 404-562-9343



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

July 23, 2008

Colonel Jefferson Ryscavage
District Engineer
U.S. Army Corps of Engineers
Wilmington District
P.O. Box 1890
Wilmington, NC 28402-1890

Attn: Tom Walker
Project Manager
File Number 2001-10096

Subject: COE Regulatory Final Environmental Impact Statement (FEIS) for
"PCS Phosphate Mine Continuation"; Aurora, Beaufort County, NC;
CEQ# 20080213; ERP# COE-E67005-NC

Dear Colonel Ryscavage:

Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, EPA Region 4 has reviewed the above-referenced U.S. Army Corps of Engineers (COE) regulatory Final Environmental Impact Statement (FEIS). This FEIS evaluates the environmental consequences of the Applicant's (Potash Corporation of Saskatchewan Phosphate Division: PCS) proposed expansion of its phosphate mining operations adjacent to the Pamlico River, South Creek and associated tributaries, north of Aurora in Beaufort County, North Carolina.

EPA has previously provided NEPA comment letters on the Draft EIS (DEIS) and its Draft Supplement (DSEIS). Our December 28, 2007, DSEIS letter continued to describe our environmental objections to this mine continuation project, as proposed. Similarly, from a Clean Water Act (CWA) section 404 permitting standpoint, the EPA Region 4 Wetlands Regulatory Section also objected to this proposal pursuant to CWA Section 404(q), Part IV, paragraphs 3(a) and 3(b), in letters dated February 9 and March 6, 2007, respectively. The Wetlands Regulatory Section also provided pre-FEIS comments in a April 30, 2008, letter regarding the significant natural heritage area on the Bonnerton tract, the scope of the section 404 silviculture exemption, and the economic evaluation/Least Environmentally Damaging Practicable Alternative (LEDPA) determination. We offer the following comments on our current review of the FEIS.

Background

In November 2000, PCS submitted to the COE Wilmington District an application for the mine continuation project in the Aurora area. PCS modified the original permit application in response to public notice comments to further reduce impacts to federal waters of the U.S. This modified application was the subject of the COE's regulatory DEIS (10/2006), which described the No Action Alternative and nine action alternatives. PCS's application evaluated in the DEIS was for mining of the NCPC tract involving 2,408 acres of mining impacts to waters of the U.S. (*i.e.*, Applicant Preferred or AP alternative). Among the alternatives, the DEIS included three basic tracts (NCPC, S33 and Bonnerton tracts) with varying impacts to waters of the U.S. as holistic mining plans, including the Applicant's expanded AP alternative (EAP) with 5,667 acres of mining impacts to waters of the U.S. The public review of the DEIS and further discussions with the Applicant concerning economic practicability lead to the development of the DSEIS (11/2007), which introduced new Alternatives L and M. Alternative L follows the SCR boundary (see section 2.4.1.2) on the NCPC tract and defines a new boundary on the Bonnerton and S33 tracts. Alternative M was developed by the Applicant and consists of a boundary with three more years of mining on the NCPC tract than the L alternative and is identical to the L alternative on the Bonnerton and S33 tracts. In an April 25, 2008, letter, the Applicant requested its application be modified to request a permit for Alternative L.

Impacts & Alternatives

EPA's primary concerns with the proposed continuation of phosphate mining at Aurora are the associated wetland and stream impacts to watersheds supporting the Albemarle Pamlico Estuary system over an extended timeframe, together with the cumulative impacts of ongoing mining. EPA understands the rationale behind the development of the new Alternatives L and M through the NEPA process, but has concerns over the level of impacts to waters of the U.S. associated with these alternatives.

EPA appreciates that several alternatives were considered by the Applicant and COE during the NEPA process and documented in the EIS. In the FEIS, these alternatives were the AP, EAP, SJA, SCR, DL1, S33AP, L and M alternatives. Of these, EPA has identified the S33AP Alternative, which the COE has determined to not be practical (see below), as the NEPA "environmentally preferable alternative," because it substantially reduces the wetland impacts for the proposed mining continuation. Although the acreage of impacted wetlands for S33AP is not insignificant (1,123 acres: ac), this action alternative impacts the fewest wetland acres. We believe that impacts to wetlands north of NC33 will have a potentially greater impact to the watersheds supporting the nationally significant Albemarle Pamlico Estuary system. Moreover, based on EPA's economic evaluation of practicability, we also find that S33AP is economically practicable (see *Economic Considerations* section and *Detailed Comments* enclosure of this letter). We also note that S33AP would nevertheless impact a high number of stream sections (33,486 linear feet: lf). Any implementation of S33AP should further avoid and minimize stream and wetland impacts.

The FEIS (5/2008) provided additional information on Alternatives L and M. The FEIS lists Alternatives SCRA¹, SCRB, SJAB, DL1B, S33AP and the No Action alternative as not being practicable, while finding that Alternatives AP, EAPA, EAPB, SJAA, L and M were practicable. The COE indicates that of the alternatives identified as practicable, the L alternative is the most restrictive and therefore avoids the most aquatic resources. Alternative L would impact approximately 4,135 acres of waters of the U.S. over a 37-year mining span. The 11 community types within the impacted waters of the U.S. include pocosin-bay forests (264 ac), bottomland hardwood forests (73 ac), hardwood forests (1,075 ac) as well as 29,288 linear feet of perennial and intermittent streams. These community types are located within an approximate 11,909-acre mine advance distributed throughout the project area. Impacts of Alternative M include 4,592 acres of waters of the U.S. and 36,990 linear feet of streams over a 41-year mining span.

The COE does not identify a NEPA “preferred alternative” or a LEDPA in the FEIS. However, Alternative L was considered the Applicant’s “Proposed Action” in the COE’s FEIS and Public Notice (pg. e). PCS’s previous mining application was for the AP (NCPC tract only).

“Modified Alternative L”

While we believe that S33AP is the “environmentally preferable alternative”, EPA prefers Alternative L (of the alternatives determined to be practicable by the COE in the FEIS) from a NEPA perspective since it avoids valuable wetland habitat, mainly on the NCPC tract. The COE’s economic analysis indicates Alternative L is the alternative which would allow the least environmental impacts and still be economically practicable (pg. 2-32). EPA agrees that Alternative L is economically practicable (see *Detailed Comments*); however, we also believe that it could be improved environmentally through further avoidance of waters of the U.S.

Nevertheless, we acknowledge that Alternative L does avoid a large portion of the important tidal creeks and some of their associated watersheds on the NCPC tract and an approximate 58-acre area of biocommunity type 7 (“wetland hardwood forest”) on the Bonnerton tract, as shown on Figure 4-7b (Vol. I). This is the eastern portion of an approximate 271-acre plot within the Bonnerton base tract that has been designated as a “nationally significant” Significant Natural Heritage Area (SNHA) by the North Carolina Natural Heritage Program (NHP).

While we appreciate the Applicant’s avoidance of this eastern portion of the SNHA, EPA strongly believes that the entire SNHA tract should be avoided. Therefore, in order for Alternative L to be improved environmentally, we recommend that Alternative L be further modified to also exclude the remaining approximate 213-acre component of the SNHA tract from the proposed mining. For convenience of reference, we have designated this modified alternative as “Modified Alternative L”. Overall, EPA considers “Modified Alternative L” to be an economically practicable and

¹ The ‘A’ and ‘B’ portions of ‘SCRA’ and ‘SCRB’ indicate a sequencing for the SCR Alternative. Other sequenced alternatives were also labeled this way.

environmentally reasonable alternative that is more environmentally preferable than Alternative L.

In addition to the exclusion of the remaining 213-acre portion of the SNHA from mining, EPA also recommends that "Modified Alternative L" follow the original SCR boundary on the S33 tract rather than the proposed Alternative L boundary (this would approximately reduce wetland impacts by an additional 38 acres and stream impacts by 10,167 lf). Since we understand that the main purpose for developing the L alternative was to allow 15 years of mining north of NC33, it remains unclear why the SCR avoidance boundary on the S33 tract was decreased for Alternative L. We find no information in the FEIS which would indicate the COE has determined that the use of the original SCR boundary in the S33 tract would fail to make Alternative L economically practicable. In addition, the COE's response to the EPA comment on this issue in our DSEIS letter (Response R6, Appendix J) did not clarify our understanding of the need for this mining expansion on S33.

Avoidance, Minimization & Mitigation

Even with the exclusion of the SNHA from Alternative L and a return to the SCR boundary on the S33 tract, it is nevertheless clear that significant impacts to wetlands (3,864 ac) and streams (19,121 lf) would still occur by mining the Alternative L area over an extended period of time. Therefore, for any implementation of "Modified Alternative L" to be successful, we strongly believe the following actions would need to occur: 1) the ongoing process of minimization and avoidance of waters of the U.S. and the implementation of acceptable mitigation and reclamation of mined areas would continue to be applied to the remaining acreage; 2) the Wilmington District would continue its commitment to oversight of the reclamation process in a timely manner; and 3) strict compliance with mining Best Management Practices (BMPs) would be used during the permitted mining. In addition, for the excluded SNHA, the permitted mining in the surrounding areas must also not be allowed to indirectly affect the SNHA. Such indirect impacts could include disruption of its hydrology, the routing of mining stormwater runoff into the SNHA area, and degradation of the SNHA connecting areas such that they are no longer providing the connectivity function. To ensure success, the COE should provide a commitment to continue successful implementation of the avoidance, minimization and mitigation processes required under section 404(b)(1) in its prospective Record of Decision (ROD) for this EIS.

Because the SNHA would be wholly excluded from mining under "Modified Alternative L," silvicultural practices should not occur in this area until a final project decision is made. Logging on the SNHA site should be avoided since timbering degrades the SNHA's wetland value and national significance. We provided additional comments on the related section 404 silviculture exemption in the *Detailed Comments* and in EPA's April 30, 2008 letter.

If the S33 tract is mined under the S33AP Alternative or as part of the "Modified Alternative L", EPA recommends the completion of a detailed mitigation plan for impacts to the S33 tract well in advance of any plans to mine this area. The potential economic reopener clause may be an appropriate means to address this issue, if this tract were to be mined under "Modified Alternative L". EPA also recommends that the reopener clause, or other suitable measures, remain an option for future adaptive management needs. We also believe compensation for impacts to mature, high quality wetlands would require greater than the 2:1 mitigation ratio specified in the current mitigation plan. We understand the overall stream mitigation ratio of 1.8:1 is based on the 2003 Stream Mitigation Guidelines ratio determination methodology utilizing stream quality ratings of "poor," "good," and "excellent". We support the use of this methodology to determine appropriate stream compensation, but recommend the stream quality ratings be confirmed by the COE.

Significance of the SNHA Resource

The need to preserve the entire SNHA tract is based on the NHP designation (*i.e.*, nationally significant SNHA), the community types represented, and the contiguous nature of the SNHA. The NHP rates SNHAs by significance as national, state, regional and county. The "nationally significant" rating of the Bonneron nonriverine wetland hardwood forest SNHA means the NHP considers this area to one of the five best examples of this community type in the nation. The size and maturity of this area are critical to the NHP rating.

Valuable biocommunity types are represented in the nationally significant SNHA. In addition to the eastern portion (58 ac) of the SNHA (within Porter Creek headwaters) already excluded from mining by Alternative L, the remaining 213 acres primarily consist of a western portion (135 ac) and a northwestern portion (45 ac). There are also two secondary connecting sections (totaling approximately 33 ac) for continuity of the wetland hardwood forest community. Of these, the most mature plots are the eastern portion within the Porter Creek headwaters and the western portion across from the Porter Creek area, which both have stands of mature (75-100 years old) "wetland hardwood forest" (biocommunity type 7). The two secondary areas of different biocommunity types serve to connect the main areas. Biocommunity type 5 ("wetland scrub-shrub") is found in the secondary area between Porter Creek and the western area and the biocommunity type 6 ("wetland pine plantation") is found in the portion between the western and northwestern areas. The northwestern area also contains biocommunity type 7, and was added to the SNHA after the recent NHP site visit. Although this area is not as mature as the other areas, the NHP concluded it should be added to the SNHA due to the rarity of the community type. The NHP considers this area to also be highly significant and to have good recovery potential over time. (We also note that if the biocommunity type 8 area ("wetland mixed pine-hardwood forest") located west of the northwestern portion of the SNHA was not mined due to logistical mining restrictions, it would provide an excellent opportunity for mitigation enhancement/rehabilitation, as recommended by the NHP.)

Beyond the functional significance of these biocommunities in terms of water quality and habitat value, the contiguous nature of the SNHA enhances its value. While not all of the SNHA acreage consists of wetland hardwood forested wetlands (e.g., the western portion includes 20 acres of Suffolk scarp and the two secondary connection areas include biocommunity types 5 and 6), the interconnection of the three primary plots by the secondary areas makes the SNHA a functional unit of sufficient size to be sustainable. As a contiguous unit, this refuge "island" surrounded by permitted mining impacts, would allow for wildlife movement, foraging, and reproduction. In order to ensure this continuity, we recommend that the two secondary connection areas be maintained (if used as temporary crossing sites for mining equipment) so as to allow them to retain their connectivity functions for the wetland hardwood forest areas. The mast-producing stands of this "island" could also serve as a future seed source for the surrounding areas during post-mining reclamation. We commend the Applicant for its appreciation of the importance of SNHAs as supported by the statements in its mitigation plan encouraging preservation that will protect or extend SNHA(s) along the South Creek corridor.

Economic Considerations

We appreciate the COE's considerable efforts to evaluate the economic practicability component of the LEDPA requirement. However, we continue to have concerns with some aspects of the approach discussed in Section 2.7 of the FEIS. As we have stated on numerous occasions, the decision by the COE to incorporate the Applicant's position on how to average the cost of the mine relocation to a new tract, has made it very difficult to avoid some of the important project wetland areas in the LEDPA process. We acknowledge that the avoidance of an additional 213 acres on the Bonnerton tract under the "Modified L Alternative" would reduce the Applicant's mining north of NC33 to less than 15 years. However, our review of the dragline plan layout map for Alternative L (Vol. II, App. D) indicates this would only reduce part of years 11 and 12 for a likely overall reduction of approximately one year of mining. We understand this would not satisfy the COE's LEDPA requirement of 15 years north of NC33, but we believe such a reduction would not be an unreasonable alternative modification – especially considering the remaining concerns we have over the economic evaluation approach used to determine the LEDPA (see below). With the adjustments in mining on Bonnerton and S33 incorporated in "Modified Alternative L," the overall timeframe for mining would likely still exceed 35 years (instead of 37 years for Alternative L).

EPA's review of the FEIS included our National Center for Environmental Economics (NCEE) in Washington, DC. NCEE and other EPA staff have been involved extensively in economic practicability discussions with the COE, including the most recent meeting (1/30/08) with the COE and the Pamlico Tar River Foundation and its economist, to further discuss PCS economic practicability issues. In general, EPA does not believe considering costs in isolation, i.e., without considering revenues, is a useful means to evaluate the economic practicability of the project alternatives. Comparing costs to revenues does not consider an applicant's financial standing or market share any

more than looking only at costs. As is pointed out numerous times in the FEIS, phosphate prices are determined by the global and national market (and not influenced by the Applicant's production levels). Comparing estimated costs (which the Applicant can control) to expected market prices (which the firm does not control) simply adds context to the cost numbers and allows for better decision making.

An appropriate method to evaluate practicability is by calculating the annual discounted net present value (NPV) of the stream of costs and revenues over the lifespan of each alternative. The NPV analysis is theoretically and empirically sound and EPA is legally required to use such analysis when evaluating all new regulations. Using the discounted NPV, projects of different lengths can be compared on equal terms. EPA (NCEE) has prepared an NPV table using OMB mandated discounted rates of 3 percent and 7 percent comparing the project alternatives. This summary table, with additional discussion on the economic practicability of the alternatives, is included in EPA's comments on the COE's responses to our DEIS comment letter provided in the enclosed *Detailed Comments*. We are available to discuss information concerning this summary table and how it was prepared.

Based on these calculations and as shown in our summary table, EPA believes that more alternatives appear to be practicable than those determined by the COE (*i.e.*, the COE believes that Alternatives AP, EAPA, EAPB, SJAA, L and M are practicable), including SCRA and SCRB, S33AP, SJAB and DL1. In fact, we find that all alternatives considered in the FEIS, except the No Action Alternative (*i.e.*, all the action alternatives), are economically practicable. Based on this analysis, the "Modified Alternative L" would also be an economically practicable alternative, despite its slightly shorter mining term. Since "Modified Alternative L" allows more mining than the SCR alternative (but less than the original Alternative L), we strongly believe that "Modified Alternative L" will be economically practicable and will have a positive NPV greater than the SCRA and SCRB Alternatives, but slightly less than the original Alternative L. With detailed cost and annual production estimates, it would be relatively straightforward to calculate a more precise value.

Other Comments

In addition to these primary concerns, EPA has also reviewed the COE's responses in the FEIS to our EPA NEPA letter on the DEIS (pg. J-111.A.1) and DSEIS (pg. J-111.B.1), as well as the EPA Wetlands Regulatory Section's letter pursuant to CWA Section 404(q), Part IV, paragraph 3(a) (pg. J-111.A.2) and the EPA Regional Administrator's letter pursuant to CWA Section 404(q), Part IV, paragraph 3(b) (pg. J-111.A.3). Copies of these letters and the COE's responses to comments are found in Appendix J of Volume IV. Our follow-up comments on selected responses, as well as other project topics, are provided in the enclosed *Detailed Comments*.

Summary

EPA finds that the proposed continuation of PCS mining at Aurora would have significant and long-term, direct and cumulative impacts to biocommunities in various waters of the U.S. which support the nationally significant Albemarle Pamlico Estuary System. Accordingly, we continue to have environmental objections to this project, as proposed, under Alternative L (Applicant's Proposed Action). However, we believe that S33AP is the NEPA "environmentally preferable alternative" and that Alternative L could be improved environmentally as "Modified Alternative L". EPA finds both to be economically practicable and, from an industry standpoint, both would allow the continuance of phosphate mining at Aurora for many years.

"Modified Alternative L" would avoid not only the eastern portion (58 ac) of the SNHA (Alternative L) but would also avoid the remaining acreage (approximately 213 ac) of the entire SNHA tract (approximately 271 ac). This alternative would also use the original SCR boundary for S33, as opposed to the additional wetland (38 ac) and stream (10,167 lf) impacts to this area proposed in Alternative L. EPA believes the SNHA to be an aquatic resource of national importance. The NHP-designated "nationally significant" SNHA includes nonriverine wetland hardwood forest and other functional community types and, if excluded from mining, would continue to be a contiguous and sustainable refuge "island" of one of the most threatened of North Carolina's natural communities. EPA considers "Modified Alternative L" to be an economically practicable and environmentally reasonable alternative that is more environmentally preferable than new Alternative L. However, for any implementation of "Modified Alternative L" to be successful, it should be understood that the ongoing processes, such as avoidance and minimization of impacts to waters of the U.S., implementation of acceptable mitigation and reclamation, and use of mining BMPs would need to continue for the permitted mining. The COE should commit to such process continuance with appropriate monitoring in its ROD.

Overall, EPA believes that our remaining project issues with the proposed mining continuation at Aurora can be successfully resolved within the brackets of these comments and the S33 and "Modified Alternative L" alternatives. We stand ready to further discuss these comments and alternatives. However, if our remaining issues are not adequately resolved, EPA reserves the right to take further action on this project in accordance with its authority under Section 404 of the CWA.

Thank you for the opportunity to comment on the FEIS. If we can be of further assistance, please do not hesitate to contact me at (404) 562-9611 or mueller.heinz@epa.gov. We request a copy of the COE's prospective ROD for our files. For technical questions on wetlands and economics, please contact Becky Fox at (828) 497-3531 or fox.rebecca@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Heinz Mueller", followed by a horizontal line.

Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management

Enclosure: *Detailed Comments*

DETAILED COMMENTS

EPA offers the following comments on selected COE responses to our NEPA, Wetlands Regulatory Section and Regional Administrator letters on the proposed PCS mine continuation project. Additional comments on other topics are also provided.

COE RESPONSE TO COMMENTS

I. EPA NEPA Letter on DEIS – 2/9/07

*** R3 (Alternative AP and L Impacts)**

The EPA comment states that the AP alternative would represent the largest permitted loss of waters in North Carolina. This is still true for the Applicant's Proposed Action in the FEIS, Alternative L.

*** R5, 6, 7 and 13 (Economic Practicability Evaluation)**

An appropriate method to evaluate practicability is by calculating the annual discounted net present value (NPV) of the stream of costs and revenues over the lifespan of each alternative. Discounting renders costs and benefits that occur in different time periods comparable by expressing their values in present terms. In practice, discounting is accomplished by multiplying expected future monetary amounts by a discount factor. Such factor reflects time preferences, similar to an interest rate.²

For this project, NPV may be calculated very simply by first comparing the annual expected per unit (or ton) cost of phosphate production (mining, mitigation, reclamation, etc.) to the annual expected per unit (or ton) revenue (*i.e.*, the projected USGS value per phosphate ton estimates) for each year in the project. The annual differences between costs and revenues for each alternative may then be combined with estimates of annual

² For example, one would expect \$1 put in a savings account with a 5% interest rate today to be worth \$1.05 next year. Theoretically, knowing this, a person should be indifferent between being given \$1 today or \$1.05 in a year. The discounted or net present value of a \$1.05 a year from now in this example is therefore \$1.

The net present value of a projected stream of current and future benefits and costs is estimated by multiplying the benefits and costs in each year by a time-dependent weight, d_t , and adding all of the weighted values as shown in the following equation:

$$NPV = NB_0 + d_1NB_1 + d_2NB_2 + \dots + d_nNB_n$$

where NB_t is the net difference between benefits and costs ($B_t - C_t$) that accrue at the end of period (or year in this case) t . The discounting weights, d_t , are given by

$$d_t = 1/(1+r)^t$$

where r is the discount rate. The final period of the policy's future effects is designated as time n .

tons of phosphate produced for each alternative to determine the annual costs and revenues. Finally, using a standard discount rate, the discounted NPV of the streams of annual costs and revenues can be determined over the life of an alternative. Using the discounted NPV, projects of different lengths can be compared on equal terms.

EPA (NCEE) prepared the following summary table using OMB mandated discounted rates of 3 percent and 7 percent to demonstrate this method and NPVs for the FEIS alternatives. Because it allows for more total acres mined in similar locations, "Modified Alternative L" would almost certainly fall on this table above the SCRA alternative. EPA is available to discuss information concerning this summary table and how it was prepared.

NET PRESENT VALUE OF EACH ALT

	3%	7%
EAPA	\$537,695,130	\$359,773,753
EAPB	\$494,254,356	\$335,778,624
ALT M	\$457,571,214	\$328,592,452
ALT L	\$370,782,148	\$278,777,886
AP	\$370,653,570	\$282,757,722
SJAB	\$366,884,793	\$255,241,110
SJAA	\$359,076,889	\$274,240,083
SCRA	\$333,406,793	\$259,781,521
SCRB	\$304,200,087	\$238,057,997
DL1B	\$225,807,683	\$161,206,026
S33AP	\$130,534,890	\$128,544,556
No Action	-\$9,332,194	\$11,700,463

*** R8, R10 and R12 (Mitigation Costs)**

The mitigation costs used in the economic model described in the Summarized Comment Response 10 are somewhat confusing. In one place, it states mitigation costs were \$5,000/acre for non-brackish marsh wetlands and \$205/linear foot of stream with an average stream mitigation ratio of 1:1. Later in this section, the numbers cited are \$9,000/acre for wetland and \$245/linear foot for streams with a 1.5:1 stream ratio. The current fees (updated July 1, 2008) for the North Carolina Ecosystem Enhancement Program's (EEP) in lieu fee mitigation program are \$15,396 for nonriverine wetlands, \$30,790 for riverine wetlands and \$258/linear foot for streams. The average stream mitigation ratio proposed for project impacts is stated in the FEIS (Section 4.3.2.3.4.2 *Mitigation Ratios*) as 1.8:1. Although we understand the actual mitigation costs used may vary from EEP fees due to the factors discussed by the COE in Summarized Response 10, it is still unclear from the discussion as to which costs were used in the model. We recommend that the economic model be run again with the correct mitigation cost estimates.

*** R9 (Out of Cataloging Unit (CU) Mitigation Ratios)**

We acknowledge the information in the COE's response. However, the NC Interagency Review Team (IRT) is currently revising the out of CU guidance and the IRT will likely adopt some form of the referenced guidance in the near future. As "guidance," it allows for flexibility, including determining out of CU ratios on a case-by-case basis. However, we continue to recommend that this guidance be a starting point when determining mitigation ratios for compensation in a CU different from the CU where the impacts will occur.

*** R11 (Stream Mitigation Costs)**

We are aware that the costs of stream mitigation cannot be directly determined from the NC Stream Mitigation Guidelines (SMG). In our comment, we were not suggesting that to be the case. Instead, EPA intended to point out that the SMG document should be used to determine the amount of linear feet of stream compensation required based on the length and quality of stream being impacted, which then can be used to determine overall cost based on cost/linear foot.

*** R26 (Further Reduction of Environmental Impacts)**

We believe that project impacts can be further reduced by the "environmentally preferable" S33 Alternative and by the modification of Alternative L into "Modified Alternative L," as discussed in the cover letter. We also reference the discussion of the above EPA (NCEE) economic analysis of economic practicability (see EPA comments for R5, 6, 7 and 13).

II. EPA NEPA Letter on DSEIS – 12/28/07

*** R2, R4, R7 (Economic Practicability Evaluation Topic)**

See EPA's above comments to Section I for R5, R6, R7 and R13.

*** R6 (Alternative L – South 33 Impacts)**

The COE's response does not clarify why the mining boundary for S33 was expanded from the SCR boundary for mining in S33. The SCR boundary was developed with the goal of avoiding, to the maximum extent possible, important aquatic resources. We found no support in the FEIS for a determination that a more expansive mining boundary than SCR in the S33 tract is needed for Alternative L to be economically practicable.

*** R8, R9, R10, R16, R17, R18 (Bonnerton SNHA)**

As indicated in the cover letter and in EPA's April 30, 2008 letter, and as acknowledged by the COE in these responses, the NHP has designated the Bonnerton SNHA as "nationally significant." Such designation reinforces the need to preserve the entire SNHA tract, the community type represented, and the contiguous nature of the SNHA. The "nationally significant" designation of the Bonnerton nonriverine wetland hardwood forest SNHA means the NHP considers this area to one of the five best examples of this community type in the nation. The size and maturity of this area are critical to the NHP rating.

*** R11, R12 (Reopener Clause)**

EPA reiterates the concerns stated in our DSEIS letter for the potential economic reopener clause and recommends that the reopener clause, or other suitable measures, remain an option for future adaptive management needs. As you are aware, the FEIS did not include a detailed mitigation plan for S33 impacts. The Applicant would need to address unavoidable and unminimizable impacts well in advance of planned mining into this tract. The economic reopener clause may be the appropriate vehicle to effectuate this action.

**III. EPA Wetlands Regulatory Section Letter on CWA Section 404(q),
Part IV, Paragraph 3(a) – 2/9/07**

*** R1, R6, R8, R9, R12, R13, R16 and R17 (CWA Section 404 (q) and Compliance with 404 (b)(1) Guidelines)**

EPA supports the COE's position that there are less environmentally damaging practicable alternatives than the AP/EAP alternatives. We appreciate the Applicant for changing its request from these alternatives to the L alternative. However, as stated in the cover letter, we believe the S33AP Alternative is the NEPA "environmentally preferable alternative" and that Alternative L could be improved environmentally as "Modified Alternative L". Overall, EPA considers "Modified Alternative L" to be an economically practicable and environmentally reasonable alternative that is more environmentally preferable than Alternative L.

*** R5 (Impacts to Fisheries Habitats)**

EPA acknowledges the COE's response. We defer to the state and federal marine and wildlife agencies for more in depth comments on fisheries habitats impacted and avoided. However, we believe the COE's response could be misleading in its enumeration of bottomland hardwood wetland and stream impacts, as these refer to NCPC tract impacts and not project impacts as a whole which are greater.

**IV. EPA Regional Administrator Letter on CWA Section 404(q), Part IV,
Paragraph 3(b) – 3/6/07**

*** R3, R4 and R5 (CWA Section 404 (q) and Compliance with 404 (b)(1) Guidelines)**

See EPA's above comments to Section III for R1, R6, R8, R9, R12, R13, R16 and R17.

OTHER COMMENTS

*** Silviculture** – We hereby reiterate the following comments which were included in our April 30, 2008, pre-FEIS letter.

“EPA maintains that logging an area by a permit applicant where there is an intent to mine the same area after the completion of the logging operation, by the same applicant would remove the activity from the silviculture exemption. As the 404 regulations state (40 CFR 232.3 (b)), any discharge of dredged or fill material into waters of the U.S., must have a permit if it is part of an activity whose purpose is to convert an area of waters of the U.S. into a use which it was not previously subject and where the flow or circulation of waters may be impaired or the reach of such waters reduced. EPA maintains this applies to a logging and road construction operation in an area where the future proposed use is a phosphate mining operation. It is our position that it would be difficult to log this area without a discharge of fill material and thus would require a 404 permit for the site preparation and the future mining operation as one permitted action.”

*** TMDLs** – Segments of the Pamlico River in the vicinity of the PCS Phosphates facility are currently listed (or proposed for listing) as impaired waterbodies under Section 303(d) of CWA. The identified pollutant of concern is Chlorophyll-*a*, which triggers the need for development of Total Maximum Daily Loads (TMDLs) for the nutrients Total Phosphorus (TP) and Total Nitrogen (TN). These TMDLs, developed after comprehensive studies by the state, will be approved by EPA Region 4. The studies will include a detailed “source assessment” of existing and potential sources of TN and TP, and ultimately will set limits for both Point and Nonpoint sources, including all stormwater discharges.

These nutrients TMDLs thus have the potential to affect and possibly limit future mining related discharges into the impaired receiving waters. Besides the nutrient Phosphorus, Page 4-100 of the FEIS indicates that there are a limited number of other water quality parameters that will be of potential concern from reclaimed areas, including Fluoride, Suspended Solids and Metals. These other water quality parameters should be fully monitored to ensure continued compliance with the State of North Carolina's current Water Quality Standards (WQS). It is anticipated by EPA Region 4 that only Total Phosphorus (TP) and Total Nitrogen (TN) will actually be addressed by a TMDL in the near future. This is because the Pamlico River in this area is currently only listed for Chlorophyll-*a*, an indicator of nutrient enrichment, and is not listed as impaired for any

other pollutant. If the Pamlico River segments downstream of the PCS facility are ever listed for any other pollutants besides Chlorophyll-*a*, then TMDLs will need to be developed for each pollutant.

We are aware that monitoring is being conducted as part of the Applicant's existing National Pollutant Discharge Elimination (NPDES) permit and that pollutant concentrations in existing stormwater runoff appear to be relatively low for the ongoing mining, although the operation is not a zero-discharge facility. We understand that after on-site stormwater at PCS Phosphates meets a certain water quality, it will no longer enter the plant site recycle system, but instead will be directed either to the Pamlico River (through the NPDES permitted and monitored Outfalls 009 or 101) or allowed to re-enter the individual creek systems.

Therefore, while nutrient discharges are not currently a major concern, the Applicant should be advised that once the State develops nutrient TMDLs and EPA Region 4 approves those TMDLs, the existing and proposed mining activities will need to be compliant with those daily load limitations for the impaired segments of the Pamlico River and its tributaries.

* **EFH** – EPA will defer to the state and federal marine and wildlife agencies regarding mining impacts to Essential Fish Habitat (EFH). However, the Applicant should consider EFH in the avoidance and minimization process, as it relates to minimizing the loss of habitat that is essential to local fish species.

PROJECT SUMMARY

Project – *PCS Phosphate Mine Continuation at Aurora, North Carolina*

Agency – COE

Type – FEIS (previous documents were DEIS and DSEIS)

CEQ Number – 20080213

ERP Number – COE-E67005-NC

Reviewer - Chris Hoberg

Region – R4

State – NC

County – Beaufort

Preferred Alt – No COE NEPA preferred alternative identified in FEIS. PCS Applicant's "Proposed Action" was Alt. L in FEIS

Main Issues – Mining impacts to wetlands and streams (waters of U.S.)

Other Issues – Cumulative impacts from previous mining since this is a proposed mine Continuation; also alternatives (EPA offered "Modified Alternative L" as an environmental improvement to Alt. L but found S33AP to be the "environmentally preferable" alternative); also economics regarding the economic practicability of alternatives.

Wetlands Tracking – Alt L would impact 4,135 acres of waters of the U.S. including 4,115 acres of wetlands. The "Modified Alternative L" would impact 213 acres less.

Due Date – 7/9/08 (EPA requested a 2-week extension, *i.e.*, 7/23/08)

Completion Date – 7/23/08 (pdf copy emailed to Tom Walker and Ken Jolly)

Rating – EO-2

Key Words – Phosphate mining, PCS, Wilmington COE, Aurora (NC), Alternative L, Alternative S33AP, "Modified Alternative L", economically practicable, environmentally preferable, Albemarle Pamlico Estuary System, waters of the U.S.

Summary Paragraph – EPA continues to have environmental objections to this project as proposed under Alternative L (Applicant's "Proposed Action") due to significant impacts to waters of the U.S. However, we believe that Alternative S33AP is the NEPA "environmentally preferable alternative" and that Alternative L could be improved environmentally as "Modified Alternative L". EPA finds both to be economically practicable and, from an industry standpoint, both would allow the continuance of phosphate mining at Aurora for many years.



"Jolly, Samuel K SAW"
<Samuel.K.Jolly@usace.army.mil>

03/14/2009 02:36 PM

To Tom Welborn/R4/USEPA/US@EPA,
William.t.walker@usace.army.mil)
cc Rebecca Fox/R4/USEPA/US@EPA, Jennifer
Derby/R4/USEPA/US@EPA

bcc

Subject Re: Conf call on PCS

I believe Tom has already responded - we plan on talking Tuesday. And I hope EPA can attend Friday's meeting in person, ready to make decisions as appropriate. If you haven't heard from Tom on final details, please call him first thing Monday. Thanks.

Ken

Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: Welborn.Tom@epamail.epa.gov <Welborn.Tom@epamail.epa.gov>
To: Jolly, Samuel K SAW; Tom Walker <William.t.walker@usace.army.mil>
Cc: Fox.Rebecca@epamail.epa.gov <Fox.Rebecca@epamail.epa.gov>; Derby.Jennifer@epamail.epa.gov
<Derby.Jennifer@epamail.epa.gov>
Sent: Fri Mar 13 03:41:09 2009
Subject: Conf call on PCS

Ken, as we discussed yesterday, we are still briefing EPA management on the potential elevation of the PCS permit but would like to discuss some options and regional management have asked me to talk with you and your staff next week when you are back in the office. Tom, Ken indicated he would be out today but if you could give me some times that Ken and yourself may be available on Monday or Tuesday for a call I would appreciate hearing back as soon as possible so we can let EPA staff know. Thanks.

Sent by EPA Wireless E-Mail Services



Mike_Wicker@fws.gov
03/16/2009 08:59 AM

To "Walker, William T SAW"
<William.T.Walker@usace.army.mil>
cc "Lamson, Brooke SAW"
<Brooke.Lamson@saw02.usace.army.mil>, Rebecca
Fox/R4/USEPA/US@EPA, "Pace.Wilber"
bcc

Subject Re:

History: ➡ This message has been replied to.

Tom,

I talked with Becky and she said that EPA would be talking with you tomorrow. I suggest we wait till after you talk with EPA before we talk so we will be more able to discuss all federal gency concerns. Let me know as soon as you can so I can schedule accordingly.

Thanks,

Mike

"Walker, William
T SAW"
<William.T.Walker
@usace.army.mil>

03/13/2009 12:16
PM

"Pace.Wilber"
<Pace.Wilber@noaa.gov>, "Ron
Sechler" <ron.sechler@noaa.gov>,
<Pete_Benjamin@fws.gov>,
<Mike_Wicker@fws.gov>,
<Welborn.Tom@epamail.epa.gov>,
<Fox.Rebecca@epamail.epa.gov>

To

cc

"Jolly, Samuel K SAW"
<Samuel.K.Jolly@usace.army.mil>,
"Lamson, Brooke SAW"
<Brooke.Lamson@saw02.usace.army.mil
>

Subject

All,

Thanks for talking with us yesterday. I think we decided to forego our call this morning in lieu of talking by phone next Monday (3/16) and meeting in person next Friday (3/20). Ron, Pace said he would give you a call this morning to brief our discussion yesterday. As always, if you guys have any questions or need anything, please give me a call.

To sum up yesterday, I believe we decided to talk next week about overall agency concerns and potential measures that could reasonably/practicably be taken at this point to further minimize project impacts. A couple of key points discussed were:

- 1) Need for biological monitoring to ensure that avoidance efforts incorporated are successful in mitigating the long term impacts to the estuarine creek communities.
 - Need to better define targets
 - Need to look at NCDWQ requirements (attached is pertinent part of monitoring plan from last permit) and potentially build on them to provide adequate sampling, analysis and reporting protocol.
- 2) Assurance that reclamation efforts are completed and successful.
 - Vegetation monitoring
 - Sampling / monitoring of current reclamation areas
 - Techniques and management for future reclamation (i.e. capping and/or planting requirements)

I have set up a conference call in line, the number is 1-866-717-3308 and the pass code is 1227026. I have reserved the line from 1300 - 1600 Monday afternoon. I would suggest we try to get on-line at 1330. Please let me know if this works within your schedule.

thanks
Tom Walker
(910) 251-4631



"Walker, William T SAW"
<William.T.Walker@usace.army.mil>

03/16/2009 12:14 PM

To <Mike_Wicker@fws.gov>

cc "Lamson, Brooke SAW"
<Brooke.Lamson@saw02.usace.army.mil>, Rebecca
Fox/R4/USEPA/US@EPA, "Pace.Wilber"

bcc

Subject RE:

History: ☐ This message has been replied to.

Mike & Ron,

I think this afternoon will only be the three of us. I have been discussing the reclamation schedule and methods in general with the applicant and was hoping to have some more discussion with them this morning and, as a result, further info to discuss this afternoon. I have not yet talked with PCS. I would still like to talk briefly at 1330 but would also like to schedule a second teleconference for Wednesday afternoon, hoping that by then we will get some input from EPA. We can coordinate this at 1330.

The call in number is 1-866-717-3308 and the pass code is 1227026.

Thanks
Tom

-----Original Message-----

From: Mike_Wicker@fws.gov [mailto:Mike_Wicker@fws.gov]
Sent: Monday, March 16, 2009 8:59 AM
To: Walker, William T SAW
Cc: Lamson, Brooke SAW; Fox.Rebecca@epamail.epa.gov; Pace.Wilber;
Pete_Benjamin@fws.gov; smtp-Sechler, Ron; Jolly, Samuel K SAW;
Welborn.Tom@epamail.epa.gov
Subject: Re:

Tom,

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Thanks,

Mike

"Walker, William
T SAW"
<William.T.Walker
@usace.army.mil>

03/13/2009 12:16
PM

"Pace.Wilber"
<Pace.Wilber@noaa.gov>, "Ron
Sechler" <ron.sechler@noaa.gov>,
<Pete_Benjamin@fws.gov>,
<Mike_Wicker@fws.gov>,
<Welborn.Tom@epamail.epa.gov>,
<Fox.Rebecca@epamail.epa.gov>

To

"Jolly, Samuel K SAW"

cc

<Samuel.K.Jolly@usace.army.mil>,
"Lamson, Brooke SAW"
<Brooke.Lamson@saw02.usace.army.mil
>

Subject

All,

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 - Sampling / monitoring of current reclamation areas
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thanks
Tom Walker
(910) 251-4631



"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/16/2009 02:13 PM

To "Walker, William T SAW"
<William.T.Walker@usace.army.mil>
cc Rebecca Fox/R4/USEPA/US@EPA, Mike_Wicker@fws.gov,
Pete_Benjamin@fws.gov, Ron Sechler
<ron.sechler@noaa.gov>, "Jolly, Samuel K SAW"
bcc

Subject NMFS PCS recommendations

History: This message has been forwarded.

Hi Tom.

As noted during the telephone call, NMFS is considered replacing its current EFH conservation recommendation (which states mining shall be prohibited within the Bonneron and NCPC tracts) with the three below. If these are agreeable to PCS and CESA, we would likely withdraw our 404(q) elevation. The attachment referenced in the first bullet would be based on the ppt slides we sent you a few weeks ago (these are attached). In our view the latter two bullets echo in principle what is in the WQC, but NMFS envisions more elaborate versions of what was done previously. Working out the details remains to be done, and we are talking with our Beaufort Lab; we think the details could be finalized quickly via a team effort.

Potential New EFH Conservation Recommendations

- Further avoidance and minimization of impacts should be considered and the recommended focus areas for these considerations are identified in the attachment to this letter
- The applicant shall develop a plan of study to address the effects of a reduction in headwater wetlands on the utilization of Tooley Creek, Jacobs Creek, and Jacks Creek as nursery areas by resident fish and appropriate invertebrate species. This plan shall be submitted to NMFS for review and approval prior to initiation of land clearing activities in the headwater wetlands of PNAs within the NCPC tract.
- The applicant shall establish an independent panel of scientists and engineers to annually evaluate whether direct and indirect impacts and benefits from the project are in accordance with expectations at the time of permitting. The panel also shall annually provide the Wilmington District and applicant with recommended changes to the mining and mitigation that are necessary to bring the project into alignment with expectations.

Pace

--

Pace Wilber, Ph.D.
Atlantic Branch Chief, Charleston (F/SER47)
Southeast Regional Office, NOAA Fisheries
PO Box 12559

Charleston, SC 29422-2559

843-953-7200

FAX 843-953-7205

pace.wilber@noaa.gov

<http://sero.nmfs.noaa.gov/dhc/habitat.htm>



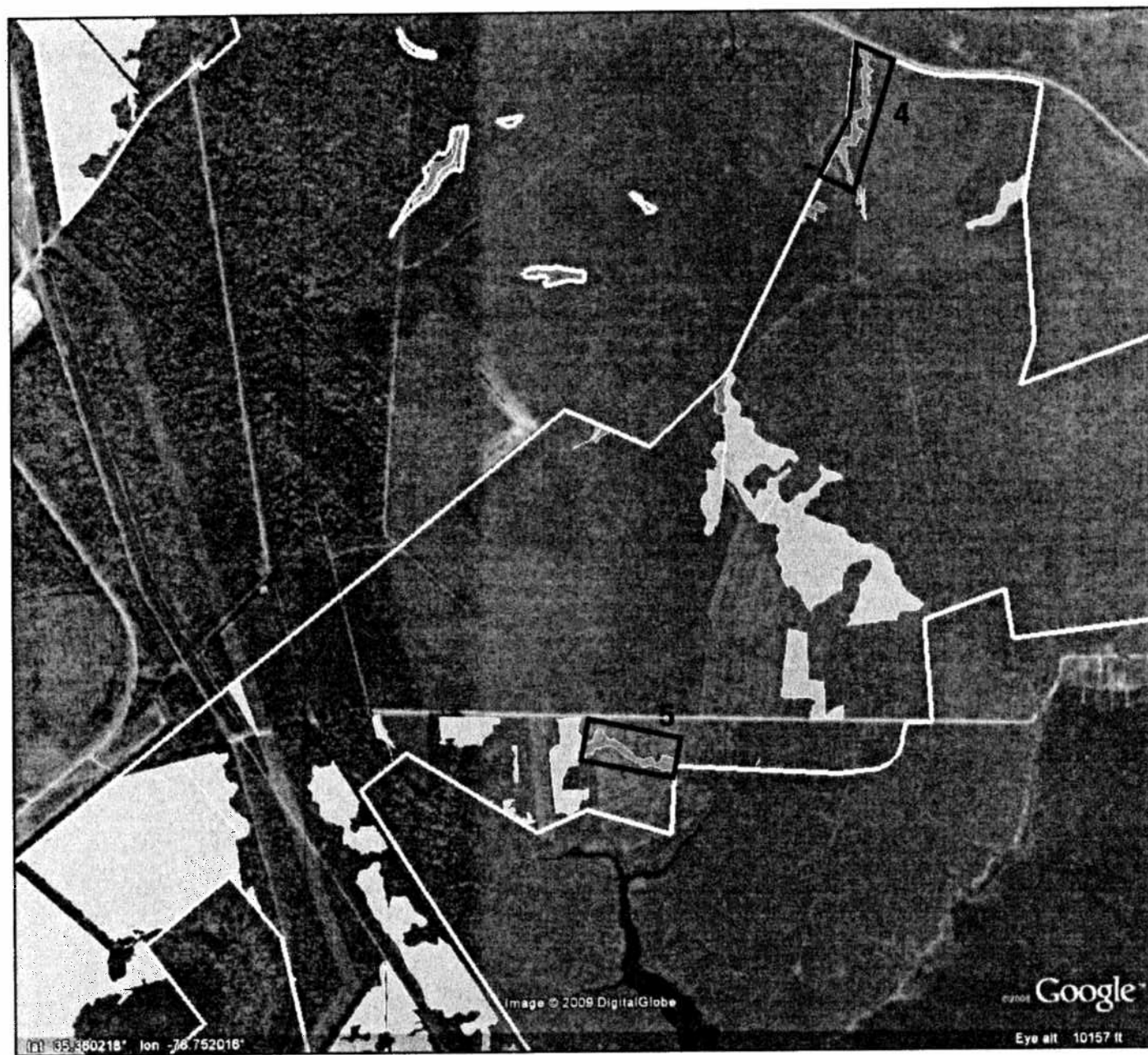
Heavy white lines show the footprint of the proposed mine expansion. Colored areas within the proposed footprint are the wetlands that would be mined. The "i"s show the approximate mining schedule; i.e, the mining of new areas would begin by extending from the current mine into the NRPC tract, then to the Bonnerton tract, and finally to the S33 tract.

While relatively minor details about the S33 tract remained to be addressed, the agencies have all said for some time that mining the S33 tract was acceptable.



Most of our concerns are with the plans for the NCPC tract. Inset shows all the wetlands. For clarity the main image shows only the streams, bottomland hardwoods, and mixed hardwood wetlands.

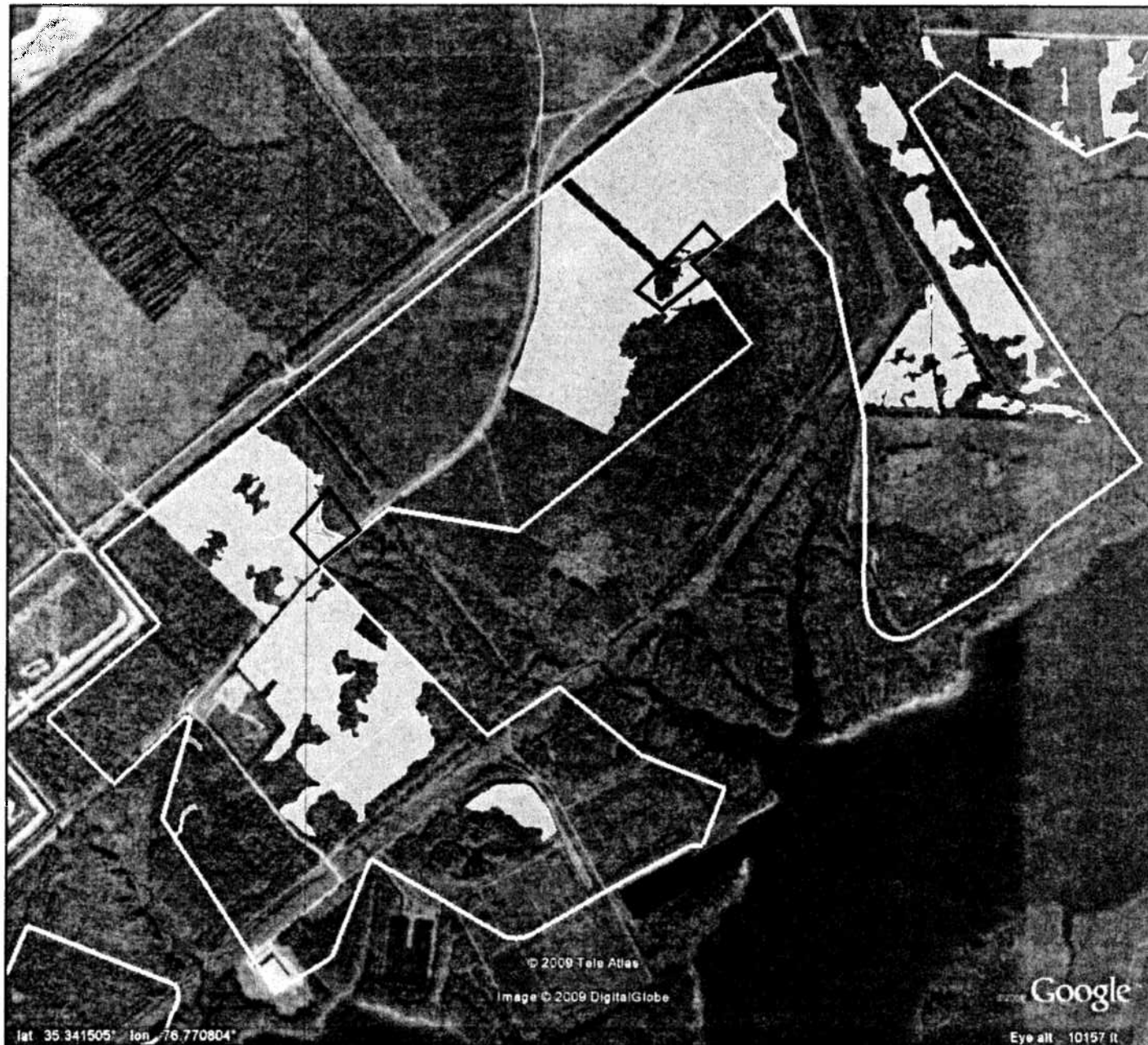
We are pleased the applicant plans to avoid many of the creeks that flow into South Creek and Pamlico River. Our contention is that minor adjustments to the proposed mine footprint could further reduce impacts to wetlands that serve as headwaters to these creeks. Specific areas of concern are highlighted and examined in more detail on next slides.



This is the northern portion of the NCPC tract. The two polygons with red outlines total 19 acres. The wetlands within these areas are headwater wetlands to intermittent streams, and we recommend these wetlands not be mined.

Numbers adjacent to each polygon indicate our overall priority for avoidance.

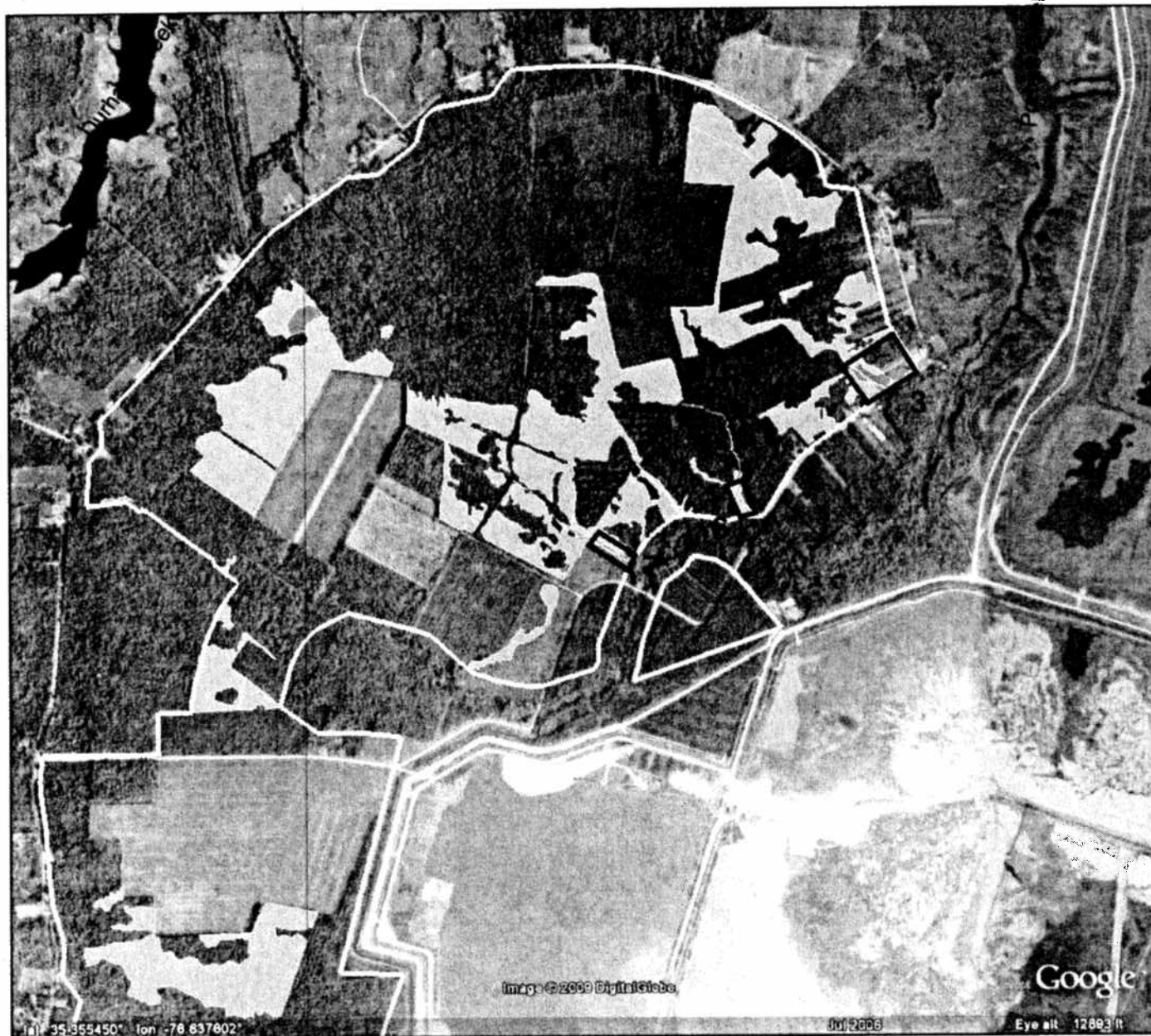




This is the southern portion of the NCPC tract. The two polygons with red outlines total 12 acres. The wetlands within these areas are headwater wetlands to intermittent streams, and we recommend these wetlands not be mined.

Numbers adjacent to each polygon indicate our overall priority for avoidance. In comparison to the previous slide, you'll note that "3" is missing; that is because our 3rd priority avoidance area





This is the northern portion of the Bonnerton tract. The three polygons with red outlines total 20 acres. The wetlands within these areas are headwater wetlands to intermittent streams, and we recommend these wetlands not be mined.

Numbers adjacent to each polygon indicate our overall priority for avoidance.

Summing across the three slides, we recommend 7 areas for avoidance that total





"Heather"
<riverkeeper@ptrf.org>
03/17/2009 09:38 AM

To Rebecca Fox/R4/USEPA/US@EPA
cc
bcc

Subject link to article

History: This message has been replied to and forwarded.

<http://www.wdnweb.com/articles/2009/03/15/news/news01.txt>

Apparently there is some dispute over an air permit at PCS as well. It was noted in Wade Rawlins article. The Department of Interior was involved over air quality at Swan Quarter.

<http://www.newsobserver.com/news/story/1439452.html>

Thanks,

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member



"Walker, William T SAW"
<William.T.Walker@usace.army.mil>

03/17/2009 09:59 AM

To Rebecca Fox/R4/USEPA/US@EPA

cc Tom Welborn/R4/USEPA/US@EPA, "Jolly, Samuel K SAW"
<Samuel.K.Jolly@usace.army.mil>

bcc

Subject RE: call today

History: This message has been forwarded.

Becky/Tom,

I have set up a conference call-in line. The number is 1-877-470-4867 and the passcode is 8007948. We'll talk at 1:30pm. If I can provide anything before then, I'll be here.

Thanks
Tom Walker
(910)251-4631

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Tuesday, March 17, 2009 8:24 AM
To: Walker, William T SAW
Subject: call today

Hi Tom,

Do you want to set up call in or do you want us to? It's very easy for us to do and we can do it on the fly so just let us know. Look forward to talking to you this afternoon. bf

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov



Mike_Wicker@fws.gov

03/17/2009 10:20 AM

To Rebecca Fox/R4/USEPA/US@EPA

cc "Pace.Wilber" <Pace.Wilber@noaa.gov>, Ron Sechler
<ron.sechler@noaa.gov>, Pete_Benjamin@fws.gov

bcc

Subject

Either of these options on the long term will allow the site to again make a positive contribution to the downstream estuary

1.) Topsoil, A horizon (averaging one foot of depth, no less than six inches) would allow the site to recover at a greatly accelerated pace in contrast to not having topsoil and would make the reclaimed area suitable for a number of tree species

2.) Upland Areas plant longleaf pine on areas capped with the prestrip overburden from the advancing mine (longleaf is another priority species for UFSWS)

3.) bald cypress on wetland areas topped with blended reclamation substrate with three foot cap of clean prestrip (of course if Atlantic white cedar (AWC) was shown to do well, that would be OK as well since AWC is also a priority tree species for the USFWS (the three priority species for the USFWS in NC are longleaf pine, bald cypress, and Atlantic white cedar).

Longleaf pine, bald cypress, and Atlantic white cedar are all available as seedlings. One source for seedlings in the NC Division of Forest Resources at Claridge Nursery near Goldsboro, NC.

* All three of these would be on top of the already agreed-upon 3-foot CAP needed per the cadmium risk assessment recommendations

Plus as minimization

Construction of a shallow 100 acre (approximately 3 foot deep wetland that would be planted with native submerged aquatic vegetarian into which the mine depressurization water would be run thru prior to entering the estuary. We believe such an area would be tremendously productive and serve as an interim benefit to the estuary until the mining is over (at which time the pumping would cease) and the reclaimed areas could supply reasonable surface water drainage to the estuary. This would help to minimize watershed loss.

Background information on soil

The Service has encouraged a topsoil cover, to take advantage of the soil structure, organic matter, nutrients, and seed sources available in that material which is available as mining operations advance. From an ecological perspective, there is certainly support for this approach in the literature (Farmer and Blue 1978; Schuman and Power 1981) and in the reclamation of phosphate mined lands in Florida (Ron Concoby, IMC-Agrico Company, pers. comm.; Christine Keenan, Florida Department of Environmental Protection, Mine Reclamation Section, pers. comm.; John Kiefer, CF Industries, pers. comm.; Mike Shannon, Cargill Industries, pers. comm.). For example IMC-Agrico, Cargill Industries, and CF Industries in central Florida do upland reclamation of phosphate mined lands by using native topsoil (top approximately 4 to 10 inches) as a cover in ~5% of their overall upland reclamation programs. This is done to get the benefits of native vegetation seed banks for xeric/oak and mesic upland pine flatwood

communities, key habitat types for restoration in the perspective of the local regulatory authorities and environmental groups. The percentage of wetland reclamation which employs topsoil is far higher. While not the norm for upland restoration (because 90 to 95% of upland reclamation uses no topsoil), topsoil addition is the desired method when restoration of the native plant community is the target post-reclamation landuse. The size of individual upland restoration parcels employing topsoil in Florida ranges from ~3 to 200 acres and cumulatively exceeds 600 acres with hundreds more acres projected or planned.

While topsoil has known ecological restoration benefits, those benefits primarily relate to supporting a defined goal of restoring a productive and diverse community that would contribute in a meaningful way to area ecology. In Beaufort County, topsoil depths are ~3 to 18 inches (Kirby 1995) in the dominant soil series (Portsmouth, Cape Fear, Roanoke, and Wahee). Consequently, use of only topsoil material to provide a cover for cadmium contaminated lands may not be practical; it would require more acres for gathering topsoil than could be reclaimed in the event that the cover needed to exceed local topsoil depths in order to reduce cadmium availability to acceptable levels. If that approach was used alone, reclamation could not keep pace with mining or redress previously mined areas in the long term. Without the cadmium concern, a soil covering of 6 to 12 inches of topsoil would enhance restoration of native plants; with the cadmium concern, a thicker cap is desirable and there is likely not sufficient topsoil to advocate a use of topsoil alone for all reclamation needs.

Clearly then, what is needed is a balance between the concerns of cadmium attenuation (a toxicological and engineering issue) with landscape level restoration (an ecological issue). Again, the choice of cover material to reduce wildlife and plant exposure to cadmium contaminated reclamation blends is not important unless the desired post-reclamation landuse and vegetative cover are considered (i.e., any material, at the proper depth for that particular material, will serve as a barrier to plant and wildlife exposure to contaminated soils). Both the toxicological concerns (attenuating cadmium availability) and the ecological issues (landscape level restoration) can be made considerably more manageable with more definition of the desired post-reclamation vegetative community and a reclamation landuse plan. Defining the vegetation type narrows the cover depth question to those species being considered for reclamation (versus all grasses, shrubs and trees that could potentially be planted or that could colonize a site) and focuses the cover material issue to the soil conditions necessary to support the desired species.

PCS Phosphate wants the reclamation sites to support trees. We started with that post reclamation landuse then chose the longleaf pine (*Pinus palustris*) and its associates such as turkey oak (*Quercus laevis*) for areas to be capped without topsoil (and therefore with lower fertility). We selected bald cypress (*Taxodium distichum*) for reclamation in wetter areas with use of a topsoil cap. These species are impoverished in North Carolina compared to historic records, provide significant wildlife habitat benefits, and cover a wide range of preferences with regard to site fertility and moisture. Longleaf pine occupied extensive areas of the Coastal Plain when European settlers arrived (Wahlenberg 1946). It was a very important tree for production of lumber and naval stores. Today, longleaf pine occupies only 1% of its original range in the Southeast (Ware et al. 1993). Longleaf pine normally occurs on dry, sandy soils, and does not thrive where there is excessive moisture, as in swamps or pocosins (Wahlenberg 1946). While tap roots can extend deep for plant stability, longleaf pines develop extensive lateral root systems; most roots are

within 0.3 m (1-foot) and nearly all are within 0.6 m (2-feet) (Boyer 1990). Like longleaf pine, the bald cypress resource is only a fraction of that in earlier years even though demand is still strong. Cypress occurs on soils ranging widely in texture, reaction, base saturation and fertility (Coultas and Duever 1984). It is not demanding nutritionally. It is a shallow rooted species with a tap root. While it may not seem suited to reclamation on phosphate mined lands in eastern north Carolina, it was one of two species that appeared to do well on blended reclamation substrates in experimental work performed in this area (Steve Broome, North Carolina State university, pers. comm.).

Longleaf pine could very likely be grown on areas capped with prestrip overburden from the advancing mine (PCS Phosphate's initially conceived approach). Longleaf pine occurs naturally on low fertility sites such as the Carolina sandhills, and the species' historic range includes Beaufort County. In this case, the depth of uncontaminated cover material should be at least 3-feet to ensure cadmium is not translocated back to the soil surface with time. This approach represents a compromise...it requires 3-feet of cover depth but allows use of material other than topsoil. PCS Phosphate is considering mixing the top ~35-feet of prestrip overburden from areas to be mined in the future as the source material for the cover; this depth represents that which is top cut with existing equipment (bucket wheel excavator). This material should provide a suitable substrate for the longleaf pine areas.

In a subset of areas where the diversity of native vegetation is desired (e.g., the wetland community types such as bottom land hardwood and scrub pocosins or particularly diverse upland assemblages), use of 6 to 12 inches of topsoil on top of a 2 to 2.5-feet cover with uncontaminated overburden (to achieve the desired 3-feet cover) is suggested. The benefits of a seed stock for native plant diversity would be significant. Cypress could also be planted in these areas; their need for more organic material than would be in the overburden mix would be addressed by the topsoil addition. This also represents a compromise...it is a recognition that topsoil resources in the vicinity of the advancing mine are limited and that they probably cannot serve as the basis for all reclamation but should be used selectively as seed banks and in establishment of a better substrate for cypress (or other wetland species) restoration so that native vegetation other than the plantings can colonize the area.

Summary

Most of the scientists we contacted cautioned that the number of variables involved (species of vegetation, the depth of the water table, soil type, nutrient availability at depth, and soil chemistry) precluded the ability to formulate precise cover depth recommendations without defining desired post-reclamation landuse and without site-specific research. If an answer was being crafted merely for cover depth (the toxicological question) for all potential plant types, a cover of 5-feet or greater could be justified based on the known rooting depth of certain plants and results of cadmium accumulation by herbaceous vegetation grown over capped contaminated sediments. If the answer was also crafted to address cover material type for restoration of native communities, use of another 6 to 12 inches of topsoil is well-justified.

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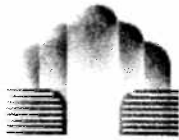
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Philip
Mancusi-Ungaro/R4/USEPA/
US

03/17/2009 10:45 AM

To Palmer Hough/DC/USEPA/US@EPA
cc Ann Campbell/DC/USEPA/US@EPA, Jennifer
Derby/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, Tom

bcc

Subject Re: Fw: Appeal of PCS 401 certification

Sorry, I have been out of town. I will check. It is dependent on state law and how the COE wants to react. In some states, if a 401 is challenged, then it is not effective until that challenge is finished. So there is no 401 cert, and the COE could take the position that cert was waived. We generally push back on that position, indicating that under the COE regs EPA would defer to the state 401, but can still raise the same issues if the state does not.

Other states the 401 is effective, and is then challenged. In that case, there is a valid 401 that is effective, and the COE cannot go forward with the permit since it was challenged.

I will check on NC's law. They generally are pretty assertive on their 401 program.

Philip G. Mancusi-Ungaro
Office of Water Legal Support-R4
United States Environmental Protection Agency
Phone - 404-562-9519, Fax - 404-562-9486
Palmer Hough/DC/USEPA/US



Palmer
Hough/DC/USEPA/US
03/17/2009 10:35 AM

To Philip Mancusi-Ungaro/R4/USEPA/US@EPA, Tom
Welborn/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, Jennifer
Derby/R4/USEPA/US@EPA
cc Ann Campbell/DC/USEPA/US@EPA

Subject Fw: Appeal of PCS 401 certification

Phil et al:

Did we ever figure out what effect the 401 challenge of PCS will have on if, how, or when the Corps could issue a permit?

Thanks, Palmer

From: Kevin Minoli/DC/USEPA/US
To: Gregory Peck/DC/USEPA/US@EPA
Cc: Ann Campbell/DC/USEPA/US@EPA, Brian Frazer/DC/USEPA/US@EPA, David
Evans/DC/USEPA/US@EPA, Karyn Wendelowski/DC/USEPA/US@EPA, Robert
Wood/DC/USEPA/US@EPA, Suzanne Schwartz/DC/USEPA/US@EPA, Tanya
Code/DC/USEPA/US@EPA
Date: 03/17/2009 10:03 AM
Subject: Re: Fw: Appeal of PCS 401 certification

Are you sure about that? The the 401 Certs for the Vessels General Permits have been challenged in

state court in at least one state (New York) and we are not taking the position that the permit is not effective there. Is this a challenge to a 401 cert that had been sent to the corps or did they challenge it before the corps got it?

Gregory Peck

The corps could issue a conditional permit - but...

03/17/2009 09:24:19 AM

From: Gregory Peck/DC/USEPA/US
To: Suzanne Schwartz/DC/USEPA/US@EPA, David Evans/DC/USEPA/US@EPA, Robert Wood/DC/USEPA/US@EPA, Brian Frazer/DC/USEPA/US@EPA, Tanya Code/DC/USEPA/US@EPA, Ann Campbell/DC/USEPA/US@EPA, Kevin Minoli/DC/USEPA/US@EPA, Karyn Wendelowski/DC/USEPA/US@EPA
Date: 03/17/2009 09:24 AM
Subject: Re: Fw: Appeal of PCS 401 certification

The corps could issue a conditional permit - but since the applicant can't do work until the 401 issue is resolved - there is no urgency for the Corps to act except to wash its hands?

Gregory E. Peck
Chief of Staff
Office of Water
U.S. E.P.A.

Suzanne Schwartz

----- Original Message -----

From: Suzanne Schwartz
Sent: 03/17/2009 09:07 AM EDT
To: Gregory Peck; David Evans; Robert Wood; Brian Frazer; Tanya Code; Ann Campbell; Kevin Minoli; Karyn Wendelowski
Subject: Re: Fw: Appeal of PCS 401 certification

Do we know what this means as far as permit issuance goes? (I assume the Corps could issue the permit but it wouldn't go into effect until this is resolved -- correct?)

Acting Director,
Office of Wetlands, Oceans, and Watersheds
phone: 202-566-1146; fax: 202-566-1147
street address: 1301 Constitution Ave., N.W.
room 7130E

Gregory Peck

----- Gregory E. Peck

03/17/2009 08:01:28 AM



"Heather"
 <riverkeeper@ptrf.org>
 03/17/2009 11:03 AM

To: Rebecca Fox/R4/USEPA/US@EPA
 cc
 bcc

Subject: RE: link to article

History: This message has been replied to.

I'll do some digging back into the 1997 FEIS and get back to you.

Thanks,

Heather Jacobs Deck
 Pamlico-Tar Riverkeeper
 Pamlico-Tar River Foundation
 Phone: (252) 946-7211
 Cell: (252) 402-5644
 Fax: (252) 946-9492
 www.ptrf.org
 Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
 Sent: Tuesday, March 17, 2009 10:59 AM
 To: Heather
 Subject: Re: link to article

Thanks Heather,

I was wondering if it would be relatively easy for you to figure out what cumulative DBR would be for Jacob's Creek? The COE 3 c letter states 80% for Jacks and 55% for Tooley but doesn't have an amt for Jacobs. FEIS says 54% for Jacob but I believe that is just from the proposed permit and doesn't consider DBR from current mining impacts. Thanks! bf

Becky Fox
 Wetland Regulatory Section
 USEPA
 Phone: 828-497-3531
 Email: fox.rebecca@epa.gov

"Heather"
 <riverkeeper@ptrf.org>

03/17/2009 09:38 AM

Rebecca Fox/R4/USEPA/US@EPA

To

cc

Subject

link to article

<http://www.wdnweb.com/articles/2009/03/15/news/news01.txt>

Apparently there is some dispute over an air permit at PCS as well. It was noted in Wade Rawlins article. The Department of Interior was involved over air quality at Swan Quarter.

<http://www.newsobserver.com/news/story/1439452.html>

Thanks,

Heather Jacobs Deck
Pamlico-Tar Riverkeeper.
Pamlico-Tar River Foundation
Phone: (252) 946-7211
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"Heather"
<riverkeeper@ptrf.org>
03/17/2009 12:12 PM

To Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject RE: link to article

PNA's are Jacks, Jacobs and Tooley. You're right.

Heather Jacobs Deck
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-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Tuesday, March 17, 2009 12:09 PM
To: Heather
Subject: RE: link to article

One other thing. Jacobs is one of the 3 PNAs on NCPC -- right? FEIS says so but in COE's NOI letter to us they have Drinkwater instead of Jacobs... I also have message into NMFS on this so don't spend a lot of time on it --just thought you might know...

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

03/17/2009 11:03 AM

Rebecca Fox/R4/USEPA/US@EPA

To

cc

Subject

RE: link to article

I'll do some digging back into the 1997 FEIS and get back to you.

Thanks,

Heather Jacobs Deck
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Phone: (252) 946-7211
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-----Original Message-----

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Sent: Tuesday, March 17, 2009 10:59 AM
To: Heather
Subject: Re: link to article

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Becky Fox
Wetland Regulatory Section
USEPA
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Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

03/17/2009 09:38
AM

Rebecca Fox/R4/USEPA/US@EPA

To

cc

Subject

link to article

<http://www.wdnweb.com/articles/2009/03/15/news/news01.txt>

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<http://www.newsobserver.com/news/story/1439452.html>

Thanks,

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Tressa Turner /R4/USEPA/US

03/18/2009 10:21 AM

To jefferson.m.ryscavage@usace.army.mil,
patricia.princess@usace.army.mil
cc Tom Welborn/R4/USEPA/US@EPA, Jennifer
Derby/R4/USEPA/US@EPA, Scott
Gordon/R4/USEPA/US@EPA, Rebecca
bcc

Subject Recommendation to Request a Higher Level for Department
of Army Permit AID 200110096, Potash Corporation of
Saskatchewan Phosphate Division, Aurora Operation (PCS)
Mine Continuation

The original letter and cc's have been mailed.

PDF

Scan001.PDF



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

March 17, 2009

Colonel Jefferson M. Ryscavage
District Engineer
Wilmington District
U.S. Army Corps of Engineers
P.O. Box 1890
Wilmington, North Carolina 28402-1890

Subject: Recommendation to Request a Higher Level Review for Department of Army
Permit AID 200110096, Potash Corporation of Saskatchewan Phosphate Division,
Aurora Operation (PCS) Mine Continuation

Dear Colonel Ryscavage:

We have received your Notice of Intent to Proceed on the proposed Department of the Army Permit AID 200110096, the Aurora Operation (PCS) Mine Continuation, dated February 24th and received at EPA Region 4 on March 2, 2009. Pursuant to paragraph 3(d)(2) of the Memorandum of Agreement (MOA) between the EPA and the Department of Army, under Clean Water Act Section 404(q) Part IV, I am requesting review of this permit by the Acting Assistant Administrator of EPA's Office of Water, and recommending that he request review of the permit by the Assistant Secretary of the Army for Civil Works. During this review, the permit should be held in abeyance pending completion of the review process pursuant to the MOA Part IV, paragraph 3(e).

EPA remains concerned that the proposed project will result in unacceptable adverse impacts to aquatic resources of national importance, including direct and indirect impacts to waters of the U.S. which support the Albemarle Pamlico National Estuary Program area. The proposed project will have direct impacts to 3,953 acres of wetlands and 25,727 linear feet of stream, including a portion of a designated Significant Natural Heritage Area. The impacts also include a loss of approximately 70 percent of the watershed areas within the proposed project boundaries. Based on EPA's review of the economic analysis included in the project's Final Environmental Impact Statement, we continue to believe that there are less environmentally damaging practicable alternatives for mining the project site that would avoid and minimize impacts to important wetland and stream resources. In addition to the need to further avoid and minimize impacts to the site's high value aquatic resources, there are concerns regarding the adequacy of the proposed compensatory mitigation to offset any authorized impacts.

We recognize the desire for timely decision-making on this permit. We have worked closely with your staff and have offered our comments throughout the Environmental Impact Statement and 404 permitting process, and we appreciate the efforts by both you and the applicant to address them. Still, critical issues about the impact of this project remain unresolved, and based on the concerns cited above, we do not support issuance of the permit for this project as currently proposed. Therefore, pursuant to the procedures and timelines in the national 1992 Memorandum of Agreement with the Corps of Engineers, we are seeking review by the EPA Office of Water and the Assistant Secretary for Civil Works.

Please contact Jim Giattina, Director, Water Protection Division, at (404) 562-9470 for further information, and we look forward to continuing to stay in touch as we proceed.

Sincerely,

A handwritten signature in black ink, appearing to read 'A. Stanley Meiburg', written in a cursive style.

A. Stanley Meiburg
Acting Regional Administrator

Enclosure: Distribution List

Recommendation to Request a Higher Level Review for Department of Army
Permit AID 200110096, Potash Corporation of Saskatchewan Phosphate Division,
Aurora Operation (PCS) Mine Continuation Distribution List:

Sam Hamilton
Southeast Regional Director
U.S. Fish and Wildlife Service
1875 Century Boulevard, Suite 400
Atlanta, GA 30345-3319

Brigadier General Joseph Schroedel
Commander
South Atlantic Division
U.S. Army Corp of Engineers
Room 10M15
60 Forsyth Street SW.
Atlanta, GA 30303-8801

Dee Freeman, Secretary
North Carolina Department of Environment
and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

Coleen H. Sullins, Director
Division of Water Quality
North Carolina Department of Environment
and Natural Resources
1617 Mail Service Center
Raleigh, NC 27699-1617



"Heather"
<riverkeeper@ptrf.org>
03/18/2009 11:52 AM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject: RE: link to article

History: This message has been replied to.

Looking back at the 97 FEIS it states that Jacobs watershed was 495 acres. Alternative E was to reduce drainage by 11 acres or 2%.

The 2008 FEIS table related to DBR is a bit unclear. For example, for Jacobs... it states that the base is 406 and that 226.58 is the DBR-- (but is that the actual loss of DB in acreage-- or is that what is left after the impact. In other words is it 226 acres lost of drainage to leave 180 (406-226) acres of drainage from the original 495 (if that's the case then total of 64%---- or are 226 acres of drainage left after mining, resulting in loss of (then 45%)?

Heather Jacobs Deck
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Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Tuesday, March 17, 2009 10:59 AM
To: Heather
Subject: Re: link to article

Thanks Heather,

I was wondering if it would be relatively easy for you to figure out what cumulative DBR would be for Jacob's Creek? The COE 3 c letter states 80% for Jacks and 55% for Tooley but doesn't have an amt for Jacobs. FEIS says 54% for Jacob but I believe that is just from the proposed permit and doesn't consider DBR from current mining impacts. Thanks! bf

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

Rebecca Fox/R4/USEPA/US@EPA

To

03/17/2009 09:38
AM

cc

Subject

link to article

<http://www.wdnweb.com/articles/2009/03/15/news/news01.txt>

Apparently there is some dispute over an air permit at PCS as well. It was noted in Wade Rawlins article. The Department of Interior was involved over air quality at Swan Quarter.

<http://www.newsobserver.com/news/story/1439452.html>

Thanks,

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"Heather"
<riverkeeper@ptrf.org>
03/18/2009 03:30 PM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject: RE: link to article

In the 97 FEIS, 137 acres, or 35% of Jacks were to be impacted (DBR) by alt-E.

Can't believe the Corps made a mistake mixing up PNAs...

And if the figures are correct, then yes looks like Jacobs would be about 56%.

Heather Jacobs Deck
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Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Wednesday, March 18, 2009 1:38 PM
To: Heather
Subject: RE: link to article

i agree it is a bit murky. FEIS states for Alt L (p 4-54) there is 54% DBR for Jacobs and a 68% DBR for Jacks. This should be just for this project. In our NOI letter from the COE, they state 20% of Jacks DB will remain intact so does that mean the other 12% loss was from current mine -- I thought there was more than that -- wasn't there something like 17% loss prior to baseline data. The NOI letter does not give info on Jacobs because they have Drinkwater as PNA rather than Jacobs. So you think there will probably be about a 56% DBR with current and Alt L? The NOI letter also states that 30% of the watersheds of creeks originating in project will remain intact as if that is a good thing -- means 70% mined... we are mulling over several options on NCPC -- one would be Alt L but stopping at ditch on west side above HWs of Jacobs -- that would save some watershed for Jacobs and Jacks -- another could be Alt L in north and then 1 dragline. also rest of SNHA in Bonnerton and walking through connecting area -- just thoughts between you and me -- nothing definite -- know COE and PCS will totally reject these kind of acreages...

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"

<riverkeeper@ptrf.org>

03/18/2009 11:52 AM

Rebecca Fox/R4/USEPA/US@EPA

To

cc

Subject

RE: link to article

Looking back at the 97 FEIS it states that Jacobs watershed was 495 acres.
Alternative E was to reduce drainage by 11 acres or 2%.

The 2008 FEIS table related to DBR is a bit unclear. For example, for Jacobs... it states that the base is 406 and that 226.58 is the DBR-- (but is that the actual loss of DB in acreage-- or is that what is left after the impact. In other words is it 226 acres lost of drainage to leave 180 (406-226) acres of drainage from the original 495 (if that's the case then total of 64%---- or are 226 acres of drainage left after mining, resulting in loss of (then 45%)?

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Tuesday, March 17, 2009 10:59 AM
To: Heather
Subject: Re: link to article

Thanks Heather,

I was wondering if it would be relatively easy for you to figure out what cumulative DBR would be for Jacob's Creek? The COE 3 c letter states 80% for Jacks and 55% for Tooley but doesn't have an amt for Jacobs. FEIS says 54% for Jacob but I believe that is just from the proposed permit and doesn't consider DBR from current mining impacts. Thanks! bf

Becky Fox

Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptr
f.org>

03/17/2009 09:38
AM

Rebecca Fox/R4/USEPA/US@EPA

To

cc

Subject

link to article

<http://www.wdnweb.com/articles/2009/03/15/news/news01.txt>

Apparently there is some dispute over an air permit at PCS as well. It was noted in Wade Rawlins article. The Department of Interior was involved over air quality at Swan Quarter.

<http://www.newsobserver.com/news/story/1439452.html>

Thanks,

Heather Jacobs Deck
Pamlico-Tar Riverkeeper.
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org.
Waterkeeper Alliance Member



"Heather"
<riverkeeper@ptrf.org>
03/18/2009 03:30 PM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject: RE: elevation

Okay, thanks for the update.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Wednesday, March 18, 2009 1:39 PM
To: Heather
Subject: Re: elevation

the letter did go out. my mgmt thinks probably best if i don't send a copy at this point and better not to have press involved right now. may hurt instead of helping negotiations. the letter is not long -- rather generic at this point. if we do not resolve things early on, we will have to send much more in depth package to EPA hqs

the mtg next week will be only with federal agencies. not sure how things will play out -- the agencies will be putting our cards on the table and it will depend on how COE and PCS respond where we go from there... COE has warned against proposing major new avoidance... we are having a planning mtg (EPA) tomorrow so please let me know outcome of your talks.

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

03/18/2009 09:58 AM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
Subject: elevation

Just wondering if the elevation letter did go out yesterday? IF so, is there a chance to obtain a copy of that.

One other follow-up question. You mentioned that next week the agencies were planning on meeting-is this just federal agencies or does it involve state as well? We are hoping to get together tomorrow in Raleigh to have discussions regarding avoidance, etc. Do you know if Tuesday be our last opportunity to provide input?

Thanks,

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation.
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org.
Waterkeeper Alliance Member



Jennifer
Derby/R4/USEPA/US
03/19/2009 01:42 PM

To Allison Wise/R4/USEPA/US@EPA
cc Philip Mancusi-Ungaro/R4/USEPA/US@EPA, Palmer
Hough/DC/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, Tom
bcc
Subject FWS - status of their d letter re PCS

----- Forwarded by Jennifer Derby/R4/USEPA/US on 03/19/2009 01:41 PM -----



Jeff_Weller@fws.gov
03/19/2009 06:42 AM

To Jennifer Derby/R4/USEPA/US@EPA
cc
Subject Got your v:mail

Good morning. We have not signed our 3(d)(2) letter yet. Our 15-day timeline due date is this Friday March 20th. All sign posts indicate our Regional Director will sign the letter, but "technically" - for your Congressional reply - the FWS has not signed a 3(d)(2) letter as of Thursday March 19th.

Have a great day.

Jeffrey D. Weller
(404) 679-7217
jeff_weller@fws.gov

Tom Welborn/R4/USEPA/US

03/20/2009 02:22 PM

To: Stan Meiburg/R4/USEPA/US, Jim
Giattina/R4/USEPA/US@EPA, Scott Gordon/R4/USEPA/US,
Jennifer Derby/R4/USEPA/US@EPA, Rebecca

cc

bcc

Subject: Fw: Letter on Higher Level Review Request/Permit
200110096

[1 Attachment]

Sent by EPA Wireless E-Mail Services

----- Original Message -----

From: Jeff_Weller

Sent: 03/20/2009 02:07 PM AST

To: Tom Welborn; Palmer Hough

Subject: Fw: Letter on Higher Level Review Request/Permit 200110096

Here it is. **pls forward to Jennifer and Stan - I don't have their email
addresses in my Bberry. Thx.

J. Weller

(sent from my handheld wireless Blackberry)

----- Original Message -----

From: Jack Arnold

Sent: 03/20/2009 01:59 PM EDT

To: Jeff Weller; Pete Benjamin

Subject: Fw: Letter on Higher Level Review Request/Permit 200110096

FYI. It was signed and is being distributed as we speak.

- Jack

Jack Arnold

Deputy Assistant Regional Director - Ecological Services

U.S. Fish and Wildlife Service

1875 Century Boulevard

Atlanta, GA 30345

404-679-7311

----- Forwarded by Jack Arnold/R4/FWS/DOI on 03/20/2009 01:58 PM -----

Sam

Hamilton/R4/FWS/D

OI

Sent by: Tauline

meiburg.stan@epa.gov

To

Davis

cc

03/20/2009 01:47
PM

Subject
Letter on Higher Level Review
Request/Permit 200110096

Good afternoon - Please see the attached letter on a recommendation to request a higher level review for Department of Army Permit AID 200110096, Potash Corporation of Saskatchewan Phosphate Division, Aurora Operation (PCS) Mine Continuation. Thank you.
(See attached file: DOC20090320134028.pdf)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1875 Century Boulevard
Atlanta, Georgia 30345

In Reply Refer To
FWS/R4/ES

MAR 20 2009

Colonel Jefferson M. Ryscavage
District Engineer, Wilmington District
U.S. Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403-1343

Subject: Recommendation to Request a Higher Level Review for Department of Army Permit AID 200110096, Potash Corporation of Saskatchewan Phosphate Division, Aurora Operation (PCS) Mine Continuation

Dear Colonel Ryscavage:

We have received your Notice of Intent to Proceed on the proposed Department of the Army Permit AID 200110096, The Aurora Operation (PCS) Mine Continuation, dated March 2nd and received at USFWS Region 4 on March 5, 2009. Pursuant to Paragraph 3(d)(2) of the Memorandum of Agreement (MOA) between the Department of the Interior and the Department of Army, under Clean Water Act Section 404 (q) Part IV, I am requesting a review of this permit by the Acting Assistant Secretary of Fish and Wildlife and Parks, Department of the Interior, and recommending that he request review of the permit by the Assistant Secretary of the Army for Civil Works. During this review, the permit should be held in abeyance pending completion of the review process pursuant to the MOA Part IV, Paragraph 3(e).

The USFWS remains concerned that the proposed project will result in unacceptable adverse impacts to aquatic resources of national importance, including direct and indirect impacts to waters of the U.S. which support the Albemarle Pamlico National Estuary Program area. The proposed project will have direct impacts to 3,953 acres of wetlands and 45,494 linear feet of stream, including a portion of a designated Significant Natural Heritage Area. The impacts also include a loss of approximately 70 percent of the watershed areas within the proposed project boundaries. The project will adversely affect the Albemarle Pamlico Complex and those effects have not yet been adequately addressed. In addition to the need to further avoid and minimize impacts to the site's high value aquatic resources, there are concerns regarding the adequacy of the proposed compensatory mitigation to offset any authorized impacts.

We recognize the desire for timely decision making on this permit. We have worked closely with your staff and have offered our comments throughout the Environmental Impact Statement and 404 permitting process, and we appreciate the efforts by both you and the applicant to address them. Still, critical issues about the impact of this project remain unresolved and based

TAKE PRIDE
IN AMERICA



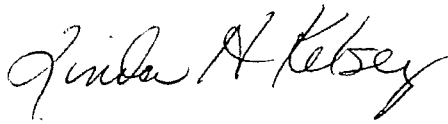
Colonel Ryscavage

2

on the concerns cited above; we do not support issuance of the permit for the project as currently proposed. Therefore, pursuant to the procedures and timelines in the national 1992 Memorandum of Agreement with the Corps of Engineers, we are seeking review by Acting Assistant Secretary Fish and Wildlife and Parks, Department of the Interior and the Assistant Secretary for Civil Works.

Please contact Pete Benjamin, Field Supervisor, Raleigh Ecological Services, at (919) 856-4520, extension 11 for further information, and we look forward to continuing our dialogue as we move forward.

Sincerely Yours,

A handwritten signature in cursive script, appearing to read "Linda A. Keasey".

for / Sam D. Hamilton
Acting Regional Director



Palmer
Hough/DC/USEPA/US
03/20/2009 03:38 PM

To Gregory Peck/DC/USEPA/US@EPA, Suzanne
Schwartz/DC/USEPA/US@EPA, David
Evans/DC/USEPA/US@EPA, Brian
cc Tom Welborn/R4/USEPA/US@EPA, Jennifer
Derby/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA

bcc

Subject FWS elevation notification letter to the Wilmington District

History: This message has been forwarded.

All:

Attached please find the FWS's letter to the Wilmington District, dated today, notifying the District that it is requesting its HQ to review the proposed permit for PCS. Their letter identifies essentially the same issues/concerns as our notification letter to the Corps.

Thanks, Palmer



PCS_FWS elevation notification to Corps_3-20-09.pdf

Palmer F. Hough
US Environmental Protection Agency
Wetlands Division
Room 7231, Mail Code 4502T
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Office: 202-566-1374
Cell: 202-657-3114
FAX: 202-566-1375
E-mail: hough.palmer@epa.gov

Street/Courier Address
USEPA
Palmer Hough
EPA West -- Room 7231-L
Mail Code 4502T
1301 Constitution Avenue, NW
Washington, DC 20460



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1875 Century Boulevard
Atlanta, Georgia 30345

In Reply Refer To
FWS/R4/ES

MAR 20 2009

Colonel Jefferson M. Ryscavage
District Engineer, Wilmington District
U.S. Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403-1343

Subject: Recommendation to Request a Higher Level Review for Department of Army Permit AID 200110096, Potash Corporation of Saskatchewan Phosphate Division, Aurora Operation (PCS) Mine Continuation

Dear Colonel Ryscavage:

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We recognize the desire for timely decision making on this permit. We have worked closely with your staff and have offered our comments throughout the Environmental Impact Statement and 404 permitting process, and we appreciate the efforts by both you and the applicant to address them. Still, critical issues about the impact of this project remain unresolved and based

**TAKE PRIDE
IN AMERICA** 

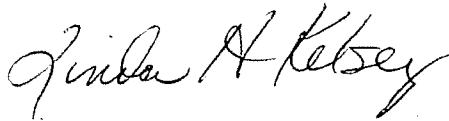
Colonel Ryscavage

2

on the concerns cited above; we do not support issuance of the permit for the project as currently proposed. Therefore, pursuant to the procedures and timelines in the national 1992 Memorandum of Agreement with the Corps of Engineers, we are seeking review by Acting Assistant Secretary Fish and Wildlife and Parks, Department of the Interior and the Assistant Secretary for Civil Works.

Please contact Pete Benjamin, Field Supervisor, Raleigh Ecological Services, at (919) 856-4520, extension 11 for further information, and we look forward to continuing our dialogue as we move forward.


Sincerely Yours,

A handwritten signature in cursive script, reading "Linda A. Kelsey".

for / Sam D. Hamilton
Acting Regional Director

Ronald
Mikulak/R4/USEPA/US
03/23/2009 07:45 AM

To Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject PCS news article

History:  This message has been replied to.

Hey Becky - you've probably seen this article already, but in case you had not here it is. I hadn't heard anything on PCS lately - just wondering where is EPA on it now?

Hope you're well.

Take care - Ron

Fighting mining expansion

News & Observer, The (Raleigh, NC) - Sunday, March 15, 2009

Author: Wade Rawlins, Staff Writer

Environmental groups have filed a challenge to a decision by state water quality regulators to allow an expansion of PCS Phosphate's mining operation in Beaufort County, which would involve massive destruction of wetlands near the Pamlico River.

The permit, issued in January by the state Division of Water Quality, allows the company to mine about 11,000 acres adjacent to its current open-pit mine over 35 years.

The effects on 4.8 miles of streams and more than 3,900 acres of wetlands represent the largest destruction of wetlands ever permitted in North Carolina.

PCS Phosphate, part of an international company headquartered in Canada, has worked the mine since 1995 to produce phosphate for fertilizer and animal feed supplements and for use in food additives such as phosphoric acid, a flavor enhancer in Coca-Cola and jellies. It is the largest employer in Beaufort County, with more than 1,000 workers.

"This permit challenge asks whether PCS's mine expansion has to comply with the laws protecting the environment, fisheries and public health," Geoff Gisler, a lawyer with Southern Environmental Law Center said in a statement Thursday. "The long-term economic and environmental health of eastern North Carolina depends on the state holding PCS to those standards."

The challenge was filed on behalf of Environmental Defense Fund, the N.C. Coastal Federation, Pamlico-Tar River Foundation and the N.C. Sierra Club in state administrative court, where agency decisions are initially appealed.

Ross Smith, environmental manager for PCS Phosphate, said the company had not yet reviewed the legal challenge and couldn't comment.

Meanwhile, in a separate permitting decision involving PCS, a state administrative law judge has ruled that state air regulators erred in issuing a permit to the company to overhaul its fertilizer plant without properly notifying federal wildlife officials and that it used the wrong baseline for predicting whether the plant would harm air quality at the Swanquarter National Wildlife Refuge.

Last year, the state Division of Air Quality allowed the company to build a new sulfuric acid plant to replace two existing plants at the site near Aurora. The new plant will produce about 4,500 tons of sulfuric acid a day, 1,000 tons more than the existing facility. The acid is mixed with phosphate ore

mined on site to produce phosphoric acid.

The U.S. Department of Interior challenged the permit, saying air emissions from the larger phosphate plant could harm visibility at the wildlife refuge about 20 miles east.

Judge Fred Morrison of the state Office of Administrative Hearings, ruled that the state did not properly notify the Fish & Wildlife Service, part of the Interior Department, of PCS's plans. Morrison also found state environmental regulators used too lenient a baseline for estimating whether the added pollution from the plant would harm air in the Swanquarter refuge.

The judge's decision is advisory. The state Environmental Management Commission, an appointed panel, will make the final decision, which could change the baseline that air regulators use for comparing whether added air emissions would harm air quality and visibility.

Ronald J. Mikulak
Multimedia Technical Authority
Enforcement & Compliance Planning and Analysis Branch
Office of Environmental Accountability
EPA - Region 4

Phone #: 404-562-9233
e-mail: mikulak.ronald@epa.gov



"Walker, William T SAW"
<William.T.Walker@usace.army.mil>

03/23/2009 10:41 AM

To <Mike_Wicker@fws.gov>

cc "Pace.Wilber" <Pace.Wilber@noaa.gov>, "Ron Sechler" <ron.sechler@noaa.gov>, <Pete_Benjamin@fws.gov>, Tom Welborn/R4/USEPA/US@EPA, Rebecca

bcc

Subject RE: PCS for Friday

Mike,

Three answers.

1. We have to go to the airport to pick up Arch so I offered to pick up Palmer and Brian as well. Hadn't heard the final plan but that's fine. We will get them. I do not have Palmer's e-mail address but I will try to make contact with him today.

2. I will bring the best maps I have. I have some 2' x 3' aerials that are close to scale and should suffice.

3. We had discussed a 10am start and with the folks flying in, I think that would be appropriate.

Again, thanks for arranging the conference room. We'll see you tomorrow.

Tom

From: Mike_Wicker@fws.gov [mailto:Mike_Wicker@fws.gov]

Sent: Monday, March 23, 2009 8:55 AM

To: Walker, William T SAW

Subject: Re: PCS for Friday

Tom,

Three questions.

1. Becky sent me an e-mail that you could pick up Brian and Palmer (EPA) They will arrive in Raleigh (RDU airport) at 9 AM on American Airlines flight # 4640.

Palmer's cell number is 202-657-3114.

I wanted to confirm that with you. If you can not just let me know and I will pick them up.

2. Can you bring some some large scale maps of Bonnerton and NCPC so that when we are discussing them we can take an engineer's rule and do some quick and dirty acreage estimates? We think it would be helpful to be mindful of the acreages as we discuss different options.

3. The meeting is scheduled to start at 10:00 isn't it? Just checking.

Copy Brian and Palmer with your decision on whether or not you can get them on the airport in your response back to me. Also let them know if there is a problem just call me at the office and we will send someone to get them (my office number 919-856-4520 ext 22) and I will be checking it around 9:00 to make sure everything is OK.

Thanks,

Mike



"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/25/2009 12:36 PM

To Rebecca Fox/R4/USEPA/US@EPA, Mike Wicker
<Mike_Wicker@fws.gov>, Ron Sechler
<ron.sechler@noaa.gov>, Jennifer

cc

bcc

Subject PCS lines

History:  This message has been forwarded.

Hello everyone.

Attached Power Point is my attempt to capture the "Agency Line" from the meeting yesterday into a GIS. So far, I've just done NCPC, but I'm doing Bonnerton as you read this. Please let me know if you think the line correctly captures the Agency Line shown yesterday.

And feel free to distribute to others within your agency.

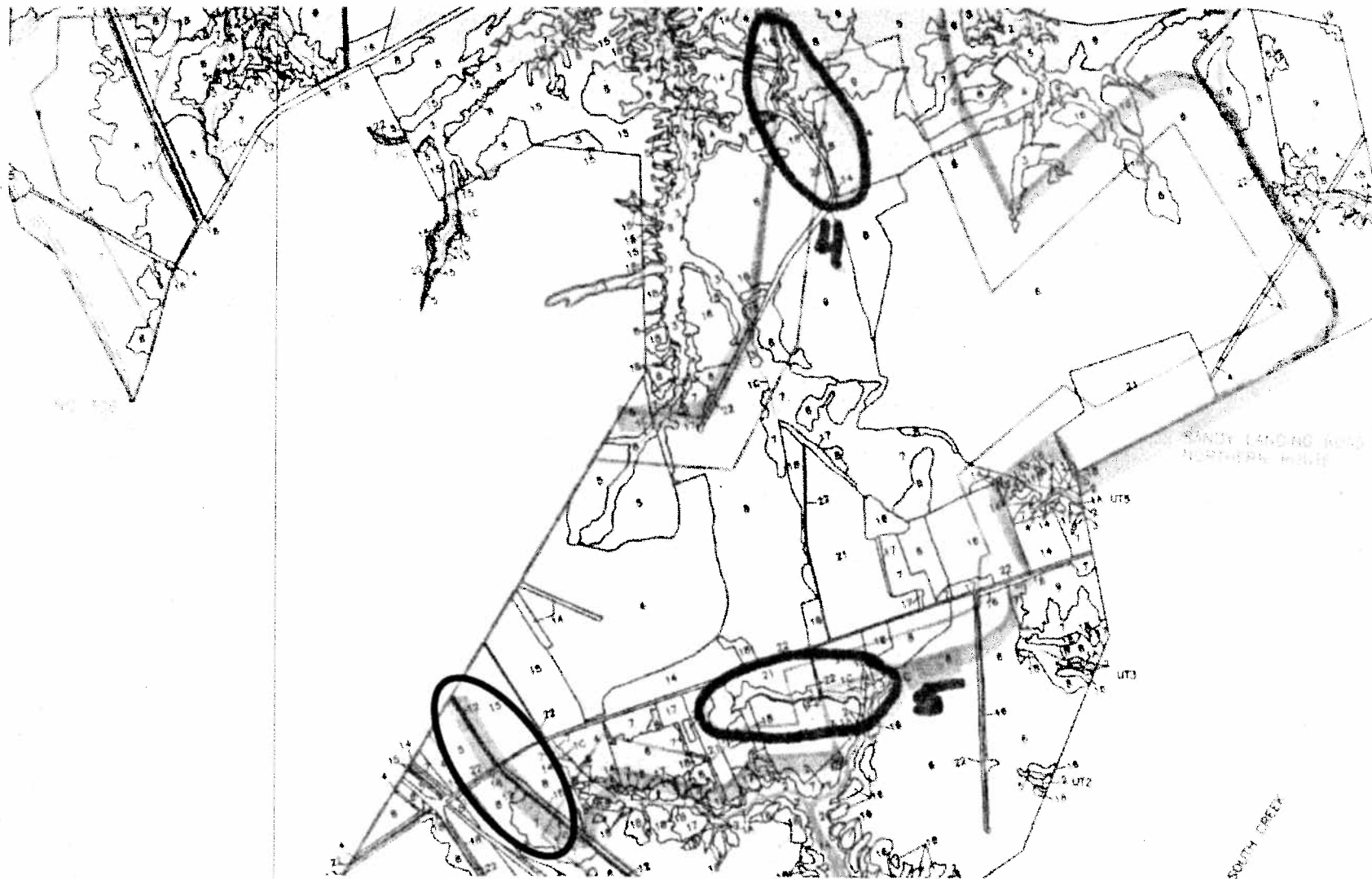
Pace

--

Pace Wilber, Ph.D.
Atlantic Branch Chief, Charleston (F/SER47)
Southeast Regional Office, NOAA Fisheries
PO Box 12559
Charleston, SC 29422-2559

843-953-7200
FAX 843-953-7205
pace.wilber@noaa.gov

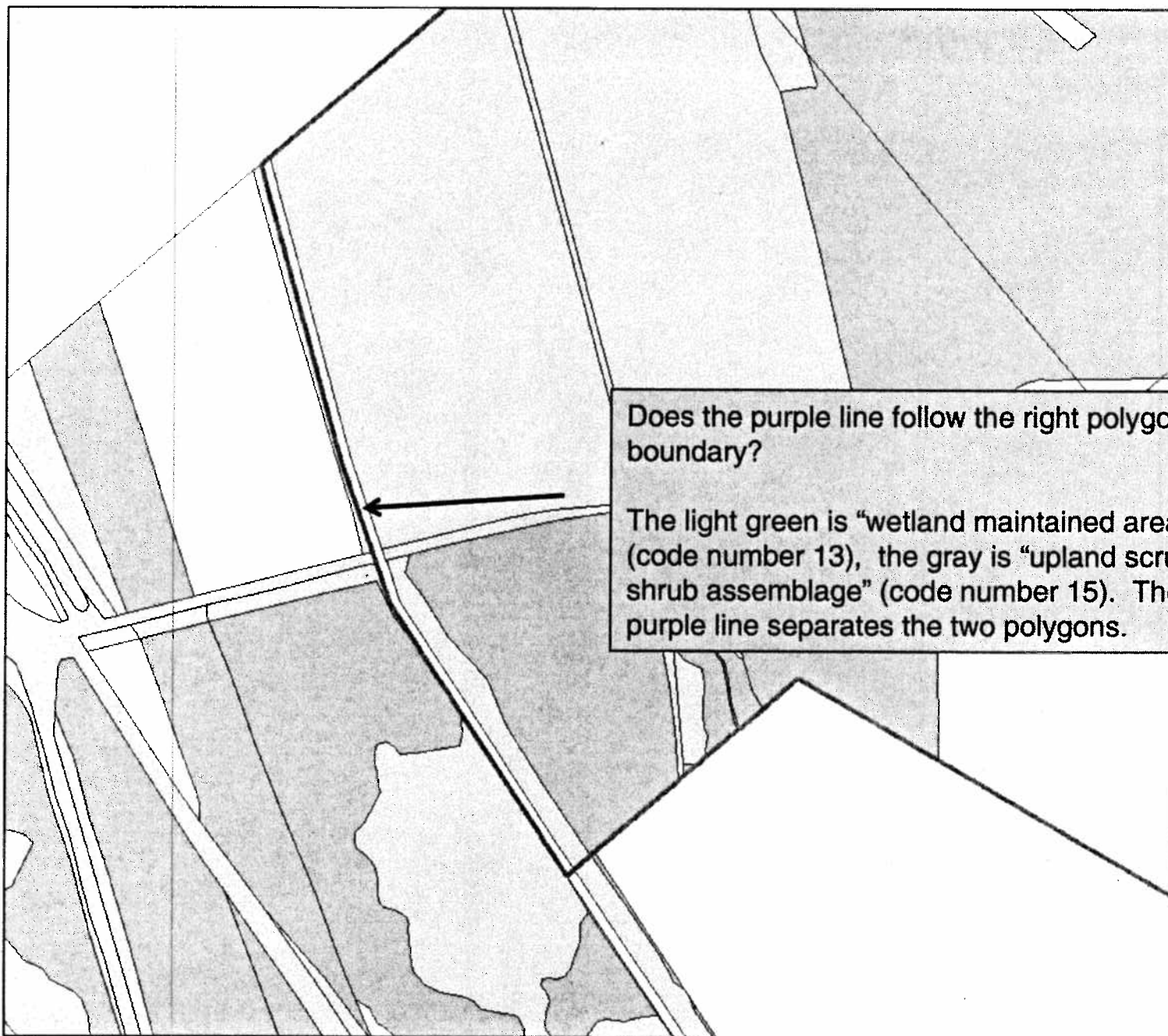
<http://sero.nmfs.noaa.gov/dhc/habitat.htm>



For simplicity, let's ignore the NMFS areas (labeled 4 and 5) for now. As far as I can tell, the heavy purple line follows a lighter purple/pink line that marks the Alternative L boundary. If that is true, then the only difference at NCPC is in the southwestern boundary (see red ellipse).

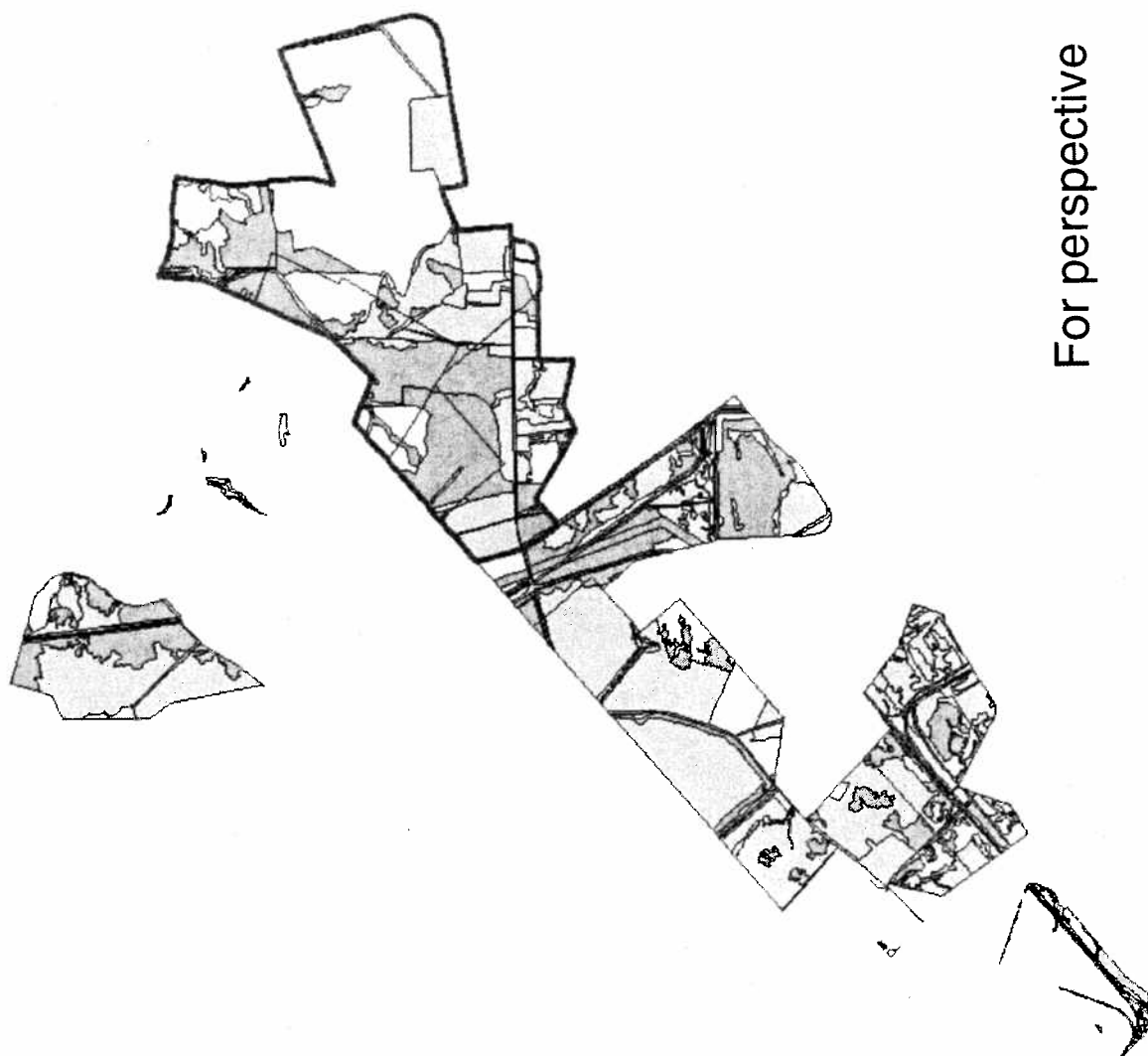


Purple line should be the agency line from the presentation on Tuesday. Next slide examine the southwest boundary more closely.



Does the purple line follow the right polygon boundary?

The light green is "wetland maintained area" (code number 13), the gray is "upland scrub-shrub assemblage" (code number 15). The purple line separates the two polygons.



For perspective



Palmer
Hough/DC/USEPA/US
03/25/2009 01:39 PM

To "Walker, William T SAW"
<William.T.Walker@usace.army.mil>
cc Tom Welborn/R4/USEPA/US@EPA, Jim
Giattina/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, Jennifer
bcc
Subject Draft permit for PCS

Tom:

It was great seeing you yesterday. Thanks again for helping to make yesterday's meetings with the other agencies and the folks from PCS happen. I found the day's discussions and information sharing very helpful and productive. You noted yesterday that if the elevation process was not halted, per the request of PCS, that you would send me a copy of the draft permit for PCS this week. I would greatly appreciate being able to review that as EPA HQ conducts its review of the PCS case.

Please let me know if you have any questions.

Thanks, Palmer

Palmer F. Hough
US Environmental Protection Agency
Wetlands Division
Room 7231, Mail Code 4502T
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Office: 202-566-1374
Cell: 202-657-3114
FAX: 202-566-1375
E-mail: hough.palmer@epa.gov

Street/Courier Address
USEPA
Palmer Hough
EPA West -- Room 7231-L
Mail Code 4502T
1301 Constitution Avenue, NW
Washington, DC 20460



"Walker, William T SAW"
<William.T.Walker@usace.army.mil>

03/25/2009 02:49 PM

To Rebecca Fox/R4/USEPA/US@EPA

cc <RSmith@Pcsphosphate.com>,
<JFurness@Pcsphosphate.com>,
<ghouse@brookspierce.com>

bcc

Subject RE: post mtg email

History: This message has been replied to.

Becky,

I would suggest sending it to each PCS representative in attendance.
I have copied Ross, Jeff and George so their e-mails are above. I do not have Tom Regan's e-mail address but I'm sure Ross or Jeff could provide it.

Tom

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Wednesday, March 25, 2009 10:30 AM
To: Walker, William T SAW
Subject: post mtg email

Hi Tom,

We are going to be sending out an email summarizing the mtg yesterday.
We are sending to all meeting attendees plus PCS -- could you send email addresses for who you think should receive from PCS.
Thanks! bf

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov



Mike_Wicker@fws.gov
03/25/2009 03:11 PM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject: Fw: New line see slide 2

yes that is correct

----- Forwarded by Mike Wicker/R4/FWS/DOI on 03/25/2009 03:10 PM -----

"Pace.Wilber"
<Pace.Wilber@noaa.gov>

To: Mike Wicker <Mike_Wicker@fws.gov>

cc

03/25/2009 01:43 PM

Subject: New line

Hi Mike.

Could you look at slide 2 and let me know if this represents the
NGO
line you have?

Pace

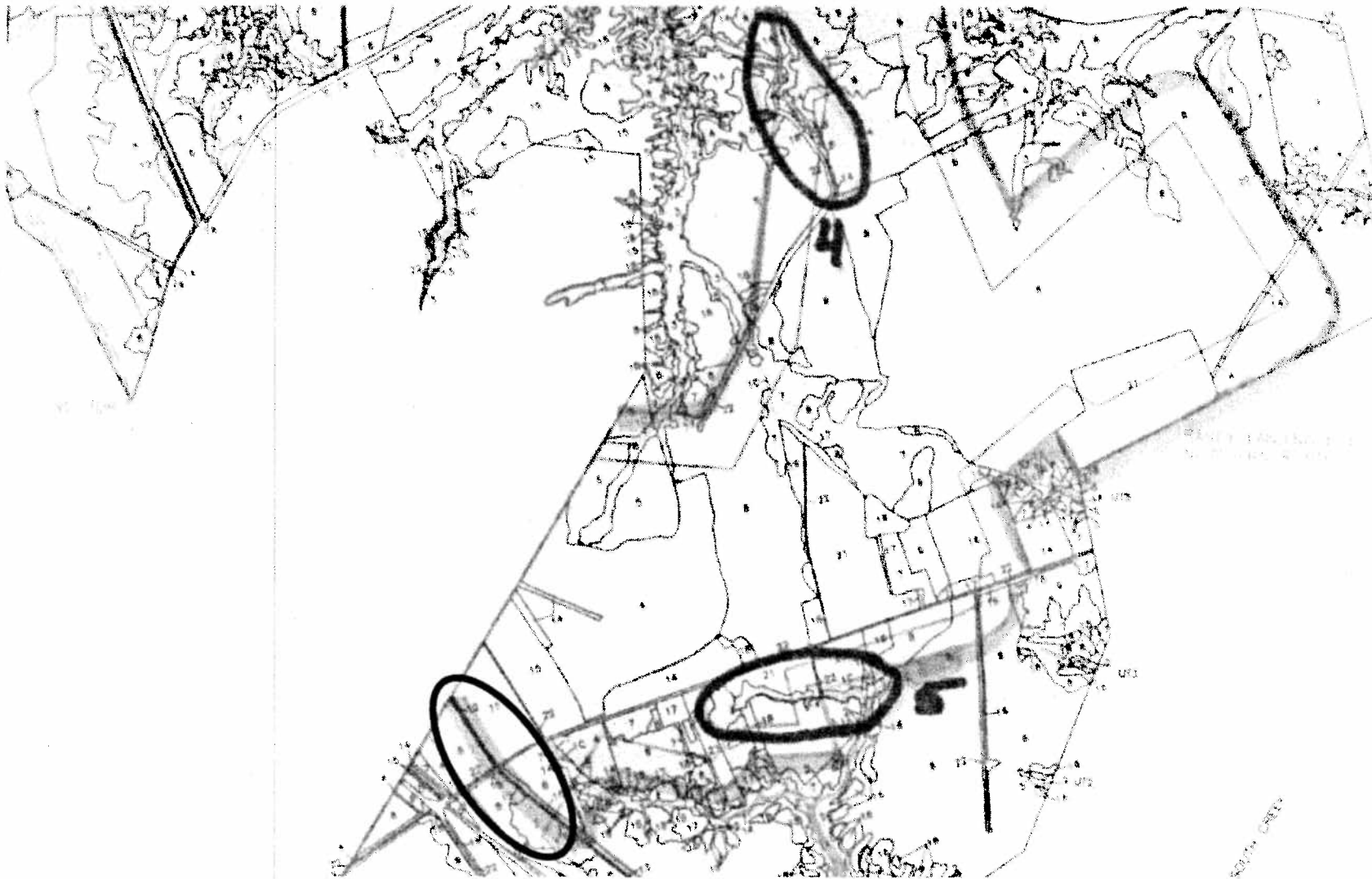
--

Pace Wilber, Ph.D.
Atlantic Branch Chief, Charleston (F/SER47)
Southeast Regional Office, NOAA Fisheries
PO Box 12559
Charleston, SC 29422-2559

843-953-7200
FAX 843-953-7205
pace.wilber@noaa.gov

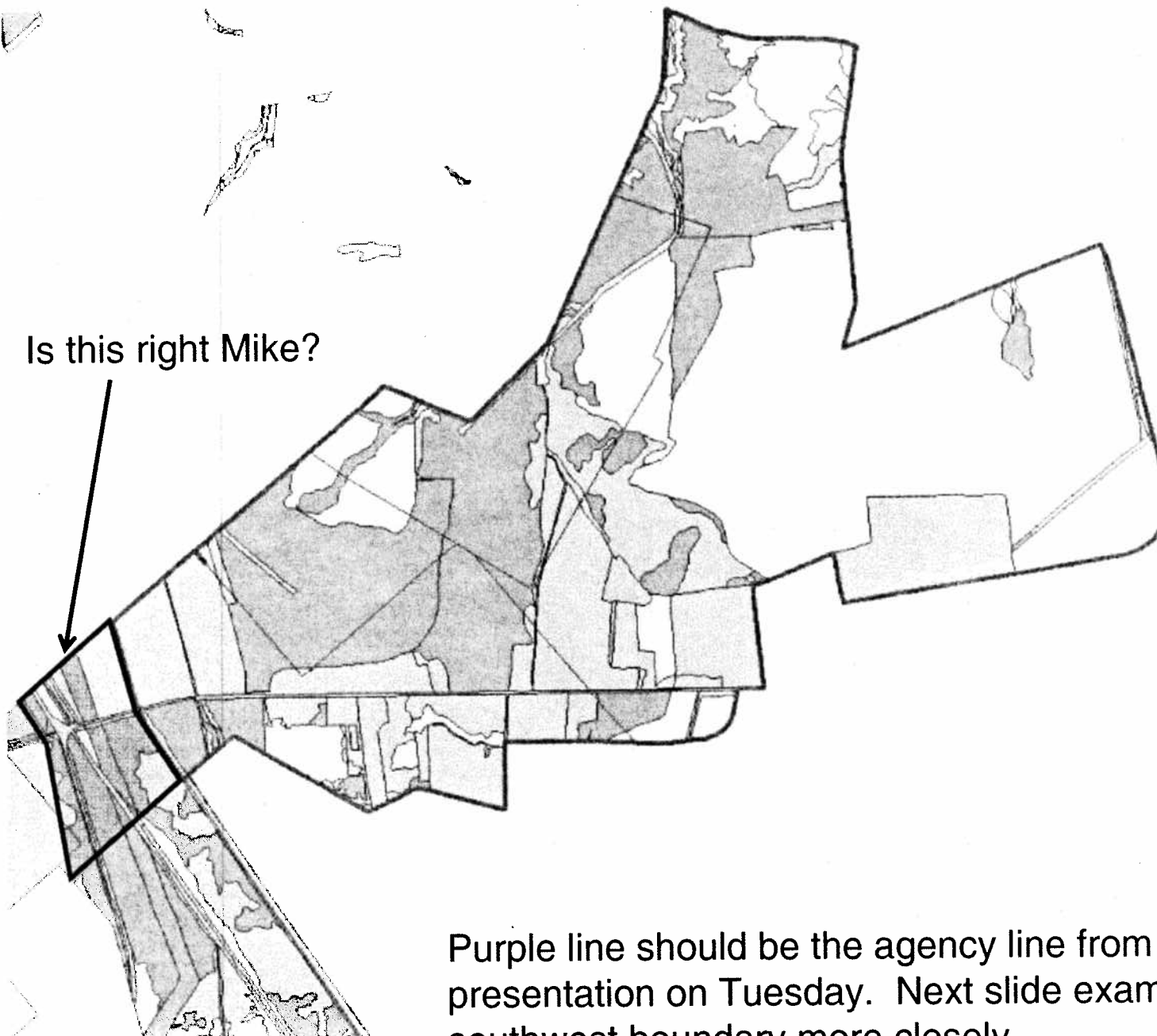
<http://sero.nmfs.noaa.gov/dhc/habitat.htm>

(See attached file: PCS_AgencyLines_DRAFT.ppt)

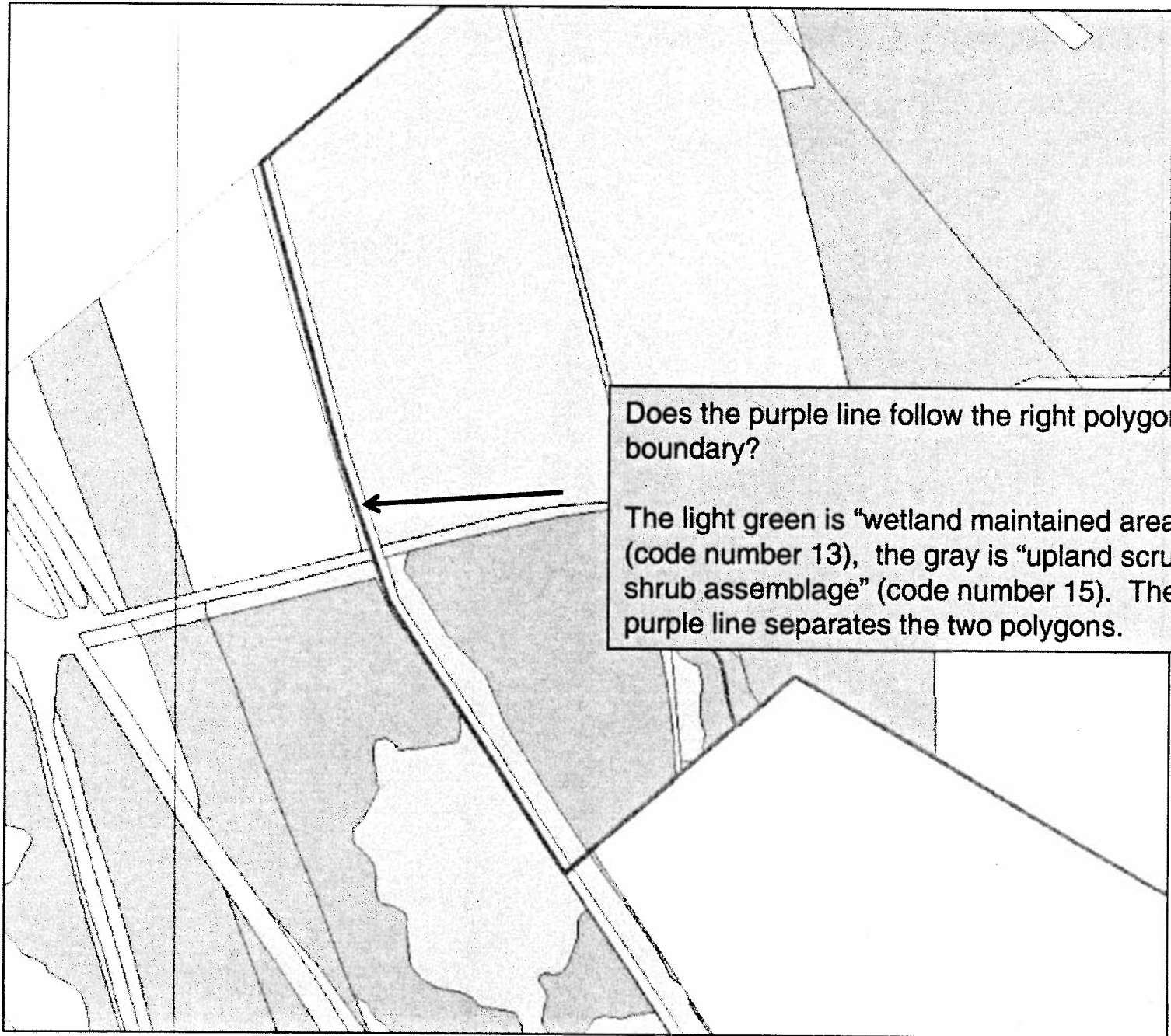


For simplicity, let's ignore the NMFS areas (labeled 4 and 5) for now. As far as I can tell, the heavy purple line follows a lighter purple/pink line that marks the Alternative L boundary. If that is true, then the only difference at NCPC is in the southwestern boundary (see red ellipse).

Is this right Mike?

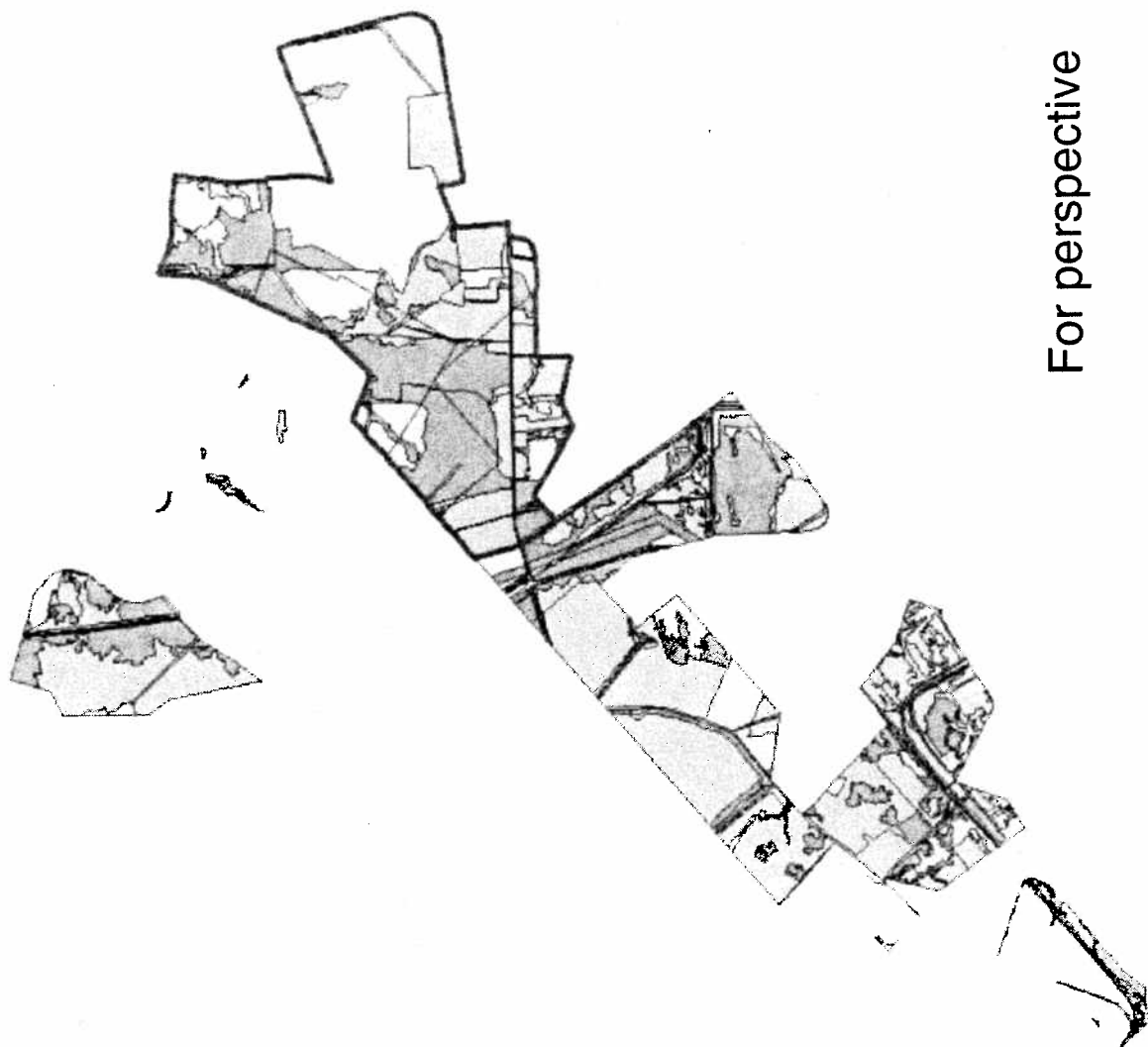


Purple line should be the agency line from the presentation on Tuesday. Next slide examine the southwest boundary more closely.



Does the purple line follow the right polygon boundary?

The light green is "wetland maintained area" (code number 13), the gray is "upland scrub-shrub assemblage" (code number 15). The purple line separates the two polygons.




For perspective



"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/25/2009 04:18 PM

To Rebecca Fox/R4/USEPA/US@EPA
cc Jennifer Derby/R4/USEPA/US@EPA, Mike Wicker
<Mike_Wicker@fws.gov>, Palmer
Hough/DC/USEPA/US@EPA, Ron Sechler
bcc

Subject Re: Fw: PCS lines

History:  This message has been replied to.

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Seems like 12:30 is what worked best for everyone Thursday to discuss finalizing the GIS files that convey the federal agency line presented to PCS Tuesday. Attached slides now include Bonnerton.

1-877-788-9752
Passcode: 5293685

Pace

Pace Wilber, Ph.D.
Atlantic Branch Chief, Charleston (F/SER47)
Southeast Regional Office, NOAA Fisheries
PO Box 12559
Charleston, SC 29422-2559

843-953-7200
FAX 843-953-7205
pace.wilber@noaa.gov

<http://sero.nmfs.noaa.gov/dhc/habitat.htm>

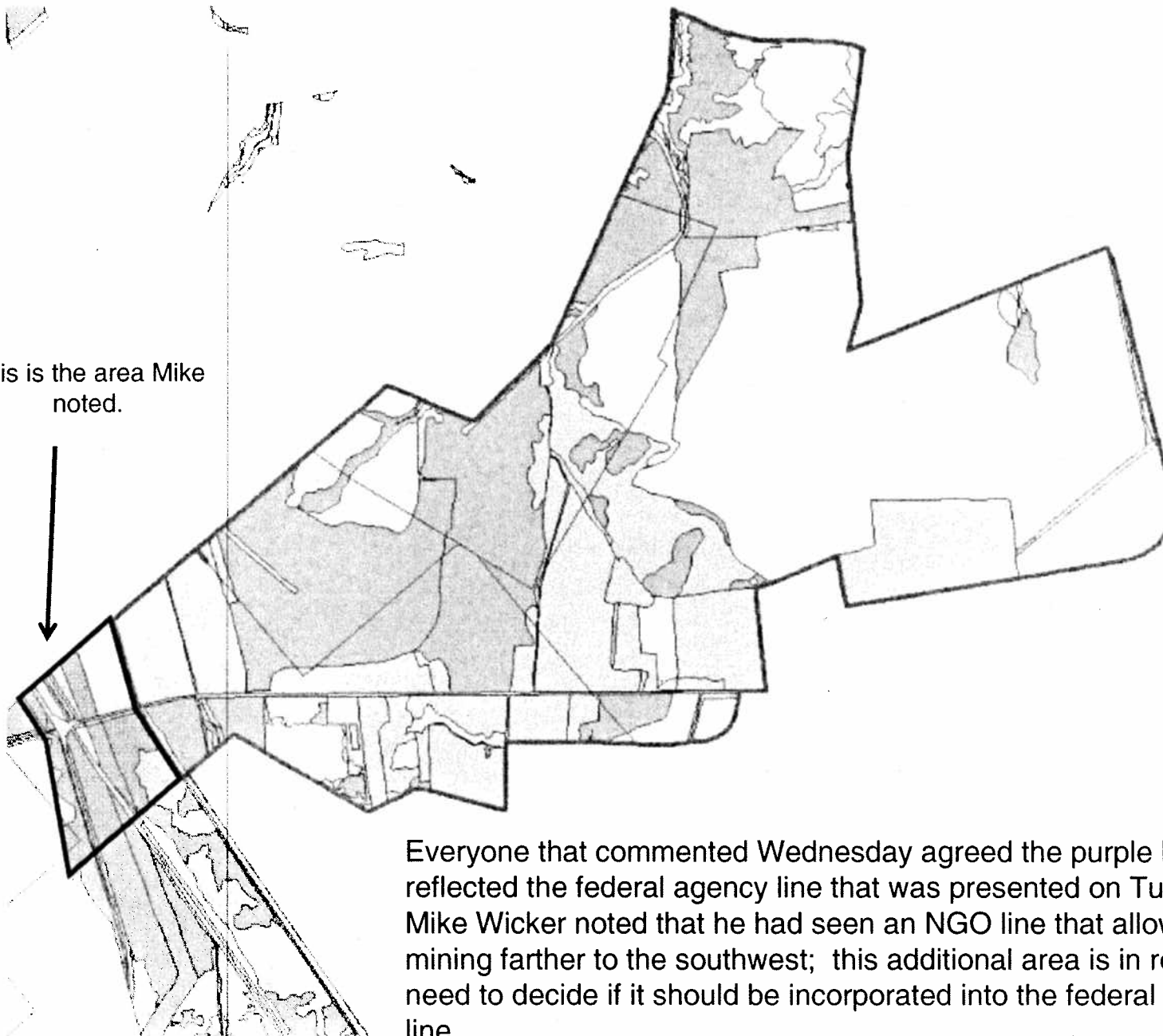
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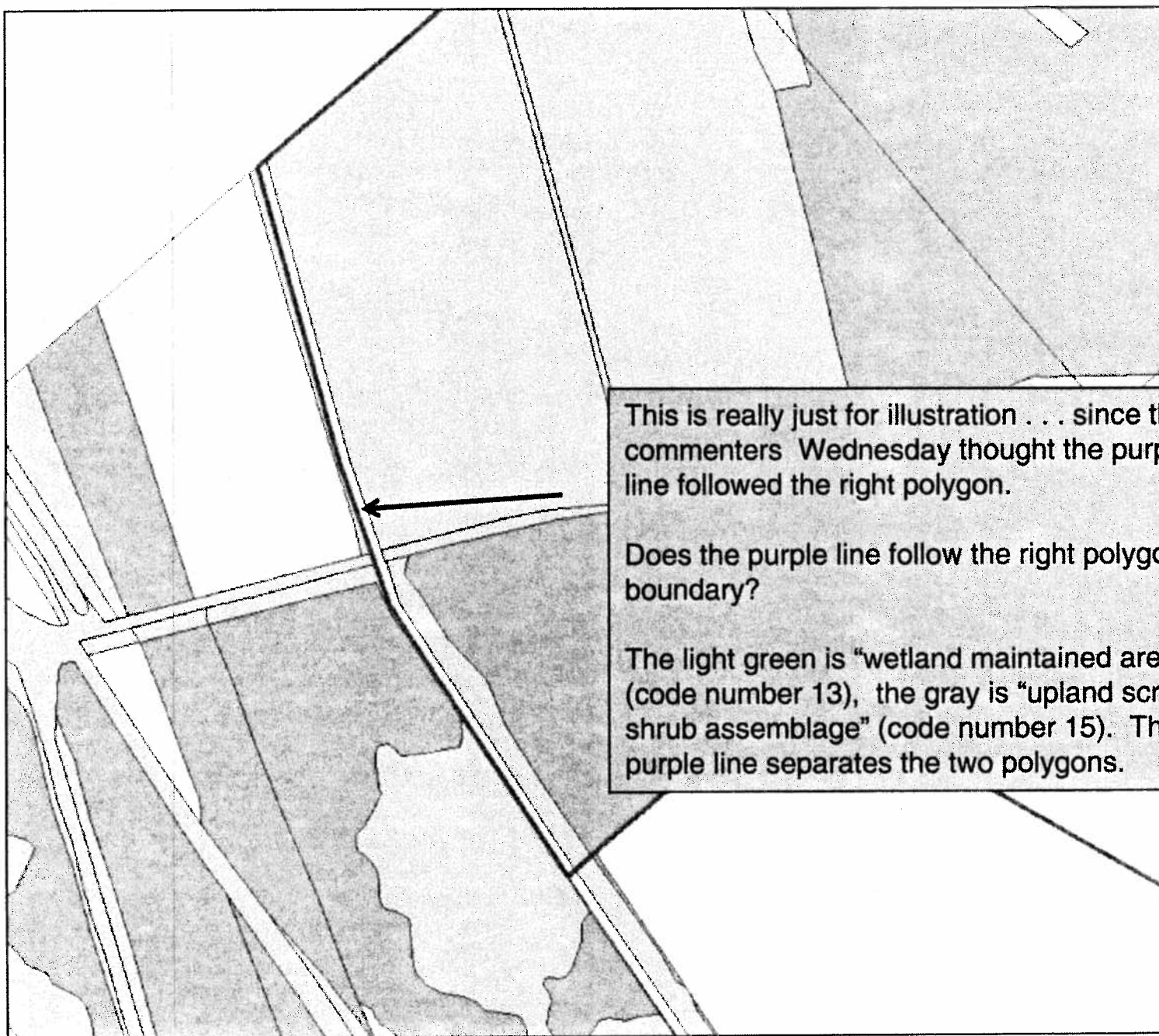


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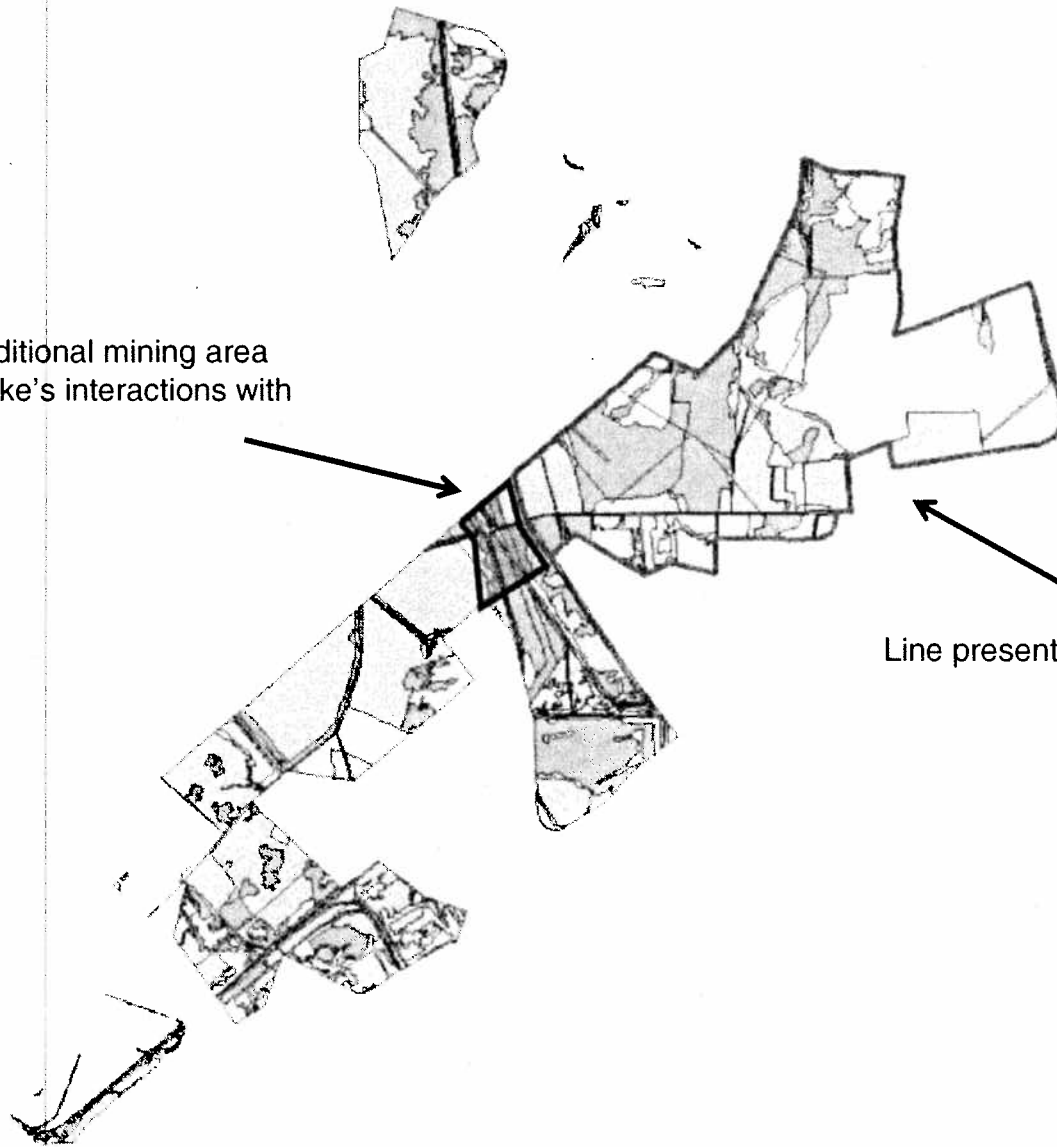
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NCPC Tract

Potential additional mining area
based on Mike's interactions with
NGO

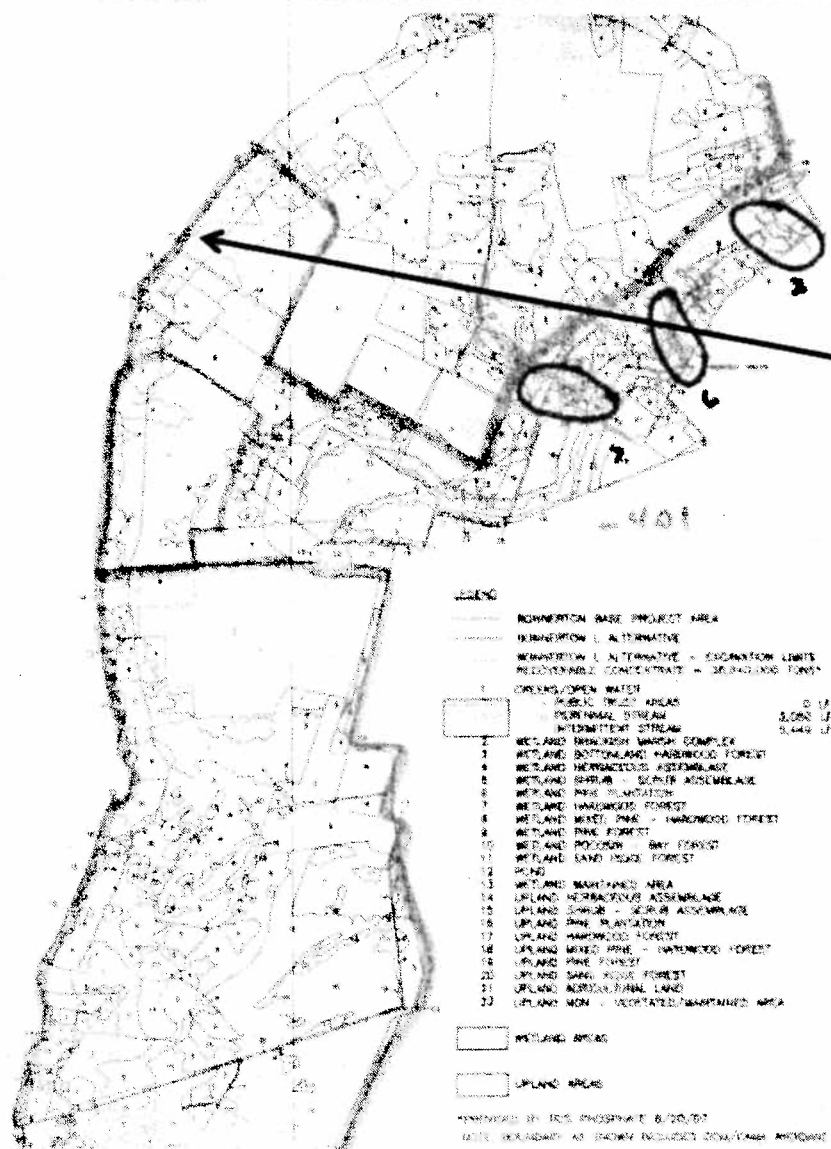


Line presented Tuesday

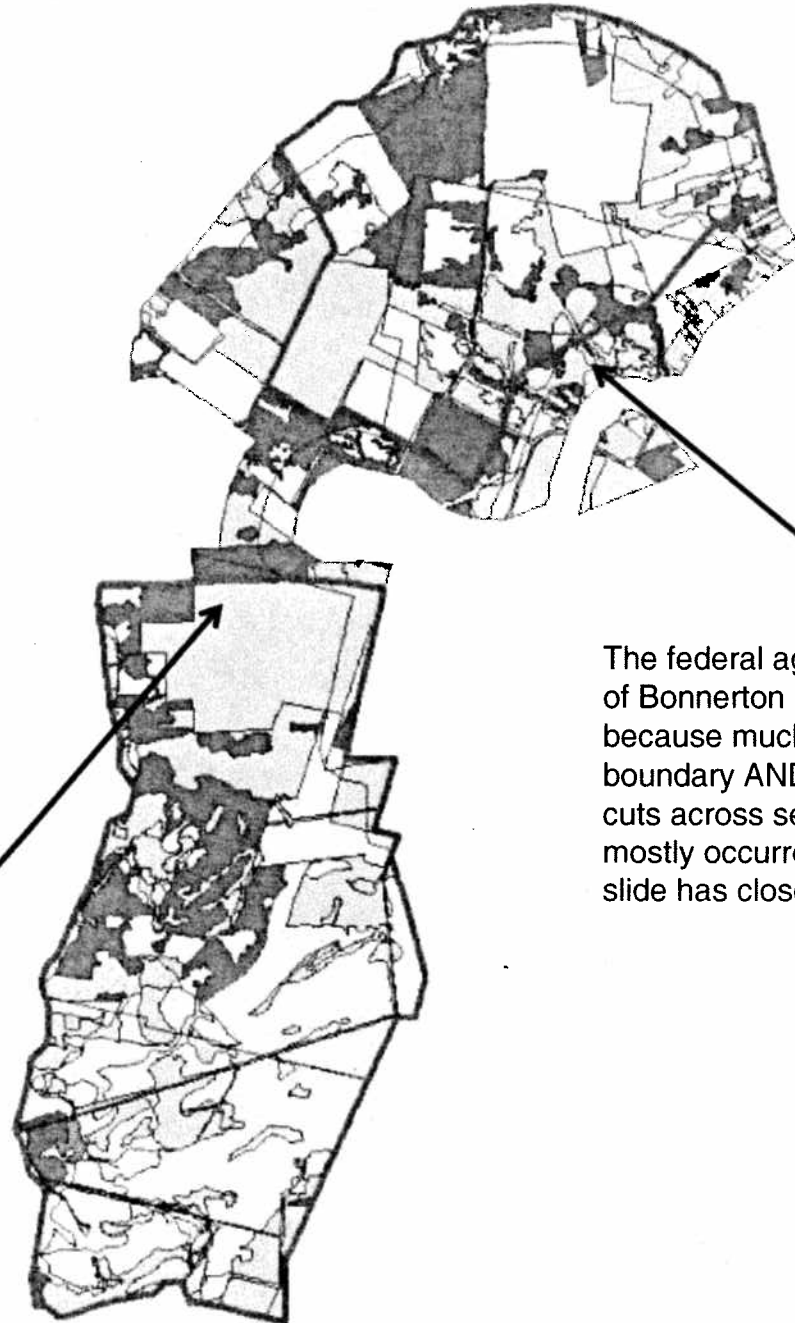
Bonnerton Tract

From Tuesday's presentation to PCS

I assume this part of the purple line was not necessary.
Correct?

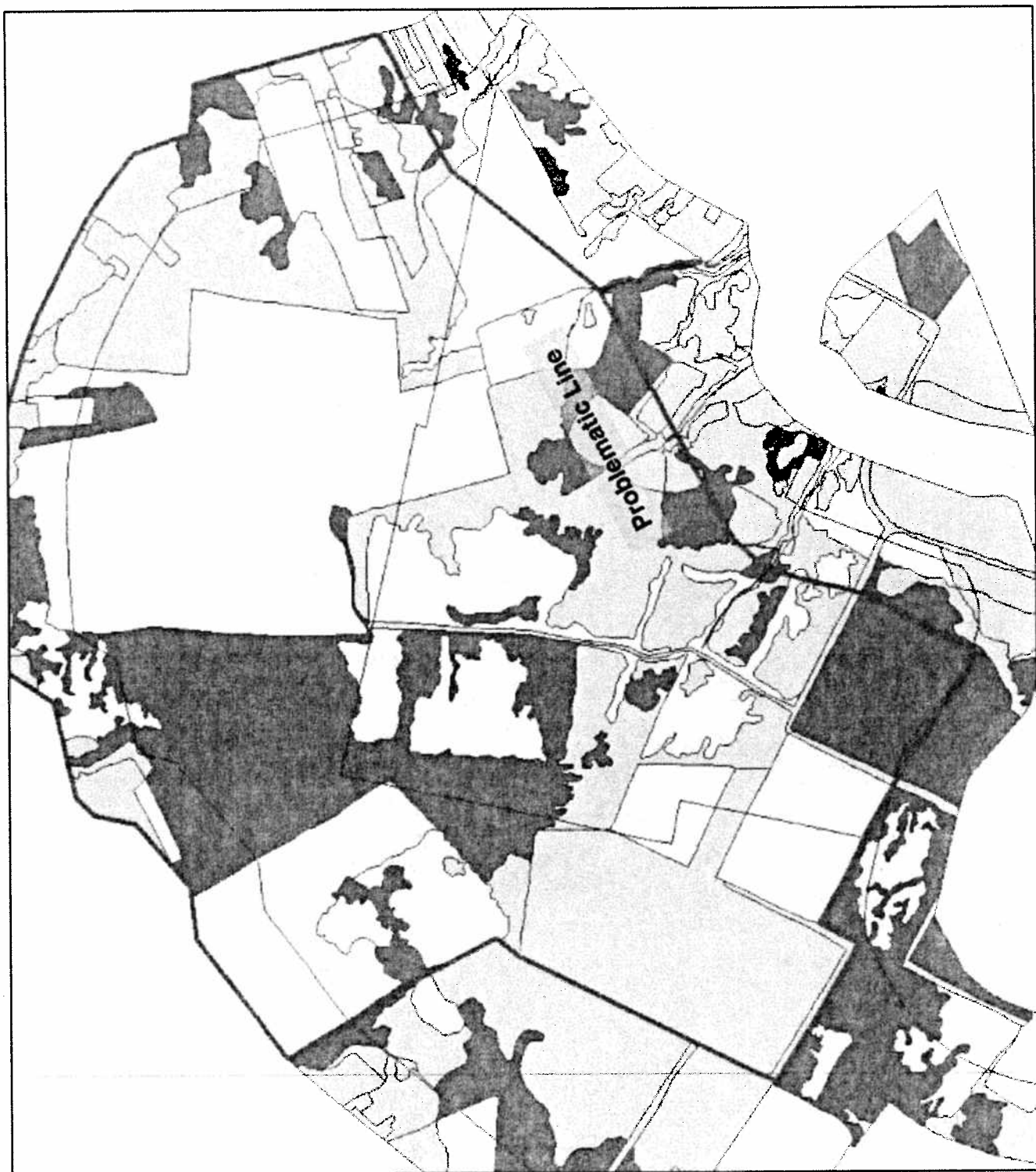


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"Walker, William T SAW"
<William.T.Walker@usace.ar
my.mil>


03/25/2009 06:39 PM

To "Pace.Wilber" <Pace.Wilber@noaa.gov>, Rebecca
Fox/R4/USEPA/US@EPA, Jennifer
Derby/R4/USEPA/US@EPA, <Mike_Wicker@fws.gov>,

cc

bcc

Subject FW: Fw: PCS lines

History:  This message has been forwarded.

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Thanks
Tom Walker

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Sent: Wednesday, March 25, 2009 4:18 PM
To: Fox.Rebecca@epamail.epa.gov
Cc: derby.jennifer@epa.gov; Mike Wicker; hough.palmer@epa.gov; smtp-Sechler, Ron; welborn.tom@epa.gov; Pete Benjamin; Walker, William T SAW
Subject: Re: Fw: PCS lines

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Passcode: 5293685

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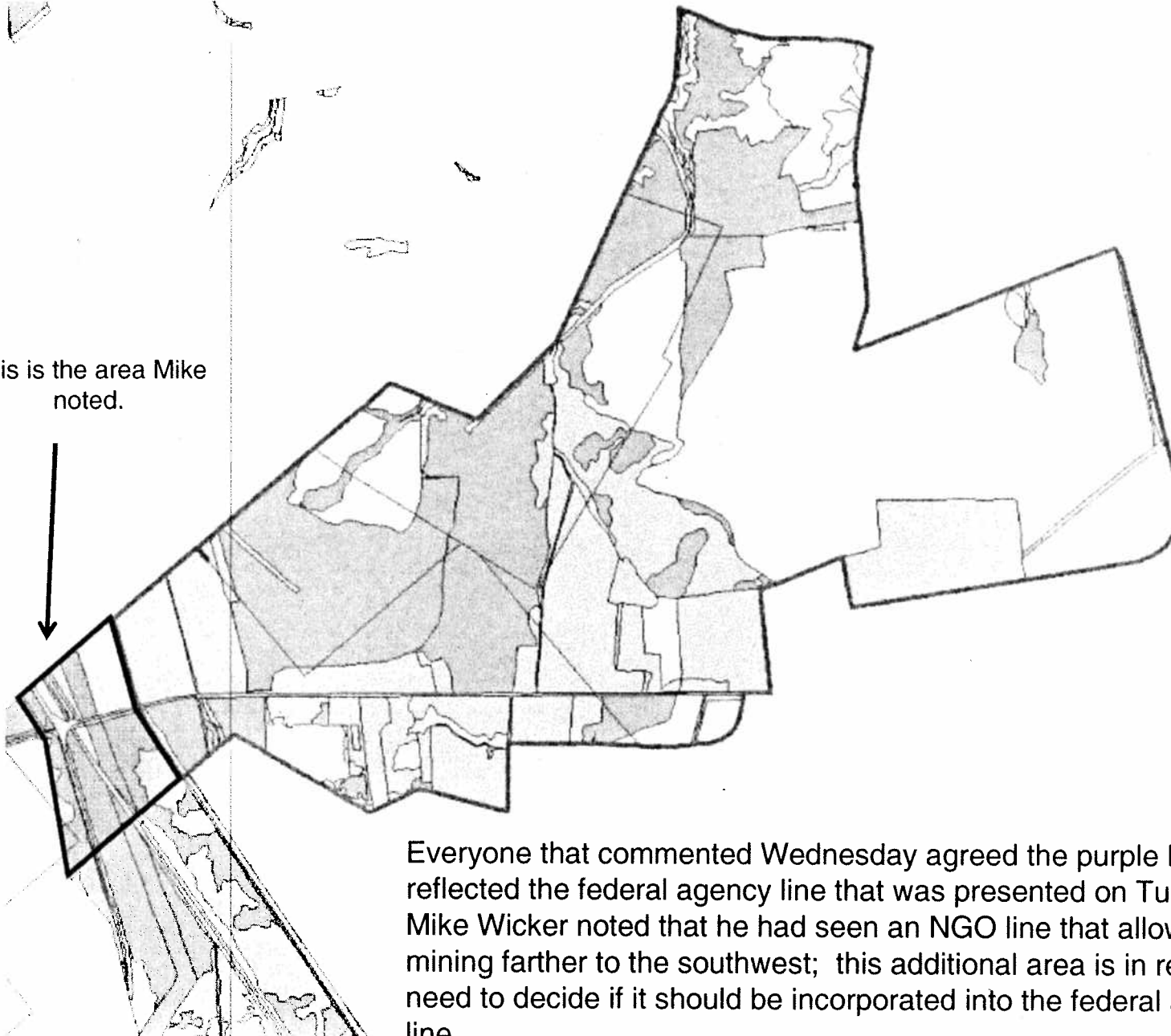
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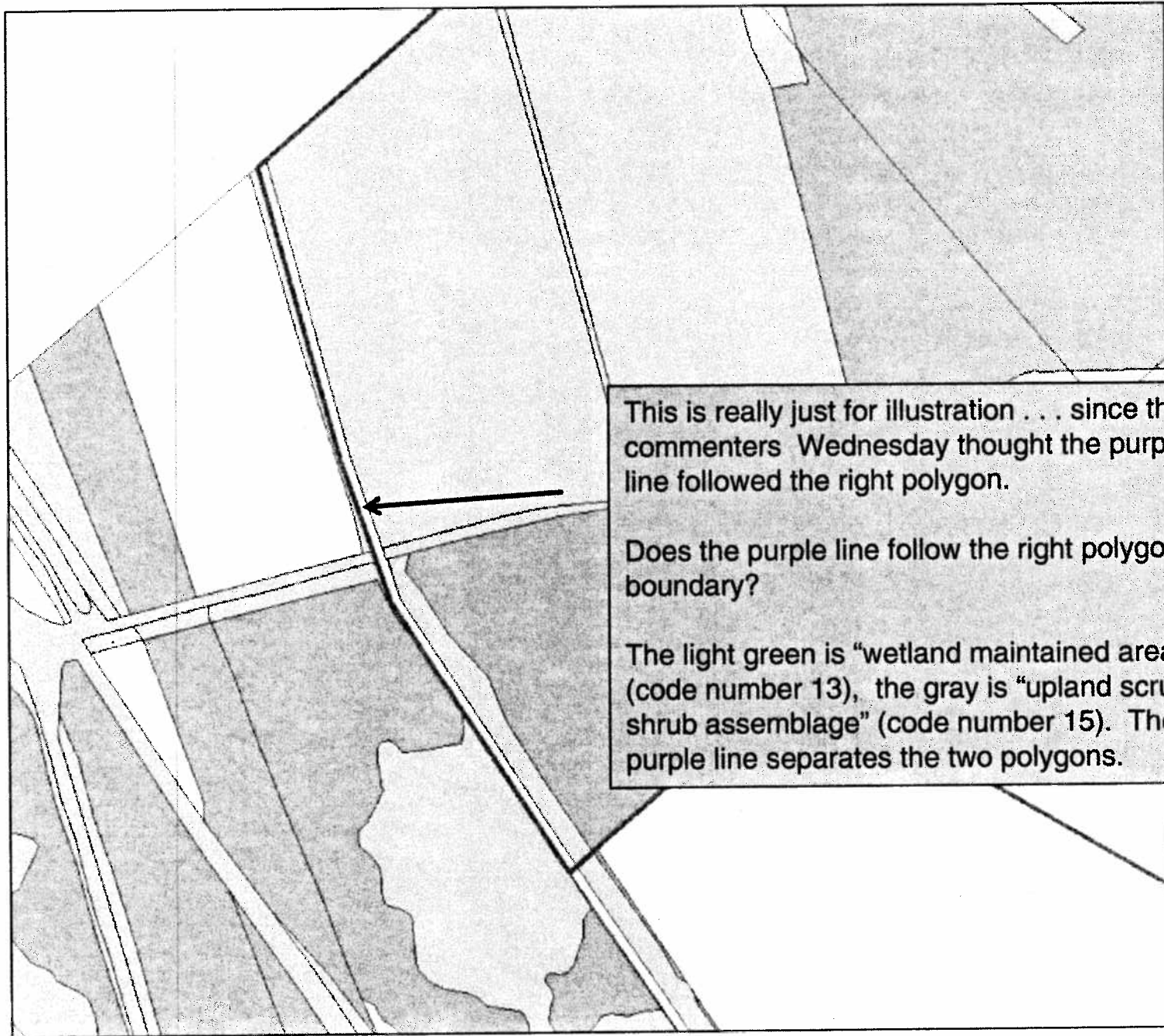


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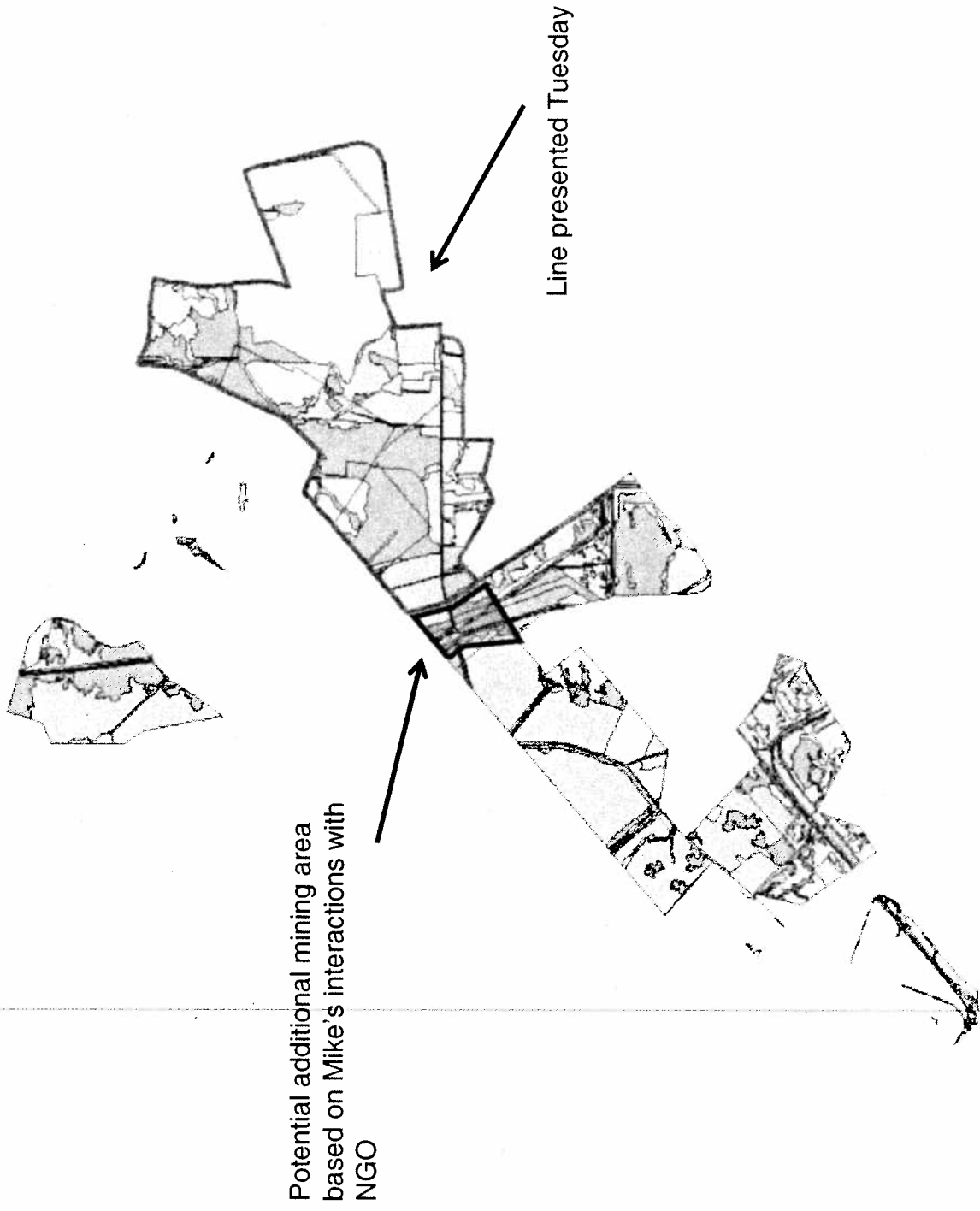


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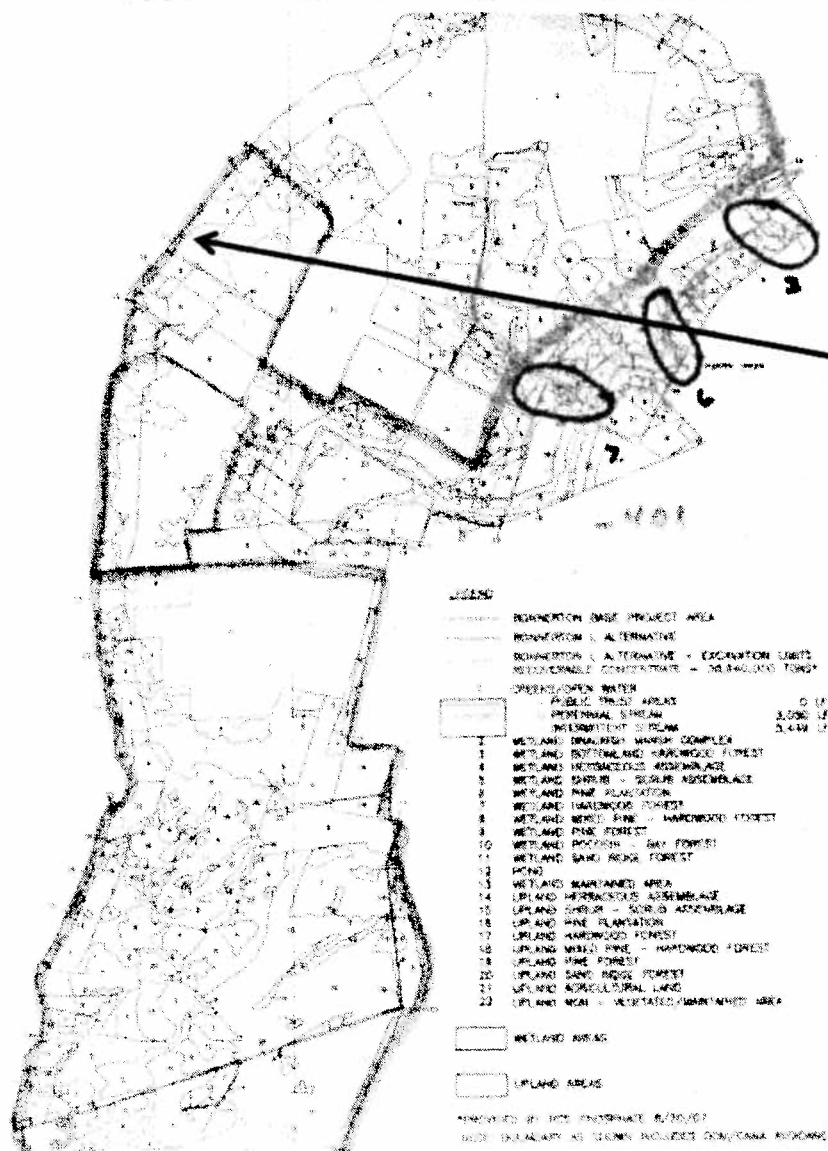
NCPC Tract



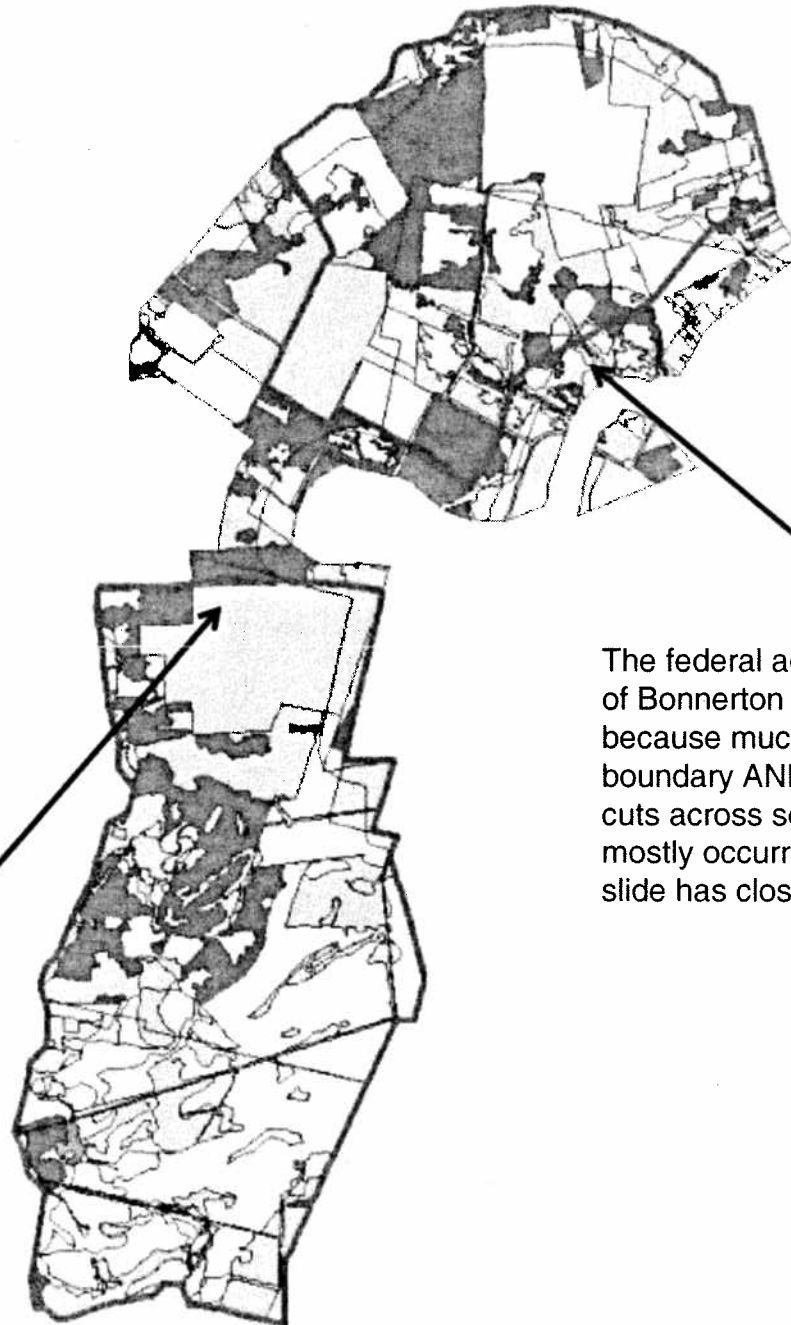
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Tom Welborn /R4/USEPA/US

03/26/2009 09:00 AM

To "Walker, William T SAW"
<William.T.Walker@usace.army.mil>
cc "Middleton, Arthur L SAD"
<Arthur.L.Middleton@usace.army.mil>, "Lamson, Brooke
SAW" <Brooke.Lamson@usace.army.mil>, "Lekson, David
bcc

Subject Re: FW: Fw: PCS lines

There have not been additional meeting just follow up telephone discussions on the requested information from the company. Here are the draft action items that EPA put together from the afternoon meeting with the company:

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Tom Welborn, Chief
Wetlands, Coastal and Oceans Branch
EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
404-562-9354
404-562-9343(FAX)
404-895-6312(cell)

"Walker, William T SAW" <William.T.Walker@usace.army.mil>



"Walker, William T SAW"
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03/25/2009 06:39 PM

To "Pace, Wilber" <Pace.Wilber@noaa.gov>, Rebecca
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Derby/R4/USEPA/US@EPA, <Mike_Wicker@fws.gov>,
Palmer Hough/DC/USEPA/US@EPA, "smtp-Sechler, Ron"
<ron.sechler@noaa.gov>, Tom
Welborn/R4/USEPA/US@EPA, <Pete_Benjamin@fws.gov>,
"Ryscavage, Jefferson COL SAW"
<Jefferson.Ryscavage@us.army.mil>, "Gaffney-Smith,
Margaret E" <Meg.E.Gaffney-Smith@usace.army.mil>,
"Middleton, Arthur L SAD"
<Arthur.L.Middleton@usace.army.mil>, "Jolly, Samuel K
SAW" <Samuel.K.Jolly@usace.army.mil>, "Lamson, Brooke
SAW" <Brooke.Lamson@usace.army.mil>, "Lekson, David
M SAW" <David.M.Lekson@usace.army.mil>

cc

Subject FW: Fw: PCS lines



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Tom Walker

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From: Pace.Wilber [mailto:Pace.Wilber@noaa.gov]
Sent: Wednesday, March 25, 2009 4:18 PM
To: Fox.Rebecca@epamail.epa.gov
Cc: derby.jennifer@epa.gov; Mike Wicker; hough.palmer@epa.gov; smtp-Sechler, Ron; welborn.tom@epa.gov; Pete Benjamin; Walker, William T SAW
Subject: Re: Fw: PCS lines

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[attachment "PCS_AgencyLines_DRAFT.ppt" deleted by Tom Welborn/R4/USEPA/US]



"Walker, William T SAW"
<William.T.Walker@usace.army.mil>

03/26/2009 10:33 AM

To Tom Welborn/R4/USEPA/US@EPA

cc "Middleton, Arthur L SAD"
<Arthur.L.Middleton@usace.army.mil>, "Lamson, Brooke SAW" <Brooke.Lamson@usace.army.mil>, "Lekson, David"

bcc

Subject Re: FW: Fw: PCS lines

Thanks Tom.

If the Corps, at any level, is now going to be asked by EPA or the applicant to consider adding this boundary as an alternative, I think it is important for us to understand how it is being developed.

Thanks
Tom Walker

Message sent via my BlackBerry Wireless Device

----- Original Message -----

From: Welborn.Tom@epamail.epa.gov <Welborn.Tom@epamail.epa.gov>

To: Walker, William T SAW

Cc: Middleton, Arthur L SAD; Lamson, Brooke SAW; Lekson, David M SAW; Ryscavage, Jefferson COL SAW; derby.jennifer@epa.gov <derby.jennifer@epa.gov>; Gaffney-Smith, Margaret E; Mike_Wicker@fws.gov <Mike_Wicker@fws.gov>; Pace.Wilber <Pace.Wilber@noaa.gov>; Welborn.Tom@epamail.epa.gov <Welborn.Tom@epamail.epa.gov>; Pete_Benjamin@fws.gov <Pete_Benjamin@fws.gov>; Fox.Rebecca@epamail.epa.gov <Fox.Rebecca@epamail.epa.gov>; smtp-Sechler, Ron; Jolly, Samuel K SAW; Mancusi-Ungaro.Philip@epamail.epa.gov <Mancusi-Ungaro.Philip@epamail.epa.gov>

Sent: Thu Mar 26 08:00:36 2009

Subject: Re: FW: Fw: PCS lines

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[attachment "PCS_AgencyLines_DRAFT.ppt" deleted by Tom
Welborn/R4/USEPA/US]



"Heather"
<riverkeeper@ptrf.org>
03/26/2009 03:06 PM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject: RE: SELC FEIS letter to COE

History: This message has been replied to.

Here ya go.

Sorry for late response, I've been in Raleigh last two days, then in Greenville for meetings half of today. Just getting caught up to Wed and today's emails.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Thursday, March 26, 2009 10:39 AM
To: Heather
Subject: SELC FEIS letter to COE

HI Heather,

Could you send me an electronic copy of the SELC 7-7-08 letter to COE re FEIS? I have hard copy but not electronic -- have electronic copy of SELC letter to DWQ but not the letter to COE. Thanks and talk to you later. b

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

Attachments to
SELC PTRF
401 Certification
Comment Letter

07/07/2008

Attachment 1

SELC PTRF
401 Certification Comment Letter
07/07/2008

SOUTHERN ENVIRONMENTAL LAW CENTER

200 WEST FRANKLIN STREET, SUITE 330
CHAPEL HILL, NC 27516-2559

Charlottesville, VA
Chapel Hill, NC
Atlanta, GA
Asheville, NC
Sewanee, TN

Telephone 919-967-1450
Facsimile 919-929-9421
selcnc@selcnc.org

July 7, 2008

Via U.S. Mail and Electronic Mail

Mr. Tom Walker
U.S. Army Corps of Engineers
Wilmington District
Regulatory Division
ATTN: File Number 2001-10096
P.O. Box 1890
Wilmington, NC 28402-1890

*Re: Final Environmental Impact Statement for the PCS Phosphate Mine
Continuation: Aurora, North Carolina*

Dear Mr. Walker:

Please accept the following comments on the Final Environmental Impact Statement ("FEIS") for the PCS Phosphate Mine Continuation in Aurora, North Carolina. The Southern Environmental Law Center ("SELC") submits these comments on behalf of the Pamlico-Tar River Foundation ("PTRF"). PTRF is a private, non-profit organization that has been dedicated to protecting, preserving, and promoting the Tar-Pamlico River and its watershed since 1981. PTRF is a member of the Review Team for this project. SELC is a private, non-profit legal organization that seeks to protect and preserve the Southeastern environment.

Unfortunately, the FEIS continues many of the deficiencies of the Draft Environmental Impact Statement ("DEIS") and the Supplemental DEIS ("SDEIS"). It relies on an inappropriate, inconsistent economic analysis and fails to fully account for the impacts of the proposed project or provide adequate mitigation. Further, it fails to adequately address significant comments on the DEIS and SDEIS and is internally contradictory in response to others. Because of these deficiencies, the FEIS violates the National Environmental Policy Act ("NEPA") and cannot serve as the decisional document for the Corps' Clean Water Act ("CWA") § 404(b)(1) Guidelines analysis.¹

¹ By restricting this discussion to these deficiencies, we do not concede that the FEIS has satisfactorily addressed our comments on the DEIS and/or the SDEIS. We incorporate those comments by reference and focus these comments on new information presented in the FEIS.

I. The FEIS Economic Analysis Does Not Overcome the Presumption that Less Environmentally Damaging Practicable Alternatives Exist and Cannot Support a § 404 Permit for Alternative L.

The applicant must, but has not, overcome the presumption that no less environmentally damaging practicable alternative exists and therefore the FEIS does not support issuing a permit for Alternative L under the Clean Water Act § 404(b)(1) Guidelines.² The FEIS must comply with the “hard look” at environmental impacts and assessment of reasonable alternatives required by NEPA and provide the information necessary to satisfy the § 404(b)(1) Guidelines. The alternatives analysis – specifically the economic analysis – is central to complying with those laws. The alternatives that must be analyzed under NEPA and the Clean Water Act differ. NEPA only requires the Corps to consider a reasonable range of alternatives.³ But the CWA requires something more: “No discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem.”⁴ Because of this requirement, “under the CWA, it is not sufficient for the Corps to consider a range of alternatives to the project: the Corps must rebut the presumption that there are practicable alternatives with less adverse environmental impact.”⁵

Because the economic practicability analysis is fundamentally flawed, the FEIS does not successfully rebut the regulatory presumption that less damaging alternatives exist. In our comments on the SDEIS, we stated that the SDEIS similarly failed to rebut this presumption and that it did not demonstrate that no practicable alternatives with less adverse environmental impacts existed, but that it only potentially identified the less environmentally damaging alternatives of those evaluated.⁶ The Corps responded that “[a]n adequate range of reasonable alternatives has been evaluated in the EIS process,” suggesting a misunderstanding of the distinction between the alternatives analyses of NEPA and the CWA. To comply with the CWA § 404(b)(1) Guidelines, the applicant – and therefore the FEIS – must rebut the presumption that less environmentally damaging practicable alternatives exist, including alternatives that have not been evaluated. The FEIS fails to rebut this presumption because it relies on an internally inconsistent economic analysis and excludes consideration of less environmentally damaging potentially practicable alternatives without analysis.

² This discussion centers on the economic analysis as presented in the FEIS. This analysis, as discussed in Section IIA, is a hybrid of the DEIS Marston cost model and the SDEIS Marston cash-cost model. We do not, by focusing on the shortcomings of the analysis here, accept that it is the proper analysis or that its development and use are defensible. Rather, the Corps is obligated to evaluate the net present value analysis presented by Dr. Doug Wakeman in his December 28, 2007 comment letter on the SDEIS. That analysis not only corrects the flaws of the DEIS and SDEIS models, it shows that SCRA, SCRB, SJAB, and potentially DL1B are practicable.

³ 40 C.F.R. § 1502.14.

⁴ 40 C.F.R. § 230.10(a).

⁵ Greater Yellowstone Coalition v. Flowers, 321 F.3d 1250, 1262 n.12 (10th Cir. 2003).

⁶ FEIS Appendix (“App.”) J-V.B.2.C63.

The FEIS economic analysis turns on the inconsistent treatment of the practicability of mining the southern portion of the south of highway 33 tract ("S33"). The development of the long-term alternatives that have been evaluated in the DEIS, SDEIS, and FEIS relied on an assumption that mining in the southern portion of S33 would become practicable; the FEIS's economic analysis relies on a contradictory assumption regarding those same mining costs. The FEIS mine alternatives include mining in the southern section of the S33 tract based on the premise that though not currently practicable, mining those tracts will become practicable. It states that "[t]he applicant has also indicated that it believes the market will eventually become favorable; a reasonable position based on USGS information regarding the rate of depletion of domestic production capacity and the applicant's future shift to higher margin products. The Corps has determined that it is therefore appropriate to include [the southern portion of S33] in the evaluation."⁷ The FEIS re-affirms that "[t]he applicant has indicated . . . [that] it expects [the southern section of S33] will become practicable at some point in the future."⁸ Said another way, mine plan alternatives that include mining in the southern portion of the S33 tract⁹ were included for evaluation from the DEIS through the FEIS on the expectation – promoted by the applicant, "reasonable" based on USGS information, and agreed to by the Corps – that the combination of more favorable market conditions and a shift in products would make mining in that area practicable.

Yet the FEIS reverses the assumption underlying the alternatives to eliminate all alternatives that provide less than 15 years of mining in the NCPC and Bonnerton tracts – all but the AP, EAP, M, and L alternatives – from consideration. The FEIS states that to be practicable an alternative must "provide the applicant with the certainty of practicable costs for at least 15 years"¹⁰ and further states that "higher costs" – presumably meaning impracticable costs – are not experienced under the SJAB, SCRB, and SCRA alternatives "within the initial 15 years."¹¹ If the assumption that the areas in the southern section of S33 will become practicable were maintained, there is no basis for declaring these alternatives impracticable since they provide at least 15 years of practicable mining costs. But the FEIS concludes that "[t]he Corps finds that SCRA, SCRB, and SJAB are not practicable alternatives due to the required commitment to the higher mining costs within the initial 10-12 years of the plan without the expectation of fully recovering these development costs."¹² This finding contradicts the very assumption used to include the southern section of S33 in each of the mine plans. Those areas were included precisely because PCS, the USGS, and the Corps expect that those predicted higher costs will be practicable in the future and that the company will fully recover the development costs required to open the S33 mine pit. In other words, in the FEIS, the assumption that the southern section of S33 will be practicable applies to include those areas in proposed

⁷ FEIS at 2-26.

⁸ The FEIS includes the caveat that the costs may become practicable "many years in the future." FEIS at 2-29. This "analysis" is inadequate. If costs are expected to be practicable in the future, it is critical to know if they are expected to be practicable in 15 years, 20 years, 30 years, etc. and how the difference affects the practicability of mining S33.

⁹ All alternatives in the FEIS include mining in the S33 tract.

¹⁰ FEIS at 2-29.

¹¹ FEIS at 2-30.

¹² Id.

alternatives, but does not apply when determining the economic practicability of those alternatives.

The result of this shift is critical and biases the economic analysis in favor of more-extractive, more-destructive mine plans, consequently obscuring the least environmentally damaging practicable alternative. The Corps included the southern portion of S33 for consideration on the advice from PCS and the USGS that the market and product shifts would make those areas practicable in the time frame under consideration. Because of that support, each of the alternatives include long-term mine plans that are substantially longer than that required by the company for logistical planning. The Corps and PCS's reversal regarding the future practicability of the southern stretch of S33 – despite recent booms in the fertilizer market – means that less environmentally damaging alternatives have been deemed impracticable. The end result is that the Corps considers the southern portion of S33 practicable for the purpose of including that land in any permit issued, but considers it impracticable when considering the practicability of less environmentally destructive alternatives. That the company has reversed its position in a manner that benefits it is unsurprising. But the Corps' acceptance of this practicability assessment invalidates the economic analysis and prevents the FEIS from overcoming the presumption that practicable alternatives exist that are less environmentally damaging than Alternative L.¹³

This error is compounded by the FEIS's flippant dismissal of anything less than a full-length, 32-year SCRA mine plan. As the Corps is aware, "[t]he level of documentation [in the NEPA process] should reflect the significance and complexity of the discharge activity."¹⁴ The difference between Alternative L and a shorter SCRA mine plan is substantial. In comparison to Alternative L, the full-length SCRA avoids 622.12 acres of terrestrial wetlands¹⁵ and 14,928 linear feet of creeks.¹⁶ Depending on how a shorter SCRA mine plan is drawn, it may avoid more wetlands and creeks. By any measure, these are substantial impacts that should not be overlooked without documentation. But rather than evaluating how shortening the SCRA mine plan affects the cost of that mine plan, the FEIS concludes that "[r]educing the amount of mining on the S33 Tract will not solve this dilemma since that would then push more of the relocation costs into the initial years, thereby driving that cost up."¹⁷ The FEIS fails to identify any cost estimates describing how much shortening SCRA by any number of years would affect the cost of mining in the initial years of S33. The Corps, by all appearances, has "eyeballed" it, an approach that fails to "reflect the significance" of the variation of impacts between the L and SCRA alternatives. Therefore, the FEIS does not take the requisite "hard look" at a potentially practicable alternative that would dramatically reduce the environmental impact of the proposed.

¹³ See Hughes River Watershed Conservancy v. Glickman, 81 F.3d 437, 446 (4th Cir. 1996) ("For an EIS to serve [its purpose], it is essential that the EIS not be based on misleading economic assumptions.").

¹⁴ 40 CFR 230.6(b).

¹⁵ FEIS at 6-76.

¹⁶ FEIS at 6-59.

¹⁷ FEIS at 2-30.

II. The FEIS Violates NEPA and is Inadequate for the § 404(b)(1) Guidelines Analysis Because it Fails to Adequately Respond to Substantive Comments.

Under NEPA, the Corps is required to respond to substantive comments on the DEIS and SDEIS.¹⁸ That response may vary, and may be based on an explanation “why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency’s position.”¹⁹ The Council on Environmental Quality (“CEQ”) has clarified that regulation regarding comments on methodology, stating that “agencies must respond to comments, however brief, which are specific in their criticism of agency methodology.”²⁰ Providing example, the CEQ mandated that where a commenter criticized agency analysis “because of its use of a certain computational technique” then the “agency would have to respond in a substantive and meaningful way to such a comment.”²¹ The Fourth Circuit Court of Appeals has applied this standard, requiring that an agency “must . . . reasonably respond to those comments that raise significant problems.”²² In addition, the Corps’ public interest review requires that full consideration be given to all expert comments.²³ Here, the Corps has failed to respond to at least two critical comments: Dr. Douglas Wakeman’s comments criticizing the economic analysis and Pamlico-Tar River Foundation’s comments identifying significant impacts from mining on the NCPC tract.

A. The FEIS violates NEPA because it fails to substantively respond to the comments of Dr. Douglas Wakeman regarding the economic analysis.

Dr. Douglas Wakeman provided detailed comments on the appropriateness of the Corps economic analysis – or “its use of a certain computational technique” – in his December 28, 2007 comment letter on the SDEIS. Dr. Wakeman points out that the DEIS Marston cost model “suffered from three important shortcomings,” including truncating the model at 15 years, applying accounting principles, and failing to use discounted values.²⁴ The SDEIS cash-cost model “corrects only one of these errors, by shifting from accounting costs to predicted cash costs.”²⁵ To correct the remaining two errors, Dr. Wakeman – using information obtained pursuant to a November 20, 2007 Freedom of Information Act (“FOIA”) request – calculated the net present value of each of the alternatives.²⁶

The results of that analysis were telling. Under “a full-length, appropriately-discounted cash flow basis . . . these alternatives appear far more similar in cost than is

¹⁸ 40 C.F.R. § 1503.4(a).

¹⁹ *Id.*

²⁰ 46 Fed. Reg. 18026, 18034 (March 23, 1981).

²¹ *Id.*

²² *North Carolina v. Federal Aviation Admin.*, 957 F.2d 1125, 1135 (4th Cir. 1992).

²³ 33 C.F.R. 320.4(a)(3).

²⁴ App. J-V.B.2 P. 1 (Letter from Wakeman to Corps of Dec. 28, 2007)

²⁵ *Id.*

²⁶ *Id.* at 2. Dr. Wakeman was still unable to calculate net present value for each of the alternatives, since the necessary data was not released in the DEIS, SDEIS, or in response to the FOIA request.

readily apparent using either the prior ‘full-cost’ analysis, or the arbitrarily-truncated, non-discounted versions of the cash cost analysis.”²⁷ The net present value analysis revealed that “[a]lternatives L, SCRA, SJAA are essentially indistinguishable in terms of discounted cash cost; if any one of these is economically practicable, then all three of them are economically practicable.”²⁸ The analysis also suggests that even the DL1B alternative may be practicable due to its similarity in cost.

Based on this result, Dr. Wakeman’s criticism of the “computational technique” used by the Corps to determine economic practicability of alternatives – the Marston cost models – was not only substantive, it fundamentally challenged a central tenet of the Corps analysis and an essential ingredient in applying the § 404(b)(1) Guidelines to the applicant’s request. Consequently, under governing NEPA regulations, it necessitates a “substantive and meaningful” response.

But the FEIS does not provide that response. The FEIS’s response to Dr. Wakeman’s comments does not assess the weaknesses of the DEIS Marston cost model or the merits of the net present value analysis of the alternatives. It avoids discussion of Dr. Wakeman’s criticisms on two grounds: that the DEIS Marston cost model was previously approved by professional economists, including Dr. Wakeman,²⁹ and that that same model has been consistently applied through the DEIS, SDEIS, and FEIS. Neither of these bases relieves the Corps of its obligation to respond to Dr. Wakeman’s analysis in a “substantive and meaningful” manner.

That Dr. Wakeman did not raise the net present value analysis earlier in the NEPA process for this project cannot justify the FEIS’s failure to respond to his comments.³⁰ First, as noted in the comment letter presenting the net present value analysis, the data necessary to perform the analysis was not disclosed to the public in the DEIS and was only made publicly available pursuant to a FOIA request submitted on November 20, 2007. Prior to the response to that request, it was not clear that the data necessary to calculate the analysis existed, and those data were not publicly available. It was only after the November 6, 2007 release of the SDEIS – which included the applicant’s new cash-cost model – and the subsequent FOIA response that it was clear that such data existed. Second, the FEIS does not apply the same treatment to the applicant’s objections to the DEIS Marston cost model. On February 7, 2007, PCS submitted a letter to the Corps criticizing the DEIS Marston cost model.³¹ Despite contracting with Marston to provide the DEIS cost model and providing the data necessary for its preparation, on February 7, 2007 – after the release of the DEIS and only

²⁷ Id.

²⁸ Id.

²⁹ In making this argument, the Corps misrepresents Dr. Wakeman’s statements. The Corps implies that Dr. Wakeman stated that “Absent compelling evidence to the contrary” that the DEIS Marston cost model was sound. His letter actually says that “Absent compelling evidence to the contrary,” the conclusion that SCRB, SCRA, and SJAB are practicable is economically sound. FEIS App. J-V.A.5. But he challenges the conclusion that those alternatives that were deemed impracticable by that model actually are impracticable – foreshadowing the criticisms contained in his comments on the SDEIS.

³⁰ See Natural Res. Def. Council v. Tenn. Valley Authority, 267 F. Supp. 128 (E.D. Tenn. 1973).

³¹ App. J-VII.A.1.

nine months prior to Dr. Wakeman's comments – PCS argued that “[a] ‘Cash Cost’ basis evaluation more accurately portrays the timing of major expenditures associated with development capital and receding face write-off and demonstrates more clearly the point at which the applicant must commit to relocations.”³² Rather than pointing to PCS's prior opportunity to object to the DEIS Marston cost model – as it does with Dr. Wakeman – the FEIS states that “[t]he Corps recognizes this point and has incorporated it into the economic practicability evaluation found in Section 2.7 of the FEIS.”³³ The FEIS's response to Dr. Wakeman's comments – refusal to consider his proposed cost model calculations – cannot be considered “substantive and meaningful” when its response to PCS's analogous comments is contradictory.

These inconsistent responses to criticisms of the DEIS Marston cost model similarly undermine the FEIS's alternate justification for failing to substantively respond to Dr. Wakeman's comments – that the Corps has consistently applied the DEIS Marston cost model through the DEIS, SDEIS, and FEIS. In response to Dr. Wakeman's analysis, the Corps claims that “[t]he cost model as applied in the FEIS and the Corps' approach to determining practicability have remained consistent throughout the DEIS, the SDEIS and the FEIS.”³⁴ To clarify its argument that it has not altered the DEIS Marston cost model or the economic practicability analysis, the FEIS states that “[t]he Corps finds the use of the ‘cash-cost’ model data to be, at best, uninformative in determining alternative practicability” and that it “has not used the cash cost analysis in its approach to determining alternative practicability.”³⁵ It is based on this claimed complete rejection of the cash-cost model that the FEIS justifies its failure to respond to Dr. Wakeman's analysis. “[Dr. Wakeman's] comment letter contains several manipulations of cost data using the cash cost and discounting techniques. The Corps has not used the cash cost analysis in its approach to determining alternative practicability therefore, we do not attempt to justify, clarify or defend its use.”³⁶ As a result, only “[c]omments relevant to the overall approach and NEPA/CWA process are addressed” in the FEIS response to Dr. Wakeman.³⁷

But the Corps has not consistently applied the DEIS Marston cost model and has incorporated the cash-cost model into its practicability analysis. The FEIS refutes this point on multiple occasions in response to both our comments and Dr. Wakeman's comments.³⁸ Repetition does not render the statement that “[t]he cost model as applied in the FEIS and the Corps' approach to determining practicability have remained consistent throughout the DEIS, the SDEIS and the FEIS” accurate.³⁹ First, consistent application of the same practicability analysis to the same alternatives with the same cost estimates must yield the same result. That has not occurred here. In the DEIS, the SCRA, SCRB,

³² App J-VII.A.1.C7.

³³ App. J-VII.A.1.R7.

³⁴ App. J-V.B.2.R.1.

³⁵ App. J-V.B.2.R.5.

³⁶ App. J-V.B.2.R.1.

³⁷ *Id.*

³⁸ App. J-V.B.2.R.1, R.5; App. J-V.B.2.R.33, R.49, R.50, R.66.

³⁹ App. J-V.B.2.R.1.

and SJAB alternatives were considered practicable.⁴⁰ In response to this determination, on February 07, 2007 PCS sent a letter to the Corps in which it introduced a cash-cost analysis to argue against the practicability of these three alternatives specifically.⁴¹ The mine plans and cost estimates of these alternatives remained unchanged in the SDEIS, so did their practicability.⁴² But in the FEIS, the Corps has determined “that SCRA, SCRB, and SJAB are not practicable alternatives.”⁴³ There are only three factors that could have caused this reversal of practicability: an alteration of the mine plans, an increase in costs related to the mine plans, or a change in the practicability analysis. Neither the mine plans nor their related costs changed. The practicability analysis must have changed.

The Corps’ responses to PCS’s comments show exactly how the practicability analysis has changed – by adoption of the results and findings of the cash-cost model. The Corps’ response to PCS is in stark contrast to its rejection of the cash-cost model in its response to our comments and those of Dr. Wakeman. The Corps could not have been stronger in its condemnation of the cash-cost model in response to comments in opposition to the applicant’s preferred alternative. The FEIS proclaims unequivocally that “[t]he Corps has not used the cash cost analysis in its approach to determining alternative practicability therefore, we do not attempt to justify, clarify or defend its use.”⁴⁴ Moreover, “[t]he Corps finds the use of the ‘cash-cost’ model data to be, at best, uninformative in determining alternative practicability . . . The Corps has not used the cash cost analysis in its approach to determining alternative practicability.”⁴⁵ But when the applicant argued in support of more-extractive mine plans that the “‘Cash Cost’ basis evaluation more accurately portrays the timing of major expenditures associated with development capital and receding face write-off and demonstrates more clearly the point at which the applicant must commit to relocations,”⁴⁶ the Corps responded that it “recognizes this point and *has incorporated it into the economic practicability evaluation* found in Section 2.7 of the FEIS.”⁴⁷

And it is based on the incorporation of “this point” from the cash-cost model – that the “‘Cash Cost’ basis evaluation . . . demonstrates more clearly the point at which the applicant must commit to relocations”⁴⁸ – that the Corps reverses its determination of practicability on the SCRA, SCRB, and SJAB alternatives. Rather than documenting any change in the application of the DEIS Marston cost model to these three previously practicable alternatives, the FEIS rejects these alternatives based on “development costs . . . necessary to open the S33 Tract for any mining [that] are actually incurred at the time of the relocation.”⁴⁹ The FEIS could not, and did not, make this determination based on a consistent application of the Marston cost model in the DEIS – that model amortizes

⁴⁰ DEIS at 2-19.

⁴¹ App. J-VII.A.1.

⁴² SDEIS at 2-3.

⁴³ FEIS 2-30.

⁴⁴ App. J-V.B.2.R.5.

⁴⁵ *Id.*

⁴⁶ App. J-VII.A.1.C7.

⁴⁷ App. J-VII.A.1.R.7 (emphasis added).

⁴⁸ App. J-VII.A.1.C7.

⁴⁹ FEIS at 2-30.

costs over the life of the mine pit. The FEIS's rationale is not supported by that cost model, as evidenced by PCS's introduction of the cash-cost model after the DEIS was published to make the very argument that the Corps uses to dismiss the three previously practicable alternatives.

What is obfuscated by the Corps' statements that it "has not used the cash cost analysis in its approach to determining alternative practicability"⁵⁰ is not whether the Corps has used the cash-cost model – it acknowledges doing so expressly in its responses to PCS's comments and implicitly in the text of the FEIS – but rather to what extent it has relied on the cash-cost model. It appears as though the Corps has rejected the cash-cost data – finding it "at best, uninformative in determining alternative practicability."⁵¹ But at the same time the Corps has embraced its conclusions – "[t]he Corps recognizes [that the cash-cost model differently demonstrates the timing of costs and commitment to relocations] and has incorporated it into the economic practicability evaluation found in Section 2.7 of the FEIS."⁵² Basing the FEIS practicability determinations on the results of the cash-cost model while rejecting the data and analysis that led to those results is irrational, arbitrary, and capricious; and it cannot be the basis of this fundamental aspect of the FEIS. If the cash-cost data are "at best, uninformative in determining alternative practicability," then the conclusions based on those data are themselves uninformative and should not be used to determine practicability.

In sum, both explanations for omitting a "substantive and meaningful" response to Dr. Wakeman's comments are invalid and therefore the FEIS violates the mandate in 40 C.F.R. § 1503.4 to reply to substantive comments. Dr. Wakeman's net present value analysis cannot be disregarded because of any previous review of the DEIS Marston cost model. The data necessary for that analysis were only available one month before his comment letter was submitted. Further, PCS submitted criticisms of the analysis and introduced an entirely new method of analysis – the cash-cost model – only nine months earlier and that new method of analysis was accepted and incorporated into the FEIS. Dr. Wakeman's net present value analysis also cannot be disregarded on the premise that "[t]he cost model as applied in the FEIS and the Corps' approach to determining practicability have remained consistent throughout the DEIS, the SDEIS and the FEIS."⁵³ That statement – though repeated frequently in response to comments – is false. The FEIS's economic analysis is not a clarification of the previous analysis, but rather introduces new factors. There is no other way to explain reaching a different result on the practicability of SCRA, SCRB, and SJAB. Neither the mine plans nor the costs of those alternatives changed between the SDEIS and the FEIS, but their practicability did. The Corps admits that this change is a result of the incorporation of the cash-cost model in their response to PCS's criticism of the DEIS Marston model; a comparison of PCS's explanation supporting that criticism to the FEIS shows that it has been incorporated wholesale. In plain terms, the economic analysis in the FEIS was not present in the DEIS or the SDEIS. It modifies the earlier economic analysis and – since it was not included in

⁵⁰ App. J-V.B.2.R.5.

⁵¹ Id.

⁵² App. J-VII.A.1.C7.

⁵³ App. J-V.B.2.R.1.

the SDEIS – that modification must have occurred since the release of the SDEIS. Dr. Wakeman's comments in response to the SDEIS presenting the net present value analysis were therefore timely, relevant, and require a substantive response. The FEIS's failure to do so is arbitrary and capricious.⁵⁴

The FEIS's failure to respond to Dr. Wakeman's analysis is not trivial or inconsequential. The practicability analysis is a central component of the § 404(b)(1) Guidelines analysis and necessarily circumscribes the determination of the least environmentally damaging practicable alternatives. Because of the role of the economic analysis, the FEIS is not only in violation of NEPA, but is inadequate for making the required § 404(b)(1) analysis. Because "a court must view deficiencies in one part of an EIS in light of how they affect the entire analysis,"⁵⁵ and the economic analysis permeates the entire analysis, the omission of a substantive, reasoned response to Dr. Wakeman's analysis undermines the FEIS. Dr. Wakeman's comments identify a significant problem with the Corps' analysis, and the Corps "must . . . reasonably respond to those comments that raise significant problems."⁵⁶

This failure to reasonably respond and the resulting continued reliance on the FEIS's flawed practicability analysis, results in incomplete responses to other comments. The FEIS fails to substantively and meaningfully respond to multiple comments suggesting that the Corps evaluate less environmentally damaging alternatives. The FEIS relies on this faulty analysis to avoid consideration of alternatives suggested in our comments on the DEIS,⁵⁷ the Pamlico-Tar River Foundation's separate comments on the DEIS,⁵⁸ and the comments of multiple resource agencies. The Corps cannot rely on the faulty economic analysis presented in the FEIS to avoid substantively responding to these comments.

Finally, the FEIS's statement that it has not included the cash-cost model in the economic practicability is demonstrably false in light of its response to PCS's letter introducing that model and the economic analysis included in the FEIS. The inclusion of this false statement in the economic analysis causes the FEIS to violate NEPA. When an EIS "sets forth statements that are materially false or inaccurate the Court may find that the document does not satisfy the requirements of NEPA, in that it cannot provide the basis for an informed evaluation or a reasoned decision."⁵⁹ Therefore, the FEIS violates NEPA and cannot serve as the decisional document for the Corps' § 404(b)(1) Guidelines analysis.

⁵⁴ See Hughes River Watershed Conservancy v. Glickman, 81 F.3d 437, 445 (4th Cir. 1996).

⁵⁵ Nat'l Audubon Soc'y v. Dep't of the Navy, 422 F.3d 174, 186 (4th Cir. 2005).

⁵⁶ North Carolina v. Federal Aviation Admin., 957 F.2d 1125, 1135 (4th Cir. 1992).

⁵⁷ App. J-V.A.2.R6, R7, R11, R12

⁵⁸ App. J-V.A.1.R8, R9.

⁵⁹ Western N.C. Alliance v. N.C. Dep't of Transp., 312 F. Supp. 2d 765, 776 -777 (E.D.N.C. 2003) (internal quotation marks omitted).

- B. The FEIS violates NEPA because it fails to substantively respond to the comments of the Pamlico-Tar River Foundation regarding the environmental impacts of mining on the NCPC tract.

The Pamlico-Tar River Foundation ("PTRF") submitted an independent, literature review based evaluation of the environmental impacts with its comments on the DEIS. That evaluation was supported by 12 prominent scientists with expertise in coastal and wetland ecology. These scientists concluded, based on an evaluation of the proposed impacts, that substantial mining in the NCPC tract would result in significant degradation.⁶⁰ This letter consisted of a 14 page analysis that relied on 35 cited authorities. It was a substantive comment that merited a thorough response.

The FEIS does not adequately respond to this comment letter. In fact, the FEIS omits any detailed response to the analysis.⁶¹ The only comment in the FEIS regarding this report is that it has "been included in Appendix F" and that "relevant information" has been included in the FEIS.⁶² The regulations do not authorize the Corps to include unidentified "relevant information" in lieu of responding to substantive comments. The Corps must respond to comments and must do so in one of five prescribed methods.⁶³ To fit within one of those prescribed methods, the Corps must identify the "relevant information" and indicate how it has been applied. It does just that in response to PCS's introduction of the cash-cost model – indicating that the Corps "has incorporated it into the economic practicability evaluation found in Section 2.7 of the FEIS."⁶⁴ A similar response is required here for "relevant information" that is incorporated into the FEIS – whether it is from the PTRF comments or PCS's Entrix report.

For those portions of PTRF's comments that are not deemed "relevant information," the agency must "[e]xplain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position."⁶⁵ The Corps cannot ignore PTRF's comments, leaving the public to decipher which elements were considered "relevant" and how they were incorporated into the FEIS. Because the FEIS fails to adequately respond to PTRF's comment letter, it violates NEPA and cannot act as the decisional document for the Corps' CWA § 404(b)(1) Guidelines analysis.

⁶⁰ App. J-V.A.1. While the letter centered on the AP Alternative, the evaluation of the environmental impacts of mining in the NCPC tract also apply to Alternative L due to its significant mining in the tract.

⁶¹ See App. J-V.A.1.

⁶² App. J.II-7.

⁶³ 40 C.F.R. § 1503.4.

⁶⁴ App. J-VII.A.1.R.7.

⁶⁵ 40 C.F.R. § 1503.4(a)(5).

III. The FEIS Improperly Excludes Consideration of Cumulative Impacts and Mitigation and Cannot Be the Basis for the Corps' Significant Degradation Determination.

Because the FEIS fails to account for important impacts and neglects to propose mitigation for the full length of proposed impacts, it does not provide the information necessary for the Corps to make the significant degradation determination required by the CWA § 404(b)(1) Guidelines. Significant degradation in the context of a Section 404 permit is determined by balancing the environmental impact against the proposed mitigation.⁶⁶ Because of this requisite balancing, the EIS must provide a detailed analysis of both the environmental impacts and the proposed mitigation. When the proposed mitigation does not offset the environmental impacts, the Corps should make a significant degradation finding and deny the permit.⁶⁷ Without a complete understanding of both the environmental impact and mitigation plans, the Corps cannot perform the required analysis. The FEIS does not allow the Corps to perform the required balancing because it omits critical cumulative impacts and proposes incomplete mitigation.

A. The FEIS does not account for cumulative impacts of future mining.

Cumulative impacts are the combined effect of the action being evaluated as well as other "past, present, and reasonably foreseeable future actions."⁶⁸ NEPA and the Corps' public interest review require consideration and evaluation of cumulative impacts.⁶⁹ While it is reasonable to assume that the evaluation of long-term alternatives would better evaluate "reasonably foreseeable future actions" than shorter alternatives, the FEIS does not do so. Rather, by referring to the alternatives as "holistic," although it is clear that none of the alternatives limit future mining, the FEIS avoids consideration of future impacts. In addition to the NCPC, Bonnerton, and S33 tracts included in the FEIS, Section 2.3.1 identifies four additional sites that PCS has mineral interests in within the project area: Core Point, the Edward Tract, the Grace Tract, and the Pamlico River. As the Corps is aware, "[t]he applicant has clearly conveyed a desire to mine the entire project area over time if the market allows."⁷⁰ Further, if PCS's newly preferred alternative, Alternative L, is permitted, some ore deposits will remain unmined in both the NCPC and Bonnerton tracts. As the FEIS acknowledges, "[a]ny permit issued in this action would not require the permanent forfeiture of the right to mine any remaining reserves,"⁷¹ meaning that PCS could apply for a permit to mine the avoided ore since "the Aurora Phosphate deposit is one of the few remaining minable deposits in the United States"⁷² and the company has indicated that at least those areas in South Creek and the Pamlico River can be economically mined. We must assume that PCS will pursue mining beyond the extent of any permit that results from this process. Such an impact is

⁶⁶ See *City of Olmstead Falls v. U.S. EPA*, 435 F.3d 632, 637-38 (6th Cir. 2006).

⁶⁷ See *James City County v. U.S. EPA*, 12 F.3d 1330, 1337 (4th Cir. 1993).

⁶⁸ FEIS at 4-42 (citing 40 C.F.R. § 1508.7).

⁶⁹ 33 C.F.R. § 320.4(a).

⁷⁰ FEIS at 2-28.

⁷¹ FEIS at 2-31.

⁷² FEIS at 1-4.

foreseeable and contemplated by the FEIS's discussion of the development of alternatives. Yet the FEIS concludes that "impacts resulting from each boundary by definition include all foreseeable future impacts resulting from mining activity."⁷³ Potential future mining in these approximately 40,000 acres adjacent to the proposed mine expansion is a foreseeable future action that must be considered.⁷⁴

B. The FEIS does not propose mitigation for significant impacts.

The FEIS also falls short in providing enough information on the second component of the § 404(b)(1) significant degradation determination, mitigation. Although the mitigation plan required in the FEIS does not have to include every detail, "an EIS involving mitigation must include a serious and thorough evaluation of environmental mitigation options for a Project to allow its analysis to fulfill NEPA's process-oriented requirements."⁷⁵ "More generally, omission of a reasonably complete discussion of possible mitigation measures would undermine the "actionforcing" function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects."⁷⁶

The long-term alternatives evaluated in the FEIS were developed with an eye towards facilitating the development of mitigation measures. The FEIS states that "longer term alternatives may . . . improve compensatory mitigation," while to PCS those alternatives also allow "larger scale mitigation projects."⁷⁷ But while the long-term plans provide in excess of 30 years of mining, the mitigation proposed in the FEIS is not commensurate.

The least environmentally damaging practicable alternative according to the flawed economic analysis in the FEIS, Alternative L, spans 37 years; the proposed mitigation for Alternative L only purports to account "for the first 15 years of impacts."⁷⁸ The FEIS's response to comments shows that even that estimate of 15 years of mitigation may be optimistic; according to the response, the compensatory mitigation plan "does identify sites to be used for impacts occurring in the initial 12-15 years."⁷⁹

This omission of any proposed mitigation for the impacts in the last 22 to 25 years of Alternative L renders the FEIS completely inadequate for making a significant

⁷³ FEIS at 4-43.

⁷⁴ The applicant's request for a 37 year permit does not dilute the importance of these potential future impacts. Any permit that may be issued as a result of this request represents an authorization to mine, not an obligation to mine. Should PCS determine that they can increase their revenues by pursuing mining in one of these tracts; any permit that may be issued as a result of this process would not be an obstacle in that pursuit. The Corps is well aware of PCS's ability to apply for mining permits in the additional tracts, at the October 12, 2004 Review Team Meeting, Project Manager Tom Walker stated that "PCS could move to other areas outside the current project area." DEIS at A-121.

⁷⁵ *O'Reilly v. U.S. Army Corps of Eng'rs*, 477 F.3d 225, 231 (5th Cir. 2007).

⁷⁶ *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

⁷⁷ FEIS at 2-10.

⁷⁸ FEIS at 4-104.

⁷⁹ App. J-V.A.2.R44.

degradation determination. The impacts that will occur under the Alternative L mine plan after the initial 12-15 years are not incidental. After year 15, Alternative L would impact 507.41 acres of terrestrial wetlands,⁸⁰ 23.16 acres of riparian buffers,⁸¹ and 14,362 linear feet of creeks.⁸² These impacts include 181 acres of wetland hardwood forests, 66 acres of mixed pine-hardwood forest, 45 acres of pine forest, and 31 acres of scrub-shrub assemblage.⁸³ Each of these community types must be mitigated at a 2:1 ratio for restoration and up to an 8:1 ratio for preservation, even under the reduced recommended ratios in the FEIS.⁸⁴

Thus, the compensatory mitigation plan proposed in the FEIS cannot be considered “a serious and thorough evaluation of mitigation options” and therefore the FEIS does not “fulfill NEPA’s process-oriented requirements.”⁸⁵ Consequently, the FEIS does not provide the information necessary to apply the § 404(b)(1) Guidelines. The Corps cannot balance the proposed impacts against the proposed mitigation when there is no proposed mitigation for a significant portion of the proposed impact. Consequently, the FEIS cannot support the Corps’ public interest review, which states that “no permit will be granted which involves the alteration of wetlands identified as important . . . unless the district engineer concludes . . . that the benefits of the proposed alteration outweigh the damage to the wetland resources.”⁸⁶

C. The proposed mitigation does not compensate for the loss of nonriverine wet hardwood forests.

The mitigation proposed in the FEIS is not only inadequate in scale – omitting mitigation for more than 500 acres of wetlands impacts – but also in detail. Although it recognizes that the Bonnerton tract contains “mature hardwood stands” that would be destroyed by alternative L, the proposed mitigation plan does not indicate that those stands are nationally significant due to the rarity of large, mature nonriverine wet hardwood forests nor does it identify any efforts to restore this rare community type in any of the selected mitigation sites. These omissions make clear that the Corps has not taken the necessary “hard look” at the consequences of the proposed impacts on this rare community.

The nonriverine wet hardwood forests on the Bonnerton site have been identified as a site of national significance, meaning that the site is one of the five best examples of that community type in the nation.⁸⁷ The Bonnerton site has two features that make it a site of national significance, its size and quality. As noted above, large tracts of nonriverine wet hardwood forests are rare. Of the 25 known sites in North Carolina, only

⁸⁰ FEIS at 6-59.

⁸¹ Id.

⁸² See id.

⁸³ FEIS at 6-72.

⁸⁴ FEIS at 4-107.

⁸⁵ O'Reilly v. U.S. Army Corps of Eng'rs, 477 F.3d 225, 231 (5th Cir. 2007).

⁸⁶ 33 C.F.R. § 320.4(b)(4).

⁸⁷ The publication noting the site as a site of national significance is in press. (Schafale, pers. comm.)

seven are greater than 100 acres.⁸⁸ Covering 198 acres, the Bonnerton site is the fourth largest known site. In addition to its size, the Bonnerton site is high in quality, with large trees that are increasingly uncommon. The N.C. Natural Heritage Program describes the site as “very good” quality.

The Corps’ regulations recognize that unique or rare wetlands have special public interest. They recognize “wetlands which are unique in nature or scarce in quantity to the region or local area” as “important to the public interest.”⁸⁹ The Bonnerton nonriverine wet hardwood forests are significant on a national level, and therefore they are of the utmost importance to the public interest.

Moreover, the proposed mitigation plan does not identify how the loss of this rare forest will be mitigated. A mitigation plan may be inadequate where it does not “adequately replace the types and qualities of wetlands the proposed project would destroy.”⁹⁰ Here, there is no proposed mitigation to replace the nonriverine wet hardwood forests on Bonnerton. Specific, tailored mitigation is necessary to replace these types of forests; “Nonriverine Wet Hardwood Forests rarely regenerate to the characteristic oak species and tend to become stands of weedy tree species that show little tendency to ever return to an oak canopy.”⁹¹ Further, since these communities are characterized by specific canopy species,⁹² they cannot be mitigated by generic “hardwood wetland restoration, enhancement, or preservation sites.”⁹³ As presented in the FEIS and Appendix I, the proposed mitigation plan does not adequately replace the nonriverine wet hardwood forests on Bonnerton. Any mine plan that includes destruction of this nationally significant resources is contrary to the public interest and will result in significant degradation of the aquatic environment and cannot be permitted.

V. Conclusion

The FEIS does not comply with NEPA and does not support issuing a permit for Alternative L under the CWA § 404(b)(1) Guidelines. Not only does the FEIS fail to fully address the shortcomings of the DEIS and SDEIS, it is inconsistent and internally contradictory. Further, the FEIS’s responses to comments on the economic analysis include false statements that undermine the analysis and violate NEPA. Finally, the FEIS’s proposed mitigation is wholly inadequate. It not only fails to propose any specific mitigation for the more than 500 acres of wetlands and 14,000 linear feet of streams that would be impacted in S33 under Alternative L, the mitigation is insufficient.

For these reasons and others stated above, the FEIS is inadequate. It does not satisfy NEPA and cannot serve as the basis for issuing any permit under the CWA §

⁸⁸ Michael P. Schafale, *Nonriverine Wet Hardwood Forests in North Carolina: Status and Trends*, January 2008, available at <http://www.ncnhp.org/Images/Other%20Publications/nrwhf2008rpt.pdf>.

⁸⁹ 33 C.F.R. § 320.4(b)(2)(viii).

⁹⁰ *James City County v. U.S. Envtl. Protection Agency*, 12 F.3d 1330, 1337 (4th Cir. 1993).

⁹¹ Schafale, *supra* n.71 at 7.

⁹² *Id.* at 1.

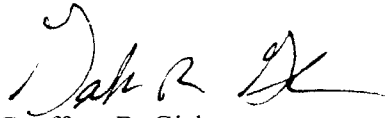
⁹³ FEIS App. I at 5.

404(b)(1) Guidelines. Therefore, we request that the Corps enlist the expertise of the Review Team to prepare a supplement to the Final EIS that repairs the shortcomings of that document or in the alternative, we request that the Corps deny PCS's permit request for Alternative L.

Sincerely,

A handwritten signature in black ink, appearing to read "Derb S. Carter, Jr.", with a stylized flourish at the end.

Derb S. Carter, Jr.
Senior Attorney/Carolinas Office Director
Southern Environmental Law Center

A handwritten signature in black ink, appearing to read "Geoffrey R. Gisler", with a stylized flourish at the end.

Geoffrey R. Gisler
Associate Attorney
Southern Environmental Law Center

Attachment 2

SELC PTRF
401 Certification Comment Letter
07/07/2008

SOUTHERN ENVIRONMENTAL LAW CENTER

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December 31, 2007

Via U.S. Mail and Electronic mail

U.S. Army Corps of Engineers
Wilmington District
Regulatory Division
P.O. Box 1890
Wilmington, NC 28402-1890

Re: PCS Phosphate, File # 2001-10096

To Whom It May Concern:

Please accept the following comments on the Supplemental Draft Environmental Impact Statement ("SDEIS") for the PCS Phosphate Mine Continuation in Aurora, North Carolina. The Southern Environmental Law Center ("SELC") submits these comments on behalf of the Pamlico-Tar River Foundation ("PTRF"). PTRF is a private, non-profit organization that has been dedicated to protecting, preserving, and promoting the Tar-Pamlico River and its watershed since 1981. PTRF is a member of the Review Team for this project. SELC is a private, non-profit legal organization that seeks to protect and preserve the Southeastern environment.

As a preliminary matter, we are disappointed with the Corps' decision to release this supplement during the holiday season. It is logistically difficult for state and federal agencies and other interested parties to fully evaluate the document and draft comments on its substance.¹ The public is justifiably distracted at this time of year and is unlikely to comment. These comments are particularly important on a document such as the supplement, which the Corps' appears to be using to describe a sudden change in course on its analysis of this project six years into its review. Recognizing these difficulties, and the importance of commenting on the SDEIS, we requested an extension of the comment period until, at earliest, December 31, 2007. The Review Team was notified of a 10 day extension on December 17, 2007. This late notice ensured that comments on the SDEIS would be stifled and criticism of the SDEIS would be minimized. Moreover, the Corps

¹ It is our understanding that the U.S. Fish and Wildlife Service submitted its comments on December 12, 2007 and that state agencies were required to submit their comments to the state clearinghouse in early December in order to comply with the initial December 21, 2007 deadline.

failed to include in the SDEIS information critical to informal review and analysis. We have obtained some of this information pursuant to a FOIA request. The Corps has a continuing obligation to comply with NEPA. 40 C.F.R. § 1507.1. If necessary we will supplement these comments.

I. The SDEIS Development Process Was Inadequate.

The Draft Environmental Impact Statement envisioned an important role for the Review Team. It stated that “[t]he purpose of the Review Team was to identify major issues to be addressed in the EIS and to **provide input on potential alternatives** to be explored and potentially evaluated.”² This involvement was not intended to end with the DEIS, but rather it was “anticipated that the Team will continue to meet and **provide input** during the review of the DEIS and development of the Final EIS (FEIS).”³ The SDEIS states in Section 2.4.1 that the “Corps worked with the Applicant and members of the Review Team to develop various boundaries within each of the three project area tracts.”⁴ This statement, as it relates to Alternatives L and M is, at best, misleading. The Review Team, as a body, had no input into the development of Alternatives L and M.

A. The Review Team was not informed about Alternatives L and M.

The Corps did not work with members of the Review Team in developing the SDEIS or Alternatives L or M. The Corps conveyed limited information regarding the alternatives to the Review Team at a meeting to discuss new mitigation efforts being undertaken by PCS on July 24, 2007. As an introduction to the meeting, Tom Walker described the outline of the Alternative L using maps of other alternatives. The Review Team was not shown nor given any maps illustrating the outlines of the new alternative. The Corps did not provide any information regarding the wetland impacts under Alternative L. The Review Team was not made aware that Alternative M existed until PTRF inquired about it on October 30, 2007. Despite being on the Review Team, PTRF initially learned the Corps was considering Alternative M from a newspaper article.

B. The Review Team’s comments were not considered in the SDEIS.

The Corps could excuse not consulting the Review Team on the SDEIS if the document reflected the Team members’ comments on the DEIS. A review of some of the Team members’ comments shows that not only were those comments not constructively applied in the SDEIS, but they were disregarded. A quick survey of the comments of the U.S. Environmental Protection Agency, the N.C. Wildlife Resources Commission, the U.S. Fish and Wildlife Service and the N.C. Division of Marine Fisheries demonstrates that the Corps did not rely on the Review Team’s comments in developing the SDEIS.

The U.S. Environmental Protection Agency (“EPA”) commented that “[d]ue to the functions provided by these areas, coupled with the continued loss of wetland habitat

² DEIS at 1-7 (emphasis added).

³ *Id.* (emphasis added).

⁴ SDEIS at 2-1.

and bottomland hardwood forests, in the Southeast United States, EPA considers the resources comprising this site to be [Aquatic Resources of National Importance]. We also believe the proposed project, which would impact 2,378 acres of wetlands and 7.3 miles of streams, may result in substantial and unacceptable impacts to these ARNI.”⁵ Going further, EPA stated: “[w]e believe the impacts associated with the proposed project may cause or contribute to significant degradation of waters of the U.S.”⁶

The N.C. Wildlife Resources Commission (“WRC”) directly addressed the impacts of mining in the NCPC tract. It commented that “drainage basin alteration [from mining in NCPC] will significantly impact the ability of these systems to function as a Primary Nursery Area (“PNA”) through the removal of necessary chemical and biological components of the watershed.”⁷ Synthesizing its criticism of the DEIS, the WRC “recommend[ed] neither the AP, EAP, SCR, or SJA alternatives be considered as appropriate mining options on the NCPC tract because of significant degradation of fish and wildlife resources.”⁸ The WRC noted that “[w]e are especially concerned with the impacts to the valuable habitat areas within the NCPC tract” and that it “would look more favorably on mine expansion that does not include the NCPC tract.”⁹

The U.S. Fish and Wildlife Service (“FWS”) was no less direct. It concluded “that the proposed project may result in substantial and unacceptable adverse impacts to aquatic resources of national importance.”¹⁰ The agency also pointed out that “large-scale wetland impacts located directly adjacent to the Pamlico River . . . will act to exacerbate the impacts of eutrophication while altering local food web stability; both of which have important implications for estuarine productivity.”¹¹ Since the “impacts are likely to produce a legacy of environmental effects that could last for years,” the FWS recommended that the permit request be denied.¹²

The N.C. Division of Marine Fisheries (“DMF”) highlighted a panoply of problems with the DEIS alternatives. DMF noted that South Creek is already “stressed,” and that “further mining north of NC Highway 33 will only exacerbate existing conditions.”¹³ DMF’s comments bluntly state that “[a]ll the alternatives examined in the DEIS would have significant adverse impacts to estuarine fisheries resources, fish habitats, water quality, and public trust waters in the Pamlico River system.”¹⁴

The SDEIS plainly ignores these comments from expert resource agencies. Rather than evaluating alternatives that would impact fewer acres of wetlands in the NCPC and Bonnerton tracts, the Corps chose to evaluate alternatives that exacerbate the

⁵ Letter from Giattina to Pulliam of 02/09/07, at 2.

⁶ *Id.* at

⁷ Memorandum from Tripp to McGee and Walker of 02/01/07, at 4.

⁸ *Id.*

⁹ *Id.* at 5.

¹⁰ Letter from Benjamin to Walker of 12/06/06, at 6.

¹¹ *Id.*

¹² *Id.*

¹³ Memorandum from McKenna to McGee of 02/02/07, at 7.

¹⁴ *Id.* at 1.

impacts that caused the Review Team agencies' concern. Alternative L mines over 3,600 acres of wetlands in the NCPC and Bonnerton tracts.¹⁵ Alternative M mines over 4,000 acres in the NCPC and Bonnerton tracts.¹⁶ Surely this enhanced mining was not what the EPA meant when it recommended "greater depth in the alternatives analysis for this project to ensure that the chosen alternative represents the [least environmentally damaging practicable alternative]."¹⁷ It is clear from the Corps' decision to disregard agency appeals for less destructive alternatives in favor of alternatives that expand wetland impacts that it did not consult the Review Team's comments when drafting the SDEIS.

C. The Review Team was not provided an opportunity to comment on a draft version of the SDEIS.

The Corps could have overcome its failure to include the Review Team in the development of the supplement and ignoring Review Team comments in creating it if the agency had sought Review Team comments on a draft of the SDEIS. After all, the Review Team's purpose is to "provide input" during the development of NEPA documents for this project. Had the Review Team been consulted, many of the glaring omissions and errors of the SDEIS may have been avoided. The SDEIS could have been understandable and user friendly. Instead, it is confusing and lacks essential ingredients. Enlisting the expertise of the Review Team prior to public release of the document, as was done with the DEIS, may have averted these shortcomings.

In light of the foregoing problems with the vaguely worded assertion that the "Corps worked with the Applicant and members of the Review Team to develop various boundaries within each of the three project area tracts,"¹⁸ the Review Team's role should be clarified in a second supplement to the DEIS. The second SDEIS should clearly state that input from the Review Team was not sought or considered in the development of the first SDEIS. To the extent that individual members of the Review Team were consulted, those interactions should be listed separately and not attributed to the Team as a whole.

II. Alternatives L and M Will Result in Significant Degradation of the Aquatic Environment.

Based on the resource agencies' criticisms of the DEIS, Alternatives L and M will result in significant degradation of the aquatic environment and cannot be permitted under the 404(b) Guidelines. The Guidelines prohibit the Corps from authorizing actions "which will cause or contribute to significant degradation of waters of the United States."¹⁹

¹⁵ SDEIS at 6-15.

¹⁶ SDEIS at 6-17.

¹⁷ Letter from Giattina to Pulliam of 02/09/07, at 2.

¹⁸ SDEIS at 2-1.

¹⁹ 40 C.F.R. 230.10(c).

State and federal agencies with expert knowledge of the ecosystems proposed to be impacted by the mine expansion spoke strongly against the significant wetland and streams impacts proposed by the Applicant. The EPA was concerned about both the type and scope of areas that would be impacted by the mine expansion. The EPA expressed trepidation about impacts “directly upstream of areas classified as primary nursery areas for recreational and commercial fish.”²⁰ The agency stated that “we do not believe impacting 2,378 acres of wetlands and 7.3 miles of streams satisfactorily avoids and minimizes impacts to aquatic resources. We also believe it may be difficult to provide adequate compensation for the proposed project, due to the large scale nature and types of coastal habitats which will be impacted.”²¹

The EPA’s concerns were echoed by other expert agencies. The FWS concluded that “the proposed project may result in substantial and unacceptable adverse impacts to aquatic resources of national importance” due to the “large-scale wetland impacts located directly adjacent to the Pamlico River.”²² The DMF opposed all mining north of N.C. Highway 33 “because of probable significant adverse impacts to estuarine fisheries resources, fish habitats, water quality, and public trust waters in the Pamlico River system.”²³ The WRC was “especially concerned with the impacts to the valuable habitat within the NCPC tract including wetlands, streams, creeks, and inland PNAs.”²⁴ The National Marine Fisheries Service concluded that “mining the NCPC tract would adversely impact living marine resources and their habitats.”²⁵ Due to these impacts, the NMFS recommended that “[t]he Department of the Army shall not authorize mining activities within the NCPC tract.”²⁶ The South Atlantic Fisheries Management Council opined that “[n]ot only would the proposed project impact habitat through direct removal (loss of over 2,000 acres of wetlands), it poses a significant risk to the coastal ecosystem as a whole through alteration of food web dynamics and severely diminished water quality.”²⁷

Rather than evaluating alternatives that would alleviate the concerns of the resource agencies, the SDEIS amplifies mining impacts. Alternatives L and M would exacerbate the concerns regarding wetland destruction expressed by the resource agencies. Alternative L would mine 4,134.72 acres of wetlands total, including 1,584.28 acres in the NCPC tract and 2,040.83 acres in the Bonnerton tract.²⁸ Alternative M is more destructive, mining 4,591.37 acres of wetlands total, including 2,040.93 acres of wetlands in NCPC and 2,046 acres of wetlands in Bonnerton.²⁹ Similarly, the AP

²⁰ Letter from Giattina to Pulliam of 02/09/07, at 2.

²¹ *Id.* at 3.

²² Letter from Benjamin to Walker of 12/20/06, at 6.

²³ Memorandum from McKenna to McGee of 02/02/07, at 1.

²⁴ Memorandum from Tripp to McGee and Walker of 02/01/07, at 5.

²⁵ Letter from Croom to Pulliam of 02/08/07, at 1.

²⁶ *Id.* at 4.

²⁷ Letter from Mahood to Pulliam of 02/09/07, at 2.

²⁸ SDEIS at 6-15.

²⁹ *Id.* at 6-17.

Alternative, the focus of much of the criticism of the DEIS, would mine 2,407.72 acres of wetlands within the NCPC tract.³⁰

Alternatives L and M would also devastate the stream systems within the project area. Alternative L would excavate 29,288 linear feet of creeks and eliminate 11,909 acres of the drainage basin of the remaining creeks and streams.³¹ Alternative M would expand those impacts, mining 36,990 linear feet of creeks and 12,571 acres of the drainage basins of the remaining creeks and streams.³² The AP Alternative would mine 38,558 linear feet of creeks and 3,412 acres of their drainage basins.³³

This analysis of the proposed wetland and creek impacts of Alternatives L and M shows that the very concerns documented by the resource agencies regarding the AP Alternative apply to Alternatives L and M as well. Rather than avoiding and minimizing wetland impacts, Alternatives L and M include expansive wetland impacts in sensitive areas. They destroy wetlands, creeks and drainage basins at a rate that will cause significant degradation for the very reasons identified by the expert agencies in their comments to the DEIS. We encourage the Corps to review these comments, to analyze Alternatives L and M in light of them and, as requested in our comments on the DEIS, to develop a second supplement to the DEIS that presents and evaluates alternatives that will not cause or contribute to the significant degradation of the aquatic environment.

III. The 15 Year Limitation Chosen by the Corps Is Arbitrary and Derails the Alternatives Analysis.

The Corps' determination that any alternative must provide 15 years of mining north of N.C. Highway 33 is arbitrary and slants the alternatives analysis to favor more destructive mine plans. The Corps' steadfast reliance on a 15 year analysis is unsupported by reason and cannot be justified in light of its impact on the economic practicability analysis. The Corps' 15 year minimum has its origins in the AP Alternative, a fact that undermines its applicability because (1) the AP Alternative is illegal and cannot be permitted under the 404(b) Guidelines and applicable state laws and (2) it does not meet the stated purpose and need for the project.

- A. The AP Alternative is illegal and cannot serve as the foundation of the alternatives analysis.

The AP Alternative unlawfully impacts coastal wetlands. It directly impacts 38 acres of coastal wetlands.³⁴ In North Carolina, "[u]ses which are not water dependent shall not be permitted in coastal wetlands."³⁵ It is clear from a basic review of the applicable state law that phosphate mining is not water dependent. First, the regulations

³⁰ *Id.* at 6-18.

³¹ *Id.* at 6-10; 6-12.

³² *Id.*

³³ *Id.*

³⁴ SDEIS at 6-18.

³⁵ 15A NCAC 7H .0208(a)(1).

give examples of uses that are water dependent, including docks, wharfs, boat ramps, dredging, bridges, bulkheads, etc.³⁶ The regulations also state that water dependent structures are “those structures for which the use requires access or proximity to or siting within surface waters to fulfill its basic purpose.”³⁷ Not only does phosphate mining not require surface water access “to fulfill its basic purpose,” the presence of water is a hazard to mining. As the DEIS notes, “depressurization of the Castle Hayne Aquifer would be required to maintain **dry, safe mining conditions**.”³⁸ Phosphate mining is not dependent on access to surface water, but rather is hampered by it. Moreover, the Corps has determined phosphate mining is not water dependent, shifting the burden to PCS under the 404(b) Guidelines to demonstrate a less environmentally damaging practicable alternative does not exist.

The Corps is not ignorant of this illegality. At the September 1, 2006 Review Team meeting, John Dorney of the Division of Water Quality told the group that the AP and EAP alternatives could not be permitted because they violated state law. We reminded the Corps of Mr. Dorney’s statement in our February 8, 2007 comment letter on the DEIS.³⁹

Furthermore, it appears that PCS has admitted that the AP alternative is illegal and finally relented from its position that it is the only practicable alternative. It recently submitted Alternative M. Critically, Alternative M does not impact any coastal wetlands.⁴⁰ While it would still contribute to significant degradation because of its expansive wetland impacts and violates state buffer mitigation requirements,⁴¹ at least Alternative M does not facially violate state law protecting coastal wetlands.

The AP Alternative also violates state law regarding buffer mitigation. State law requires buffer mitigation for impacts to riparian buffers in the Tar-Pamlico River basin.⁴² Under that law, PCS would be required to mitigate 280 acres of buffers to compensate for buffer impacts under the AP Alternative.⁴³ Based on an extensive search, PCS has only identified 76 to 158 acres for potential mitigation.⁴⁴ It acknowledged its inability to comply with the buffer mitigation requirements in a letter to the North Carolina Environmental Management Commission on February 20, 2006. That letter was included in the DEIS at Appendix I. In that letter it requested a variance from the

³⁶ *Id.*

³⁷ 15A NCAC 2B .0202(67).

³⁸ DEIS at 4-41 (emphasis added).

³⁹ Letter at 7.

⁴⁰ SDEIS at 6-18.

⁴¹ State law requires buffer mitigation for impacts in the Tar-Pamlico River Basin. 15A NCAC 2B .0260. Buffer impacts in Zone 1 require mitigation at a 3:1 ratio and impacts in Zone 2 require mitigation at a 1.5:1 ratio. 15A NCAC 2B .0260(3)(b). Alternative M would impact 44.84 acres of Zone 1 buffers and 30.23 acres of Zone 2 buffers, together requiring 179.87 acres of mitigation. PCS admits that despite an exhaustive search, it can only locate 76 to 158 acres of potential mitigation. DEIS at I-32. Alternative L may also be illegal, since it would require 132.06 acres of buffer mitigation, meaning PCS would have to successfully acquire 84% of the available mitigation to avoid violating buffer regulations.

⁴² 15A NCAC 2B .0260.

⁴³ DEIS Appx. I-32.

⁴⁴ *Id.*

applicable law; that request has since been withdrawn. We encourage the Corps to follow PCS's lead and to accept that the AP Alternative is illegal. The arbitrary decision in the SDEIS to require 15 years of mining in the wetland areas north of N.C. Highway 33 is capricious when based on the Applicant's clearly illegal application for a 15 year mine plan.

The Corps' insistence on making the AP Alternative the focus of its analysis is puzzling given its past treatment of similar situations. The Corps has previously disregarded alternatives that facially conflict with state law. In the Final EIS for the Bogue Inlet Channel Erosion Response Project,⁴⁵ the Corps rejected an alternative that included the installation of a hardened structure on the shoreline to control erosion.⁴⁶ In eliminating that alternative from consideration, the FEIS recognized that "the use of hard structures as a shoreline erosion response measure for ocean and inlet structures is **prohibited by the State of North Carolina.**"⁴⁷ After citing this specific prohibition on hardened structures, the FEIS concluded that "[t]herefore, this alternative has been eliminated from further consideration."⁴⁸ The unlawful alternative was also determined not to meet the project's purpose and need. This is a logical conclusion, since it is implicit in every applicant's purpose and need statement that the alternative that is ultimately selected complies with the law.

B. The AP Alternative does not meet the stated purpose and need.

The AP Alternative does not satisfy the Applicant's purpose and need because it fails to comply with state law and is not 20 years in length. PCS's stated purpose and need is "to continue mining its phosphate reserve in an economically viable fashion" on "approximately 20 year horizons."⁴⁹ It is implicit in the statement that this mining must be legal. The purpose and need could be rewritten so that it says that the purpose and need is "to continue mining its phosphate reserve in an economically viable fashion that complies with state and federal law." This change does not affect the substance of the statement, but expressly recognizes the otherwise implicit requirement that any alternative must be legal to satisfy the purpose and need. Since the AP Alternative violates at least two separate state laws, it cannot satisfy the Applicant's purpose and need.

The AP Alternative also fails to provide an "approximately 20 year horizon[]"⁵⁰ and therefore violates the purpose and need statement as expressed in the DEIS. As the Corps determined regarding the 12 year No Action Alternative, the AP Alternative "does not meet the applicant's purpose and need as it does not provide an approximately 20 year plan."⁵¹ If 15 years can be considered "approximately 20 years," then the Corps

⁴⁵ FINAL ENVIRONMENTAL IMPACT STATEMENT: BOGUE INLET CHANNEL EROSION RESPONSE PROJECT, March 2004 ("Bogue FEIS"), <http://www.saw.usace.army.mil/WETLANDS/Projects/BogueInlet/>.

⁴⁶ Bogue FEIS at 111.

⁴⁷ *Id.* (emphasis added)

⁴⁸ *Id.*

⁴⁹ DEIS at 1-4.

⁵⁰ DEIS at 1-4.

⁵¹ *Id.* at 2-12.

must articulate a reason why less than 15 years cannot be. Without any such justification, the Corps finding that the AP Alternative meets the purpose and need is arbitrary.

For the reasons stated above, the Corps cannot rationally rely on the clearly illegal AP Alternative to impose a requirement that any practicable alternative provide 15 years of mining north of N.C. Highway 33.⁵² To the extent it is just accepting the Applicant's result driven premise, the Corps has failed to exercise the independent judgment of project purpose and need required by Corps regulations.⁵³ The Corps relies on that 15 year cutoff because it "involves no relocation during the initial 15 years."⁵⁴ As discussed above, no mine plan has been presented that can legally mine 15 consecutive years without relocation. We do not doubt that the Applicant could devise a mine plan that could mine 20 or more years in NCPC if allowed to entirely disregard the law. But that cannot be the baseline.

Considering the alternatives that do not facially violate the coastal wetlands use prohibitions or buffer mitigation requirements shows the error in relying on the AP Alternative's illegal 15 consecutive years of mining. The L, SCR and SJA Alternatives must relocate to a new mine pit after 8, 8 and 9 years respectively. If the Corps continues to believe that the Applicant must be able to mine north of N.C. Highway 33 for a time period equal to the longest consecutive mining that can be done in NCPC, then it should consider mine plans that allow 9 years of mining north of N.C. Highway 33. That, after all, is the maximum number of years that NCPC can be mined without facially violating state law, though even the legality of these alternatives is not assured.⁵⁵ Considering this time frame, the Corps could consider the EPA's request to reduce mining impacts in the NCPC tract by eliminating mining between the tributaries that feed South Creek.

IV. The SDEIS Economic Analysis Relies on Outdated Information, Makes Improper Comparisons and Lacks Critical Elements for the Corps' Practicability Determination.

The SDEIS introduces for the first time a new economic analysis to determine practicability of alternatives. It cryptically presents this new economic analysis that it appears the Corps believes changes the economic outlook on all of the alternatives considered in the DEIS. In revealing bits and pieces of this new analysis, the SDEIS includes a series of flaws that entirely undermine its value. First, the SDEIS fails to acknowledge the recent dramatic improvement in the fertilizer market. Second, the SDEIS continues to use the AP and EAP Alternatives, alternatives that the Corps knows are illegal and cannot be permitted, as the baseline for evaluation of the practicability of

⁵² The Corps has mentioned in the past that it believes re-evaluating its reliance on the 15 year time frame for the economic analysis would be arbitrary. This is an unconvincing argument since the Corps has furtively abandoned the original cost model in favor of the "cash cost" model in this SDEIS.

⁵³ See 40 C.F.R. 1506.5(c).

⁵⁴ SDEIS Summary at c.

⁵⁵ It is not clear that these alternatives could comply with state law considering the substantial buffer mitigation that would be required. PCS would have to demonstrate an incredible success rate in acquiring potential buffer mitigation sites in order to meet the buffer mitigation requirements for any of these alternatives.

new Alternatives L and M. Third, the SDEIS fails to justify or explain the application of the new “cash cost” economic analysis. Finally, the SDEIS does not produce a cost/ton concentrate figure, the basis for determining practicability. While each of these flaws could individually devalue the document, together they undermine the entire economic analysis and conclusion in the SDEIS.

A. PCS’s improved economic outlook must be considered in the economic evaluation.

In the time period between the DEIS and the SDEIS, the economic outlook for PCS dramatically improved; yet the SDEIS does not reflect this important change. According to the DEIS Section 2.7.3, “the Corps has used sales of finished products as an indicator of the operations [sic] economic performance.”⁵⁶ That section also pointed out that “Diammonium Phosphate (DAP) and Monoammonium Phosphate (MAP) remains a major part of PCS Aurora’s product mix.”⁵⁷ The Corps based its analysis of economic practicability on these facts and a finding that “the global phosphate fertilizer market will not experience significant increases in price”⁵⁸ and that PCS “will not experience more favorable economic conditions than those under which they are currently operating.”⁵⁹ Following the release of the DEIS at least two factors have proven these assumptions false. First, there has been an ethanol boom driven by a move towards alternative fuels and federal subsidies. Second, large populations in China and India have moved into the middle class and changed their diets in ways that increase demand for fertilizers.

The ethanol boom and its effects on the corn and fertilizer markets have been widely publicized; it is unclear why the Corps has not found these impacts worth addressing in the SDEIS. The effects of the ethanol production expansion were clear as early as March 16, 2007. At that time, U.S. farmers were “expected to plant record corn acreage” that was to be accompanied by “higher fertilizer costs” that were “expected to increase.”⁶⁰ At that time, MAP and DAP prices had already “risen by up to \$80 a ton.” The Fertilizer Institute confirmed this trend on July 12, 2007, issuing a press release identifying “increased demand for corn used in ethanol production and natural gas prices as the primary drivers behind fertilizer prices.”⁶¹ In fact, “[a]verage prices paid by U.S. farmers reached the **highest level on record in April this year.**”⁶² The Fertilizer Institute projects a continued high demand, noting that “[e]thanol plants under construction are expected to add another 6.2 billion gallons of capacity” and that “U.S. ethanol production could easily reach 11 billion gallons in 2011.”⁶³

⁵⁶ DEIS at 2-17.

⁵⁷ *Id.*

⁵⁸ *Id.* at 2-19.

⁵⁹ *Id.*

⁶⁰ *Fertilizer Demand in US Expected to Rise Thanks to Ethanol*, AXCESS NEWS, March 16, 2007, at 1, (Attached as Exhibit A).

⁶¹ Press Release, The Fertilizer Institute, The Fertilizer Institute Releases Fertilizer Price Brochure: Fertilizer Prices Impacted by Global Demand, Ethanol Boom, Natural Gas Prices (July 12, 2007) (Attached as Exhibit B).

⁶² *Id.* (emphasis added)

⁶³ *Id.*

The Fertilizer Institutes also recognizes increasing affluence around the world as a cause of increased fertilizer demand. “[P]hosphate demand grew by 19 percent from fiscal year 2001 to 2006.”⁶⁴ “China, India and Brazil are the three largest contributors to the growth in world **demand**.”⁶⁵ As these populations grow, so will their demand for phosphate. This trend is already being observed in Asia, where “growing affluence has led to an increase in demand for meat, which in turn has driven demand for grain to feed livestock.”⁶⁶ This increase in grain demand for meat production and ethanol has resulted in a “boon for fertilizer companies.”⁶⁷

The impact of this increased demand has been undeniably positive for PCS Phosphate. In fact, “Potash proved to be the most popular fertilizer company among Pro investors”⁶⁸ in the third quarter of 2007 and “the favorite fertilizer stock among tickerspy members.”⁶⁹

PCS’s own reports confirm this record breaking growth of the fertilizer market. According to their Securities and Exchange Commission filings, “[h]igher prices and continuing strong demand resulted in record phosphate gross margin of \$129.9 million for the quarter, compared to \$29.8 million in the year-earlier period. This raised our phosphate gross margin to \$290.9 million for the first nine months of 2007.”⁷⁰ It is clear from these filings that PCS Phosphate has benefited from the growing demand for fertilizers worldwide. It must be assumed, absent evidence to the contrary, that the Aurora facility has also benefited. PCS has confirmed as much in their discussions with the Corps, admitting that business is very good.⁷¹ While PCS attempts to downplay the impact of these improved conditions with claims of market volatility, the market has been so profitable that the amount PCS exceeded its goals for this year would cover the cost difference between any of the alternatives.⁷²

Rather than providing evidence contradicting this improved market, PCS’s arguments to the Corps show that the Aurora plant has benefited from the improving fertilizer market. In August of 2003, PCS eagerly pointed out that the Aurora facility was failing to meet PotashCorp Guidelines for Business Unit Performance.⁷³ Said another way, PCS Phosphate Aurora was not making an adequate profit to satisfy their parent company. It based this argument on a finding that its Cash Flow Return on Investments did not meet PotashCorp standards.⁷⁴ PCS also argued as recently as February that the

⁶⁴ *Id.*

⁶⁵ *Id.* (emphasis added).

⁶⁶ *Fertilizer Stocks Boosted by Global Demand, Ethanol Subsidies*, INDIE RESEARCH, at 1, (Attached as Exhibit C).

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ Available at <http://biz.yahoo.com/e/071107/pot10-q.html>, (emphasis added) (Attached as Exhibit D).

⁷¹ Corps’ notes of 10/04/07 meeting (Attached as Exhibit E).

⁷² Letter from Wakeman to Corps of 12/28/07, at 9 (Attached as Exhibit F).

⁷³ Letter from Smith to Walker of August 30, 2006, at 8, DEIS Appx. D.

⁷⁴ *Id.*

Corps should consider both “Reference to historical operating **income performance data**” and “PotashCorp guidelines for business unit performance.”⁷⁵

Following the release of the DEIS, and after the fertilizer market has considerably improved, PCS is discouraging consideration of “profits,” preferring only a comparison of alternatives’ costs. According to Mr. Smith, “PCS continues to encourage the Corps and EPA to focus on cost comparisons of alternatives. Evaluations of profitability, **or factors that correlate to profitability**, are not appropriate in this process.”⁷⁶ PCS wants to have its cake and eat it too. When it is failing to meet profitability standards set by its parent company, those shortcomings should be considered in the practicability analysis. But when the fertilizer market has improved considerably and PCS Phosphate is reaping record breaking profits, those same factors “are not appropriate in this process.” The Corps should not engage in the selective evaluation that PCS promotes. Rather, the Corps should look to PCS’s improved financial standing as confirmation that the market has improved and the economic analysis must be reopened and recalculated.

The Corps has been wary to discuss profitability, and we do not introduce these findings to encourage the Corps to determine PCS’s appropriate level of profit margin. We introduce this information to show that the statements from the DEIS that “the global phosphate fertilizer market will not experience significant increases in price”⁷⁷ and that PCS “will not experience more favorable economic conditions than those under which they are currently operating”⁷⁸ are demonstrably false. These reports clearly show that the fertilizer demand has increased substantially, that domestic and international demand is expected to continue to increase and that PCS is directly benefiting from this improved demand. By choosing not to revise the economic analysis in the SDEIS to reflect this drastic shift in the fertilizer market, the Corps facilitates the destruction of wetlands that could practicably be avoided. No permit can be issued based on the outdated economic outlook in the DEIS. A second supplement must be drafted to incorporate this new economic picture. As it is, the Corps’ economic analysis is built on a false premise and foundation and has no value.

B. The economic analysis improperly relies on illegal alternatives as the cost baseline.

The SDEIS continues and further amplifies a fundamental mistake of the DEIS by comparing the costs of all alternatives to the AP and EAP Alternatives. As the Corps is aware, these alternatives clearly violate state law and cannot be permitted under state law. In addition, those alternatives would result in significant degradation and cannot be permitted under the 404(b) Guidelines. Moving forward, the Corps should acknowledge the unlawfulness of these alternatives and discontinue their inclusion in any further analysis. Under no circumstances can the Corps use these illegal alternatives as a baseline. By making them the focal point of the SDEIS, as they were in the DEIS, the

⁷⁵ Letter from Smith to Walker of 02/07/07, at 1. (emphasis added)

⁷⁶ Email from Smith to Walker of 06/18/07, at 1, (Attached as Exhibit G). (emphasis added)

⁷⁷ DEIS at 2-19.

⁷⁸ *Id.*

Corps entirely distorts the economic analysis. The Corps must make efforts to correct this distortion, with supplemental analysis that compares potentially viable alternatives, those that are not facially illegal.

As discussed above, it is no secret that the AP, EAPA and EAPB Alternatives are illegal, cannot be permitted by state law and therefore cannot be practicable alternatives. Each violates state law prohibiting non-water dependent uses in coastal wetlands and state law requiring buffer mitigation. It appears as though the legality of potential alternatives is of no concern to the Corps, since it has given these illegal alternatives elevated status in both the DEIS and the SDEIS.

The Corps' treatment of these plainly unlawful alternatives is baffling. Any applicant could develop cheaper methods of performing a desired task by shortcutting the applicable law. But complying with the law is a cost that must be considered. PCS could have omitted its costs for operating labor, maintenance labor or overhead to make the AP and EAP Alternatives less expensive. If it had done so, the Corps would have almost assuredly rejected the cost calculations as incomplete and biased. Instead, the company has omitted the costs of complying with the law, the costs of avoiding coastal wetlands that cannot be legally mined and buffers impacts that cannot be mitigated. The Corps has embraced that omission. The DEIS and SDEIS focus on these artificially lowered costs as the baseline, and in doing so, distort the economic analysis. The cost differences between any of the potentially legal alternatives and the AP and EAP Alternatives are simply irrelevant. We are certain that if allowed to disregard additional legal requirements, the Applicant could develop an even less expensive mining plan. That too would be irrelevant. The only cost comparisons that are relevant and rational are those between reasonable alternatives that include the cost of complying with the law. The AP and EAP Alternatives errantly omit that cost.

The Corps' focus on the AP and EAP Alternatives in the SDEIS is not a harmless error. Rather, by focusing on the artificially reduced costs and illegally expanded time frames of these alternatives, the Corps has tilted the economic analysis in favor of more extractive mine plans that destroy more wetlands and streams.⁷⁹ Comparisons to the AP and EAP Alternatives invariably make the potentially legal alternatives seem overly expensive because they avoid areas that cannot be mined and include jumps that are necessary when those areas are avoided.

Moreover, the Corps' continued reliance on the AP Alternative as the baseline for its analysis raises questions regarding whether the agency has fulfilled its duty to independently evaluate the NEPA documents. By law, when the Corps delegates drafting of the EIS to a contractor, as was done with CZR Incorporated here, it "shall independently evaluate the statement prior to its approval and take responsibility for its scope and contents."⁸⁰ An independent evaluation of the DEIS and SDEIS could not accept the central role of the AP Alternative. It is a facially illegal alternative that is an outlier in terms of both cost and environmental impact when compared to the other

⁷⁹ See generally SDEIS Summary.

⁸⁰ 40 C.F.R. § 1506.5(c).

alternatives. Its mere inclusion in the alternatives analysis would benefit the Applicant. its role as the focal point stacks the deck against reasonable alternatives in such a way that a favorable outcome for PCS is ensured.

- C. The SDEIS does not justify the new “cash cost” model or account for its flaws.

The SDEIS fails to fully analyze the “cash cost” model and its distortion of the relationship between the costs and benefits of mining in the S33 tract. As noted in the summary but not the substance of the SDEIS, the “cash cost” model was developed to account for the relocation of mine pits in all alternatives in the first 15 years. The Applicant claims that this new analysis is more appropriate than the original analysis used in the DEIS, because it concentrates relocation costs within the 15 year window that is considered by the Corps. It is important to remember that the original cost model in the DEIS “is the same one PCS is currently using for all its strategic planning.”⁸¹ This new 15 year “cash cost” model was introduced by PCS simply to support its permitting strategy. Rather than clarifying the economic picture, the Applicant’s new “cash cost” model, further distorts the economic picture and skews the economic analysis.

This is another example of where the Corps’ willingness to exclude the cost of complying with the law has distorted its analysis. The apparent justification for concentrating all relocation costs within the first 15 years with the “cash cost” model is that “[t]he AP and EAP alternatives involve no relocation during the initial 15 years.”⁸² The SDEIS fails to note that the only reason that is true is because these alternatives require mining areas that cannot be legally mined. It is clear looking at the alternatives that do not directly conflict with state law that no legal alternative can mine 15 years without relocating. At this point, neither PCS nor the Corps has identified any alternative that both 1) meets state law, 2) does not result in significant degradation of aquatic resources and 3) provides 15 years of mining without relocation. Therefore, if this is the Corps’ justification for the new “cash cost” model, then that model is not justified.

The new “cash cost” model treats costs and benefits asymmetrically. In the original cost model, the cost of opening a new mine pit was amortized over the life of the mine pit. Said another way, the cost of opening the mine pit was spread over the time period that the pit would provide an economic benefit. Since opening the pit is necessary to gain the benefit of mining years later, this is a logical amortization and is how PCS actually accounts for their costs.⁸³ The “cash cost” model on the other hand front loads the costs of opening the pit, concentrating the losses in a few years and consequently amplifying benefits over the life of the mine after those few years. In this instance, PCS has attempted to support their previous contention that only AP and EAPA are practicable, by frontloading the costs of opening S33 so that they will be included in the Corps’ economic analysis. Doing so makes mining the rest of S33 more profitable since costs are reduced during years outside the Corps’ economic window, but the “cash cost”

⁸¹ DEIS at A-142.

⁸² SDEIS summary at c.

⁸³ DEIS at A-142.

model fails to recognize this benefit. PCS's ultimate costs and benefits are similar over the life of mining S33 in either plan.⁸⁴ Under the "cash cost" model, they are simply pushing those costs into the Corps' window of analysis in an effort to get the Corps to change its answer to the practicability question. The Corps did not agree with PCS's first attempt to get everything but AP and EAP deemed impracticable and should resist this new, fundamentally flawed invitation to do so.

PCS's contention that the DEIS practicability analysis calculated using its original cost model distorts economic reality is disingenuous. One would think that if the Corps' analysis was as off base as PCS claims, then the company would have complained about it immediately upon its release. To the contrary, PCS admits that "the cost model is the same one that PCS is currently using for all its strategic planning."⁸⁵ PCS has maintained throughout the NEPA process that only AP and EAPA are practicable alternatives, and anticipated that the original cost model would support that belief.⁸⁶ By PCS's calculations, it did so. Ross Smith, Environmental Affairs Manager for PCS, sent an 11 page letter on August 30, 2006 arguing that only AP and EAPA were practicable based on the 15 year segments of the original cost model analyzed by the Corps. This letter was sent just one month before the DEIS was released and well after PCS first received a draft. Accepting the Corps' use of the original cost model, Mr. Smith argued that the phosphate product markets were declining, that the Aurora facility was not meeting Potash Corp Business Unit Performance Standards, that mining south of N.C. Highway 33 was logistically impossible and that un-mined phosphate reserves should be considered in the economic analysis. Mr. Smith did not dispute the Corps' application of the original cost model in the economic practicability analysis. Not in one page, one paragraph or one sentence. This claimed distortion that is now a manifest injustice according to PCS was not mentioned prior to the DEIS.

In the DEIS, the Corps' disagreed with PCS's calculations, determining that only S33, DL1B and the No Action Alternative were impracticable.⁸⁷ The Corps could not find the other alternatives impracticable, meaning that by default they were practicable.⁸⁸ Following this determination, PCS sent another letter to the Corps arguing the impracticability of all but the AP and EAPA Alternatives.⁸⁹ It was in this February letter that PCS's claims regarding the use of the original cost model first emerged. The only issue addressed in this seven page letter was the Corps' use of the 15 year economic evaluation term. In the five months between its August and February letters, PCS's arguments shifted from a variety of claims to one previously unidentified argument. The company first made its concerns about the cost model known to the Review Team at its

⁸⁴ For example, the overall costs computed by the "cash cost" model for Alternative L is \$5,304,777 compared to \$5,342,853 under the original cost model. SDEIS Section 8.0. For Alternative M, the "cash cost" model calculates total operating costs as \$5,687,035 compared to \$5,725,111 under the original cost model. This comparison would be more complete if "cash cost" analyses of all alternatives were included in the SDEIS.

⁸⁵ DEIS at A-142.

⁸⁶ Letter from Smith to Walker of 08/30/06, Letter from Smith to Walker of 02/07/07, (DEIS Appx. D).

⁸⁷ DEIS at 2-19.

⁸⁸ *Id.*

⁸⁹ Letter from Smith to Walker of 02/07/07.

July 24, 2007 meeting, more than 10 months after the DEIS and six years after the initiation of the permit process. It is difficult to believe that PCS just now realizes its original cost model “distorts” the practicability analysis. What is clear is that the company’s arguments why the original cost model supported their practicability claims were unsuccessful, so they created a new “cash cost” model that they anticipate will give a more favorable answer. Without further demonstration why the original cost model, used by PCS in its own planning, is inadequate and the new “cash cost” model is appropriate, the Corps must reject this invitation to fundamentally alter the economic practicability analysis.

The Corps is now confronted with two flawed models. Both the original cost model and the “cash cost” model have weaknesses that originate from the truncation of the models at 15 years. The impacts of those flaws are considerably different. The original cost model takes a cautious approach, erring on the side of protecting wetlands, while the “cash cost” model promotes additional wetland impacts by considering costs, but not benefits of opening the S33 mine pit.

Going forward, the Corps must take a new look at the economic analysis, evaluating each alternative over as much of the life of the plan as is possible. There are two ways the Corps can do this. First, it can shorten each mine plan to 8-15 years⁹⁰ and then evaluate the practicability of the alternatives. This approach satisfies two goals. It is within the 15 year economic time frame that the Corps has stated it is comfortable examining. These alternatives would also fall within the approximate range of the AP Alternative and would therefore provide a long-term mine plan. The second way that the Corps can better evaluate the practicability of alternatives is to extend the analysis to the shortest potentially practicable alternative, the S33 Alternative (25 years), the DL1B Alternative (27 years) or SCR (32 years).⁹¹ Extending the analysis in this way, in addition to making the changes noted in Dr. Wakeman’s comment letter, will mitigate some of the flaws in the original cost model.

If the Corps chooses one of the truncated models, it must choose the original cost model. While it has its flaws, it has been the basis for the economic practicability discussion through the majority of the permitting process, it represents PCS’s actual business practice, its application to all alternatives has been disclosed and it provides information relevant to the practicability determination included in the DEIS. In contrast, the “cash cost” model was recently introduced, it does not represent PCS’s practice, its application to all alternatives has not been disclosed and it is unclear how it relates to

⁹⁰ Based on the representations of PCS, alternatives of 8-15 years would be adequate. PCS has developed a reputation for overstating its minimum requirements. In the process leading to the 1997 permit, it maintained that it needed a permit to mine all of NCPC or would go out of business. It did not receive the permit and did not go out of business. During this permit process the company has pleaded that it must have AP or EAPA to continue. It has since abandoned that claim and submitted Alternative M, demonstrating again that it did not need what it claimed it had to have. Based on this history, any claim that all alternatives must be at least 15 years in length should be dismissed. If PCS actually required 15 years of mining, then they would have requested 25-30 years of mining.

⁹¹ Any use of the original cost model must take into consideration the flaws highlighted by Dr. Doug Wakeman in his letter to the Corps of 12/28/07.

practicability. It lacks the key criterion, cost per ton concentrate that the Corps' DEIS practicability determination relied on. These shortcomings of the "cash cost" model undermine its future use.

The Corps should develop a second Supplement to the DEIS that openly revamps the economic analysis to provide a clear, accurate depiction of the economic outlook. Accepting a flawed, result-driven analysis that is skewed to PCS's advantage over one that the Company claims is skewed in favor of protecting wetlands is not a justifiable decision. It is not rational.

A new analysis that accounts for both the amortized costs and the costs of complying with the law may even allow new alternatives to be developed that will avoid and minimize wetlands to the maximum extent. We join the resource agencies in urging the Corps to consider new, less destructive alternatives.

- D. The information provided by the "cash cost" model cannot form the basis for the Corps' practicability determination.

Momentarily putting aside the apparent flaws in using the "cash cost" model for any purpose, based on the information presented in the SDEIS it cannot form the basis for the Corps' practicability determination. There are two unavoidable problems with the "cash cost" information presented in the SDEIS.

First, the scant information that is included in the SDEIS regarding the "cash cost" model does not include any information regarding the cost per ton of concentrate. In the DEIS economic analysis, the cost per ton figure was the defining criterion that the Corps used in determining practicability. The Corps concluded that the No Action, S33AP, and DL1B Alternatives were not practicable because the cost per ton concentrate was too high.⁹² However, cost per ton concentrate of the remaining alternatives were all "similar to the current national averages and PCS's reported historic mine operating costs."⁹³ Therefore, the Corps could not deem those alternatives economically impracticable. The Corps recommends reading the SDEIS together with the DEIS, and it is structured as an extension of the DEIS,⁹⁴ so it must be assumed that the cost per ton concentrate will be the defining criterion for determining practicability in the SDEIS. Without similar data for each of the alternatives under the "cash cost" model, it is unclear how the Corps can make any determination on practicability. Unless it changes its method of determination entirely, it cannot. If the Corps has developed a new method of determining practicability, it should reveal that method. The practicability determination controls the alternatives analysis and is the type of information that must be included in NEPA documentation.

The second fatal flaw of the "cash cost" model, as represented by the spreadsheets appended to the SDEIS, is that it does not evaluate any of the alternatives from the DEIS.

⁹² DEIS at 2-19.

⁹³ *Id.*

⁹⁴ SDEIS Summary at c.

This precludes comparisons among the alternatives. Following the SDEIS, the analyses of all alternatives under the original cost model have been disclosed. But only the analyses of alternatives L and M under the “cash cost” model have been disclosed. Even if the “cash cost” model included cost per ton of concentrate, the determining factor in the Corps’ practicability determination, it cannot be the basis for any determination because it does not consider the DEIS alternatives. Since the original cost model is the only model that compares all alternatives and includes the cost per ton criterion, and is therefore the only model that can be used, those alternatives that were practicable in the DEIS must remain practicable.

The Corps’ avoidance of a forthright discussion of practicability is troubling. Although the Corps has “tentatively determined that SCR is impracticable”⁹⁵ in private, it publicly denies such a momentous shift in position by failing to alter the practicability analysis from the DEIS. We suspect that the Corps plans to make this “tentative” finding permanent in the FEIS without public disclosure, review and ability to comment, cornerstones essential to the NEPA process. Notes of the Corps’ discussions with PCS and selected members of the Review Team certainly indicate that this will happen. We encourage the Corps to be open in NEPA documents and urge the agency to disclose to the public essential elements of this analysis that it has disclosed in private to a select few. The economic analysis is the driver in the practicability analysis, and the public should not have to read between the lines of the summary to get a glimpse of the Corps’ intentions to drastically alter that analysis.

VI. The Summary is Not Supported by the Body of the SDEIS.

The summary of the SDEIS is not supported by the substance of the document. Rather than providing an overview of the information contained within the SDEIS, the summary of the SDEIS makes claims and assertions that are entirely unsupported by the text. The bulk of these missteps are a consequence of the Corps’ decision not to update the economic analysis despite the addition of two new alternatives and an entirely new cost model.

The most obvious example of the summary adding new information is the attempted justification and presentation of the new “cash cost” model. A reader could reasonably expect from the summary that more detailed information regarding this shifting economic analysis could be found in “2.7 Economic Evaluation of Alternative Boundaries.”⁹⁶ However, the SDEIS reports that “This section of the DEIS and its subsections remain unchanged at this time.”⁹⁷ Section 8.0 is no more enlightening as to what information justifies the new cost model or what the new model reveals. The “cash cost model summaries” in that section do not convey any information explaining the need, development or usefulness of the “cash cost” model. This dearth of information is critical. The summary is written as if more detailed information were included in the

⁹⁵ Corps’ notes of July 24, 2007 Review Team meeting supplied pursuant to SELC and PTRF FOIA request of November 20, 2007.

⁹⁶ SDEIS at 2-3.

⁹⁷ *Id.*

substance of the document. But the summary's overview of the Corps and Applicant's development of the SDEIS is wholly inadequate when no information is included in the substance of the document to support the findings and contentions asserted.

The summary asserts "that the exploration of an additional alternative, Alternative 'L', is necessary."⁹⁸ Alternative L is a bloated version of SCR, with substantially more wetland mining in both the Bonnerton and S33 tracts. As the Corps is well aware, it can only legally permit the least environmentally damaging practicable alternative. Since SCR is less environmentally damaging than L, Alternative L cannot be permitted. It is hardly clear why an alternative that cannot be permitted is "necessary."

The Corps' conclusion that Alternative L is "necessary" furtively suggests that it no longer finds alternatives SCRA and SCRB practicable, since the Corps would be obligated to pick either of these over L. But the SDEIS provides no evidence that indicates that either SCRA or SCRB are no longer practicable or that any information exists that could eventually support that conclusion. First, the SDEIS states that the economic analysis from the "DEIS and its subsections remain unchanged at this time."⁹⁹ A review of Section 8.0 of the SDEIS shows that there is no new information regarding the SCR alternatives. Neither was analyzed under the "cash cost" model. The results from the original model have not been altered. No new information regarding PCS's historical mining costs or the national average cost is included. The only comparison that is made shows that SCRA is less expensive than L and that SCRB is comparable.¹⁰⁰ With no new information in the SDEIS, it does not follow how the Corps could re-evaluate the practicability of the SCR alternatives. There is no basis for determining that either is impracticable and therefore the evaluation of L is superfluous. Unfortunately, the efforts wasted on L could have been invested in developing an alternative that includes less wetland mining, and therefore would avoid causing substantial degradation of the aquatic environment as requested in agency comments and PTRF's previous comments on the DEIS.

VII. The Proposed Economic Re-opener Will Allow Mining in Sensitive Areas.

The economic re-opener proposed in the summary is inadequate. As discussed above, the economic re-evaluation should be done now. The fertilizer market has drastically changed for the better between the DEIS and the SDEIS due to the ethanol boom. This improvement must be considered in this permitting process and not delayed for 8 years. The proposed re-opener in year 8 would not have any effect until year 12 of mining. At that point, many of the most sensitive wetlands on the Bonnerton tract would already be eliminated. Comparing the SCR and L Alternatives' Bonnerton mine plans shows that in the second part of year 11 and the first part of year 12, the L mining boundary would impact large stretches of nonriverine wet hardwood forests. These forests consist of swamp chestnut oak (*Quercus nigra*) and red bay (*Persea palustris*).

⁹⁸ SDEIS Summary at a.

⁹⁹ SDEIS at 2-3.

¹⁰⁰ SDEIS at 6-7.

These types of forests are rapidly disappearing.¹⁰¹ Due to its rarity and age, the stretch of nonriverine wet hardwood forest that would be eliminated under L, but avoided under SCR, has been recognized as a state significant natural area and is being considered for recognition as a nationally significant natural area.¹⁰² Since the re-opener would only kick in after year 12, these forests would be mined even if PCS could practicably avoid them. To have any significant effect, the proposed re-opener examination period must be completed early enough to allow time for re-evaluation prior to the mining of these stretches of irreplaceable wetland hardwood forest.

VIII. Conclusion

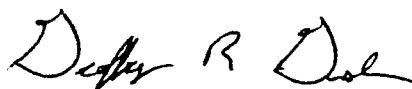
In conclusion, we request that the Corps address these issues in a second supplement to the DEIS. A supplement is required when "there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."¹⁰³ The dramatic change in the fertilizer market and PCS's economic standing is critical new information that shapes the economic practicability analysis and directly determines the scope of environmental impact. This information necessitates a second supplement. Further, when "a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion."¹⁰⁴ The DEIS combined with the SDEIS is "so inadequate to preclude a meaningful analysis" for the reasons discussed above.

We thank you for the opportunity to comment during this process. Please contact us if we can provide any additional information or clarify our comments in any way.

Sincerely,



Derb Carter, Jr.
Director, Carolinas Office
Southern Environmental Law Center



Geoffrey R. Gisler
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¹⁰¹ "Nonriverine Wet Hardwood Forests in North Carolina: Status and Trends." Michael P. Schafale, NC Natural Heritage Program March 1999 at 7. (Exhibit H)

¹⁰² Pers. comm. Becky Fox, U.S. EPA.

¹⁰³ 40 C.F.R. § 1502.9(c).

¹⁰⁴ 40 C.F.R. § 1502.9(a).

Attachment 3

SELCT PF
401 Certification Comment Letter
07/07/2008

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February 8, 2007

U.S. Army Corps of Engineers
Wilmington District
Regulatory Division
69 Darlington Avenue
Wilmington, NC 28403

Re: PCS Phosphate, File # 2001-10096

To Whom It May Concern:

The Southern Environmental Law Center ("SELC") submits these comments on behalf of the Pamlico-Tar River Foundation ("PTRF"). PTRF is a private, non-profit organization that has been dedicated to protecting, preserving, and promoting the Tar-Pamlico River and its watershed since 1981. SELC is a private, non-profit legal organization that seeks to protect and preserve the Southeastern environment. Additionally, we endorse the separate comments submitted by the Pamlico-Tar River Foundation as well as those submitted by Environmental Defense.

I. OVERVIEW

The draft environmental impact statement ("EIS") in the above-referenced matter is an extensive document that covers many important issues relating to Potash Corporation of Saskatchewan's ("PCS") proposed mine expansion. There are many things that the document does well, it provides a detailed description of the mining process, the area to be impacted, and each of the alternatives evaluated. Due to the length of the document, and the corresponding length of these comments, the successes of the document are not highlighted in this comment letter. Notwithstanding that omission, SELC and PTRF appreciate the Corps' effort in developing the EIS. This comment letter will primarily highlight areas in which the EIS can be strengthened or where more information should be provided to complete the document. A brief summary of those comments follows below.

The purpose and need is too narrow.

- The stated purpose and need excludes reasonable alternatives and foreordains mining in the NCPC tract.

- The purpose and need should be rewritten to represent the general goal of the proposed project: to provide a reliable, economical source of phosphate to the manufacturing plant.

The alternatives analysis is inadequate.

- The alternatives evaluated each seek to accomplish different goals, and therefore cannot provide the information necessary to determine whether wetlands have been avoided to the maximum extent practicable as required by the Guidelines.
- Multiple reasonable alternatives that are potentially practicable and less environmentally damaging than the current alternatives were not considered.

The economics analysis is incomplete.

- The economic analysis does not present the information in a manner that is understandable by the public. Important information on cost calculations is either omitted or buried in the appendix.
- The economic analysis does not provide enough information to allow the public to understand the basis of practicability determinations.

The EIS does not provide the information necessary for the Corps to make the required Section 404 determinations.

- The environmental impacts of the AP alternative are not fully discussed. Important direct and indirect impacts are omitted or only briefly discussed.
- The mitigation plan does not provide enough detail for a significant degradation determination. Fatally, it does not identify mitigation sites or how those sites will be developed.
- The EIS relies on scientifically inadequate studies for the vast majority of its claims that there will be no adverse impact to the aquatic ecosystem. These studies should be substantiated with peer reviewed studies.

The EIS does not adequately consider supplemental restrictions.

- The discussion of financial assurances does not adequately consider PCS' economic situation and the potential costs of reclamation and mitigation.
- The EIS should consider instituting conditional mining areas due to the unprecedented nature of the proposed impacts, the potential catastrophic effects, and extremely limited understanding of PCS' ability to prevent those effects from occurring.

II. STATUTORY CONTEXT

This EIS was prepared to comply with the National Environmental Policy Act ("NEPA"). Under NEPA, the purpose of an EIS is to incorporate the policies and goals of NEPA into actions of the federal government. 40 C.F.R § 1502.1. The broad purpose of NEPA represented in those policies and goals is to "sensitize all federal agencies to the environment in order to foster precious resource preservation." Nat'l Audubon Soc'y v.

Dep't of the Navy, 422 F.3d 174, 184 (4th Cir. 2005). The EIS process promotes that purpose in two ways. First, it guarantees that federal agencies will take an objective, thorough look at the environmental impacts of a proposed action so that the decision making agency makes an informed decision. Id. The second way it furthers NEPA's purpose is that it requires the agency to widely disclose the environmental impacts of the proposed action, ensuring that other governmental agencies and the public have the opportunity to inform themselves and comment on the action. Id. In order to fulfill that role, the evaluation of the environmental impacts must provide enough information to allow those who were not a part of the development process to gain a complete understanding of the issues surrounding the project. See Sierra Club v. U.S. Army Corps of Eng'rs, 772 F.2d 1043, 1054 (1985).

In a Section 404 permit application, an EIS serves as the basis for the evaluation of the permit application. Therefore, it must provide the necessary information for the Corps to make the determinations required under the Clean Water Act and its accompanying regulations, specifically the 404(b) Guidelines. The EIS must provide enough information for the Corps to determine if less environmentally damaging practicable alternatives exist and if the project would result in a significant degradation of the aquatic environment. The EIS must also provide the evidence of whether wetland impacts have been avoided to the maximum extent practicable, that the unavoidable wetland impacts have been minimized, and that there is adequate compensatory mitigation for those impacts.

III. DEIS FLAWS

A. Purpose and Need

The EIS must include the applicant's purpose and need. That statement should explain the underlying purpose and need to which the agency is responding. 40 C.F.R. § 1502.13. The purpose and need has much broader implications. The goal established in this section of the EIS provides the direction for the document and defines the realm of reasonable alternatives. See N.C. Alliance for Transp. Reform, Inc. v. U.S. DOT, 151 F. Supp. 2d 661, 686 (M.D.N.C. 2001). Therefore, the purpose and need must be broad; it cannot be narrowly defined so as to make the selection of a given alternative or action a "foreordained formality." Id. citing Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C. Cir. 1991). The purpose and need must reflect the "general" goal of the project, allowing for flexibility in selecting an alternative to meet that broader goal. See Van Abbema v. Fornell, 807 F.2d 633, 638 (7th Cir. 1986).

The applicant's stated purpose and need is too narrow. It does not meet the legal requirement that it state the general goal of the project and restricts the range of reasonable alternatives.

1. *The stated purpose and need requires mining in the project area.*

The DEIS defines the applicant's purpose and need in the first paragraph of Section 1.2.2 as follows:

The applicant's purpose and need is to continue mining its phosphate reserve in an economically viable fashion. More specifically, the applicant's purpose and need is to implement a long-term systematic and cost-effective mine advance within the project area for the ongoing PCS mine operation at Aurora, North Carolina.

DEIS at 1-4.

2. *The stated purpose and need is too narrow.*

The applicant's stated purpose and need does not meet the legal requirements, it is too narrow and does not represent the general goal of the project. PCS does not sell the phosphate ore it mines, but rather refines it into a variety of products. See DEIS at 1-1. The phosphate ore recovered in the mining process supplies the on-site plant. The purpose of mining within the project area is to supply the plant. Therefore, defining the purpose and need in terms that require mining is not only inconsistent with the remainder of the DEIS in that it treats mining as an end in and of itself, it does not represent the overall goal of the project. This restrictive purpose and need statement eliminates the consideration of alternative methods of meeting the ultimate goal, supplying the plant with phosphate ore in a reliable, economically viable manner. It is exactly this type of exclusion of viable alternatives that the regulations and case law prohibit.

3. *The purpose and need should be revised to reflect the general goal.*

The unlawful restrictions in the stated purpose and need should be corrected by rewriting the first paragraph in Section 1.2.2. To represent the general goal of the project, the paragraph should read: The applicant's purpose and need is to maintain a steady supply of phosphate ore to its Aurora processing plant in an economical and reliable manner. This purpose and need accounts for the general goal of the project: securing an economical, long term supply of phosphate ore for the processing plant. While this may ultimately result in selecting an alternative that includes mining, it does not foreordain a mining alternative and would allow the Corps to evaluate the full range of reasonable alternatives.

B. Alternatives Analysis

The EIS must evaluate a range of reasonable alternatives to the proposed action. 42 U.S.C. § 4332. This section is "the heart of the environmental impact statement," forming the substance of the EIS and providing the information necessary for an

informed decision. 40 C.F.R. § 1502.14. In order to fulfill this substantial role, the analysis should “sharply” define the issues and provide a “clear basis” for decision making both by the agency and the public. Id. It is “absolutely essential” that the analysis provide the decision maker with an understanding of the positive and negative aspects of each alternative. NRDC v. Callaway, 524 F.2d 79, 92-93 (2d Cir. 1975).

The EIS does not have to consider all possible alternatives and does not have to address those that are remote or speculative. Vt. Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 551 (1978); Miller v. U.S., 654 F.2d 513 (8th Cir. 1981). However, an agency cannot exclude an alternative because it only partially achieves the purpose of the project. See Town of Matthews v. U.S. DOT, 527 F. Supp. 1055, 1057-58 (W.D.N.C. 1981). The agency should also consider variations of alternatives that have already been discussed as long as the variations are not minor. See California v. Bergland, 483 F. Supp. 465, 489 (E.D. Cal. 1980), aff’d, California v. Block, 690 F.2d 753, 767-68 (9th Cir. 1982).

The alternatives analysis in Sections 2 through 4 of the DEIS is inadequate because it does not include the information necessary for the Corps to make the required determinations for a Section 404 permit, it does not give a complete analysis of the AP alternative, and it does not consider all reasonable alternatives.

1. The alternatives evaluated do not attempt to avoid wetland impacts to the maximum extent practicable.

Although practically the Corps evaluates much of the information regarding a project at the same time, the regulations require a sequential analysis in evaluating a Section 404 standard permit. See MEMORANDUM OF AGREEMENT BETWEEN THE ENVIRONMENTAL PROTECTION AGENCY AND THE DEPARTMENT OF THE ARMY CONCERNING THE DETERMINATION OF MITIGATION UNDER THE CLEAN WATER ACT SECTION 404(B)(1) GUIDELINES 3 (February 6, 1990) (“MOA”). The Corps is obligated first to determine that wetland impacts have been avoided to the maximum extent practicable, then implement measures to minimize unavoidable impacts, and finally to compensate for those impacts with mitigation. Id. Under the applicable regulations, the avoidance requirement means that only the least environmentally damaging practicable alternative can be permitted. Id.; 40 C.F.R. 230.10(c).

The alternatives evaluated in the DEIS do not allow the Corps to determine that wetland impacts have been avoided to the maximum extent practicable. They are designed based on other considerations which, though relevant, do not attempt to maximally avoid wetlands as required.

The alternatives that were evaluated in the DEIS each approach mining from a different perspective. They are focused on the applicant’s preference, avoiding certain areas, state agency jurisdiction, and the minimum mine operating requirements.

Individually, none of the alternatives attempt to avoid wetlands to the maximum extent practicable. Collectively, they do not provide the Corps with the information necessary to make the required avoidance determination. Due to their vastly different purposes, none of which is to maximally avoid wetland impacts, comparison of the alternatives to make an avoidance determination is impossible. The alternatives provide different options, some of which avoid more wetland impacts, but do not allow the Corps to determine how wetland impacts may be avoided to the maximum extent practicable.

The AP and EAP alternatives make no attempt to avoid wetlands to the maximum extent practicable. These alternatives were designed based on two considerations: (1) the location of the highest quality ore and (2) obtaining maximum efficiency with the mining equipment. DEIS at 2-10. Avoidance of wetlands was not a consideration in designing either of these alternatives.

The SCR alternative was developed through the review team process to be more environmentally sensitive than the AP and EAP alternatives, but still does not avoid wetlands to the maximum extent practicable. The boundary was designed to "avoid to the maximum extent possible, waterways and riparian corridors as well as those aquatic resources considered most valuable to the local aquatic ecosystem and most difficult to replace through compensatory mitigation." DEIS at 2-10. The boundary also protects more of the tributaries' drainage basins than the other alternatives. Id. Rather than attempting to avoid all wetlands to the maximum extent practicable, the SCR alternative selects certain areas that are to be avoided if possible. While prioritizing wetland value for protection purposes may be appropriate to minimize wetland impacts, the wetland impacts must first be found to be unavoidable. The SCR alternative skips this essential first step, it does not attempt to avoid overall wetland impacts to the maximum extent practicable, but rather attempts to avoid some wetland impacts to the "maximum extent possible."

The SJA alternative was also developed through the review team process. The SJA alternative was designed to avoid North Carolina Division of Water Quality ("NCDWQ") and Division of Coastal Management ("DCM") jurisdiction. DEIS at 2-10. No other consideration of wetland impacts was considered in developing this alternative. Since NCDWQ and DCM jurisdiction cannot be considered a substitute for avoiding wetlands to the maximum extent practicable, the SJA alternative does not allow the Corps to make the avoidance determination required by the regulations.

The DL1 alternative was designed to minimize mining on the NCPC tract. It was designed based on the minimum operating requirements of the mining equipment. DEIS at 2-10. The DL1 alternative is based solely on mining requirements; it does not attempt to avoid wetland impacts to the maximum extent practicable. Therefore it cannot assist the Corps in making the required avoidance determination.

While the Corps is not required to evaluate minor variations of existing alternatives, there are legitimate alternatives between the existing alternatives that could avoid more wetlands at a level that would be significant. The SCR alternative impacts 1,221 more acres of jurisdictional waters than the DL1 alternative. The SJA alternative impacts 2,746 more acres of jurisdictional waters than the DL1 alternative. There are several alternatives that could be evaluated between the SCR and SJA boundaries and the DL1 boundary that could be practicable and avoid significantly more wetlands than either the SCR or SJA alternatives. These alternatives would not be minor variations of existing alternatives, and would provide important information that would assist the Corps in making the required avoidance determination.

In order for the Corps to make the avoidance determination required by the regulations, the alternatives should attempt to find a line at which mining less would be impracticable, but mining more would impact avoidable wetlands. The Corps should evaluate alternatives that approach that line, one that is likely between the SCR and DL1 alternatives based on assumptions in the current economic analysis. By working with the applicant to develop an alternative between SCR and DL1 that could be practicable, then evaluating that alternative and others that avoid wetland impacts to a greater and lesser extent, the Corps can gain information to make the required avoidance determination. Without the information that analyzing these potential alternatives would provide, the Corps has no basis for determining that wetland impacts have been avoided to the maximum extent practicable. Since the purpose of the EIS is to provide this type of information, a supplemental EIS should evaluate alternatives that do so.

2. *The AP analysis is incomplete.*

In order to fulfill its role of making the environmental impacts of federal actions transparent, the EIS must put the public on notice of the pros and cons of each alternative evaluated. Without complete disclosure, the public cannot be expected to develop an informed opinion, one of the primary purposes of NEPA. As noted above, complete disclosure means providing enough information that those outside the development process, not on the review team, can acquire a complete understanding of the project. See Sierra Club v. U.S. Army Corps of Eng'rs, 772 F.2d 1043, 1054 (1985). The evaluation of the AP alternative fails to provide the necessary transparency because it does not disclose that the AP alternative cannot be permitted under state law.

The nature of the review team process that resulted in the draft EIS led to regular, in depth discussions of the alternatives between the Corps and several state agencies. During the September 1, 2006 review team meeting, John Dorney of the Division of Water Quality informed the review team that the AP alternative could not be permitted under state law. While the Corps should not be expected to approximate in a DEIS whether a proposal can be permitted under state law on all occasions, this is a unique situation. This is a high profile project that was the subject of detailed review for 6 years. Mr. Dorney, the representative of the agency responsible for issuing the necessary permit,

made clear to the review team that the AP alternative cannot be permitted. Moreover, the AP alternative is not even a "practicable" alternative under the 404(b) Guidelines because it is contrary to state law and thus not "available and capable of being done." 40 C.F.R. §230.10(2). In this situation the Corps should convey this information to the public openly in the EIS.

The fact that a proposed alternative cannot be permitted is the type of information that the public should be informed about. It is impossible for the EIS to give the public a complete picture of the alternatives without disclosing this fact, one that is well known to those involved in the EIS process. That it cannot be permitted is a significant disadvantage to the AP alternative, and it is specifically the type of information that is valuable in comparing the various alternatives.

We recommend correcting this omission by inserting a sentence in Sections 2.4.1.1 and 2.7 that states that the AP and EAP alternatives cannot be permitted under state law.

3. Reasonable alternatives were not considered.

The Corps is required to consider a range of reasonable alternatives in an EIS. 42 U.S.C. § 4332. That range should include more environmentally sensitive alternatives, whether that means "shelving" the project or reaching the goal through a different method. See Env'tl. Defense Fund v. U.S. Army Corps of Eng'rs, 492 F.2d 1123, 1135 (4th Cir. 1974). Within the range of reasonable alternatives that the Corps should consider are alternatives that partially meet the goals of the original purpose. Since no true alternative will fully meet the goal of the proposed actions, alternatives that partially fulfill that goal should also be considered. See Town of Matthews v. U.S. DOT, 527 F. Supp. 1055, 1057-58 (W.D.N.C. 1981).

There are several reasonable alternatives that were not identified by the review team, and not evaluated in the EIS. For evidence that less environmentally damaging alternatives exist, the Corps only has to look at the average cost over the first 15 years of the alternatives that were found practicable. The SCRB alternative, the least environmentally damaging practicable alternative ("LEDPA") of the current alternatives, has an average annual cost in the first 15 years of \$22.58/ton. The historic average cost from the years 2000-2005, a key ingredient in the practicability determination, was \$24.13/ton. DEIS at 2-17. There are multiple alternatives that will result in an average cost within the \$1.55/ton difference between the historic average and the SCRB cost. These alternatives have the potential to be less environmentally detrimental than the current alternatives, though they may still result in the significant degradation of the aquatic environment. Whether these potential alternatives would result in significant degradation cannot be determined without further consideration of their potential. The Corps should consider these alternatives.

a. The EIS should evaluate a DL1A alternative.

The EAP, SCR, and SJA alternatives evaluated in the EIS each include an A and B sequence. The S33AP and No Action alternatives cannot be mined in multiple sequences since they are wholly contained within the S33 tract. Like the EAP, SCR, and SJA alternatives, the DL1 alternative includes mining in all three tracts, but unlike those alternatives only the B sequence is evaluated. The EIS should evaluate the DL1A alternative.

According to the DEIS, the A sequence is preferred by the applicant. DEIS at 2-11. Presumably, the A sequence is less costly over the long term. The economic analysis supports this presumption, finding that over 26 years, the EAP, SCR, and SJA A sequences are all to some degree cheaper than the B sequences. Therefore a DL1A may be more economical than DL1B, and may be practicable. The DL1A sequence is a reasonable alternative, and should be fully evaluated in the EIS.

b. The EIS should consider the 15-20 year versions of the alternatives presented as well as any supplemental alternatives developed.

The applicant has clearly expressed an interest in mining the project area as completely as possible. DEIS at 2-9. They have also established to the Corps' satisfaction that long-term mining plans are necessary in phosphate mining for a variety of reasons. Id. Based on these premises, the applicant has proposed a 15 year mine plan and has developed alternatives that range from 12 years (No Action Alternative) to 49 years (EAP). The SJA and SCR alternatives span 38 and 32 years respectively. These plans cover more than the necessary 15-20 years. The EIS should evaluate the practicability of 15-20 year mine plans for each alternative, including those to be defined at a later date.

There are several reasons that shorter versions of the current alternatives, as well as any other potential alternatives, are preferable to over 30 year plans. As PCS acknowledges, the phosphate market is unstable, so predicting 30-40 years into the future is extremely difficult. DEIS at 2-18. The market may improve, allowing less sensitive, upland areas to be mined profitably.

Similarly, PCS' recent diversification of product line may result in significant profit increases, also allowing it to mine less sensitive areas more profitably than is currently expected. The EIS accounts for this possibility in the economic analysis, but does so in the context of the longer alternatives. DEIS at 2-19.

Limiting the permit to the 15-20 years, PCS states, is necessary to plan and prepare to mine will allow more information to be gathered on both their reclamation and mitigation efforts. There are serious concerns regarding the reclamation of mine sites due to high metal concentrations in the clay/gypsum blend. Extended permits prevent a full

reconsideration of reclamation practices and their impacts on the environment, including terrestrial and aquatic organisms as well as ground and surface waters. Shorter permits that are still within PCS' required 15-20 years would also allow their mitigation efforts such as Parker Farm to be further evaluated so as to improve their practices for future mitigation efforts.

The multi-tract mining alternatives considered in the EIS more than double the duration of the proposed alternative. Not only does this difference in time span complicate the economic analysis, it makes comparison of environmental impacts more difficult. Shorter alternatives would meet PCS' stated planning requirements while facilitating comparisons to the AP alternative. Finally, the shorter alternatives would promote more informed choices on mining 20-30 years in the future due to the additional economic, reclamation, and mitigation information that would be available. For these reasons, the EIS should analyze 15-20 year versions of the current alternatives and any other alternatives that are developed.

c. The EIS should identify the environmental benefits of life of mine alternatives.

The EIS focuses on alternatives that are "life of mine" alternatives, they exhaust mining in the project area. The premise is that despite the limitations in predicting economic trends and reclamation impacts 40 years into the future, these longer alternatives provide some environmental benefits. These benefits should be identified and fully discussed in the EIS.

d. The EIS should evaluate the practicability of using combinations of different mining approaches in each tract.

The alternatives evaluated in the EIS are applied equally throughout the three mining tracts, NCPC, Bonnerton, and South of 33. This approach fails to take into account the individual characteristics of the separate tracts in terms of either phosphate ore concentration or wetland sensitivity. The across the board application of a single mining approach unnecessarily excludes reasonable alternatives.

There are at least two alternatives that would impact fewer wetlands in NCPC that can be created by applying the mining approaches used in the EIS alternatives on a tract by tract basis. One potential alternative using this method would mine in NCPC according to the DL1 mine plan, in Bonnerton according to the SCR mine plan, and in S33 according to the AP mine plan. This alternative would impact approximately 2,943 acres of jurisdictional waters. For comparison, that is approximately 700 more acres of mining in jurisdictional waters than DL1, with no additional impact in the more sensitive NCPC or Bonnerton tracts.

Another alternative that could be created using this method would mine in NCPC according to the DL1 mine plan, in Bonnerton according to the SJA mine plan, and in S33 according to the AP mine plan. This alternative would impact approximately 3,537 acres of jurisdictional waters. It would mine approximately the same number of jurisdictional acres as the SCR alternative and approximately 1,200 more jurisdictional acres than DL1.

The range of alternatives considered excludes reasonable alternatives by applying mine approaches uniformly in the three potential mine tracts. By applying different mining approaches in different tracts, reasonable alternatives can be developed that may be practicable and come closer to avoiding wetland impacts to the maximum extent practicable. The examples of alternatives detailed above are two such possibilities. Each of these alternatives is environmentally preferable to the alternatives evaluated in the EIS because their impact is farther removed from the Pamlico River and South Creek. Additionally, the substantial damage that would occur to the tributaries to South Creek under the AP, EAP, SCR, and SJA alternatives would be significantly diminished. The Corps should evaluate the practicability of these alternatives and others that would result in a decreased environmental impact.

e. The EIS should evaluate a two drag line alternative.

The EIS evaluates the practicability of a single drag line alternative, the DL1B alternative. Although it was suggested in the review team meetings, a two dragline alternative ("DL2") was not evaluated. See DEIS at A-139. A DL2 alternative would be technologically and logistically possible. It may also satisfy the Corps' economic analysis given that it would approximately double the mining available in the NCPC tract. Compared to the AP alternative, a DL2 alternative would be less environmentally damaging and therefore should be evaluated.

f. The EIS should evaluate the practicability of supplementing mining with importation of ore.

The EIS excludes the possibility of importing ore to supply the plant facilities despite finding that the plant could be operated by importing ore from Morocco. The EIS states that importation to supplement any mine alternative "is essentially a delayed shutdown of the mine and as such would not meet the applicant's purpose and need." DEIS at 2-13. Supplementation with imported ore would actually extend the life of the mine, and is perfectly consistent with the applicant's purpose to continue mining.

There are two flaws in the EIS analysis: It does not differentiate importation from any other alternative; and it improperly excludes alternatives that partially satisfy the purpose and need. The finding that importation is a "delayed shutdown" does not distinguish supplemental importation from any other alternative. Therefore, it should not be excluded from analysis. Each and every mine alternative will ultimately result in the

shutdown of the mine. Even the AP alternative delays the shutdown of the mine for at least 15 years. Longer mine alternatives will delay the shutdown of the mine for a longer period of time. Delaying the shutdown of the mine would only fail to meet the purpose and need if the stated purpose and need were to cause an immediate shutdown of the mine. The stated purpose and need in Section 1.2.2 does not include the immediate shutdown of the mine. Therefore, importation to supplement any mine plan cannot be excluded as being inconsistent with the purpose and need because it, like all other alternatives, delays the shutdown of the mine.

Even if the purpose and need were to exclude solely relying on importation, supplementing mining with importation would partially meet the purpose and need. PCS would be able to mine their reserves in an economically viable method for an extended period of time. Supplementing mining with importation would simply allow PCS to subsidize more resource intensive upland mining with less expensive, high quality imported ore. This combination of approaches would provide both long term ore stability and access to the phosphate reserves within the project area. Therefore, supplemental importation cannot be eliminated and should be evaluated for practicability with DL1, S33, and the No Action alternatives. Supplemental importation would permit the applicant to mine within the project area practicably, and therefore is a reasonable alternative.

Giving more thorough consideration to supplemental importation neither dictates to the applicant how to run their business nor conflicts with the resolution of the litigation that resulted from the past permit. The Corps is limited to permitting the least environmentally damaging practicable alternative. It is inconsequential whether that alternative involves mining or importation. Supplemental importation would in fact be less environmentally damaging than the AP alternative, therefore the Corps' should determine if it is practicable. In that process, the applicant would submit economic information illustrating the cost involved in importing ore and adapting their facilities to accommodate the process just as they have submitted economic information regarding the other alternatives.

Permitting a mine plan that required importation for practicability would not differ from permitting any other mine plan. The Corps would authorize mining in a given area. The applicant could then determine whether it was in their interest to import through the entire mine sequence, import when the mining was exhausted, or discontinue mining. These choices are no different than the applicant would face if anything other than the AP alternative is permitted. If the AP alternative is not permitted, the applicant will have to determine whether the less than preferred permit suits their business expectations. By permitting a plan that required importation, the Corps would not be dictating the applicant's business plan, but rather restricting the applicant to the least environmentally damaging practicable alternative as the law requires.

Importation of ore from Morocco to supplement mining was improperly excluded from evaluation in the EIS. The reasoning for the exclusion, that it would result in a "delayed shutdown," does not distinguish the importation alternative from any other. Additionally, mining supplemented by importation would partially satisfy the purpose and need, and therefore should be considered. Since importation appears to be a reasonable alternative, and no justifiable reason for its exclusion has been stated in the EIS, it should be thoroughly evaluated as an alternative.

C. Economic Analysis

The economic analysis is a crucial part of the EIS. It is a key component of determining practicability, and the practicability analysis in turn narrows potential alternatives. Therefore the economic analysis must not only be thorough, but must also be presented in a manner which can be understood by the public. The economic analysis in Section 2.7 accomplishes these goals in some ways, but is lacking in that it does not discuss certain costs and does not present others clearly.

1. The economic analysis appropriately excludes the "lost" ore.

The applicant submitted information regarding ore that would not be mined under the various alternatives, identifying that ore as value lost. The Corps' economic analysis appropriately excludes that cost from the analysis. The applicant cannot claim the ore that cannot be mined as a loss. Under the Guidelines, the Corps' selection of the least environmentally damaging practicable alternative is required by law. As a result, any alternative that is not the least environmentally damaging practicable alternative cannot be permitted, doing so would be illegal. Therefore, any ore that is not recovered because certain areas cannot be mined is a loss that results because a preferred mine plan is not legal. Accounting for the un-recovered ore in the economic analysis would frustrate the purpose of the Clean Water Act by prejudicing the analysis against wetland protection.

Additionally, any ore not mined under a permitted mine plan may be accessible in the future without destroying the aquatic ecosystem due to advances in technology. Allowing the applicant to claim that ore as "lost" now and recover it in the future would produce a windfall for the applicant that the current economic analysis appropriately prevents.

2. The economic analysis does not discuss moving the mill.

The EIS documents that increased transportation costs play a significant role in the increased overall costs in the S33 tract. Although it has been considered at some level, there is no discussion in the EIS regarding the economic impact of relocating the mill facility. Since this action has the potential to significantly reduce one of the primary additional expenses in mining in the S33 tract, the EIS should directly address the possibility of moving the mill. This discussion should include any studies that have been

conducted regarding the feasibility of mill relocation and a description of how those studies have been implemented in the economic analysis.

In addition to providing this information, the DEIS should provide a comparison between the current expenses involved in relocating the mine with previous plans to do so. Prior to purchasing the NCPC tract, Texasgulf [PCS] had no option to mine in NCPC and therefore prepared a plan that included moving the mill south to reduce transportation costs. The development of this plan demonstrates that this was once a feasible option, and therefore the DEIS should provide information that disproves this previous understanding of feasibility.

3. *The economic analysis does not present information regarding the cost variations in a form that is capable of being understood by the public.*

A complex cost model is the basis for the economic analysis in the EIS; it is included in Appendix D. Marston developed the cost model to estimate the costs of mining the various mine plan alternatives. It provides detailed year to year costs in a number of categories as well as the overall cost of each alternative. However, this information is not presented in a way that is useful to the public. The information should be presented in a form that would allow meaningful review by the public.

One way in which the information could be better represented is through a graphical representation demonstrating how variables fluctuate through each of the mining alternatives. This display could plot the costs of each of the variables over the course of the mine plan for a given alternative. This approach could then be replicated for each alternative. This type of display would highlight the differences between alternatives in terms of the cost fluctuation of the important variables, allowing the public to develop a more informed opinion.

Another graphical representation of the data could show how each variable fluctuates in each alternative over the life of that alternative. For example, one graph could isolate transportation costs, diagramming the variation in costs over a period of time for each alternative on a single graph. Similar graphs could be developed for each of the cost areas that are expected to widely fluctuate with the mining advance. This type of presentation would put the information contained in the spreadsheet into context and allow a more thorough interpretation.

Representing the cost model results in these ways would assist in further explaining the differences between the mine plans that drive the additional costs. While it is easy with the information in the EIS to determine the relative expense of the alternatives, it is exceedingly difficult to determine why certain plans are significantly more costly. Representing the information in a format that is more user friendly than the spreadsheets in Appendix D should make this comparison substantially easier for the public.

4. *The economic analysis does not explain mitigation costs.*

The economic analysis does not explain how mitigation costs are calculated in the economic model. Given that the proposed impact is somewhat unprecedented for the applicant, a detailed explanation of how Marston determined the mitigation costs is appropriate. These costs should take into account the particular problems that will arise in attempting to mitigate for the proposed impacts. Not only would the applicant have to mitigate a very large area to compensate for the proposed level of destruction, but the mitigation would have to account for the diversity and the special functions of the proposed impact area. Therefore any calculation of mitigation costs must go beyond reliance on past mitigation sites such as Parker Farm due to the relative simplicity of that type of mitigation project. As discussed below in Section III(D)(2)(b), Parker Farm type mitigation would be inappropriate for the proposed impacts so the economics of Parker Farm are also inappropriate for this economic analysis.

Further explanation of the mitigation costs used in the cost model is even more important when looking at the apparent discrepancy between the values used in the model and those that result from applying Ecosystem Enhancement Program ("EEP") rates to the proposed mitigation. For example, the EIS estimates that mitigation for impacts in the AP alternative will cost approximately \$46 million. Applying the EEP rates to the mitigation proposed for the AP alternative on page 26 of Appendix I would more than double the EIS estimate, with costs exceeding \$92 million. While the estimated costs of the mitigating for the other alternatives increase when applying the EEP rates as well, the increases are not as significant as the doubling of mitigation costs for the AP alternative. Therefore, applying EEP rates could alter the economic analysis by reducing the increased costs of the other alternatives in comparison to the AP alternative.

While the Corps may not require Marston to adopt the EEP rates for estimating mitigation, the estimates used in the cost model should account for the factors addressed by the EEP rates rather than relying on only two previous mitigation projects. Relying on two mitigation experiences does not adequately estimate the cost of mitigation because it fails to control for the relative ease of PAII and Parker Farm. In fact, the authors of a study on PAII expressly caution against relying on the site to predict future success.¹ If the site cannot be relied upon to predict future success, it certainly cannot be relied upon to predict the cost of successful mitigation. Unless the applicant can demonstrate that the proposed impacts can be compensated with similar ease, which the complexity of the existing wetlands suggest they cannot, the current mitigation cost estimates are inappropriate. The estimates should reflect the complexity of mitigating for the proposed impacts and fully detail how that complexity is accounted for in the mitigation rates used to create the estimates.

¹ West, Terry, et al., *Assessment of Function in an Oligohaline Environment: Lessons Learned by Comparing Created and Natural Habitats*, 15 ECOLOGICAL ENGINEERING 303, 319 (2000).

5. *The economic analysis should include a comparison of actual costs.*

The economic analysis relies solely on comparative costs in making a determination on practicability. In order to provide a complete picture of the alternatives, the economic analysis should also present a comparison of the total costs. The total costs give context to the increased costs and therefore are both relevant and informative. Although the total cost could be deduced through Appendix D, it should be presented in the Section 2.7 economic analysis to complete the analysis.

6. *The economic analysis does not provide sufficient guidance on practicability.*

The economic analysis does not adequately explain the basis for practicability determinations. Rather than identifying a cost level below which an alternative is practicable and above which an alternative is impracticable, the analysis appears to rely on an "I know it when I see it" approach to practicability. By comparing historical operating income to historical rock cost averages, the Corps' has determined that the applicant can withstand some level of additional cost over some short period of time. Using that as context, the analysis then determines that some alternatives meet that standard while others do not. There is not sufficient information for anyone not involved in the practicability determination to determine when an alternative is practicable and when an alternative is impracticable, or how close to the border of practicability the current alternatives are. Under the current practicability analysis, that line must be somewhere between the average cost of SCR and DL1, but it is not clear where it is between those alternatives. This crucial aspect of the economic analysis should be more fully explained in the EIS so that those outside of the practicability determination process can determine the boundaries of practicability.

D. Section 404 Permit Information

Under Section 404 of the Clean Water Act, permits for dredged or fill material must be evaluated through the application of the 404(b) Guidelines. 33 U.S.C. § 1344(b). Those Guidelines provide that a permit application must be denied if there is a practicable alternative to the proposed project that has a less adverse effect on the aquatic ecosystem, if the proposed project would result in significant degradation, or if there is not sufficient information to make a reasonable judgment that the project will comply with the guidelines. 40 C.F.R. 230.12(a). A permit application must be rejected if it meets any of these conditions. The EIS does not provide enough information to determine if these criteria are met.

1. Alternatives that have less adverse effect on the aquatic ecosystem were not evaluated.

One of the primary purposes of the NEPA process is to ensure that federal agencies fully consider the environmental impacts of their actions. Based on the current economic analysis, there are multiple alternatives between the DL1B alternative and the SCR alternatives that could be practicable and would have a less adverse impact on the aquatic environment. These potential alternatives are discussed in more depth in Section III(B)(3) above. These alternatives should be evaluated in order to provide the Corps with the information necessary to make the required identification of the least environmentally damaging practicable alternative.

2. The EIS does not provide the necessary information to the required significant degradation determination.

Significant degradation in the context of a Section 404 permit is determined by balancing the environmental impact against the proposed mitigation. See City of Olmstead Falls v. U.S. EPA, 435 F.3d 632, 637-38 (6th Cir. 2006). This is an important variation from determining whether there is a less environmentally damaging practicable alternative, where mitigation is not considered. Because of this requisite balancing, the EIS must provide a detailed analysis of both the environmental impacts and the proposed mitigation. When the proposed mitigation does not offset the environmental impacts, the Corps should make a significant degradation finding and deny the permit. See James City County v. U.S. EPA, 12 F.3d 1330, 1337 (4th Cir. 1993). Without a complete understanding of both the environmental impact and mitigation plans, the Corps cannot perform the required analysis. The EIS does not allow the Corps to perform the required balancing because the environmental impacts of the proposed project are not completely discussed and the mitigation plan does not provide the required detail.

a. The environmental impacts of the AP alternative are not fully discussed.

The EIS is the basis for the Corps' decision on whether the proposed action complies with the Guidelines. Therefore, the information regarding the environmental impacts of the proposed project must be discussed completely and thoroughly. While the EIS acknowledges complete loss of any environmental value of the area that would be directly impacted, it omits discussion of some critical direct and indirect impacts of the proposed action.

The discussion of water quality impacts on page 4-12 is cursory and should be expanded. Specifically, sources other than the Jacks Creek monitoring reports and the Porter Creek study should be cited for support of the claim that water quality impacts will be minimal. As discussed below in Section III(D)(3), these studies are not informative concerning the proposed impacts. Given that the wetlands that would be destroyed

perform significant water quality protecting functions, there should be some explanation why the loss of those functions will not negatively impact water quality. The cited studies are substantially flawed and cannot serve as the basis for such a bold conclusion. The water quality impacts should be fully discussed in the EIS.

A component of the water quality analysis is the salinity analysis on pages 4-10 and 4-11. This analysis finds that the elimination of the South Creek tributaries' headwaters will not affect the salinity within the tributaries. There are freshwater fish communities within the headwaters that could be drastically impacted. These impacts are dismissed through the misinterpretation of studies within the area. The Jacks Creek monitoring study is incapable of confirming any findings as it is relied on to do on page 4-11. Similarly, the study of PAII does not provide any support for the EIS' claim. The study was conducted on a small scale, with limited sampling sizes, causing the authors to caution using the study to make claims like those that the EIS makes.² The EIS should thoroughly evaluate the impact of eliminating the headwaters of coastal streams on the salinity within those streams. The studies cited cannot provide that evaluation and do not support the bold claims of the EIS that mining will result in minimal impact to the South Creek tributaries.

The discussion of wetlands impacts on page 4-14 suffers from similar deficiencies. The EIS relies heavily on Jacks Creek monitoring. This type of reliance is misplaced. As a result, the EIS makes a bold assertion, that eliminating 2,400 of 2,500 acres of wetlands will not negatively impact the remaining 100 acres, without any supporting documentation. The filtering, buffering, habitat, groundwater recharge, and nutrient cycling functions that wetlands provide are undoubtedly impacted by the size of the wetlands. As the wetlands shrink, many of these functions are effectively lost despite the fact that the peripheral wetlands remain. This occurrence means that any alternative extends well beyond the mine plan boundary and has a significant impact on the remnant wetlands. These impacts should be fully discussed in the EIS citing peer-reviewed scientific literature.

While the EIS admits that all immobile organisms within the project area will be eliminated, it proposes that more mobile organisms will be able to relocate to suitable habitat. These statements are made in the discussion of impacts to terrestrial and aquatic wildlife communities on pages 4-15 and 4-16. If these organisms are expected to emigrate to other habitats, the EIS should identify areas of habitat similar to that which would be destroyed as well as the corridors through which these mobile organisms may reach those habitats. If those areas cannot be identified, the EIS should state that all organisms within the area proposed to be impacted, mobile and immobile, will be eliminated.

² West (2000).

The EIS does not fully discuss long term impacts of the proposed project. On multiple occasions long term impacts are acknowledged to be difficult to determine. DEIS at 4-13 and 4-15. The long term impacts of the proposed action have the potential to be catastrophic and widespread. In particular, the EIS should evaluate the long term impacts of replacing wetlands with 60 foot berms and uplands in relation to sea level rise and major storms. Sea level is predicted to rise and storms are expected to increase in intensity in the near future. These events could exacerbate the impact of the proposed action on the surrounding areas. In addition to eastern North Carolina's natural predisposition to flooding, the proposed impact would eliminate absorptive wetlands and replace them with berms that would channel rising seas and storm surges inland. These impacts would not only threaten the "avoided" wetlands within the project area, but would impact area towns such as Aurora.

Reclamation presents one of the more significant long term impacts that is not adequately addressed in the EIS. Apart from concerns regarding the vast majority of previously mined areas that have not been reclaimed, there are significant potential threats that result from the applicant's reclamation practices. The EIS admits these threats are difficult to evaluate over the long term on page 4-8. The most important of these potential impacts concerns the known cadmium-laced blend that the applicant uses to reclaim mined land. While the EIS does address the cadmium issue in some detail, it omits at least two crucial considerations: The impact of directly connecting reclamation areas to South Creek tributaries and the potential breach of the containment dikes.

Upon completion of reclamation, the applicant will breach the containment dikes to allow drainage into the existing tributaries. The EIS asserts that a rock dam will prevent any harm downstream. As the EIS explains it, Whitehurst Creek appears to be such a site. Since breaching the containment dike will directly connect a highly contaminated area to the tributaries, some evidence should be presented that the contamination is not transported. Long term monitoring at Whitehurst Creek could potentially demonstrate that, but no evidence to that effect is provided in the EIS. By connecting cadmium-contaminated reclamation areas to tributaries that lead to estuarine environments containing organisms that are adversely impacted by cadmium, such as crabs, the applicant would create a substantial threat through the proposed reclamation activities. This threat should be thoroughly discussed in the EIS.

Reclamation presents an additional threat due to rising sea levels and increased storm intensity. The reclamation areas will be raised above current height and surrounded by a containment dike to prevent contamination from spreading. There is no discussion in the EIS regarding the ability of the containment dikes to withstand being submerged or struck by very powerful storm systems. As noted in the EIS, hurricanes and nor'easters occur frequently in the area. Therefore the danger of placing contaminated waste sites within low-lying areas that border South Creek and the Pamlico River is significant. The failure of even one of the proposed containment dikes could result in an environmental impact that would eclipse the significant harm that has resulted

from previous discharges of cadmium by the applicant. The EIS should fully address these potential impacts.

b. The proposed mitigation plan is inadequate for comparison to the proposed impacts.

The EPA Region IV Compensatory Mitigation Policy ("Mitigation Policy") cited in the EIS on 4-91 highlights several flaws in the proposed mitigation plan. The Mitigation Policy states that the applicant should complete a mitigation analysis that is comparable to the alternatives analysis as the basis for selecting a mitigation alternative. Mitigation Policy at 4. The mitigation plan should include an assessment of the area impacted, detailed mitigation site information with a description of how a wetland will be established, and monitoring and performance criteria to determine the success of the wetland. *Id.* In addition to these components, the plan should include a reference wetland to serve as the target for the mitigation project. Although the EIS provides an assessment of the area impacted, the remaining criteria are noticeably absent. In addition to going against the policy, these omissions make any comparison of the proposed impacts and the proposed mitigation impossible. The mitigation plan is inadequate; it lacks the detail necessary for comparison and is unjustified in requesting mitigation ratios below the recommended standards.

i. The mitigation plan lacks the required detail

In order for the Corps to adequately determine whether a significant degradation would likely occur as the result of a project, the mitigation plan must provide some insight into the efforts to replace the lost value and functions of the impacted site. The detail of the mitigation plan, like the rest of the rest of the EIS, should reflect the significance and complexity of the project. *See* 40 C.F.R. § 230.6(b). The mitigation plan in Section 4.3.2 is entirely inadequate for the scope of the proposed project, even in combination with the conceptual mitigation plan included in Appendix I.

The mitigation plan in City of Olmstead Falls v. U.S. EPA ("Olmstead Falls") is instructive on the level of detail that should be expected in the EIS for this project. In Olmstead Falls, the City of Cleveland proposed to fill and culvert 5,400 linear feet ("lf") of Abrams Creek (14% of the AP impact), fill 2,500 lf of Abrams Creek tributaries (7% of the AP impact), and fill 87.85 acres of wetlands (4% of the AP impact). 435 F.3d at 633. To further compare those impacts to the AP alternative, the project in Olmstead Falls impacted over 30,000 fewer linear feet of streams and 2,320 fewer acres of wetlands. To mitigate for that impact, the mitigation plan included:

- preserving 1,070 lf of Abram Creek downstream of the airport;
- paying \$2 million towards preserving 3600 lf of Abram Creek upstream of the airport;
- restoring 265 acres of wetlands;
- restoring 5,000 lf of the Black River;

- enhancing 12,400 lf of Doan Brook;
- paying \$682,000 towards restoring 3,264 lf of Woodiebrook Creek;
- paying \$600,000 toward the preservation of 4,707 lf of Spring Brook; and
- paying \$500,000 toward the preservation of 3,000 lf of Elk Creek.

Id. at 634-35.

The level of detail of the mitigation plan in Olmstead Falls allows some meaningful evaluation of whether a significant degradation will occur. Despite the fact that impacts in Olmstead Falls were minimal compared to the AP alternative, the mitigation plan was very detailed. In contrast, the mitigation plan in the EIS lacks any detail. Fatally, it does not identify the sites for the proposed mitigation.

Identifying the sites proposed for mitigation is perhaps the most significant omission in the mitigation plan included in the EIS. The nature of the proposed impacts will require specific mitigation. The AP alternative proposes to impact areas that are substantially different in character and function than the areas previously impacted and subsequently mitigated by Parker Farm. The proposed alternative would have significant buffer, stream, and coastal and riparian impacts. These types of impacts cannot be mitigated through a Parker Farm type of project. While there may be farmland available that can be transformed into a Parker Farm type mitigation site, that type of mitigation will not be suitable for the proposed impacts. Rarer, more difficult to obtain, and more expensive waterfront sites will be necessary to mitigate for impacts to the Primary Nursery Areas, brackish marsh, over seven miles of tributaries, and riparian wetlands that would be impacted under the AP alternative.

A second shortcoming of omitting any designation of mitigation sites is that there is serious concern that the degree of mitigation that would be required for the AP alternative cannot be completed within the hydrologic unit. This possibility is acknowledged in the EIS. DEIS at 4-89. Without knowing where the potential mitigation sites are located, or even if they will be within the same hydrologic unit as the impact, the Corps cannot weight the severity of the impact against the potential mitigation.

Since the mitigation plan does not identify the proposed mitigation sites, it cannot include a description of how wetlands will be developed as recommended in the Mitigation Policy. The mitigation plan also lacks any monitoring or performance requirements, making it impossible to compare the functions and values of the proposed mitigation if successful to the impacted area.

Finally, the plan does not include a reference wetland. Without a reference wetland, it will be impossible to determine whether the mitigated wetlands are successful in replacing the functions and values lost in the impacted area. A reference wetland would also facilitate the significant degradation determination by illustrating what functions and values successful mitigation sites would possess in comparison to the site

proposed to be impacted. The absence of a reference wetland in the mitigation plan makes the Corps' required balancing of impacts and mitigation impossible.

ii. *The lowered mitigation ratios suggested are not justified by the EIS.*

A critical aspect of the mitigation plan is the mitigation ratio for the proposed impacts. The EIS cites the EPA standards of 2:1 for restoration, 4:1 for enhancement, 6:1 for creation, and 10:1 to 60:1 for preservation. DEIS at 4-91. The EIS then immediately proposes mitigation ratios that do not meet these standards, but does not adequately support the proposed reductions. These lowered ratios are based on the Parker Farm mitigation site. *Id.* Although the Parker Farm site has been determined to be successful, it does not indicate that PCS and CZR are infallible in terms of mitigation. There is no evidence that they are capable of repeating their success either in other areas similar to Parker Farm or in different types of mitigation. The mitigation ratios are based on a widely held understanding that mitigation is an inherently risky endeavor that cannot be assumed to fully compensate for the functions and values lost in the impacted area. By requiring the party responsible for mitigation to mitigate more than they impact, the recommended ratios provides some safeguards against mitigation efforts that fail either completely or to an extent that they cannot replicate the functions and values of the impacted area. Additionally, the ratios compensate for the differences in function between natural and created or restored wetlands and temporal losses of wetland function. Even Parker Farm, a generally successful mitigation site has been shown to be inferior to natural wetlands in certain aspects.³

The error in lowering mitigation ratios due to Parker Farm and PAII is best summarized by the authors of a study comparing PAII to the South Creek tributaries. Despite finding that PAII was comparable in some ways to the natural creeks, the authors had serious reservations about predicting mitigation success based on the study. Specifically, the authors state "these concerns . . . limit the ability to make accurate predictions about the probability of success (or failure) of future mitigation efforts."⁴ Because of the shortcomings of mitigated wetlands and the inherent risk in mitigation, the standard EPA mitigation ratios should be the minimum acceptable ratios in PCS' mitigation plan.

iii. *The mitigation plan does not meet the standards prescribed in the proposed mitigation rules.*

The weaknesses in the mitigation plan in the EIS are even more apparent when compared to the draft mitigation rules currently being considered by the Corps. The draft rules require an explanation of how the selected site will compensate for the impacts

³ Bruland GL and Richardson CJ, *Comparison of soil organic matter in created, restored and paired natural wetlands in North Carolina*, 14 WETLANDS ECOLOGY AND MANAGEMENT 245, 250 (2006).

⁴ West (2000).

ecologically, a description of the selection factors that were used in selecting the mitigation site, how that site will be protected in perpetuity, and a description of the current ecological conditions at the site. 71 Fed. Reg. 15519, 15550 (March 28, 2006). These requirements are all premised on the designation of a specific mitigation site. The “conceptual” plan proposed in the EIS falls substantially short of identifying a mitigation site or mitigation sites, substituting site selection factors for actual selected sites. While these draft rules are not binding, they further demonstrate the Corps’ realization that a project cannot be fully evaluated without a detailed mitigation plan to compare with the proposed impact. The proposed mitigation plan in the EIS should be brought up to the standards of the draft rules, beginning with the identification of specific mitigation sites.

iv. The mitigation plan does not address important impacts.

Compensatory mitigation is based on the premise that the functions and value of the impacted area can be mitigated. While that may be possible for certain wetlands, it is not the case for the wetlands that would be impacted under the AP alternative. The functions and values provided by three Primary Nursery Areas that feed directly into a Special Secondary Area cannot be mitigated through compensatory mitigation. Similarly, the functions and values of a large, contiguous collection of diverse wetlands cannot be mitigated. These two unique aspects of the area that the AP alternative would impact certainly cannot be mitigated through a Parker Farm type mitigation project. The mitigation plan does not address these impacts, or how they will be mitigated, making the balancing of the proposed environmental impact and the proposed mitigation impossible.

3. *The studies relied on by the EIS do not provide the information necessary to satisfy the Guidelines.*

The Corps must deny a permit when there is not “sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with these guidelines.” 40 C.F.R. § 230.12. The applicant has the burden of proof in demonstrating that their proposed project complies with the 404(b) Guidelines. 61 Fed. Reg. 30990, 30998 (June 18, 1996). The applicant has not demonstrated that the proposed project will not cause a significant degradation of the aquatic environment.

The EIS relies primarily on two studies to evaluate the environmental impacts of the proposed project. These studies, the Jacks Creek monitoring reports⁵ and the Porter Creek study, do not provide enough information to support the claims that the EIS makes. Both of these studies have serious flaws that limit their applicability to the proposed project.

⁵ The monitoring performed at Jacks Creek was part of a monitoring program mandated by the last permit. In addition to Jacks Creek, Tooley Creek and Huddles Cut were monitored. Jacks Creek is the focus of the EIS because pre-mining and post-mining data are available on Jacks Creek. Therefore, the monitoring program will be referred to as the Jacks Creek study in these comments.

a. The Jacks Creek study does not support the EIS' claims.

The Jacks Creek study is relied on extensively throughout the EIS to dispel the possibility of harm to the aquatic environment. The Jacks Creek study is used to claim there will be no adverse consequences of mining to water quality, sediment metal concentrations, adjacent wetlands, fish communities, and benthic communities. DEIS at 4-13, 4-14, 4-15, and 4-17. The EIS then qualifies those claims by acknowledging, as the Jacks Creek reports do, that no definitive conclusion can be made based on the study. DEIS at 4-11, 4-13, 4-15, and 4-17. This qualification of the study is understated, the study has significant deficiencies: it lacks adequate baseline data, does not monitor for an extended period of time, analyzes an impact that is of an entirely different scale than the proposed impact, and lacks peer review which typically validates scientific studies.

i. The baseline data are inadequate.

The focus on the Jacks Creek study is based on one unique factor, that pre-mining and post-mining data exist for Jacks Creek. However, because of the limitations in the monitoring, these data are entirely inadequate. During the first year of monitoring, no baseline data were taken in regard to groundwater, surface water flow, water quality, or salinity. NCPC TRACT STREAM MONITORING PROGRAM FOR PCS PHOSPHATE COMPANY, INC.: YEAR ONE (1998) END-OF-YEAR REPORT at 35 ("Year One Report").

The second year of monitoring does provide data for groundwater, surface water flow, water quality, and salinity, but is not without serious reliability problems. These problems are most directly addressed in the conclusion of the fish sampling section. It states "[t]he data do not allow any determination of true differences in fish abundances between years." NCPC TRACT STREAM MONITORING PROGRAM FOR PCS PHOSPHATE COMPANY, INC.: YEAR TWO (1999) END-OF-YEAR REPORT at 71 ("Year Two Report"). Similarly, the section on benthic monitoring fails to state any conclusion other than recognizing that the data reflect a dynamic system. See Id. at 85.

The water quality monitoring conclusions were no clearer. The analysis in that section found that the difficulty in acquiring data "makes comparison of results among stations somewhat difficult, particularly for parameters that exhibit seasonality." Id. at 47. Going further, the report states that water quality data problems "may also hamper future comparisons of year-to-year variability for a given station" Id. Additionally, the "baseline" data collected during the 1999 monitoring season covered a season "characterized by periods of unusually high precipitation in eastern North Carolina, which had noticeable effects on the salinity and some, but not all, of the chemical parameters." Id.

The EIS sums up the weaknesses of the baseline data in the Jacks Creek study by stating that "it is difficult to draw any definite conclusions" because "there was only one year of baseline . . . data for Jacks Creek." DEIS at 4-13. The Year Two Report shows

this description to be a drastic understatement. The only determination of any sort that can be made from the baseline data is that the sampled system is a dynamic one, one that would require years, if not decades, of monitoring to demonstrate a trend. The Year Two Report admits that some of the data collected will be of little value to compare to different sample sites, much less to analyze trends from year to year. It also acknowledges that a portion of the baseline data was taken during a season which demonstrated decidedly uncharacteristic weather patterns.

The summary of the baseline data eliminates any predictive value of the Jacks Creek study. Even if the year of sampling were perfect, it would be too short to allow a meaningful prediction of the future. However, this year of sampling was far from perfect. The data are flawed, through no fault of the researchers. The purpose of the sampling is to allow a comparison of data over the years to evaluate the impact of mining. The fish and benthic community analyses acknowledge that satisfying this purpose is impossible given the dynamic nature of the system. The water quality analysis admits that the baseline data are essentially useless due to an unusually wet year and limitations in the data. With no useful baseline data, the Jacks Creek study has no basis for predicting that there will be no harm to the aquatic ecosystem. Therefore, any reliance on the Jacks Creek study to claim there will be no harm should be removed from the EIS. Specifically, the reliance on the study on pages 4-13, 4-14, 4-15, and 4-17, as well as throughout the EIS, should be deleted.

ii. *The duration of post-mining monitoring is inadequate.*

The post-mining monitoring is inadequate to determine whether there are actual impacts due to mining. Overlooking the substantial, fatal flaws in the baseline data, the post-mining data also make the Jacks Creek study inadequate for predicting the impact of the proposed project. The aquatic ecosystem sampled is a dynamic system; it changes naturally each year. Therefore, a prolonged sampling period is necessary if any conclusion can be made regarding the impact of changes such as reductions in drainage basin. For example, the 2004 Report ("Year Six Report") cited in the EIS states that "fish data illustrate the extreme natural variability in fish catch in these creeks." NCPC TRACT STREAM MONITORING PROGRAM FOR PCS PHOSPHATE COMPANY, INC.: YEAR SIX (2004) END-OF-YEAR REPORT at 59. That variability "makes it very difficult to discern any spatial or temporal patterns in fish abundance." *Id.* The report goes on to explain that future years of sampling may eventually be able to determine long term trends. *Id.*

The benthic samples showed similar "considerable variation." *Id.* at 63. This variation even extended to submerged aquatic vegetation. *Id.* at 64. On the last substantive page of the report, the last summary page of the benthic monitoring, the report cites a problem in discussion of the benthic community that overshadows the entire monitoring program. The report states that "such variability cannot easily be attributed to simple changes in hydrographic parameters or habitat structure." *Id.* It continues, emphasizing the need for further monitoring, stating that "[t]he large range of variability

documented thus far during this study reinforces the need for careful interpretation of any variation that may occur during continued post-disturbance monitoring.” Id.

These sections of the Jacks Creek study highlight one of the problems that plague the study; the post-mining monitoring is insufficient to allow any prediction to be made. It is a short term study of a dynamic system that only shows trends over a long period of time. The report acknowledges its inadequacy in this regard. The information is directly applicable to the NCPC tract, but it is not a proper basis for predicting future impacts of mining. It is also not sufficient to refute the general consensus in the scientific community that drastic drainage basin reductions and nearly complete destruction of headwaters will adversely affect the aquatic ecosystem. Since the Jacks Creek study cannot be relied on to evaluate the proposed impacts, references to the study on pages 4-13, 4-14, 4-15, and 4-17, as well as throughout the EIS, should be deleted.

iii. *The EIS distorts the Jacks Creek study conclusions.*

In addition to the data flaws identified in the previous two sections, the Jacks Creek study cannot be relied upon to predict the impacts of the proposed project because the impacts studied are miniscule compared to the proposed impacts. The impacts to Jacks Creek under the current permit and impact to the NCPC creeks under the proposed permit are incomparable. The current permit impacted 198 acres of the Jacks Creek drainage basin, approximately 37% of the watershed. DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE TEXASGULF, INC. MINE CONTINUATION: AURORA, NORTH CAROLINA, JANUARY 1994 at 200. The AP alternative would impact 2,408 acres of wetlands, including nearly complete elimination of the watersheds of Jacks Creek (88%), Jacobs Creek (89%), Drinkwater Creek (88%), Tooley Creek (84%), Huddy Gut (73%), and Huddles Cut (93%). See DEIS at 6-60. There is no comparison between the impact to Jacks Creek under the current permit and the proposed impacts based on drainage basin reduction, even without considering the 38,558 linear feet of streams that would be destroyed under the AP alternative.

Due to the drastic difference in the current impact monitored by the Jacks Creek study and the proposed impact, no reasonable prediction of the impact to the aquatic ecosystem can be made based on the Jacks Creek study. Not only are the AP alternative impacts substantially greater for each stream than the impacts to Jacks Creek under the current permit, they combine to have an impact that dwarfs the impact to Jacks Creek under the current permit. The Jacks Creek study, even it were to have perfect data, could not reasonably predict the impact of the AP alternative on a single creek, much less the collective impact of the AP alternative on all of the South Creek tributaries and South Creek itself. Since the Jacks Creek study cannot be relied on to evaluate the proposed impacts, references to the study on pages 4-13, 4-14, 4-15, and 4-17, as well as throughout the EIS, should be deleted.

iv. The Jacks Creek study is unreliable because it is not peer reviewed.

Within the scientific community, peer review serves as a validation process. The peer review process certifies that the experiment design, procedures, and conclusions meet the standards of the scientific world. Studies that are not peer reviewed may meet these standards, and provide valuable information, but should not be relied upon extensively. The Jacks Creek study and its conclusions do not meet the standards of peer reviewed scientific papers. If the conclusions made in the EIS were submitted to peer review, the problems with data and scale identified in the previous three sections would be considered fatal flaws to the predictive use of the Jacks Creek study. While the monitoring reports may ultimately provide enough reliable data that they could be written into a study that would meet peer review standards, they do not currently meet that level of scientific reliability. The EIS improperly relies upon the Jacks Creek study, giving it the weight of a peer reviewed study while not holding it to the standards of such a study. Due to this misplaced reliance on the Jacks Creek study in the EIS, references to the study on pages 4-13, 4-14, 4-15, and 4-17, as well as throughout the EIS, should be deleted.

b. The Porter-Durham Creek study is not applicable to the proposed impact.

The second study which the EIS primarily relies upon to support the claim that there will be no adverse impacts to the aquatic ecosystem is the Porter Creek study. DEIS at 4-12. The Porter Creek study compared water quality in Porter-Durham Creek to the water quality in the South Creek tributaries based on a variety of parameters. The EIS claims the study is relevant to the proposed impact because PCS mined within 200-300 feet of Porter Creek in the 1970's and 1980's. Id. The study did not find any mining related variations between the water quality in Porter Creek and the tributaries, leading to the conclusion that mining the tributaries will not adversely impact water quality. Id. The variations that were discovered were found to be a result of the variations in channel depth between Porter Creek and the tributaries. Id. The EIS does not further address the physical differences in channel depth and volume or mining impact between Porter Creek and the South Creek tributaries. These differences are substantial, and minimize the value of the Porter Creek study in evaluating the proposed impacts.

Porter-Durham Creek and the South Creek tributaries are drastically different in their physical characteristics. In the EIS' description of water bodies, the differences between the creeks are apparent. Durham Creek is a "major tributary of the Pamlico River," drains over 41,000 acres, and is over 2000 feet wide at its mouth. DEIS at 3-35. Porter Creek is a "moderately sized tributary of Durham Creek," drains over 2,600 acres, and has an average depth of 4 feet. Id. The South Creek tributaries are significantly smaller. Jacks Creek is "short, narrow" and drains only 328 acres. Id. at 3-32. Jacobs Creek is a "small, shallow creek" that is described as "typical of many of the South Creek tributaries." Id. at 3-33. Jacobs and Drinkwater Creeks each drain only 418 acres. Id.

Tooley Creek is a "shallow tributary" that drains only 444 acres. Id. Huddles Cut is the largest of the South Creek tributaries, draining only 756 acres. Id. at 3-34. Huddy Gut is also substantially smaller than Porter and Durham Creeks, draining only 392 acres. Id. These differences can be easily summarized. Porter and Durham Creeks are large creeks that drain large areas and transport large volumes of water. The South Creek tributaries are small, shallow creeks that have relatively small drainage basins.

In addition to the physical differences between Porter and Durham Creeks and the South Creek tributaries, the impacts studied in the Porter Creek study are of an entirely different nature than the impacts proposed. PCS mined within 200-300 feet of Porter and Durham Creeks in the 1970's and 1980's. Id. at 4-12. Neither Porter nor Durham Creek were directly mined. Additionally, Porter and Durham Creek collectively retained over 41,000 acres of drainage basin after mining. Those impacts do not compare to the proposed impacts to the tributaries. In contrast to the zero linear feet of Porter and Durham Creek being mined, over 38,000 linear feet of the South Creek tributaries will be directly mined. Id. at 6-59. In addition to those impacts, each of the tributaries will have more than 70% of their drainage basin eliminated. See Id. at 6-60. Huddles Cut alone will lose 93% of its drainage basin. Id. The impacts to Porter and Durham Creek did not directly impact the creeks and left a substantial drainage basin intact. The impacts to the South Creek tributaries will directly eliminate over 7 miles of the tributaries themselves and destroy nearly all of their drainage basins.

These differences between Porter and Durham Creeks and the South Creek tributaries make any reliance on the Porter Creek study unjustified. Not only were the impacts studied much less invasive and destructive than the proposed impacts, they affected large creeks. The proposed impacts will more adversely affect smaller, more vulnerable creeks than the studied impacts. Any comparison of the two mining plans is unjustified. This unreasonable comparison is best illustrated by considering the proposed impacts to Huddles Cut. The AP alternative would mine 702 acres of Huddles Cut drainage basin, the largest drainage basin of the South Creek tributaries. Id. That is approximately 93% of Huddles Cut entire drainage basin. Mining the same number of acres in the Porter Creek drainage basin would only result in a 27% reduction. In Durham Creek's drainage basin, eliminating an area equal to 93% of Huddles Cut's drainage basin would be less than a 2% reduction. Any prediction of the water quality impacts of the proposed project on the water quality in the South Creek tributaries based on the Porter Creek study is clearly erroneous.

The EIS' reliance on the Porter Creek study to claim that water quality in the tributaries will not be impacted by the proposed project is clearly misplaced. The differences in the physical characteristics of the impacted water bodies as well as the drastic differences in impact to those water bodies eliminates any predictive value of the study. Therefore, the reference the Porter Creek study on page 4-12, as well as any other comparative use of the study in the EIS, should be deleted.

E. Expert Analyses of the EIS

The limitations and omissions identified in this comment letter have been echoed by experts. In addition to the North Carolina Division of Marine Fisheries ("NCDMF"), the U.S. Fish and Wildlife Service ("FWS"), and likely other governmental agencies, many non-governmental scientists agree that the impacts of the proposed alternative would be devastating to the aquatic environment.

The NCDMF and FWS have been extensively involved in the review team process and the development of the EIS. That experience combined with their technical expertise makes their criticisms of the EIS particularly relevant. Both agencies, relying on significant scientific research, conclude that the EIS does not adequately represent the environmental impacts of the proposed project, that mitigation cannot compensate for those impacts, and that no mining in NCPC should be permitted. Although our comments focus more specifically on the information that must be added for the Corps to be able to make an informed decision, we would reach a similar conclusion based on the evidence in the current EIS. We therefore fully endorse NCDMF and FWS' conclusion that any mining in NCPC would constitute significant degradation based on the information presented in the EIS.

The scientists that have signed on to the January 26, 2007 letter submitted by PTRF have a wealth of experience and expertise. They have expressed significant doubts regarding the claims of minimal impact stated in the DEIS. To the contrary, they express a view that any mining in the headwaters of the South Creek tributaries or the tributaries themselves will have significant adverse impacts on the immediate environment as well as far reaching effects on the systems surrounding the project area. These views are well grounded in basic scientific understanding of the role of wetlands and the facts of the proposed impacts. These views are in line with both our concerns presented in these comments and the concerns of NCDMF and FWS in their comments.

F. Additional Considerations

1. Financial assurance should be more thoroughly discussed.

The EIS briefly discusses financial assurances in Section 4.3.2.3.4.4 on page 4-92. The discussion provides a cursory overview of the basics of financial assurances, but it does not discuss the application of those basics to the proposed impact. There is no discussion of project specific circumstances such as declining phosphate markets, the costs of reclamation and mitigation, and the tenuous financial position that PCS claims to be in. Each of these variables should be part of the Corps' "hard look" at whether to require financial assurances. The final EIS should fully examine the pros and cons of requiring financial assurances in this permit.

2. Conditional Mining Areas should be considered.

A possibility that is not discussed in the EIS is the potential designation of Conditional Mining Areas ("CMA"). A CMA is an area of particular environmental concern that is permitted to be mined only after reclamation success is demonstrated. This approach has been used at PCS' White Springs, FL site when the operation was under the control of Occidental Chemical Company. See Department of the Army Record of Decision, Permit application 84B-4652, October 7, 1987 at 32-33. The proposed mine plan threatens sensitive areas in each tract. In particular, the tributaries to South Creek, pocosin bays in S33, and wetlands in Bonnerton are sensitive environmental areas. Given that the proposed impact is unprecedented, it is substantially different than any previous impact in this area, the possibility of establishing CMAs should be discussed in the EIS. Any permit that allows mining in NCPC near the South Creek tributaries, in the southern portion of S33, or in Bonnerton should require that the applicant demonstrate that the aquatic ecosystem has not been adversely impacted prior to continued mining in these vulnerable areas. The EIS cites previous impact studies that cannot begin to predict the impacts of the proposed project. Implementing CMAs would tentatively permit mining, but not rely entirely on poorly supported claims that no adverse impact will occur. Because CMAs would protect sensitive environmental areas until the applicant could demonstrate that the proposed impacts will not adversely impact the aquatic ecosystem, their potential use should be evaluated in the EIS.

IV. CONCLUSION

We appreciate the opportunity to comment on the draft EIS. We re-emphasize our understanding of the complexity of this project and the substantial effort that the Corps has invested in the draft EIS. The changes suggested in these comments would make the EIS a more complete document, one that can serve the role that is mandated to it by NEPA. Thank you for considering these comments.

Sincerely,



Derb S. Carter
Senior Attorney
Southern Environmental Law Center



Geoffrey R. Gisler
Associate Attorney
Southern Environmental Law Center

Attachment 4

SELCT PTF
401 Certification Comment Letter
07/07/2008

February 8, 2007

U.S. Army Corps of Engineers
Wilmington District, Regulatory Div.
ATTN: File Number 2001-10096
P.O. Box 1890
Wilmington, NC 28402-1890

To Whom It May Concern:

This letter and attached document is in response to the request by the PCS Phosphate, Inc. which applied to the Army Corps of Engineers (USACE) for a Clean Water Act Section 404 permit to impact and fill wetlands and waters of the state for the purpose of continuing its mining operations along South Creek and the Pamlico River in eastern Beaufort County near the town of Aurora. The permit request includes excavation of 2,408 acres of wetlands and waters, including brackish marsh and public trust areas, and greater than 38,800 linear feet of stream. Sections of three designated inland Primary Nursery Areas that drain to South Creek, a Secondary Nursery Area, would be excavated under the Applicant Preferred mining alternative. This alternative lies within a tract of land known as the NCPC tract, which is bordered to the north by the Pamlico River and to the east by South Creek.

Due to the special nature of the upland-, wetland-, and estuarine-creek ecosystem within the NCPC tract, we, the undersigned believe that the Applicant Preferred alternative would result in a significant adverse impact to the aquatic ecosystem that cannot be replaced through mitigation in a reasonable time frame. Furthermore, we contend that any mining through the headwaters or other downstream portions of the three PNAs and their associated riparian wetland complex would result in significant degradation. The attached document, "Impacts to the Aquatic Environment Associated with the PCS Phosphate, Inc. Proposed Mine Expansion" produced by the Pamlico-Tar River Foundation has been included to support this claim.

Sincerely,

Heather Jacobs
Pamlico-Tar **RIVERKEEPER®**
Pamlico-Tar River Foundation

John Alderman, President
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Impacts to the Aquatic Environment Associated with PCS Phosphate, Inc. Proposed Mine Expansion

I) INTRODUCTION

1.1 Purpose: The purpose of this document is to evaluate the impacts to the aquatic environment located within and adjacent to the proposed mine expansion by PCS Phosphate, Inc. This tract of land is commonly referred to as the NCPC tract (formerly owned by the North Carolina Phosphate Company). Information originates from peer reviewed journals, the Draft Environmental Impact Statement (DEIS), and personal communication with researchers and DENR Agency personnel.

1.2 Significant Degradation: Under 404(b)1 guidelines of the Clean Water Act, the US Army Corps of Engineers (hereafter referred to as the Corps) must deny a permit to fill wetlands if it will result in significant degradation of the waters of the U.S. The burden of proof lies with the applicant to prove that wetland and water fill activities will not cause significant degradation. Two considerations that are balanced in determining whether significant degradation occurs are a) impact to the environment and b) the mitigation required by the permit. The Corps may be more likely to find significant degradation if: 1) the impact affects a particularly sensitive or unique area; 2) the impact affects a large area; or 3) the affected environment has other features that are not easily replicated by mitigation.

Four broad categories of impacts can result in significant degradation:

1. Impacts to human health;
2. Impacts to wildlife;
3. Impacts to the aquatic ecosystem; and
4. Impacts to recreational, aesthetic, and economic values.

When evaluating these impacts, the guidelines specify a focus on the “persistence and permanence” of the impacts. This paper’s focus is on proposed mining sequences and their associated aquatic ecosystem impacts. Certain impacts to aquatic environments that are scrutinized by the Corps include but are not limited to:

water chemistry	salinity	temperature	dissolved gas levels
nutrients	eutrophication	diversion of flow	hydrologic changes
shoreline erosion	aquatic communities	aquatic habitat	spawning areas
nutrient cycling	contaminant levels	invasive species	
altering upstream or downstream areas			

1.3 Applicant Preferred Alternative: PCS Phosphate, Inc. has applied for a permit to impact 2,408 acres of jurisdictional waters and wetlands. A breakdown of the impact can be found in Table 1. The request includes more than 38,800 linear feet (lf) of intermittent and perennial stream impact and a 70% to > 90% reduction of the drainage basins of 6 named

tributary drainage basins (Table 2). Some reductions are considered permanent, others temporary in the DEIS. The present natural hydrology within and in the periphery of the mine site will be permanently altered. Three streams located within the NCPC tract proposed to be excavated are listed as inland Primary Nursery Areas (PNAs) (Street et al. 2005).

Table 1: Breakdown of wetland and water impacts by biotic community type (DEIS)

Biotic Community Type	Applicant Preferred Site
Public Trust Waters (acres)	5
Public Trust Waters (linear feet)	14564
Perennial Stream (acres)	3
Perennial Stream (linear feet)	7008
Intermittent Stream (acres)	3
Intermittent Stream (linear feet)	17267
Wetland Brackish Marsh	38
Wetland Bottomland Hardwood Forest	102
Wetland Herbaceous Assemblage	235
Wetland Scrub-Shrub	202
Wetland Pine-Plantation	514
Wetland Hardwood Forest	509
Wetland Mixed Pine/Hardwood Forest	564
Wetland Pine Forest	195
Pond	19
Upland Herbaceous	234
Upland Scrub-Shrub	262
Upland Pine Plantation	55
Upland Hardwood Forest	67
Upland Mixed Pine/Hardwood Forest	140
Upland Pine Forest	38
Upland Agricultural Land	117
Upland non-vegetated/maintained areas	92
Total (wetlands, waters, upland)	3412
Total linear feet streams	38839
Total Uplands (acres)	1005
Total Wetlands/water (acres)	2407

Table 2: Drainage basin reductions for tributaries to the Pamlico River and South Creek under the applicant preferred (AP) alternative (DEIS)

Creek Name	Existing Total Drainage (acres)	Drainage in NCPC Tract (acres)	Drainage in AP to be Excavated (acres)	Proposed Drainage Basin Reduction (%)
Jacobs	418	407	370	89
Jacks	320	310	280	88
Tooley	444	430	375	84
Drinkwater	426	418	373	88
Huddles Cut	756	707	702	93
Huddy Gut	392	285	285	73

1.4 NCPC Characterization:

More than 70% of the NCPC tract proposed for mining consists of delineated, federal and state jurisdictional wetlands and open waterways. Riparian wetland types located in this tract of land and within the AP site include estuarine, riverine, headwater, and flat or depressional hardwood and pine wetlands. Certain wetland types such as brackish marsh, bottomland hardwoods and scrub-shrub within the NCPC tract are irregularly inundated due to dominance of wind tides, which can cause dramatic fluctuations in salinity and water levels. The soils are poorly drained with a high runoff potential. Under natural conditions, the seasonal high water table ranges from ground surface to 2 feet below ground level. Wetland types are noted in Table 1. Jacobs, Jacks, and Tooley Creeks are designated inland PNAs and South Creek is a special secondary nursery area. These nursery areas are important habitats for numerous finfish and shellfish species. Complete descriptions of the significant tributaries to South Creek within the NCPC track can be found in the Journal of the Elisha Mitchell Scientific Society (1985 v.101). In general, tributaries to South Creek within the NCPC tract have complex marsh biotic communities that are influenced by complex, interacting environmental factors rather than one environmental gradient. They occur along steep physical gradients where laterally uplands and forested wetlands dominate and upstream areas gradually give way to swamp forests. Most of the tributaries are relatively shallow, narrow systems where runoff is greatest during the winter season when evapotranspiration is low. Downstream reaches of the tributaries are bordered by brackish marsh dominated by *Juncus roemerianus* (needlerush), but also include a mosaic of other marsh species. Creek sediments are high in organic content. South Creek is dominated by wind tides. Annual precipitation is around 50 inches/year.

The following sections provide information on the potential for water quality and other aquatic environmental impacts associated with the proposed mining alternative.

The first discussion below in section II is related to downstream and peripheral impacts to areas not directly impacted via the proposed mine expansion within the NCPC tract.

II) Impacts to Downstream/Peripheral Wetlands of the Proposed Mine Site

Wetlands perform many functions critical to the health of aquatic environments (USEPA, 2001). North Carolina has lost approximately 50% of its original 11.1 million acres of wetlands (Dorney et al. 2004). Today, approximately 95% of the remaining wetland acres in the state are found within the coastal plain (Bales and Newcomb 1999). The Albemarle-Pamlico Estuary is a nationally significant estuarine resource. This estuarine system provides essential nursery habitat for most of the commercial and recreational fish and shellfish species caught on the US east coast. Over 90% of North Carolina's commercial fish landings and over 60% of recreational harvest by weight are comprised of estuarine-dependent fish species (Street et al. 2005).

Wetland and stream functions (2408 acres) within the mine excavation site will be permanently lost, as noted in the DEIS. The uses of the land to be mined will also be permanently altered. Section III of this document describes functions that will be lost within the mine site (AP), and assesses whether or not these functions can be recovered through mitigation/reclamation within a reasonable time frame (10 years). Table 3 includes functions that will be lost or reduced in wetland and stream systems along the periphery of the mine site within the NCPC tract. Impacts to downstream areas are not required to be mitigated; therefore, any impact or loss of function in these areas will not be replaced.

Table 3: List of functions provided by downstream and peripheral wetlands of the proposed AP mine alternative and associated impacts.

Functions Provided	Impacted by AP Alternative	Explanation
Flood control	Impacted	Section 2.4
Nutrient cycling	Impacted	Section 2.4a
Carbon sink or source	Impacted	Section 2.5
Sink for pollutants	Impacted	Loss of upstream functions as sink and placement of dike constructed with contaminated sand tailings. Section 2.6.
Sediment accumulation	Not-Impacted	
Soil Organic Matter accumulation	Not-Impacted	
Primary Productivity	Impacted	Increasing load from upstream nutrients and groundwater input. Sections 2.4a and 2.5
Dampen wave energy (erosion control)	Not-Impacted	
Habitat (terrestrial & aquatic)	Impacted	Section 2.3
Nursery	Impacted	Section 2.4
Detritus export	Impacted	Section 2.5

2.1. Elemental Contamination

A study conducted prior to the implementation of the wastewater recycling system at the plant site revealed that sediments in the vicinity of discharge sites on the Pamlico River and South Creek contained elevated levels of cadmium, molybdenum, arsenic, Manganese, vanadium and titanium as well as fluorine (Riggs et al 1989). All of these elements are found within the phosphate grains. The toxicity of heavy metals to the aquatic environment has been well studied. Specifically in the Pamlico Estuary several studies have associated metal contamination with crab shell disease (Engel and Noga 1989; Brouwer et al. 1992; Gemperline et al. 1992; Weinstein et al. 1992). Since the recycling system has been in place in the mid-1990s for PCS Phosphate, crab shell disease has declined (personal communication, Sean McKenna, DMF 2006). The reclamation process uses a blend of gypsum and clay, which results in elevated levels of metals, specifically cadmium within the mine site. Studies conducted by North Carolina State University and outlined in the DEIS also found that cadmium had bio-accumulated in several plant species located on existing reclamation areas. Further studies revealed elevated levels of cadmium in benthic organisms, blue crabs and clams adjacent to PCS outfalls and ponds on company property.

Of particular concern is the potential impact of metals leaching into downstream muds from reclamation areas. The company proposes, at some point in the future, to reconnect natural downstream areas with reclaimed streambeds within the mine site. It is clear in the DEIS that current levels of cadmium and other metals around the mine site are elevated, including areas in the NCPC tract which could cause adverse biological effects. The future long-term impacts from mining and reclamation activities on cadmium and other heavy metal accumulation within the aquatic environment are unknown. The potential suspension and transport of contaminated muds during hurricane events or other strong storm events should also be evaluated. The DEIS fails to consider these long-term impacts to the downstream aquatic environment.

2.2 Flow Dynamic Impacts on Salinity Gradient

The tributaries of South Creek have varying salinities (0-17 ppt). During low precipitation years, it is evident that salinities are mainly driven by South Creek and ultimately by the Pamlico River Estuary (Davis et al. 1985). Watershed input of precipitation and potentially surficial groundwater flow are sources of freshwater to the headwater portions of these streams, and also play an important role in producing a downstream salinity gradient. The greatest runoff occurs during winter when evapotranspiration is low (Bradshaw et al. 1985). Both vertical and downstream stratification occurs after periods of runoff. Groundwater salinities for the Jacks Creek watershed ranges from fresh (~0) to 13 ppt (Brinson et al 1985). Sun et al. (2002) suggest that topography affects stream flow patterns and storm flow peaks and volumes, and is the key to wetland development in the southern US. The unique features and diversity of the contiguous forested wetlands, uplands, and riparian wetlands (marsh, bottomland hardwood) within the proposed mine block underscore the potential difficulty of providing mitigation that replicates the complexity of this system.

The 2006 DEIS uses a similar argument to the previous permit EIS against any significant salinity change due to large drainage basin reductions and excavation of ephemeral, intermittent, and perennial stream segments. The basis for such an argument appears to come from two studies: West's (1990) benthic study comparing Project Area II to 4 natural stream channels, and

the NCPC monitoring program in Jack's Creek (CZR Incorporated et al. 2005). West's (1990) study sample size for water quality parameters is 4 replicates throughout one year, of which the report states, "It should be noted... that these data address only gross trends in temporal variation in water quality because the time scale of sampling (trimonthly) far exceeded the time scale of significant change in water quality parameters (<1 day)." Furthermore, the sample sites were located in the lower stream segments (lower half to third approximately) of each tributary (Jacks, Jacobs, Drinkwater and Tooleys) where influence from South Creek likely is the dominant factor. The 2-4 ppt salinity change in this study does not capture the salinity regime of the upstream portions. The second study on Jacks Creek is seriously limited because 1) Only one year of baseline sampling took place, and 2) The impact described for Jacks Creek (37% drainage basin reduction) cannot be reliably scaled up to assess potential aquatic system impacts from 73-93% drainage basin reductions as proposed in the DEIS.

These cited studies do not provide sufficient evidence to support the premise that drainage basin reductions will not result in salinity changes to downstream segments. By mining through upland and adjacent wetlands areas, as well as headwaters and perennial stream segments, the drainage basins will be severely reduced. As a result, there could be potentially significant increases in salinity for at least 15 years until reclamation can, at best, re-establish a drainage basin. At this time it is unclear how the drainage basins will be permanently altered by reclamation activities, but it is clear that the alterations will be significant and long-term. Due to the significant increase in elevation of the reclamation area and altered soil horizons that will not resemble natural conditions, drainage basins could potentially be permanently and significantly altered. The effects of salinity changes on stream systems are further described in the following sections.

2.2.a Groundwater Alterations:

There is little information in the DEIS regarding the nature of groundwater- or surface water flow in reclaimed areas as compared to flow under natural conditions. Castle Hayne Aquifer impacts have been studied fairly extensively, but there is a lack of information on how surficial aquifer or subsurface (rain-driven subsurface flow) may be altered in either adjacent natural areas or in reclaimed tracts. The potential loss of groundwater input as well as surface drainage loss to South Creek tributaries could further impact the naturally occurring vertical and downstream salinity gradients.

2.3. Salinity Change Impacts to Other Factors

Eliminating the freshwater /saltwater interface will most likely significantly alter natural function of the creeks, including nutrient cycling (discussed in section 2.4.a below). Salinity changes will also result in the loss of freshwater habitat for beneficial finfish species such as pumpkinseed, largemouth bass, and bluegill. WRC shock studies from November 2006 (Data provided by Maria Tripp, NC WRC) as well as Rulifson (1990) confirm freshwater species present; including those listed above, in South Creek tributaries within the NCPC tract.

There also exists the potential for accelerated sea level rise that would result in salt-induced stress to forested and bottomland-hardwood freshwater wetland areas and more rapid succession to brackish marsh. Such salinity stress could affect the carbon and nutrient dynamics of these wetlands, resulting in nutrient and energy loss (Lugo et al. 1988). This could, in turn, result in the

loss of bottomland hardwood- and freshwater marsh functions at a much faster rate than what would occur naturally.

2.4 Hydrologic Changes and Consequences

EPA estimates that one acre of wetland can hold up to one and a half million gallons of floodwater (US EPA, 2001). Verry (1997) suggests that wetlands can reduce flood peaks even when wetlands are at water storage capacity, behaving similarly as reservoirs or lakes. Such flood storage loss will alter the local hydrology within the NCPC tract. Dike construction may induce more lateral flow and floodwater movement to areas previously inundated on less frequent levels. Altered hydroperiods would result in an increase in frequency and magnitude of anaerobic conditions within the riparian wetland areas. Increased anaerobic conditions can promote release of nutrients (especially phosphorus and iron) from sediments into the water column. Increased nutrients could result in increased algal blooms, further exacerbating anaerobic bottom waters and mortality of fish and benthic fauna. Elevated levels of phosphorus can also stimulate blooms of potentially toxic cyanobacteria (Burkholder 2002).

2.4.a Nutrient Cycling

Changes in hydrology resulting in prolonged anoxic conditions could significantly alter the nutrient dynamics of the system. Mitsch and Gosselink (1993) stated, "Anoxic conditions during flooding have several other effects on nutrient availability. Flooding causes soils to be in a highly reduced oxidation state and often causes a shift in pH, thereby increasing mobilization of certain minerals such as P, N, Mg, S, Fe, Mn, B, Cu, and Zn. This can lead to both greater availability of certain nutrients and also to an accumulation of potentially toxic compounds in the soil."

Phosphorus sorption potential in forested wetlands is partly a function of flooding and saturated soil conditions that cause the accumulation of organic matter and aluminum (Axt and Walbridge 1999). Natural wetlands appear to have superior P sorption capacity in surface soils and, conversely, upland P sorption occurs in the subsurface soil. Thus, wetlands appear to perform P sorption via surface runoff and upland areas are more suited for improving groundwater quality. (i.e. differences in soil chemistry as a function of landscape position). *Again, it is important to point out the diversity of upland, riparian wetland, and forested wetland systems in the NCPC tract.*

It is unclear from the DEIS whether groundwater input is significant in the wetland and estuarine creek systems of the NCPC tract. If groundwater input does play an important role, then there is likely to be a high input of nutrients entering the system from the subsurface flow through organic soils. Therefore, the primary productivity in upper areas of the creek systems may depend on this high nutrient groundwater input.

An active point in the nutrient cycle is the naturally occurring die-offs of freshwater algae. The potential loss of freshwater input and subsequent loss of freshwater algae could eliminate this part of the nutrient cycle (personal communication, Robert Christian, ECU 2006).

Finally, marshes act as sinks for nutrients, sequestering them in plant tissue and sediments thus removing them from the water column. The major tributaries to the Pamlico Sound, the Neuse and Tar Rivers, have been designated by the NC Environmental Management Commission as

“Nutrient Sensitive Waters” due to consistently elevated levels of nitrogen, phosphorus and other pollutants and basin-wide nutrient reduction strategies have been implemented. This nutrient enrichment has promoted algal productivity, hypoxia, anoxia, and fish kills in the lower estuaries (Burkholder et al. 2006). Removal of wetlands in the Pamlico Sound system would exacerbate the impacts of this loading by removing the nutrient uptake capability of the marshes.

2.5 Carbon Cycle (Export and Sequester)

The interaction of marshes and adjacent, aquatic systems can be very important to the supply or sequestering of organic carbon to those aquatic ecosystems. Some studies suggest that marshes can either export or retain carbon, depending on the relationship between aerobic microbes and their consumers (Mitsch and Gosselink 1993). Marshes are detrital-based systems and conversely many studies have found the export of detrital (particulate organic) and/or dissolved organic carbon to be an important input to aquatic systems. Bottomland Hardwoods (BLH) perform functions such as nutrient uptake and transformations, sediment retention, floodwater storage, and organic C export to downstream ecosystems (Mitsch and Gosselink 1993). Other studies have found that much carbon is exported from marsh systems in the guts of migratory feeding fish and birds or cycled through the marsh to the upper ends of tidal creeks and back to the marsh. (Mitsch and Gosselink 1993). Mining in the areas close to the estuary as proposed in all alternatives (except in the area south of highway NC 33) will remove mature watersheds that are potentially significant sources of organic carbon to the estuary.

Unless the impact is mitigated with creation or effective, carefully evaluated restoration of systems that can provide a similar magnitude and quality of organic carbon to the estuary, the estuary will suffer a net loss of habitat quality.

2.6 Headwater Stream Function

The proposed mine site includes mining through more than 38,000 linear feet of stream, including 100 acres of BLH wetlands and other areas of riparian wetlands. Of particular concern is any mining alternative that would eliminate the headwater stream channel as well as its associated BLH and freshwater riparian wetlands. A memo from John Dorney (NC DWQ), April 2006 states, “Headwater streams are very common and provide significant benefits to downstream water quality and aquatic life. Intermittent streams have significant aquatic life even though their flow is not constant throughout the year. Headwater wetlands are often associated with these streams and provide important water quality filtration to protect downstream water quality as well as significant aquatic life habitat. Therefore based on this on-going research, the Division of Water Quality believes that protection of these headwater streams and wetlands is essential to protect downstream water quality.”

Headwater stream areas are typically influenced by adjacent riparian zones and should be considered jointly with their associated riparian wetland areas. Physical hydrology/topography (geomorphology) defines ecosystem function of headwater wetlands (Havens et al. 2004). Coastal plain headwater wetlands typically have higher frequencies of overbank flows, flatter hydrograph and longer inundation periods than piedmont or mountainous headwater regions (Hupp 2000).

2.6 Other Mining Impacts

Construction of the dike system that will transect South Creek tributaries may also directly impact surface water quality via sedimentation and increased turbidity. Another main concern is the direct erosion of contaminated sand tailings, which are the base used in dike construction. The DEIS notes that a 1980 study found cadmium present in all three ore-processing by-products (sand tailings, clay, and phosphogypsum) in levels that exceed natural background concentrations at the ground surface (Wakefield 1980). Therefore, dike construction may cause direct contamination of surface water and/or muds of the tributaries within the NCPC tract

2.7 Section II Summary

Existing in-stream data for South Creek tributaries within the NCPC tract suggest that drainage basin input of freshwater is important to the overall function of those stream systems. The direct mining of headwater, intermittent, and perennial stream channels as well as their associated riparian wetlands would impact the hydrology, salinity gradient, nutrient cycling, and carbon availability of the downstream portions of the south Creek tributaries, listed in Table 2. The DEIS fails to demonstrate that mining portions of the estuarine creeks and riparian wetlands would not result in a significant impact to downstream and peripheral areas.

The following section discusses direct impacts via the mine expansion, including a discussion of existing wetland functions and the possibility that these functions can be replaced through reclamation and mitigation.

III) MITIGATION

The DEIS notes that the existing functions of the 2,408 acres of wetlands within the mine expansion boundary would be lost. The question then remains is whether resulting compensatory mitigation and the reclamation process can replace the functions lost through mining- and fill activities (Table 4). PCS Phosphates' conceptual mitigation plan could result in approximately 4,000 acres of restored, enhanced or preserved land. Mitigation ratios in this plan depend upon the wetland type. At this time, it is unclear where mitigation will take place, although it is understood that one planned site is located on a tributary to Pungo Creek, which drains to the Pungo River. It has not been demonstrated or suggested by the company that all of the mitigation would take place within the South Creek watershed, where the impacts would occur. Furthermore, the buffer mitigation requirements are so large that the company has requested a flexible plan that will replace required buffer restoration with other BMPs aimed at reducing nitrogen and phosphorus runoff. This telling fact should be clearly conveyed in the DEIS.

The more than 2000 acres of wetlands and waters, along with the 1000 upland acres proposed to be impacted within the South Creek watershed, comprise a contiguous and interdependent system, which currently includes three inland primary nursery areas (PNAs). Will the resulting mitigation of unknown acreage per mitigation site result in complete replacement of the functions lost from the proposed wetland- and waters, within an appropriate timeline (10 years)? Will the resulting mitigation offer the full suite of functions and protection to PNA that the existing wetlands and upstream channels of the NCPC tract provide?

As compensatory wetland mitigation becomes increasingly important in the health of our aquatic ecosystems, the research related to assessing the functional equivalency of restored or created sites to natural conditions has also increased. The section below summarizes research conducted on-site or in similar wetland systems found within the NCPC tract, including the success of restoring wetland function.

Table 4. Wetland functions (combined for all wetland types) and whether such loss of functions from mining activities can be replaced within a 10-year timeframe.

Functions Provided	Lost / Recoverable with Mitigation within 10-years	Explanation
Flood control	Lost	Loss of floodplain due to reclamation and resulting higher elevations; potential for net loss of 100-year floodplain. Mitigation may enhance flood control functions, but flood plain acres will be lost
Nutrient cycling	Lost	Aspects of complex biogeochemical cycling will not recover within 10 years. See Section 3.1 and 3.3.
Carbon sink or source	Lost	Not recoverable within 10 years. See Section 3.3.
Sink for pollutants	Recoverable with mitigation	However, it is unlikely that mitigation will occur upstream or adjacent to an inland PNA.
Sediment accumulation	Not wholly recoverable	See Section 3.3.
SOM accumulation	Lost	SOM content will be lower and will not recover in 10 years. See Section 3.2.
Primary Productivity	Recoverable with mitigation	PP is a function of stream depth. See Section 3.4.
Dampen wave energy (erosion control)	Recoverable with mitigation	Highly dependent on location of mitigation site. A Parker Farm-like mitigation effort will not replace functions lost in riparian wetland systems adjacent to estuarine streams
Habitat (terrestrial & aquatic)	Recoverable with mitigation	See Section 3.5.
Nursery	Recoverable with mitigation	However, successful mitigation projects a function of location. See Section 3.5.
Detritus export	Lost	Not recoverable within 10 years.

3.1 Denitrification:

A study comparing restored to natural BLH wetlands found that restored wetlands have lower denitrification potentials, even though the correct hydrology and vegetation was present (Hunter and Faulkner 2001). This study suggests that restoration of water quality functions of BLHs are dependent on more than hydrology alone.

3.2 Soil Organic Matter (SOM):

Soil properties of created and restored wetlands systems differ from those of natural wetlands (Verhoeven et al. 2001). In restored and created wetlands in the NC coastal plain, mean SOM

content for all created and restored wetlands analyzed was significantly lower than the mean SOM content in adjacent natural wetlands for four HGM settings (headwater riverine, mainstem riverine, non-riverine mineral soil flat, and nonriverine organic soil flat; Bruland and Richardson 2006). Bailey Creek and Parker Farm are compensatory mitigation sites for PCS located within the South Creek watershed. The Parker Farm restored areas have only 24.2% SOM content, whereas SOM content of the adjacent natural wetland is 77.4% (Bruland and Richardson 2006). There was no significant difference in SOM content between the created site and natural site on the Bailey Creek area. However, it is important to note that the natural area of Bailey Creek had the second lowest SOM content (8.9%) out of 11 natural wetlands analyzed. Low SOM content may hinder development of microbial communities, which are critical to wetland function (Duncan and Groffman 1994, Bruland 2004). Bacterial communities that rely upon this organic matter for energy provide via mineralization, inorganic nitrogen, phosphorus and carbon to the wetland system.

3.3 In-stream and Riparian Wetland Soil Structure:

West's (2000) analysis of Project Area 2 (created estuarine creek/marsh) as compared to Jacobs, Drinkwater, Jacks, and Tooley Creeks revealed that PA2 sediments lacked woody-detrital covering, significant peat component, and predominance of silt and clay found in natural creek sediments. West also pointed out that evidence is lacking for detectable accretion of these components over a 10-year period in PA2.

Based upon a 15-year study of vegetation and soil development in the created PA2 brackish marsh system, wetland soil formation is slower to develop than the plant community (Craft et al. 2002). Biomass of the regularly inundated *Spartina alterniflora* reached natural levels within three years. *Juncus roemerianus* and *S. cynosuroides*, two species inundated less frequently, required nine years to match natural marsh conditions, and the upland *S. patens* had not achieved natural marsh equivalence after 15 years. Soil characteristics, including porosity, organic C and total N reservoirs, along the streamside and interior areas were estimated to require 70-90 years to reach natural marsh conditions. Wetland soil conditions of the upland border, dominated by *S. patens* were estimated to require more than 200 years to recover.

3.4 Sediment Interaction

Bradshaw et al. (1985) suggested the physical attributes of South Creek tributaries strongly influence sediment chemistry: "The large amount of metabolism per unit surface area in such shallow waters also means that primary productivity is highly concentrated per unit area, an important characteristic for a viable nursery. Because these creeks are so shallow, activity of the sediments is necessarily a large proportion of ecosystem function." This is an important aspect to consider if estuarine stream channels are to be impacted. The resulting mitigation must match not only the hydrology, soil, and vegetation of the natural area, but stream depth as well to replace the high productivity found in the existing NCPD South Creek tributaries.

3.5 Habitat Replacement

An assessment of nursery function of the created brackish-marsh / estuarine-stream complex PA2 over a 10-year period found that nursery functions, as related to ichthyofauna and benthic infauna (Rulifson 1991), were supported in the created area (West et al. 2000). West et al. (2000) linked the success of the created area to four aspects related to its location. First, the created

habitat is surrounded by the same habitat it was intended to replace or mimic. Second, the surrounding area is a large undeveloped habitat that eliminates anthropogenic sources of pollution and other aspects that can negatively impact restoration or creation projects. Third, due to its non-tidal nature, erosive forces are minimal. Lastly, the created area, similar to its adjacent natural habitats, is limited in the amount of fauna it can sustain under highly variable abiotic factors. As West et al. (2000) points out, the majority of the taxa found in the area are part of a small subset of resilient, tolerant estuarine species. Due to the proximity of PA2 to two relatively undisturbed natural creek systems, invertebrate recruitment pools are large and ultimately may play an important role to the success of the PA2 mitigation site. Considering that the proposed mining alternatives would require a much larger scaled salt marsh mitigation site, it is questionable whether recruitment pools will be sufficient to garner similar results. The DEIS needs to provide evidence that scaling up a project such as PA2 is feasible with a high probability of success.

As noted above, the sediments are dissimilar between the natural creeks in the NCPC tract and the created PA2 area, and there was no evidence of accretion of peat, woody detritus and silt and clay over a ten-year period. Perhaps this is a function of a lack of upstream watershed, including riparian and forested wetland habitat. However, this difference seems to play an insignificant role in the ability of mobile benthic and fish fauna to inhabit the area; there appeared to be enough high quality food to account for the equality of abundances of invertebrates in created vs. the natural system. Other potential functions of woody detrital material, such as nutrient cycling functions, were not tested. The soil and vegetation study described in Section 3.3 estimated that wetland soil characteristics in created brackish-marsh systems require 70-200 years to re-establish natural conditions (Craft et al. 2002). While the West et al. (2000) and Rulifson (1991) studies demonstrate that created marsh creek system can support fauna, these studies did not address whether created wetlands can establish the biogeochemical, microbial and other functions of natural wetlands.

There is also an important question related to reference sites for future mitigation. If a mining alternative were to be permitted that would directly impact the estuarine creek systems and their associated riparian wetlands in the NCPC tract, what wetland and streams systems would be used as a reference for evaluating future mitigation success? Due to climate change and off-shore evidence of shifts in range of species, it will be important to have a contemporary reference point to evaluate future mitigation efforts. Use of a static reference point, from historical South Creek tributary data, will not be sufficient to adequately evaluate the success of future mitigation efforts.

Final aspects to consider are the loss of a native seed bank with the removal of wetlands under any mining alternative, and the possibility for invasive plant species colonization. Wetland mitigation also cannot replace seed bank loss. The DEIS fails to consider the potential for spread of invasive plant species to peripheral and downstream wetland areas not directly impacted by mining activities. *Phragmites* sp. and other invasive species are present on the current reclamation areas.

3.6 Section III Summary

The proposed impacts via the AP mining alternative would directly and indirectly impact estuarine stream and riparian wetland ecosystem health and function. As evaluated in Section II, the AP alternative would result in significant degradation of the aquatic environment. Section III analyzes the potential for functional equivalence between restored or created wetland systems to natural conditions. While some functions, such as aquatic habitat, may be restored within 10 years, many other functions and natural wetland characteristics will only be restored with a significant lag period on the order of decades. Furthermore, the DEIS fails to demonstrate the feasibility of reliably scaling up mitigation efforts (compared to much smaller past projects) that would yield a high probability of success.

The proposed brackish marsh mitigation will be similar to PA1 and 2 located between Jacobs and Drinkwater Creeks on the west side of South Creek. The loss of the salinity/ freshwater interface by mining through a major portion of South Creek tributary's drainage basins will not be recovered through this type of mitigation. The complexities of the systems located within the NCPC tract cannot be replicated through mitigation without an associated significant lag time as mentioned. Existing riparian wetlands within the NCPC tract provide quality protections for the inland PNAs, and resulting mitigation must also provide this protection. Many individual functions of the wetlands and stream channels located within the NCPC track are interdependent. Replacing a contiguous wetland/stream system with smaller, fractured mitigation sites will result in the loss of interdependent functions, the interaction of upland, flat and riparian wetlands and coastal streams, and the complexity of the system presently occurring within the NCPC tract.

IV) CONCLUSIONS

The applicant has failed to demonstrate that mining activities within the NCPC tract, especially within riparian wetlands and stream channels, will not cause significant degradation of the aquatic environment. Furthermore, the applicant has failed to demonstrate that appropriate mitigation will take place in a timely manner to replace the functions lost through the excavation of wetlands and waters. Situations identified in this document that would lead to a significant adverse impact to the aquatic environment include:

- Elemental enrichment of estuarine streams from mining and reclamation activities, including cadmium and fluorine, as well as phosphate enrichment, that would cause adverse biological effects.
- Hydrologic alterations due to drainage basin reductions that would result in downstream salinity changes.
- Hydrologic alterations that would result in increased anaerobic conditions in riparian wetland areas resulting in changes to the nutrient cycling.
- Loss of freshwater habitat due to drainage basin reductions from mining.
- Changes to the carbon cycle due to the removal of mature watersheds that are potentially significant sources of organic carbon to the estuary.
- Loss of headwater stream function and their associated wetlands that would result in the loss of water quality filtration.
- Direct sedimentation and metal contamination impacts from dyke construction across estuarine streams.

Therefore, it is our determination that mining riparian wetlands and streams, including sections of three designated inland PNAs within the NCPC tract will result in adverse impacts on the aquatic ecosystem that cannot be appropriately mitigated and would constitute significant degradation under 404(b)1 guidelines.

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Attachment 5

SELC PTRF
401 Certification Comment Letter
07/07/2008



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor
William G. Ross Jr., Secretary

Division of Marine Fisheries

Dr. Louis B. Daniel III, Director

MEMORANDUM

To: Melba McGee
Through: Anne Deaton
From: Sean McKenna
Date: June 27, 2008
Subject: PCS Phosphate mine advance, Beaufort County

The following comments by the North Carolina Division of Marine Fisheries (NCDMF) on the Final Environmental Impact Statement (FEIS) are offered pursuant to G.S. 113-131. The Potash Corporation of Saskatchewan Phosphate Division (PCS), Aurora Operation has applied for a Department of the Army authorization to continue its phosphate mining operation on the Hickory point peninsula adjacent to the Pamlico River and South Creek, north of Aurora, in Beaufort County. The applicant's purpose and need is to continue mining its phosphate reserve in an economically viable fashion. More specifically, the applicant's purpose and need is to implement a long-term systematic and cost-effective mine advance within the project area for the ongoing PCS phosphate mine operation at Aurora (Beaufort county), North Carolina. The mining method is "open pit." The upper soil layers are completely removed to reach target phosphate ore at varying depths. All surface features, including topography, vegetation, and waters, are destroyed, when mining occurs, and the soils and surface features are rebuilt in an altered fashion some years later.

On April 25, 2008 the PCS requested that it's application be modified to request a permit for Alternative L. Based on information provided by the applicant this alternative would provide approximately 37 years of mining at current production levels (5M tons of concentrated phosphate rock per year). Alternative L avoids all areas regulated by CAMA. Alternative L is an 11,909-acre project area with direct mining impacts to 4,135 acres of wetlands and 20 acres of open waters (8 acres of streams and 12 acres of ponds). There will also be drainage basin reduction to a number of creeks and streams in the project area. Impacted waters include Whitehurst Creek (4%), Jacks Creek (68%), Jacobs Creek (54%), Drinkwater Creek (61%), Tooley Creek (46%), and 45% of the unnamed tributaries of South Creek. These creeks drain into South Creek, a MFC designated Special Secondary Nursery Area, and their loss will have significant adverse impacts on the function of the downstream nursery area. Huddles Cut and Huddy Gut drainage basins would be permanently reduced by 63% and 58% respectively. An unnamed tributary of the Pamlico River would be reduced by 45%. In the Bonnerton Tract, Porter Creek would be reduced by 70%, Durham Creek would be reduced by two percent, and Bailey Creek would see a 3% reduction. Drainage reductions in the S33 Tract include Bailey Creek (40%), Broomfield Swamp (72%), and Cypress Run (75%). Jacobs, Tooley, Jacks and Porter creeks are designated inland PNAs by the NC Wildlife Resources Commission.

Based on the discussion below, the NCDMF finds this FEIS to be inadequate. Therefore, it is not suitable for use as a decision support document in its current form. Furthermore, if this document were to be utilized as the primary support document for issuance of a permit for the requested mine advance, the NCDMF would be opposed to Alternate L or any alternate that involves further mining in the NCPC tract due to the significant negative adverse impacts to estuarine fisheries resources, fish habitats, water quality, and public trust waters in the Pamlico River system. Impacts would include both direct and indirect effects. Direct effects would be seen through drainage basin reductions, sedimentation, and loss of habitat.



North Carolina Department of Environment and Natural Resources

Division of Marine Fisheries

Dr. Louis B. Daniel III, Director

Michael F. Easley, Governor
William G. Ross Jr., Secretary

Indirect effects would include negative impacts to Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPCs), impacts associated with heavy metal contamination, drainage basin reductions, impacts to commercial and recreational fisheries, long-term water quality impacts from the mining activity, and loss of wetland functions.

As noted in Section 1.6 (Areas of Controversies and Unresolved Issues) of the FEIS;

"Areas of potential controversy include avoidance, minimization, and/or mitigation of impacts to wetlands and waters; **overall level and extent of impacts to aquatic resources**; direct, indirect, and cumulative impacts to surface and groundwater quality, air quality, and terrestrial and aquatic communities; elevated cadmium concentration in reclaimed lands; and length of the authorized permit activities."

The NCDMF raised concerns about these unresolved issues in our comments on the Draft EIS [DEIS (2/2/07)] and the supplement to the DEIS (12/4/07), and is very disappointed that the CORPS chose not to adequately address them in the FEIS. Not only were our concerns not fully addressed, but the CORPS never contacted the NCDMF to talk about these issues during the preparation of the FEIS. The NCDMF understands that this is a CORPS document and ultimately they have the final say on the adequacy and content of the document. However it is important to remember that this document will also be used to satisfy the requirements of the State Environmental Policy Act, and the NCDMF is the state agency charged with the stewardship of the marine and estuarine resources of the State of North Carolina and is responsible for the management of all marine and estuarine resources. Therefore the NCDMF believes that our concerns merit full consideration by the CORPS since the proposed action will have significant negative adverse impacts to estuarine fisheries resources, and fish habitats of the state, based on the information provided.

In addition to significant concerns with the proposed mining activity and the inadequacy of the FEIS, the mitigation plan only addresses direct impacts. According to the National Environmental Policy Act of 1969 (NEPA) "Effects include: (a) Direct effects, which are caused by the action and occur at the same time and place. (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects and impacts as used in these regulations are synonymous. Effects include ecological (such as the effect on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial." (40 CFR 1508.8). Mitigation under the NEPA process (40 CFR 1508.20) includes "(a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (e) Compensating for the impact by replacing or providing substitute resources or environments." Based on these NEPA requirements the NCDMF feels that the mitigation plan must also address indirect impacts. Indirect impacts to EFH/HAPC total 3,349 acres (Table 1). Since there are no suitable habitats to mitigate



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for these losses the NCDMF feels that the only option available is avoidance and minimization. To that end over 88% of the impacts to EFH/HAPC can be avoided by not allowing any further mining on the NCPC tract, by avoiding these areas impacts to EFH/HAPC would be minimized to 13%. In view of the fact that indirect impacts were not accounted for in the mitigation section of the FEIS the NCDMF finds this section FEIS to be inadequate, and requests that no action be taken on this permit until such time as a complete mitigation plan is developed that provides mitigation for both direct and indirect impacts as required by NEPA. Additionally, the mitigation plan needs to include a contingency plan and financial assurances to address potential long-term increased metal concentration in the aquatic and terrestrial environment from mining and reclamation activities. Also, if the CORPS determines that indirect impacts do not need to be mitigated for, then a contingency plan and financial assurances for these indirect impacts needs to be provided.

Table 1. Alternative L impacts (total acres) to Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPCs) by area.

EFH/HAPC	Area impacted (acres) ¹		
	NCPC	Bonnerton	S33
Tidal freshwater (palustrine)			
emergent wetlands	46	2	0
Tidal palustrine forested areas	15	0	0
Estuarine wetlands	87	0	0
Unconsolidated bottom (soft sediments)	38	0	0
Tidal creeks	38	0	0
Tidal freshwater	1	0	0
Estuaries	130	0.5	4
Mixing and seawater zone of the Pamlico River	87	0	0
Primary nursery Area ²	28.8	70.8	0
Special Secondary Nursery Area ³			
Tidal freshwater SAV	1	0	0
Estuarine SAV	33	0	0
Submerged rooted vascular plants (seagrasses)	31	0	0
Total EFH/HAPC impacts	535.8	73.3	4
Percent of EFH/HAPC impacts	87.39%	11.96%	0.65%

¹ Data provided in the FEIS by the applicant

² FEIS states that there are only 22 acres of impacts, but they only included the portion of the PNA in the Public trust areas. Also Designation of PNAs is done entirely under state authority; however, the South Atlantic Fishery Management Council includes North Carolina's PNAs as Essential Fish Habitat by reference.



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³ Total SSNA in the South Creek Complex total 2,736 acres, all of which would be indirectly impacted by this project.

CONCERNS/DEFICIENCIES:

4.1.3.1 Elemental Contaminant Issues

"There are many interactions between and among metals, the species of metals, and the physical environment (pH, salinity). Some factors enhance uptake while others inhibit or moderate absorption. Some metals have greater effects on invertebrate organisms, while other metals affect vertebrates more acutely. Fish and wildlife are often used as sentinel species and bioindicators during ecological risk studies (Peakall and Burger 2003). The elemental contaminants within the reclamation areas and found in plant and animal tissues at PCS are cadmium, arsenic, chromium, and zinc. Cadmium is a teratogen, a carcinogen, and a possible mutagen. Arsenic is also a carcinogen and disrupts production of the multifunctional nucleotide ATP involved with intracellular energy transfer. While chromium and zinc are considered essential trace elements, health effects from chromium depend upon its oxidation state. Zinc as a free ion in solution is highly toxic for fish and invertebrates and can suppress copper and iron absorption. Other determining factors in the bioavailability of metals are host, age, gender, size, genetic characteristics, behavior (food chain relationships), and the interactions and synergies between all factors. Indirect effects of contaminants are difficult to determine and are likely to disrupt aquatic populations at several trophic levels (Fleeger et al. 2003)."

A review of the CZR Incorporated (1999) report indicates the following:

1. Clay, produced during the initial processing of the phosphate rock, has elevated concentrations of silver, arsenic, cadmium, chromium, manganese, uranium, zinc, phosphorus, total organic carbon, and calcium carbonate.
2. Sand tailings, produced with clay during the initial processing of the phosphate rock, have elevated concentrations of arsenic, cadmium, uranium, and phosphorus.
3. Bucket wheel spoil, overburden removed from above the main phosphate rock deposit has a slightly elevated concentration of silicon.
4. Gypsum, a byproduct of the reaction of sulfuric acid with phosphate rock, showed levels of arsenic, at or above the average level for continental rock. Cadmium levels were enriched, on average, 156 times above background. Levels of uranium, zinc, and phosphorus were also significantly elevated.
5. Blend, composed of clay (1 part) and gypsum (2 to 4 parts), is used in the reclamation process. Blend showed elevated concentrations of silver, arsenic, cadmium, manganese, uranium, zinc, phosphorus, and total organic carbon.



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6. Concentrations of metals in the sediment of R-3 North and R-3 South showed elevated concentrations of silver, arsenic, cadmium, chromium, copper (R-3 North), molybdenum, selenium, and zinc. Levels of cadmium and chromium (R-3 South) on the sampled reclamation sites (R-3 North and R-3 South) exceeded the effects-range-median value which is defined as the concentration above which harmful effects would occur frequently. Levels of silver, arsenic, copper, and zinc exceeded the effects-low-range value which is defined as the concentration below which adverse effects would occur only rarely.
7. Dissolved metal concentrations in surface waters of R-3 North and R-3 South showed elevated levels of arsenic, cadmium, molybdenum, and zinc. Particulate metals for these sites was high in arsenic, cadmium, chromium, molybdenum, and zinc (R-3 South only). These sites exceed chronic freshwater water quality criteria for cadmium and chromium (R-3 North).

The transfer of toxic chemicals through marine food chains can result in bioaccumulation in fishery resources. Ecological concerns of contamination in the marine environment include changes in species distributions and abundance, habitat alterations, and changes in energy flow and biogeochemical cycles. The toxic effects of chemical contaminants on marine organisms are dependent on bioavailability and persistence, the ability of organisms to accumulate and metabolize contaminants, and the interference of contaminants with specific metabolic or ecological processes. Accumulation of contaminants in biological resources may occur through aqueous, sedimentary and dietary pathways.

The FEIS must thoroughly address the movement, metabolism, bioaccumulation, fate, and short-term and long-term impacts of these substances (silver, arsenic, cadmium, chromium, copper, molybdenum, selenium, manganese, uranium, phosphorus, zinc, total organic carbon, and calcium carbonate) on commonly occurring estuarine organisms important in the estuarine food chain, as well as in vertebrate and invertebrate fishes taken in the commercial and recreational fisheries of the Pamlico River system and other areas to which fishes from that area may migrate and support the food chain or be harvested. This analysis is important given that section 3.6.2.9 (Bottom Sediments) of the FEIS states "In the 1997 study and NCPC monitoring, arsenic, cadmium, molybdenum, selenium, and zinc were found to be elevated above the level in the continental crust in most, if not all, of the sampling stations (CZR Incorporated, Trefry, and Logan.1999)." This analysis should look at direct, indirect, and cumulative impacts.

The importance of the elemental contaminant issues cannot be understated given the potential biological, and economic impacts. In 1987 a severe outbreak of shell disease (complete breakdown of the crystalline matrix of the endocuticle) in blue crabs in the Pamlico River was investigated (McKenna et. al. 1990). The majority of diseased crabs were caught between Durham and South creeks. Possible causes of this outbreak were cadmium and/or fluoride (McKenna et. al. 1990). The authors of this study concluded, "The association between Texasgulf and the outbreak of shell disease in the Pamlico River cannot be dismissed as a fortuitous event and warrants further investigation." This outbreak had significant biological impacts to the blue crab resource in the river by causing mortalities of effected crabs, and resulted in local and national concern about potential human health concerns related to eating seafood from this system, and to a lesser extent consumption of all seafood caught in North Carolina. Fishermen and dealers were not able to sell their product, resulting in lost income and markets. No further outbreaks of this disease have been seen since the completion of the plants water recycling system in 1992. However, this event does show the need to examine the direct, indirect, and cumulative impacts of these toxins. This is especially important given the uncertainty



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surrounding the current method of capping overburden (see section 4.1.3.1). As noted at the end of section 4.1.3.1 "Any permit issued by the Corps for further mining at the Aurora operation will necessarily include conditions to successfully address the cadmium and other heavy metals issue. **The specific conditions will be developed after considering the success of capping methods employed to date. The conditions will also likely include a monitoring program and contingency plans.**" The NCDMF feels that the ecological consequences warrant delaying action on this permit until this issue is resolved.

4.2.1.2 Soils

"Due to the nature of open pit mining, removal of the overburden, or all soils and stratigraphic units overlying the ore, would result in the unavoidable loss of soils in the area of impact under any of the mining boundaries. The soil character would be irreversibly altered.

Impacts to existing wetlands within the mine perimeter are permanent. The purpose of reclamation is not to restore wetland (or upland) functions of soils but to safely fill the excavated area according to state/federal laws; however, additional goals of reclamation are the establishment of both upland and wetland habitat that will invite and support wildlife."

The direct, indirect, and cumulative impacts of these losses must be examined as to their effect on downstream waters.

4.2.1.6 Surface Waters

"Long-term water quality impacts from the mining activity are more difficult to assess. Once mining is completed, PCS will be required by the North Carolina Division of Land Resources to reclaim the area mined, pursuant to an approved reclamation plan. The areas reclaimed may or may not function as wetlands. Once this area is reclaimed, drainage will also be restored, resulting in run-off from the reclaimed land entering the creeks. Potential long-term impacts to water quality in primary nursery areas include the permanent loss of the filtering and flow moderation benefits of the wetlands through which this run-off would otherwise drain. Although compensatory mitigation within the same hydrologic unit would be required, it would not be at the location of the impacted wetlands, and those wetlands would not be available to provide functions lost at this particular site.

"In addition, there is a potential for long-term water quality impacts resulting from the use of the gypsum-clay blend materials in the reclamation effort. Particular concern over the potential for cadmium, found in the gypsum-clay blend, entering the receiving waters has been expressed."

Changes in the drainage basin will affect freshwater inflow and salinity patterns in South Creek. The impact of phosphate mining on streamflow in Florida was examined by Schreuder et al. 2006. This study indicated that mined basins have increased overall stream flow. The analyses also showed that flood-flows from mined basins were reduced by mining operations, while median and base-flows were significantly increased. Mueller and Matthews (1987), Browder et al. (2002), and Galindo-Bect and Glenn (2000) showed



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that changes in freshwater inflow affects salinity patterns, which in turn affects shrimp growth, survival, and subsequent recruitment and stock size available for harvest. Estuarine animals exist in a community assemblage; thus, the influence of salinity on one species can be extended either directly or indirectly to affect other species (Pottillo et al. 1995). The cumulative effects of even small changes in an estuary may have a total systemic effect on the marine resources and the economic activities that depend on them (Monaco and Emmett 1988; Bulger et al. 1990; Orland et al 1993). Since 1994 the commercial harvest of finfish and shellfish in North Carolina has averaged 160,564,051 pounds with a average dockside value of \$94,999,172 (NC DMF Trip Ticket data 1994-2005). Effects of drainage basin reductions on the production of marine fisheries resources must be addressed.

Besides its effect on fish production, reduction in the drainage basin area will result in increased sedimentation and turbidity, which are significant contributors to declines in populations of North American aquatic organisms (Henley et al. 2000). The direct effects of sedimentation and turbidity at various trophic levels are mortality, reduced physiological function, and avoidance. Sedimentation can clog the gills of fish, reducing respiratory abilities. This stress, may in turn, reduce tolerance levels to disease and toxicants, and to changes in dissolved oxygen concentrations and salinity, compromising the health of local fisheries resources. Elevated levels of sediment (typically over background) may be harmful to fish (i. e., acutely lethal, or elicit sublethal responses that compromise their well-being and jeopardize survival), and negatively impact their habitat (DFO 2000). Decreases in primary production are associated with increases in sedimentation and turbidity and produce negative cumulative effects through depleted food availability to zooplankton, insects, freshwater mollusks, and fish. Decreases in available food at various trophic levels also result in depressed rates of growth, reproduction, and recruitment (Henley et al. 2000). These effects lead to alterations in community density, diversity and structure. The effects of changes in sedimentation on marine resources and primary and secondary production must be addressed.

Reduction of the drainage basin area will eliminate contiguous sheet flow and decrease the buffering capacity of the system. These changes will likely increase the amount of sediments, nutrients, and toxics entering the system. Nitrogen and phosphorus can accelerate eutrophication resulting in algal blooms, reduced water clarity, shifts in algal and fish populations, and fish kills. Currently South Creek is stressed, with water quality problems including algal blooms and increases in suspended solids. While these existing problems are probably not the result of current mining activities, reduction in buffering capacity of the tributaries from further mining north of NC Highway 33 will only exacerbate existing conditions. Many hypoxic zones in the world have been caused by excess nutrients exported from rivers, resulting in reduced commercial and recreational fisheries production (Council for Agricultural Science and Technology 1999). The effects of cadmium and other heavy metals and the reduction in buffering capacity must be examined.

4.2.1.9 Wetlands and Open Waters (Section 404 Jurisdictional Areas)

"All of the proposed locational mine continuation boundaries except the No Action alternative boundary would result in the disturbance or loss of wetland communities. The resulting ecological consequences include the loss or disruption of the following wetland functions: groundwater discharge and recharge, **surface water storage, organic matter production and export, sediment capture and retention of pollutants**, wildlife habitat including EFH/HAPC, and nutrient accumulation, cycling and transformation. Drainage area reductions for area creeks also would potentially



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impact adjacent Section 404 jurisdictional wetlands by altering the input of freshwater into these systems. Intact wetlands outside of the boundaries of the proposed mine continuation boundaries would potentially be affected by changes in water quality, as well as by diminished input from runoff upstream."

Wetlands have many functions including high net primary production; fish and wildlife habitat; retention of nutrients, sediments, and toxins; shoreline protection; attenuation of flood waters; recharge of groundwater aquifers; and nutrient cycling. A review of wetland functions can be found in the North Carolina Coastal Habitat Protection Plan (Street et al. 2005) and Section 4.2 of the Compensatory Section 404/401 Mitigation Plan. Specific wetland issues relating to this FEIS can be found elsewhere in this document. Hydrologic processes control the formation, persistence, size, and function of wetlands, while soils and vegetation alter water velocities, flow paths, and chemistry (Carter 1997). Wetlands restoration and creation projects do not consistently replace lost wetland structure and/or function (Erwin et al. 1997; Minello 2000; Streever 2000). In addition, there is evidence showing that some wetland attributes of natural and restored or created wetlands may be similar, while others may be different, and that different wetland attributes develop at different rates (Galatowitsch and van der Valk 1996; Minello and Webb 1997; Simenstad and Thom 1996; Streever et al. 1996; Streever 2000). Densities of both fishes and decapod crustaceans were lower in created salt marshes (2 to 15 yr in age) than in natural marshes (Minello and Zimmerman 1992; Minello and Webb 1997).

4.2.1.11.2 Aquatic Wildlife Communities

"Removal of open water habitat also would result in localized losses of aquatic organisms and their habitat and would remove some EFH/HAPC communities. However, no commercially important species are likely to be directly affected. Loss of aquatic habitat and loss of aquatic fauna will be offset over time by mitigation activities including restoration of open water and by reclamation activities through restoration and creation of additional open water habitats and other aquatic habitats as appropriate with current reclamation practice and geomorphic constraints. Aside from the AP alternative boundaries, the proposed mine continuation alternatives would excavate upper headwater intermittent or perennial streams, not brackish marsh and estuarine creeks (Section 4.2.2.11.2). Although these headwater reaches provide important support functions, they do not support the large diverse aquatic communities associated with deeper downstream reaches."

Nursery areas are those portions of estuarine waters most critical to the early life history stages of marine and estuarine organisms. Early development of the post larval stages of many fish and shellfish species occurs in Primary Nursery Areas (PNAs). More than 90% of North Carolina's commercial fisheries harvest and 60% of the sport fisheries harvest consists of species dependant on estuarine nursery areas. Direct impacts to nursery areas include drainage basin reductions, and loss of wetlands and open water habitat. As noted in Section 4.2.1.20 "...lost resources include permanent loss of existing topography and soils, and potentially permanent losses of currently existing wetlands and open water, biotic communities, and fish and wildlife habitat quality within the project area." The cumulative effects of even small changes in an estuary may have a significant systemic effect on the marine resources and the economic activities that depend on them (Monaco and Emmett 1988; Bulger et al. 1990; Orland et al, 1993). There is a high probability that the various restoration projects will be unsuccessful in fully restoring natural process. Some of



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the affected waters are PNAs, and all the waters support various aquatic organisms that contribute to the estuarine food chain, and ultimately to fisheries production. This section must address the effects on estuarine species, both direct and indirect, through the loss of open water habitat.

"Within the project area, as in other estuaries, salinity is highly variable due to wind tides and rainfall. Therefore, although optimum salinities likely exist for many species (Peterson et al. 1999; Secor et al. 2000; Specker et al. 1999), estuarine fishes at all life stages are adapted to a wide range of salinities (Malloy and Targett 1991; Banks et al. 1991; Limburg and Ross 1995; Buckel et al. 1995). Even if salinity was affected by mining, impacts to fisheries are unlikely because many studies have demonstrated the insensitivity of estuarine fishes, especially at post-larval stages, to drastic changes in salinity (Crocker et al. 1983; Zydlewski and McCormick 1997; Nordlie et al. 1998; Estudillo et al. 2000)"

While estuarine species are able to tolerate temporary fluctuations in salinity, a permanent change in salinity patterns will likely result in a total change in species assemblages.

"Similarly, monitoring data collected during NCPC monitoring suggest that mining activity would not impact fish and benthos"

The sample intensity and the parameters measured are inadequate to support such a broad generalization. The statement should be deleted unless the applicant can show with a high degree of statistical certainty that it is true.

Section 4.2.1.17.9 Recreational Resources

Recreational fishing, especially with hook and line, is growing within coastal North Carolina. On January 1, 2007 the State of North Carolina required all people (over the age of 16) fishing in coastal and joint waters for recreational purposes to purchase a coastal recreational fishing license. Revenues from license sales are used to manage, protect, restore, develop, cultivate, conserve, and enhance the marine resource. The FEIS must address probable mining effects on such fisheries. Data are available from a number of sources, and the applicant has the ability to conduct appropriate studies, as needed.

4.2.1.21 Cumulative Impacts

"The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) define cumulative effects as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). The document further states that, by definition, cumulative effects must be evaluated along with the direct effects and indirect effects (those that occur later in time or farther removed in distance) of each boundary. The range of alternatives considered must include the No Action boundary as a baseline against which to evaluate cumulative effects of the AP or EAP alternative boundary. The range of actions that must be considered includes not only the project proposal but all



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connected and similar actions that could contribute to cumulative effects. Specifically, NEPA requires that all related actions be addressed in the same analysis (Council on Environmental Quality 1997)."

The NCDMF concurs with the need for this assessment and finds the information in the FEIS to be deficient. Significant revisions must be done to meet the federal NEPA requirements. This section should use the Council on Environmental Quality 1997 document "Considering Cumulative Effects Under the National Environmental Policy Act" as a guide in the preparation of this section.

4.3.1.4.3 Watershed Acreages and Hydrologic Regimes

"There is no evidence to support that any adverse impacts will occur. Conversely, there is evidence to show that 1) salinity levels will not be significantly affected by reduction in drainage area (and thus reduction in freshwater flow), 2) the creeks will continue to have their salinity levels determined by the Pamlico River/South Creek system, 3) the creeks will continue to function as nursery areas, and 4) no adverse impacts should occur from sediments or run-off during construction, mining, or reclamation activities (CZR Incorporated 1994)."

The referenced studies are not adequate (short duration, areas had only minimal drainage impacts, the study area has been significantly impacted since 1968 and current dewatering practices affect surface and sub-surface flow in both the study and control sites thus masking any effects) to support the above conclusions. The FEIS needs to provide a review of the scientific literature. For example, a quick review of the literature showed that restoration and creation projects do not consistently replace lost wetland structure and function (Erwin et al. 1997; Minello 2000; Streever 2000). In addition, there is evidence showing that some wetland attributes of natural and restored or created wetlands may be similar, while others may be different, and that different wetland attributes develop at different rates (Galatowitsch and van der Valk 1996; Minello and Webb 1997; Simenstad and Thom 1996; Streever et al. 1996; Streever 2000). Densities of both fishes and decopod crustaceans were lower in created salt marshes (2 to 15 yr in age) than in natural marshes (Minello, Zimmerman 1992, Minello and Webb 1997), and these are the fisheries resources of greatest importance in coastal North Carolina.

The NCDMF also strongly recommends that existing water quality monitoring programs be maintained and/or expanded, depending on the final selected alternative. In addition to water quality monitoring, programs should be designed and implemented to sample fishery resources, and heavy metal contamination.

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Mike_Wicker@fws.gov
03/26/2009 03:16 PM

To "Pace.Wilber" <Pace.Wilber@noaa.gov>, Rebecca
Fox/R4/USEPA/US@EPA, Ron Sechler
<ron.sechler@noaa.gov>, Tom

cc

bcc

Subject

History: This message has been replied to.

Either of these options on the long term will allow the site to again make a positive contribution to the downstream estuary post mining.

1.) Topsoil, A horizon (averaging one foot of depth, no less than six inches) would allow the site to recover at a greatly accelerated pace in contrast to not having topsoil and would make the reclaimed area suitable for a number of tree species. We prefer the topsoil option but this is **not mandatory**.

OR

The following two options can also be used which are expected to cause minimal cost to PCS if any.

- 2.) In upland areas plant longleaf pine. Longleaf pine is a priority species for USFWS.
- 3.) Plant bald cypress on wetland areas (if Atlantic white cedar was shown to do well, that would be OK as well since Atlantic white cedar is also a priority tree species for the USFWS). The three priority species for the USFWS in NC are longleaf pine, bald cypress, and Atlantic white cedar.

Longleaf pine, bald cypress, and Atlantic white cedar are all available as seedlings. One source for seedlings is the NC Division of Forest Resources at Claridge Nursery near Goldsboro, NC. All three of these species will grow on low fertility sites and longleaf and cypress are long lived species that despite slow growth will live long enough to eventually make nice trees even on sterile sites and will produce decay resistant litter that over the very long term will rebuild soil. All of these species provide wildlife habitat and all occur naturally in monotypic stands.

* All three of these options would be on top of the already agreed-upon 3-foot CAP needed per the cadmium risk assessment recommendations

Plus as minimization Not required. But desired.

Construction of a shallow 50 - 100 acre (approximately 3 foot deep wetland that would be planted with native submerged aquatic vegetation into which the mine depressurization water would be run thru prior to entering the estuary. The constructed wetland could be shaped according to site conditions (linear, oval or rectangular) and should have a topsoil bottom to

support submerged aquatics. We believe such an area would be tremendously productive and serve as an interim benefit to the estuary until the mining is over (at which time the pumping would cease) and the reclaimed areas could supply reasonable surface water drainage to the estuary. This would help to minimize watershed loss which is one of our major concerns.

Background information on soil and trees

The USFWS has encouraged a topsoil cover, to take advantage of the soil structure, organic matter, nutrients, and seed sources available in that material which is available as mining operations advance. From an ecological perspective, there is certainly support for this approach in the literature (Farmer and Blue 1978; Schuman and Power 1981) and in the reclamation of phosphate mined lands in Florida (Ron Concoby, IMC-Agrico Company, pers. comm.; Christine Keenan, Florida Department of Environmental Protection, Mine Reclamation Section, pers. comm.; John Kiefer, CF Industries, pers. comm.; Mike Shannon, Cargill Industries, pers. comm.). For example IMC-Agrico, Cargill Industries, and CF Industries in central Florida do upland reclamation of phosphate mined lands by using native topsoil (top approximately 4 to 10 inches) as a cover in ~5% of their overall upland reclamation programs. This is done to get the benefits of native vegetation seed banks for xeric/oak and mesic upland pine flatwood communities, key habitat types for restoration in the perspective of the local regulatory authorities and environmental groups. The percentage of wetland reclamation which employs topsoil is far higher. While not the norm for upland restoration (because 90 to 95% of upland reclamation uses no topsoil), topsoil addition is the desired method when restoration of the native plant community is the target post-reclamation landuse. The size of individual upland restoration parcels employing topsoil in Florida ranges from ~3 to 200 acres and cumulatively exceeds 600 acres with hundreds more acres projected or planned.

While topsoil has known ecological restoration benefits, those benefits primarily relate to supporting a defined goal of restoring a productive and diverse community that would contribute in a meaningful way to area ecology. In Beaufort County, topsoil depths are ~3 to 18 inches (Kirby 1995) in the dominant soil series (Portsmouth, Cape Fear, Roanoke, and Wahee). **There is likely not sufficient topsoil to advocate a use of topsoil alone for all reclamation needs.**

In a subset of areas where the diversity of native vegetation is desired (e.g.,

the wetland community types such as bottom land hardwood and scrub pocosins or particularly diverse upland assemblages), use of 6 to 12 inches of topsoil on top of is suggested. The benefits of a seed stock for native plant diversity would be significant. Cypress could also be planted in these areas; their need for more organic material than would be in the overburden mix would be addressed by the topsoil addition. Cypress could also be grown on areas without topsoil. This also represents a compromise...it is a recognition that topsoil resources in the vicinity of the advancing mine are limited and that they probably cannot serve as the basis for all reclamation but should be used selectively as seed banks and in establishment of a better substrate for cypress (or other wetland species) restoration so that native vegetation other than the plantings can colonize the area.

Longleaf pine

Longleaf pine occupied extensive areas of the Coastal Plain when European settlers arrived (Wahlenberg 1946). Today, longleaf pine occupies only 1% of its original range in the Southeast (Ware et al. 1993). Longleaf pine normally occurs on dry, sandy soils, and does not thrive where there is excessive moisture, as in swamps or pocosins (Wahlenberg 1946). While tap roots can extend deep for plant stability, longleaf pines develop extensive lateral root systems; most roots are within 0.3 m (1-foot) and nearly all are within 0.6 m (2-feet) (Boyer 1990).

Longleaf pine could very likely be grown on areas capped with prestrip overburden from the advancing mine (PCS Phosphate's initially conceived approach). Longleaf pine occurs naturally on low fertility sites such as the Carolina sandhills, and the species' historic range includes Beaufort County. In this case, the depth of uncontaminated cover material should be at least 3-feet to ensure cadmium is not translocated back to the soil surface with time. This approach allows use of material other than topsoil. PCS Phosphate is considering mixing the top ~35-feet of prestrip overburden from areas to be mined in the future as the source material for the cover; this depth represents that which is top cut with existing equipment (bucket wheel excavator). This material should provide a suitable substrate for the longleaf pine areas.

Baldcypress

Like longleaf pine, the bald cypress resource is only a fraction of that in earlier

years even though demand is still strong. **Cypress occurs on soils ranging widely in texture, reaction, base saturation and fertility (Coultas and Duever 1984). It is not demanding nutritionally. It is a shallow rooted species with a tap root. While it may not seem suited to reclamation on phosphate mined lands in eastern north Carolina, it was one of two species that appeared to do well on blended reclamation substrates in experimental work performed in this area (Steve Broome, North Carolina State university, pers. comm.).**

Baldcypress (*Taxodium distichum* (L.) Rich.) has been an important tree of commerce in the South, including North Carolina. The total resource is only a fraction of that in earlier years even though demand is still strong. Ashe (1894) noted that the supply of cypress suitable for lumber and shingles in eastern North Carolina was almost gone, but there were still some large tracts in Tyrrell and Washington Co. In the South, harvesting of cypress peaked at 1.3 billion board feet (bbf) in 1913 (Krinbill 1956). The slack-line technique used by early loggers in southern swamps was described by Bryant (1913). The reserve of cypress sawtimber decreased from 40 bbf in 1913 to 13 bbf in 1953, with 1.2 billion board feet (bbf) in North Carolina (Betts 1960). In 1990, there was an estimated 2.1 bbf of cypress sawtimber in the northern Coastal Plain (Thompson 1990) and southern Coastal Plain of North Carolina (Johnson 1990).

Cypress, which can live more than 1000 years, produces little merchantable heartwood before 200-300 years in age (Betts 1960, Krinbill 1956, Hall and Maxwell 1911). By usual methods of forest valuation, It could be argued that high quality cypress is prohibitively expensive to grow in rotations of 200-300 years (Krinbill 1956). In addition, other factors also affect yield, e.g, the hydro-period influences wood quality; if the site is too dry, or if water levels fluctuate too much, trees tend to develop heart rot, become hollow or pecky, and produce a higher percentage of sapwood (Krinbill 1956; Pinchot and Ashe 1897). Although undesirable for timber quality, defects would benefit wildlife by providing more dens and nest cavities.

In addition to its importance for timber, baldcypress is also important to wildlife. Historically, remote cypress swamps were a favored habitat of ivory-billed woodpeckers (Ridgeway 1898) as well as Carolina parakeets (Brewster 1889, Maynard 1881). Both species are now extinct. The potentially large size of cypress also makes it an important source of dens large enough to accommodate black bears and other animals. Seeds and fruits of cypress also represent a source of soft mast.

Atlantic white cedar

We believe that PCS has done some experimentation with Atlantic white cedar and it may provide another alternative to topsoil. Atlantic white cedar (*Chamaecyparis thyoides* (L.) B.S.P.) is an evergreen conifer that grows in fresh water swamps and bogs along a narrow coastal belt from southern Maine to northern Florida and west to southern Mississippi (Laderman 1989). Historically, white cedar was the most valuable tree in the Albemarle Peninsula in the coastal plain of eastern North Carolina (Krinbill 1956). The acreage of AWC today is probably $\leq 5\%$ of the original (Davis et al. 1997, Frost 1987, Kuser and Zimmerman 1995, Lilly 1981). The precipitous decline in acreage of AWC resulted not only from logging, but also from uncontrolled wildfires and widespread ditching and drainage of peatlands for agricultural purposes.

The Atlantic white cedar ecosystem is categorized as globally endangered by The Nature Conservancy. Cedar bogs support high breeding bird densities (425 to 554 pairs per 100 acres or 40 ha) of species such as ovenbirds (*Seiurus aurocapillus*), yellowthroats (*Geothlypus trichas*), and prairie, prothonotary, and hooded warblers (*Dendroica discolor*, *Protonotaria citrea*, and *Wilsonia citurna*, respectively). Hessel's hairstreak (*Mitouri hesseli*), a butterfly, uses Atlantic white cedar exclusively. Black bear (*Ursus americanus*), river otter (*Lutra canadensis*), and bobcat (*Felis rufus*) are numerous in cedar bogs, as are the State-listed eastern diamond-back rattlesnake (*Crotalus adamanteus*). The federally-listed red-cockaded woodpecker (*Picoides borealis*) inhabits mature pines that are scattered around cedar bogs.




"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/27/2009 07:47 AM

To Jennifer Derby/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, Palmer
Hough/DC/USEPA/US@EPA, Mike Wicker

cc

bcc

Subject PCS Draft Permit Conditions for Monitoring and Adaptive
Mgmt

History:  This message has been replied to.

Hi everyone.

Please check the addressees of this email. If I've inadvertently omitted anyone from your office that should be getting this message, please forward.

Attached are draft permit conditions that speak to monitoring impacts to PNAs and adaptive management. On the phone call, I mentioned an outline for a monitoring plan. While cleaning up what Ron and I had developed after getting input from the Beaufort Lab, FWS, and a few others, it seemed the outline could be couched as a permit condition, so that is what we've done. Also in the attached is a very brief background section meant to review some of the context for the monitoring and adaptive mgmt.

Any comments are welcome. And if CESAW has a preferred format they would like me to follow or similar draft conditions already in development, I am happy to adjust.

Pace

--

Pace Wilber, Ph.D.
Atlantic Branch Chief, Charleston (F/SER47)
Southeast Regional Office, NOAA Fisheries
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Charleston, SC 29422-2559

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<http://sero.nmfs.noaa.gov/dhc/habitat.htm>

Recommendations for the Monitoring of Impacts to Primary Nursery Areas

Background

Throughout reviews of the proposal by PCS to expand its mine into the NCPC, Bonneron, and S33 tracts, resource agencies expressed concerns over direct and indirect impacts to creeks that function as nursery areas for estuarine and marine fauna. South Creek, which borders the NCPC tract, is designated by the State of North Carolina as a Primary Nursery Area, and the NC Division of Marine Fisheries has jurisdiction over this aspect of South Creek. Three creeks that discharge into South Creek from the NCPC tract, Tooley, Jacobs, and Jacks Creeks, and one creek that borders the Bonneron tract, Porters Creek, are designated as Inland PNAs and are under the jurisdiction of the NC Wildlife Resources Commission. At the federal level under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), these creeks are Habitat Areas of Particular Concern, which is the highest level of protection afforded by the Magnuson-Stevens Act, and wetlands that serve as headwaters of those creeks are essential fish habitat (EFH) under the Magnuson-Stevens Act.

While the footprint of the proposed mine does not extend into the PNAs, the resource agencies are concerned that the extensive mining of wetlands that serve as the headwaters of these creeks may impair the function of these PNAs. Accordingly, a monitoring program coupled with an adaptive management process are proposed to gauge the impacts to the PNAs from the mining so that appropriate adjustments can be made to mine operations. By "appropriate adjustments," we simply mean compliance reviews common for permits that authorize projects of this size and duration, and recognition of the inevitable uncertainties at the time of permitting about how large projects affect the landscape, and vice versa. Similar monitoring should be part of the mitigation and reclamation activities so that the expected benefits from these activities can be evaluated. The monitoring program and adaptive management process described below are viewed as consistent with the recently issued water quality certification to the extent that the water quality certification describes the monitoring. PCS has six months to flesh out the monitoring program required by the water quality certification. We expect a single monitoring and adaptive management program would meet the requirements of state and federal authorizations.

Proposed Permit Conditions

Monitoring of PNA Functions

PCS shall develop and implement a plan of study to address the effects of a reduction in headwater wetlands on the utilization of Porters Creek, Tooley Creek, Jacobs Creek, Drinkwater Creek, and Jacks Creek as nursery areas by resident fish and appropriate invertebrate species. This plan shall be submitted to NMFS for review and approval prior to initiation of land clearing activities in the headwater wetlands of PNAs within the NCPC tract. The plan shall identify reference creeks (at least four); sampling stations, schedules, and methods; laboratory methods; data management and analysis; and quality control and quality assurance procedures.

At a minimum, the plan shall address the following issues and include the following data collection:

1. Has mining altered the amount or timing of water flows within the creeks?
 - Continuous water level recorders to measure flow
 - Rain gauges to measure local water input
 - Groundwater wells to measure input to the creeks
 - Continuous salinity monitoring
 - Periodic DO monitoring (continuously monitored for several days at strategic times of year)
2. Has mining altered the geomorphic or vegetative character of the creeks?
 - Aerial photography to determine creek position, length, width, sinuosity (annual)

- Cross section of creeks at key locations (annual)
- Sediment characteristics (texture, organic content, and contaminants) (annual)
- Vegetation (percent cover by species) along the creek to determine zonation changes and invasions (spring and fall)
- Sediment chlorophylls or organic content in vegetation zone (spring and fall)
- Determination of location of flocculation zones with each creek (spring and fall)

3. Has mining altered the forage base of the creeks?

- Benthic cores to sample macroinfauna (spring and fall)
- Benthic grabs focused upon bivalves, such as *Rangia* sp. (spring and fall)
- Net samples for grass shrimp, blue crabs, and small forage fish (such as *Fundulus* spp.); sampling gears would be chosen to reflect ontogenetic shifts in creek usage (monthly)

4. Has mining altered the use of the creeks by managed fish?

- Life-stage specific sampling based on time year, sampling gears would be chosen to reflect ontogenetic shifts in creek usage. (monthly or seasonally)

5. Do creek sediments include contaminants at levels that could impact fish or invertebrates?

- Creeks would be sampled for metals, including cadmium, mercury, silver, copper, and arsenic (annual)
- Availability and uptake by appropriate aquatic species (e.g., *Rangia* sp., blue crabs) should be measured using appropriate bioassay techniques (annual)

Adaptive Management

PCS shall establish an independent panel of scientists and engineers to annually evaluate whether direct and indirect impacts from mining and benefits from the compensatory mitigation are in accordance with expectations at the time of permitting. The panel shall meet during January or February of each calendar year and shall review data collected through the previous calendar year. By March 31, the panel shall provide the Wilmington District and PCS with recommended changes to the mining and mitigation that are necessary to bring the project into alignment with expectations. The Wilmington District will consider this information and comments from resource agencies to determine if corrective actions or permit modifications are needed. All data, reports, and presentations reviewed by the panel shall be placed and maintained on a publically accessible internet site.



"Heather"
<riverkeeper@ptrf.org>
03/27/2009 09:38 AM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject: RE: draft monitoring and reclamation plans

Thanks Becky-- we will work diligently on any recommendations we might have ASAP.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
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Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Friday, March 27, 2009 9:09 AM
To: Heather
Cc: Hough.Palmer@epamail.epa.gov
Subject: draft monitoring and reclamation plans

Hi Heather,

Attached are draft DBR monitoring plan and reclamation plan for mined areas N33 for PCS. Please forward to other NGOs for review. Please provide comments on these and any other monitoring recommendations by noon on Monday. Will send draft maps when we they are ready. Sorry for short turnaround time but this is on a very tight schedule... Will call you later. bf

(See attached file: PCS Reclamation (draft).doc) (See attached file: PCS monitoring (draft).doc)


Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov



"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/27/2009 09:39 AM

To Rebecca Fox/R4/USEPA/US@EPA
cc Jennifer Derby/R4/USEPA/US@EPA, Mike Wicker
<Mike_Wicker@fws.gov>, Palmer
Hough/DC/USEPA/US@EPA, Pete Benjamin
bcc

Subject Re: PCS Draft Permit Conditions for Monitoring and Adaptive
Mgmt

History:  This message has been replied to.

Hi Becky.

Hopefully this will be clear As noted in past emails, three of the the state-designated inland PNAs border NCPC, only one state-designated inland PNA borders Bonnerton (Porter Creek). Other creeks at both tracts undoubtedly function as pnas, but they lack the the PNA designation. NMFS discussions about monitoring have primarily focused on the four state-designated inland PNAs (hence we emphasize NCPC). Our draft permit condition, though, includes Porter Creek (so we are not emphasizing NCPC to point of excluding Bonnerton). To examine these creeks, reference areas are needed, and given the sequencing of mining, it is conceivable that reference creeks for NCPC could later become baselines for for examining impacts from mining the Bonnerton tract--these are details that would have to worked out with PCS. As for duration of the baseline monitoring, that depends on when the permit is issued, we are comfortable with adapting monitoring schedules to mining schedules. Given the sequencing and duration of each sequence, baselines for some creeks will be better than for others--IMHO that is just a reality we have to cope with.

Lastly, regarding "approval" of the detailed plan, I believe the federal and state permits should adhere to the same schedules to the extent practicable. The extent this can be achieved is still to be determined. The COE would be the approving authority for the plan, but we expect they would seek everyone's input in when doing that evaluation . . . and, obviously, we (including some participation by our Beaufort lab) are preparing to work with PCS and COE as much as it takes develop the plan details.

Pace

Fox.Rebecca@epamail.epa.gov wrote:

> Thanks Pace! Couple of questions: Plan is for NCPC creeks only -- are
> there no plans for Porter Creek on Bonnerton because the results from
> NCPC monitoring will be used to predict and adapt mining/mitigation for
> Bonnerton? I assume the plan will include baseline data collection --
> it may be implicit in conditions, in that to determine if alteration has
> occurred will need baseline. As you state 401 gives 6 months after
> permit issuance for submittal of monitoring plan and then is reviewed
> for approval by DWQ -- who would review and approve this plan? Thanks
> again! b

>
> Becky Fox
> Wetland Regulatory Section
> USEPA
> Phone: 828-497-3531
> Email: fox.rebecca@epa.gov
>

>
>
> "Pace.Wilber"
> <Pace.Wilber@noa
> a.gov>

> 03/27/2009 07:47
> AM

To
Jennifer Derby/R4/USEPA/US@EPA,
Rebecca Fox/R4/USEPA/US@EPA,
Palmer Hough/DC/USEPA/US@EPA,
Mike Wicker
<Mike_Wicker@fws.gov>, Pete
Benjamin <Pete_Benjamin@fws.gov>,
Tom Welborn/R4/USEPA/US@EPA,
"Walker, William T SAW"
<William.T.Walker@usace.army.mil>
, Ron Sechler
<ron.sechler@noaa.gov>

cc

Subject
PCS Draft Permit Conditions for
Monitoring and Adaptive Mgmt

> Hi everyone.

>
> Please check the addressees of this email. If I've inadvertently
> omitted anyone from your office that should be getting this message,
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> Any comments are welcome. And if CESAW has a preferred format they
> would like me to follow or similar draft conditions already in
> development, I am happy to adjust.

> Pace

> --

> -----

> Pace Wilber, Ph.D.
> Atlantic Branch Chief, Charleston (F/SER47)
> Southeast Regional Office, NOAA Fisheries

> PO Box 12559
> Charleston, SC 29422-2559
>
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>
> <http://sero.nmfs.noaa.gov/dhc/habitat.htm>
>
>
> (See attached file: PCSMonitoringPlanDRAFT.doc)

--

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"Heather"
<riverkeeper@ptrf.org>
03/27/2009 09:39 AM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject: FW: SELC FEIS letter to COE

History: This message has been replied to.

The requested letter.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
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Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Thursday, March 26, 2009 10:39 AM
To: Heather
Subject: SELC FEIS letter to COE

HI Heather,

Could you send me an electronic copy of the SELC 7-7-08 letter to COE re FEIS? I have hard copy but not electronic -- have electronic copy of SELC letter to DWQ but not the letter to COE. Thanks and talk to you later. b

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

SOUTHERN ENVIRONMENTAL LAW CENTER

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July 7, 2008

Via U.S. Mail and Electronic Mail

Mr. Tom Walker
U.S. Army Corps of Engineers
Wilmington District
Regulatory Division
ATTN: File Number 2001-10096
P.O. Box 1890
Wilmington, NC 28402-1890

Re: *Final Environmental Impact Statement for the PCS Phosphate Mine
Continuation: Aurora, North Carolina*

Dear Mr. Walker:

Please accept the following comments on the Final Environmental Impact Statement ("FEIS") for the PCS Phosphate Mine Continuation in Aurora, North Carolina. The Southern Environmental Law Center ("SELC") submits these comments on behalf of the Pamlico-Tar River Foundation ("PTRF"). PTRF is a private, non-profit organization that has been dedicated to protecting, preserving, and promoting the Tar-Pamlico River and its watershed since 1981. PTRF is a member of the Review Team for this project. SELC is a private, non-profit legal organization that seeks to protect and preserve the Southeastern environment.

Unfortunately, the FEIS continues many of the deficiencies of the Draft Environmental Impact Statement ("DEIS") and the Supplemental DEIS ("SDEIS"). It relies on an inappropriate, inconsistent economic analysis and fails to fully account for the impacts of the proposed project or provide adequate mitigation. Further, it fails to adequately address significant comments on the DEIS and SDEIS and is internally contradictory in response to others. Because of these deficiencies, the FEIS violates the National Environmental Policy Act ("NEPA") and cannot serve as the decisional document for the Corps' Clean Water Act ("CWA") § 404(b)(1) Guidelines analysis.¹

¹ By restricting this discussion to these deficiencies, we do not concede that the FEIS has satisfactorily addressed our comments on the DEIS and/or the SDEIS. We incorporate those comments by reference and focus these comments on new information presented in the FEIS.

I. The FEIS Economic Analysis Does Not Overcome the Presumption that Less Environmentally Damaging Practicable Alternatives Exist and Cannot Support a § 404 Permit for Alternative L.

The applicant must, but has not, overcome the presumption that no less environmentally damaging practicable alternative exists and therefore the FEIS does not support issuing a permit for Alternative L under the Clean Water Act § 404(b)(1) Guidelines.² The FEIS must comply with the “hard look” at environmental impacts and assessment of reasonable alternatives required by NEPA and provide the information necessary to satisfy the § 404(b)(1) Guidelines. The alternatives analysis – specifically the economic analysis – is central to complying with those laws. The alternatives that must be analyzed under NEPA and the Clean Water Act differ. NEPA only requires the Corps to consider a reasonable range of alternatives.³ But the CWA requires something more: “No discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem.”⁴ Because of this requirement, “under the CWA, it is not sufficient for the Corps to consider a range of alternatives to the project: the Corps must rebut the presumption that there are practicable alternatives with less adverse environmental impact.”⁵

Because the economic practicability analysis is fundamentally flawed, the FEIS does not successfully rebut the regulatory presumption that less damaging alternatives exist. In our comments on the SDEIS, we stated that the SDEIS similarly failed to rebut this presumption and that it did not demonstrate that no practicable alternatives with less adverse environmental impacts existed, but that it only potentially identified the less environmentally damaging alternatives of those evaluated.⁶ The Corps responded that “[a]n adequate range of reasonable alternatives has been evaluated in the EIS process,” suggesting a misunderstanding of the distinction between the alternatives analyses of NEPA and the CWA. To comply with the CWA § 404(b)(1) Guidelines, the applicant – and therefore the FEIS – must rebut the presumption that less environmentally damaging practicable alternatives exist, including alternatives that have not been evaluated. The FEIS fails to rebut this presumption because it relies on an internally inconsistent economic analysis and excludes consideration of less environmentally damaging potentially practicable alternatives without analysis.

² This discussion centers on the economic analysis as presented in the FEIS. This analysis, as discussed in Section IIA, is a hybrid of the DEIS Marston cost model and the SDEIS Marston cash-cost model. We do not, by focusing on the shortcomings of the analysis here, accept that it is the proper analysis or that its development and use are defensible. Rather, the Corps is obligated to evaluate the net present value analysis presented by Dr. Doug Wakeman in his December 28, 2007 comment letter on the SDEIS. That analysis not only corrects the flaws of the DEIS and SDEIS models, it shows that SCRA, SCRB, SJAB, and potentially DL1B are practicable.

³ 40 C.F.R. § 1502.14.

⁴ 40 C.F.R. § 230.10(a).

⁵ Greater Yellowstone Coalition v. Flowers, 321 F.3d 1250, 1262 n.12 (10th Cir. 2003).

⁶ FEIS Appendix (“App.”) J-V.B.2.C63.

The FEIS economic analysis turns on the inconsistent treatment of the practicability of mining the southern portion of the south of highway 33 tract ("S33"). The development of the long-term alternatives that have been evaluated in the DEIS, SDEIS, and FEIS relied on an assumption that mining in the southern portion of S33 would become practicable; the FEIS's economic analysis relies on a contradictory assumption regarding those same mining costs. The FEIS mine alternatives include mining in the southern section of the S33 tract based on the premise that though not currently practicable, mining those tracts will become practicable. It states that "[t]he applicant has also indicated that it believes the market will eventually become favorable; a reasonable position based on USGS information regarding the rate of depletion of domestic production capacity and the applicant's future shift to higher margin products. The Corps has determined that it is therefore appropriate to include [the southern portion of S33] in the evaluation."⁷ The FEIS re-affirms that "[t]he applicant has indicated . . . [that] it expects [the southern section of S33] will become practicable at some point in the future."⁸ Said another way, mine plan alternatives that include mining in the southern portion of the S33 tract⁹ were included for evaluation from the DEIS through the FEIS on the expectation – promoted by the applicant, "reasonable" based on USGS information, and agreed to by the Corps – that the combination of more favorable market conditions and a shift in products would make mining in that area practicable.

Yet the FEIS reverses the assumption underlying the alternatives to eliminate all alternatives that provide less than 15 years of mining in the NCPC and Bonnerton tracts – all but the AP, EAP, M, and L alternatives – from consideration. The FEIS states that to be practicable an alternative must "provide the applicant with the certainty of practicable costs for at least 15 years"¹⁰ and further states that "higher costs" – presumably meaning impracticable costs – are not experienced under the SJAB, SCRB, and SCRA alternatives "within the initial 15 years."¹¹ If the assumption that the areas in the southern section of S33 will become practicable were maintained, there is no basis for declaring these alternatives impracticable since they provide at least 15 years of practicable mining costs. But the FEIS concludes that "[t]he Corps finds that SCRA, SCRB, and SJAB are not practicable alternatives due to the required commitment to the higher mining costs within the initial 10-12 years of the plan without the expectation of fully recovering these development costs."¹² This finding contradicts the very assumption used to include the southern section of S33 in each of the mine plans. Those areas were included precisely because PCS, the USGS, and the Corps expect that those predicted higher costs will be practicable in the future and that the company will fully recover the development costs required to open the S33 mine pit. In other words, in the FEIS, the assumption that the southern section of S33 will be practicable applies to include those areas in proposed

⁷ FEIS at 2-26.

⁸ The FEIS includes the caveat that the costs may become practicable "many years in the future." FEIS at 2-29. This "analysis" is inadequate. If costs are expected to be practicable in the future, it is critical to know if they are expected to be practicable in 15 years, 20 years, 30 years, etc. and how the difference affects the practicability of mining S33.

⁹ All alternatives in the FEIS include mining in the S33 tract.

¹⁰ FEIS at 2-29.

¹¹ FEIS at 2-30.

¹² Id.

alternatives, but does not apply when determining the economic practicability of those alternatives.

The result of this shift is critical and biases the economic analysis in favor of more-extractive, more-destructive mine plans, consequently obscuring the least environmentally damaging practicable alternative. The Corps included the southern portion of S33 for consideration on the advice from PCS and the USGS that the market and product shifts would make those areas practicable in the time frame under consideration. Because of that support, each of the alternatives include long-term mine plans that are substantially longer than that required by the company for logistical planning. The Corps and PCS's reversal regarding the future practicability of the southern stretch of S33 – despite recent booms in the fertilizer market – means that less environmentally damaging alternatives have been deemed impracticable. The end result is that the Corps considers the southern portion of S33 practicable for the purpose of including that land in any permit issued, but considers it impracticable when considering the practicability of less environmentally destructive alternatives. That the company has reversed its position in a manner that benefits it is unsurprising. But the Corps' acceptance of this practicability assessment invalidates the economic analysis and prevents the FEIS from overcoming the presumption that practicable alternatives exist that are less environmentally damaging than Alternative L.¹³

This error is compounded by the FEIS's flippant dismissal of anything less than a full-length, 32-year SCRA mine plan. As the Corps is aware, "[t]he level of documentation [in the NEPA process] should reflect the significance and complexity of the discharge activity."¹⁴ The difference between Alternative L and a shorter SCRA mine plan is substantial. In comparison to Alternative L, the full-length SCRA avoids 622.12 acres of terrestrial wetlands¹⁵ and 14,928 linear feet of creeks.¹⁶ Depending on how a shorter SCRA mine plan is drawn, it may avoid more wetlands and creeks. By any measure, these are substantial impacts that should not be overlooked without documentation. But rather than evaluating how shortening the SCRA mine plan affects the cost of that mine plan, the FEIS concludes that "[r]educing the amount of mining on the S33 Tract will not solve this dilemma since that would then push more of the relocation costs into the initial years, thereby driving that cost up."¹⁷ The FEIS fails to identify any cost estimates describing how much shortening SCRA by any number of years would affect the cost of mining in the initial years of S33. The Corps, by all appearances, has "eyeballed" it, an approach that fails to "reflect the significance" of the variation of impacts between the L and SCRA alternatives. Therefore, the FEIS does not take the requisite "hard look" at a potentially practicable alternative that would dramatically reduce the environmental impact of the proposed.

¹³ See Hughes River Watershed Conservancy v. Glickman, 81 F.3d 437, 446 (4th Cir. 1996) ("For an EIS to serve [its purpose], it is essential that the EIS not be based on misleading economic assumptions.").

¹⁴ 40 CFR 230.6(b).

¹⁵ FEIS at 6-76.

¹⁶ FEIS at 6-59.

¹⁷ FEIS at 2-30.

II. The FEIS Violates NEPA and is Inadequate for the § 404(b)(1) Guidelines Analysis Because it Fails to Adequately Respond to Substantive Comments.

Under NEPA, the Corps is required to respond to substantive comments on the DEIS and SDEIS.¹⁸ That response may vary, and may be based on an explanation “why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency’s position.”¹⁹ The Council on Environmental Quality (“CEQ”) has clarified that regulation regarding comments on methodology, stating that “agencies must respond to comments, however brief, which are specific in their criticism of agency methodology.”²⁰ Providing example, the CEQ mandated that where a commenter criticized agency analysis “because of its use of a certain computational technique” then the “agency would have to respond in a substantive and meaningful way to such a comment.”²¹ The Fourth Circuit Court of Appeals has applied this standard, requiring that an agency “must . . . reasonably respond to those comments that raise significant problems.”²² In addition, the Corps’ public interest review requires that full consideration be given to all expert comments.²³ Here, the Corps has failed to respond to at least two critical comments: Dr. Douglas Wakeman’s comments criticizing the economic analysis and Pamlico-Tar River Foundation’s comments identifying significant impacts from mining on the NCPC tract.

A. The FEIS violates NEPA because it fails to substantively respond to the comments of Dr. Douglas Wakeman regarding the economic analysis.

Dr. Douglas Wakeman provided detailed comments on the appropriateness of the Corps economic analysis – or “its use of a certain computational technique” – in his December 28, 2007 comment letter on the SDEIS. Dr. Wakeman points out that the DEIS Marston cost model “suffered from three important shortcomings,” including truncating the model at 15 years, applying accounting principles, and failing to use discounted values.²⁴ The SDEIS cash-cost model “corrects only one of these errors, by shifting from accounting costs to predicted cash costs.”²⁵ To correct the remaining two errors, Dr. Wakeman – using information obtained pursuant to a November 20, 2007 Freedom of Information Act (“FOIA”) request – calculated the net present value of each of the alternatives.²⁶

The results of that analysis were telling. Under “a full-length, appropriately-discounted cash flow basis . . . these alternatives appear far more similar in cost than is

¹⁸ 40 C.F.R. § 1503.4(a).

¹⁹ *Id.*

²⁰ 46 Fed. Reg. 18026, 18034 (March 23, 1981).

²¹ *Id.*

²² *North Carolina v. Federal Aviation Admin.*, 957 F.2d 1125, 1135 (4th Cir. 1992).

²³ 33 C.F.R. 320.4(a)(3).

²⁴ App. J-V.B.2 P. 1 (Letter from Wakeman to Corps of Dec. 28, 2007)

²⁵ *Id.*

²⁶ *Id.* at 2. Dr. Wakeman was still unable to calculate net present value for each of the alternatives, since the necessary data was not released in the DEIS, SDEIS, or in response to the FOIA request.

readily apparent using either the prior ‘full-cost’ analysis, or the arbitrarily-truncated, non-discounted versions of the cash cost analysis.”²⁷ The net present value analysis revealed that “[a]lternatives L, SCRA, SJAA are essentially indistinguishable from discounted cash cost; if any one of these is economically practicable, then all of them are economically practicable.”²⁸ The analysis also suggests that even the alternative may be practicable due to its similarity in cost.

Based on this result, Dr. Wakeman’s criticism of the “computational technique” used by the Corps to determine economic practicability of alternatives – the Marston cost models – was not only substantive, it fundamentally challenged a central tenet of the Corps analysis and an essential ingredient in applying the § 404(b)(1) Guidelines to the applicant’s request. Consequently, under governing NEPA regulations, it necessitates a “substantive and meaningful” response.

But the FEIS does not provide that response. The FEIS’s response to Dr. Wakeman’s comments does not assess the weaknesses of the DEIS Marston cost model or the merits of the net present value analysis of the alternatives. It avoids discussing Dr. Wakeman’s criticisms on two grounds: that the DEIS Marston cost model was previously approved by professional economists, including Dr. Wakeman,²⁹ and that the same model has been consistently applied through the DEIS, SDEIS, and FEIS. This reliance on these bases relieves the Corps of its obligation to respond to Dr. Wakeman’s criticisms in a “substantive and meaningful” manner.

That Dr. Wakeman did not raise the net present value analysis earlier in the NEPA process for this project cannot justify the FEIS’s failure to respond to his comments.³⁰ First, as noted in the comment letter presenting the net present value analysis, the data necessary to perform the analysis was not disclosed to the public in the DEIS and was only made publicly available pursuant to a FOIA request submitted on November 20, 2007. Prior to the response to that request, it was not clear that the data necessary to calculate the analysis existed, and those data were not publicly available. It was only after the November 6, 2007 release of the SDEIS – which included the applicant’s new cash-cost model – and the subsequent FOIA response that it was clear that such data existed. Second, the FEIS does not apply the same treatment to the applicant’s objections to the DEIS Marston cost model. On February 7, 2007, the applicant submitted a letter to the Corps criticizing the DEIS Marston cost model.³¹ Despite contracting with Marston to provide the DEIS cost model and providing the data necessary for its preparation, on February 7, 2007 – after the release of the DEIS –

²⁷ Id.

²⁸ Id.

²⁹ In making this argument, the Corps misrepresents Dr. Wakeman’s statements. The Corps in Dr. Wakeman stated that “Absent compelling evidence to the contrary” that the DEIS Marston cost model was sound. His letter actually says that “Absent compelling evidence to the contrary,” the conclusion that SCRB, SCRA, and SJAB are practicable is economically sound. FEIS App. J-V.A.5. But he reaches the conclusion that those alternatives that were deemed impracticable by that model actually are impracticable – foreshadowing the criticisms contained in his comments on the SDEIS.

³⁰ See Natural Res. Def. Council v. Tenn. Valley Authority, 267 F. Supp. 128 (E.D. Tenn. 1977).

³¹ App. J-VII.A.1.

nine months prior to Dr. Wakeman's comments – PCS argued that “[a] ‘Cash Cost’ basis evaluation more accurately portrays the timing of major expenditures associated with development capital and receding face write-off and demonstrates more clearly the point at which the applicant must commit to relocations.”³² Rather than pointing to PCS's prior opportunity to object to the DEIS Marston cost model – as it does with Dr. Wakeman – the FEIS states that “[t]he Corps recognizes this point and has incorporated it into the economic practicability evaluation found in Section 2.7 of the FEIS.”³³ The FEIS's response to Dr. Wakeman's comments – refusal to consider his proposed cost model calculations – cannot be considered “substantive and meaningful” when its response to PCS's analogous comments is contradictory.

These inconsistent responses to criticisms of the DEIS Marston cost model similarly undermine the FEIS's alternate justification for failing to substantively respond to Dr. Wakeman's comments – that the Corps has consistently applied the DEIS Marston cost model through the DEIS, SDEIS, and FEIS. In response to Dr. Wakeman's analysis, the Corps claims that “[t]he cost model as applied in the FEIS and the Corps' approach to determining practicability have remained consistent throughout the DEIS, the SDEIS and the FEIS.”³⁴ To clarify its argument that it has not altered the DEIS Marston cost model or the economic practicability analysis, the FEIS states that “[t]he Corps finds the use of the ‘cash-cost’ model data to be, at best, uninformative in determining alternative practicability” and that it “has not used the cash cost analysis in its approach to determining alternative practicability.”³⁵ It is based on this claimed complete rejection of the cash-cost model that the FEIS justifies its failure to respond to Dr. Wakeman's analysis. “[Dr. Wakeman's] comment letter contains several manipulations of cost data using the cash cost and discounting techniques. The Corps has not used the cash cost analysis in its approach to determining alternative practicability therefore, we do not attempt to justify, clarify or defend its use.”³⁶ As a result, only “[c]omments relevant to the overall approach and NEPA/CWA process are addressed” in the FEIS response to Dr. Wakeman.³⁷

But the Corps has not consistently applied the DEIS Marston cost model and has incorporated the cash-cost model into its practicability analysis. The FEIS refutes this point on multiple occasions in response to both our comments and Dr. Wakeman's comments.³⁸ Repetition does not render the statement that “[t]he cost model as applied in the FEIS and the Corps' approach to determining practicability have remained consistent throughout the DEIS, the SDEIS and the FEIS” accurate.³⁹ First, consistent application of the same practicability analysis to the same alternatives with the same cost estimates must yield the same result. That has not occurred here. In the DEIS, the SCRA, SCRB,

³² App J-VII.A.1.C7.

³³ App. J-VII.A.1.R7.

³⁴ App. J-V.B.2.R.1.

³⁵ App. J-V.B.2.R.5.

³⁶ App. J-V.B.2.R.1.

³⁷ *Id.*

³⁸ App. J-V.B.2.R.1, R.5; App. J-V.B.2.R.33, R.49, R.50, R.66.

³⁹ App. J-V.B.2.R.1.

and SJAB alternatives were considered practicable.⁴⁰ In response to this determination, on February 07, 2007 PCS sent a letter to the Corps in which it introduced a cash-cost analysis to argue against the practicability of these three alternatives specifically.⁴¹ The mine plans and cost estimates of these alternatives remained unchanged in the SDEIS, so did their practicability.⁴² But in the FEIS, the Corps has determined “that SCRA, SCRB, and SJAB are not practicable alternatives.”⁴³ There are only three factors that could have caused this reversal of practicability: an alteration of the mine plans, an increase in costs related to the mine plans, or a change in the practicability analysis. Neither the mine plans nor their related costs changed. The practicability analysis must have changed.

The Corps’ responses to PCS’s comments show exactly how the practicability analysis has changed – by adoption of the results and findings of the cash-cost model. The Corps’ response to PCS is in stark contrast to its rejection of the cash-cost model in its response to our comments and those of Dr. Wakeman. The Corps could not have been stronger in its condemnation of the cash-cost model in response to comments in opposition to the applicant’s preferred alternative. The FEIS proclaims unequivocally that “[t]he Corps has not used the cash cost analysis in its approach to determining alternative practicability therefore, we do not attempt to justify, clarify or defend its use.”⁴⁴ Moreover, “[t]he Corps finds the use of the ‘cash-cost’ model data to be, at best, uninformative in determining alternative practicability . . . The Corps has not used the cash cost analysis in its approach to determining alternative practicability.”⁴⁵ But when the applicant argued in support of more-extractive mine plans that the “‘Cash Cost’ basis evaluation more accurately portrays the timing of major expenditures associated with development capital and receding face write-off and demonstrates more clearly the point at which the applicant must commit to relocations,”⁴⁶ the Corps responded that it “recognizes this point and *has incorporated it into the economic practicability evaluation* found in Section 2.7 of the FEIS.”⁴⁷

And it is based on the incorporation of “this point” from the cash-cost model – that the “‘Cash Cost’ basis evaluation . . . demonstrates more clearly the point at which the applicant must commit to relocations”⁴⁸ – that the Corps reverses its determination of practicability on the SCRA, SCRB, and SJAB alternatives. Rather than documenting any change in the application of the DEIS Marston cost model to these three previously practicable alternatives, the FEIS rejects these alternatives based on “development costs . . . necessary to open the S33 Tract for any mining [that] are actually incurred at the time of the relocation.”⁴⁹ The FEIS could not, and did not, make this determination based on a consistent application of the Marston cost model in the DEIS – that model amortizes

⁴⁰ DEIS at 2-19.

⁴¹ App. J-VII.A.1.

⁴² SDEIS at 2-3.

⁴³ FEIS 2-30.

⁴⁴ App. J-V.B.2.R.5.

⁴⁵ *Id.*

⁴⁶ App. J-VII.A.1.C7.

⁴⁷ App. J-VII.A.1.R.7 (emphasis added).

⁴⁸ App. J-VII.A.1.C7.

⁴⁹ FEIS at 2-30.

costs over the life of the mine pit. The FEIS's rationale is not supported by that cost model, as evidenced by PCS's introduction of the cash-cost model after the DEIS was published to make the very argument that the Corps uses to dismiss the three previously practicable alternatives.

What is obfuscated by the Corps' statements that it "has not used the cash cost analysis in its approach to determining alternative practicability"⁵⁰ is not whether the Corps has used the cash-cost model – it acknowledges doing so expressly in its responses to PCS's comments and implicitly in the text of the FEIS – but rather to what extent it has relied on the cash-cost model. It appears as though the Corps has rejected the cash-cost data – finding it "at best, uninformative in determining alternative practicability."⁵¹ But at the same time the Corps has embraced its conclusions – "[t]he Corps recognizes [that the cash-cost model differently demonstrates the timing of costs and commitment to relocations] and has incorporated it into the economic practicability evaluation found in Section 2.7 of the FEIS."⁵² Basing the FEIS practicability determinations on the results of the cash-cost model while rejecting the data and analysis that led to those results is irrational, arbitrary, and capricious; and it cannot be the basis of this fundamental aspect of the FEIS. If the cash-cost data are "at best, uninformative in determining alternative practicability," then the conclusions based on those data are themselves uninformative and should not be used to determine practicability.

In sum, both explanations for omitting a "substantive and meaningful" response to Dr. Wakeman's comments are invalid and therefore the FEIS violates the mandate in 40 C.F.R. § 1503.4 to reply to substantive comments. Dr. Wakeman's net present value analysis cannot be disregarded because of any previous review of the DEIS Marston cost model. The data necessary for that analysis were only available one month before his comment letter was submitted. Further, PCS submitted criticisms of the analysis and introduced an entirely new method of analysis – the cash-cost model – only nine months earlier and that new method of analysis was accepted and incorporated into the FEIS. Dr. Wakeman's net present value analysis also cannot be disregarded on the premise that "[t]he cost model as applied in the FEIS and the Corps' approach to determining practicability have remained consistent throughout the DEIS, the SDEIS and the FEIS."⁵³ That statement – though repeated frequently in response to comments – is false. The FEIS's economic analysis is not a clarification of the previous analysis, but rather introduces new factors. There is no other way to explain reaching a different result on the practicability of SCRA, SCRB, and SJAB. Neither the mine plans nor the costs of those alternatives changed between the SDEIS and the FEIS, but their practicability did. The Corps admits that this change is a result of the incorporation of the cash-cost model in their response to PCS's criticism of the DEIS Marston model; a comparison of PCS's explanation supporting that criticism to the FEIS shows that it has been incorporated wholesale. In plain terms, the economic analysis in the FEIS was not present in the DEIS or the SDEIS. It modifies the earlier economic analysis and – since it was not included in

⁵⁰ App. J-V.B.2.R.5.

⁵¹ Id.

⁵² App. J-VII.A.1.C7.

⁵³ App. J-V.B.2.R.1.

the SDEIS – that modification must have occurred since the release of the SDEIS. Dr. Wakeman's comments in response to the SDEIS presenting the net present value analysis were therefore timely, relevant, and require a substantive response. The FEIS's failure to do so is arbitrary and capricious.⁵⁴

The FEIS's failure to respond to Dr. Wakeman's analysis is not trivial or inconsequential. The practicability analysis is a central component of the § 404(b)(1) Guidelines analysis and necessarily circumscribes the determination of the least environmentally damaging practicable alternatives. Because of the role of the economic analysis, the FEIS is not only in violation of NEPA, but is inadequate for making the required § 404(b)(1) analysis. Because "a court must view deficiencies in one part of an EIS in light of how they affect the entire analysis,"⁵⁵ and the economic analysis permeates the entire analysis, the omission of a substantive, reasoned response to Dr. Wakeman's analysis undermines the FEIS. Dr. Wakeman's comments identify a significant problem with the Corps' analysis, and the Corps "must . . . reasonably respond to those comments that raise significant problems."⁵⁶

This failure to reasonably respond and the resulting continued reliance on the FEIS's flawed practicability analysis, results in incomplete responses to other comments. The FEIS fails to substantively and meaningfully respond to multiple comments suggesting that the Corps evaluate less environmentally damaging alternatives. The FEIS relies on this faulty analysis to avoid consideration of alternatives suggested in our comments on the DEIS,⁵⁷ the Pamlico-Tar River Foundation's separate comments on the DEIS,⁵⁸ and the comments of multiple resource agencies. The Corps cannot rely on the faulty economic analysis presented in the FEIS to avoid substantively responding to these comments.

Finally, the FEIS's statement that it has not included the cash-cost model in the economic practicability is demonstrably false in light of its response to PCS's letter introducing that model and the economic analysis included in the FEIS. The inclusion of this false statement in the economic analysis causes the FEIS to violate NEPA. When an EIS "sets forth statements that are materially false or inaccurate the Court may find that the document does not satisfy the requirements of NEPA, in that it cannot provide the basis for an informed evaluation or a reasoned decision."⁵⁹ Therefore, the FEIS violates NEPA and cannot serve as the decisional document for the Corps' § 404(b)(1) Guidelines analysis.

⁵⁴ See Hughes River Watershed Conservancy v. Glickman, 81 F.3d 437, 445 (4th Cir. 1996).

⁵⁵ Nat'l Audubon Soc'y v. Dep't of the Navy, 422 F.3d 174, 186 (4th Cir. 2005).

⁵⁶ North Carolina v. Federal Aviation Admin., 957 F.2d 1125, 1135 (4th Cir. 1992).

⁵⁷ App. J-V.A.2.R6, R7, R11, R12

⁵⁸ App. J-V.A.1.R8, R9.

⁵⁹ Western N.C. Alliance v. N.C. Dep't of Transp., 312 F. Supp. 2d 765, 776 -777 (E.D.N.C. 2003) (internal quotation marks omitted).

- B. The FEIS violates NEPA because it fails to substantively respond to the comments of the Pamlico-Tar River Foundation regarding the environmental impacts of mining on the NCPC tract.

The Pamlico-Tar River Foundation ("PTRF") submitted an independent, literature review based evaluation of the environmental impacts with its comments on the DEIS. That evaluation was supported by 12 prominent scientists with expertise in coastal and wetland ecology. These scientists concluded, based on an evaluation of the proposed impacts, that substantial mining in the NCPC tract would result in significant degradation.⁶⁰ This letter consisted of a 14 page analysis that relied on 35 cited authorities. It was a substantive comment that merited a thorough response.

The FEIS does not adequately respond to this comment letter. In fact, the FEIS omits any detailed response to the analysis.⁶¹ The only comment in the FEIS regarding this report is that it has "been included in Appendix F" and that "relevant information" has been included in the FEIS.⁶² The regulations do not authorize the Corps to include unidentified "relevant information" in lieu of responding to substantive comments. The Corps must respond to comments and must do so in one of five prescribed methods.⁶³ To fit within one of those prescribed methods, the Corps must identify the "relevant information" and indicate how it has been applied. It does just that in response to PCS's introduction of the cash-cost model – indicating that the Corps "has incorporated it into the economic practicability evaluation found in Section 2.7 of the FEIS."⁶⁴ A similar response is required here for "relevant information" that is incorporated into the FEIS – whether it is from the PTRF comments or PCS's Entrix report.

For those portions of PTRF's comments that are not deemed "relevant information," the agency must "[e]xplain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position."⁶⁵ The Corps cannot ignore PTRF's comments, leaving the public to decipher which elements were considered "relevant" and how they were incorporated into the FEIS. Because the FEIS fails to adequately respond to PTRF's comment letter, it violates NEPA and cannot act as the decisional document for the Corps' CWA § 404(b)(1) Guidelines analysis.

⁶⁰ App. J-V.A.1. While the letter centered on the AP Alternative, the evaluation of the environmental impacts of mining in the NCPC tract also apply to Alternative L due to its significant mining in the tract.

⁶¹ See App. J-V.A.1.

⁶² App. J.II-7.

⁶³ 40 C.F.R. § 1503.4.

⁶⁴ App. J-VII.A.1.R.7.

⁶⁵ 40 C.F.R. § 1503.4(a)(5).

III. The FEIS Improperly Excludes Consideration of Cumulative Impacts and Mitigation and Cannot Be the Basis for the Corps' Significant Degradation Determination.

Because the FEIS fails to account for important impacts and neglects to propose mitigation for the full length of proposed impacts, it does not provide the information necessary for the Corps to make the significant degradation determination required by the CWA § 404(b)(1) Guidelines. Significant degradation in the context of a Section 404 permit is determined by balancing the environmental impact against the proposed mitigation.⁶⁶ Because of this requisite balancing, the EIS must provide a detailed analysis of both the environmental impacts and the proposed mitigation. When the proposed mitigation does not offset the environmental impacts, the Corps should make a significant degradation finding and deny the permit.⁶⁷ Without a complete understanding of both the environmental impact and mitigation plans, the Corps cannot perform the required analysis. The FEIS does not allow the Corps to perform the required balancing because it omits critical cumulative impacts and proposes incomplete mitigation.

A. The FEIS does not account for cumulative impacts of future mining.

Cumulative impacts are the combined effect of the action being evaluated as well as other "past, present, and reasonably foreseeable future actions."⁶⁸ NEPA and the Corps' public interest review require consideration and evaluation of cumulative impacts.⁶⁹ While it is reasonable to assume that the evaluation of long-term alternatives would better evaluate "reasonably foreseeable future actions" than shorter alternatives, the FEIS does not do so. Rather, by referring to the alternatives as "holistic," though it is clear that none of the alternatives limit future mining, the FEIS avoids consideration of future impacts. In addition to the NCPC, Bonnerton, and S33 tracts included in the FEIS alternatives, Section 2.3.1 identifies four additional sites that PCS has mineral rights to within the project area: Core Point, the Edward Tract, the Grace Tract, and the Pamlico River. As the Corps is aware, "[t]he applicant has clearly conveyed a desire to mine the entire project area over time if the market allows."⁷⁰ Further, if PCS's newly preferred alternative, Alternative L, is permitted, some ore deposits will remain un-mined in both the NCPC and Bonnerton tracts. As the FEIS acknowledges, "[a]ny permit issued in this action would not require the permanent forfeiture of the right to mine any remaining reserves,"⁷¹ meaning that PCS could apply for a permit to mine the avoided ore. Since "the Aurora Phosphate deposit is one of the few remaining minable deposits [sic] in the United States"⁷² and the company has indicated that at least those areas in South Creek and the Pamlico River can be economically mined, we must assume that PCS will pursue mining beyond the extent of any permit that results from this process. Such an impact is

⁶⁶ See *City of Olmstead Falls v. U.S. EPA*, 435 F.3d 632, 637-38 (6th Cir. 2006).

⁶⁷ See *James City County v. U.S. EPA*, 12 F.3d 1330, 1337 (4th Cir. 1993).

⁶⁸ FEIS at 4-42 (citing 40 C.F.R. § 1508.7).

⁶⁹ 33 C.F.R. § 320.4(a).

⁷⁰ FEIS at 2-28.

⁷¹ FEIS at 2-31.

⁷² FEIS at 1-4.

foreseeable and contemplated by the FEIS's discussion of the development of alternatives. Yet the FEIS concludes that "impacts resulting from each boundary by definition include all foreseeable future impacts resulting from mining activity."⁷³ Potential future mining in these approximately 40,000 acres adjacent to the proposed mine expansion is a foreseeable future action that must be considered.⁷⁴

B. The FEIS does not propose mitigation for significant impacts.

The FEIS also falls short in providing enough information on the second component of the § 404(b)(1) significant degradation determination, mitigation. Although the mitigation plan required in the FEIS does not have to include every detail, "an EIS involving mitigation must include a serious and thorough evaluation of environmental mitigation options for a Project to allow its analysis to fulfill NEPA's process-oriented requirements."⁷⁵ "More generally, omission of a reasonably complete discussion of possible mitigation measures would undermine the "actionforcing" function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects."⁷⁶

The long-term alternatives evaluated in the FEIS were developed with an eye towards facilitating the development of mitigation measures. The FEIS states that "longer term alternatives may . . . improve compensatory mitigation," while to PCS those alternatives also allow "larger scale mitigation projects."⁷⁷ But while the long-term plans provide in excess of 30 years of mining, the mitigation proposed in the FEIS is not commensurate.

The least environmentally damaging practicable alternative according to the flawed economic analysis in the FEIS, Alternative L, spans 37 years; the proposed mitigation for Alternative L only purports to account "for the first 15 years of impacts."⁷⁸ The FEIS's response to comments shows that even that estimate of 15 years of mitigation may be optimistic; according to the response, the compensatory mitigation plan "does identify sites to be used for impacts occurring in the initial 12-15 years."⁷⁹

This omission of any proposed mitigation for the impacts in the last 22 to 25 years of Alternative L renders the FEIS completely inadequate for making a significant

⁷³ FEIS at 4-43.

⁷⁴ The applicant's request for a 37 year permit does not dilute the importance of these potential future impacts. Any permit that may be issued as a result of this request represents an authorization to mine, not an obligation to mine. Should PCS determine that they can increase their revenues by pursuing mining in one of these tracts; any permit that may be issued as a result of this process would not be an obstacle in that pursuit. The Corps is well aware of PCS's ability to apply for mining permits in the additional tracts, at the October 12, 2004 Review Team Meeting, Project Manager Tom Walker stated that "PCS could move to other areas outside the current project area." DEIS at A-121.

⁷⁵ *O'Reilly v. U.S. Army Corps of Eng'rs*, 477 F.3d 225, 231 (5th Cir. 2007).

⁷⁶ *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

⁷⁷ FEIS at 2-10.

⁷⁸ FEIS at 4-104.

⁷⁹ App. J-V.A.2.R44.

degradation determination. The impacts that will occur under the Alternative L mine plan after the initial 12-15 years are not incidental. After year 15, Alternative L would impact 507.41 acres of terrestrial wetlands,⁸⁰ 23.16 acres of riparian buffers,⁸¹ and 14,362 linear feet of creeks.⁸² These impacts include 181 acres of wetland hardwood forests, 66 acres of mixed pine-hardwood forest, 45 acres of pine forest, and 31 acres of scrub-shrub assemblage.⁸³ Each of these community types must be mitigated at a 2:1 ratio for restoration and up to an 8:1 ratio for preservation, even under the reduced recommended ratios in the FEIS.⁸⁴

Thus, the compensatory mitigation plan proposed in the FEIS cannot be considered “a serious and thorough evaluation of mitigation options” and therefore the FEIS does not “fulfill NEPA’s process-oriented requirements.”⁸⁵ Consequently, the FEIS does not provide the information necessary to apply the § 404(b)(1) Guidelines. The Corps cannot balance the proposed impacts against the proposed mitigation when there is no proposed mitigation for a significant portion of the proposed impact. Consequently, the FEIS cannot support the Corps’ public interest review, which states that “no permit will be granted which involves the alteration of wetlands identified as important . . . unless the district engineer concludes . . . that the benefits of the proposed alteration outweigh the damage to the wetland resources.”⁸⁶

C. The proposed mitigation does not compensate for the loss of nonriverine wet hardwood forests.

The mitigation proposed in the FEIS is not only inadequate in scale – omitting mitigation for more than 500 acres of wetlands impacts – but also in detail. Although it recognizes that the Bonnerton tract contains “mature hardwood stands” that would be destroyed by alternative L, the proposed mitigation plan does not indicate that those stands are nationally significant due to the rarity of large, mature nonriverine wet hardwood forests nor does it identify any efforts to restore this rare community type in any of the selected mitigation sites. These omissions make clear that the Corps has not taken the necessary “hard look” at the consequences of the proposed impacts on this rare community.

The nonriverine wet hardwood forests on the Bonnerton site have been identified as a site of national significance, meaning that the site is one of the five best examples of that community type in the nation.⁸⁷ The Bonnerton site has two features that make it a site of national significance, its size and quality. As noted above, large tracts of nonriverine wet hardwood forests are rare. Of the 25 known sites in North Carolina, only

⁸⁰ FEIS at 6-59.

⁸¹ Id.

⁸² See id.

⁸³ FEIS at 6-72.

⁸⁴ FEIS at 4-107.

⁸⁵ O’Reilly v. U.S. Army Corps of Eng’rs, 477 F.3d 225, 231 (5th Cir. 2007).

⁸⁶ 33 C.F.R. § 320.4(b)(4).

⁸⁷ The publication noting the site as a site of national significance is in press. (Schafale, pers. comm.)

seven are greater than 100 acres.⁸⁸ Covering 198 acres, the Bonnerton site is the fourth largest known site. In addition to its size, the Bonnerton site is high in quality, with large trees that are increasingly uncommon. The N.C. Natural Heritage Program describes the site as "very good" quality.

The Corps' regulations recognize that unique or rare wetlands have special public interest. They recognize "wetlands which are unique in nature or scarce in quantity to the region or local area" as "important to the public interest."⁸⁹ The Bonnerton nonriverine wet hardwood forests are significant on a national level, and therefore they are of the utmost importance to the public interest.

Moreover, the proposed mitigation plan does not identify how the loss of this rare forest will be mitigated. A mitigation plan may be inadequate where it does not "adequately replace the types and qualities of wetlands the proposed project would destroy."⁹⁰ Here, there is no proposed mitigation to replace the nonriverine wet hardwood forests on Bonnerton. Specific, tailored mitigation is necessary to replace these types of forests; "Nonriverine Wet Hardwood Forests rarely regenerate to the characteristic oak species and tend to become stands of weedy tree species that show little tendency to ever return to an oak canopy."⁹¹ Further, since these communities are characterized by specific canopy species,⁹² they cannot be mitigated by generic "hardwood wetland restoration, enhancement, or preservation sites."⁹³ As presented in the FEIS and Appendix I, the proposed mitigation plan does not adequately replace the nonriverine wet hardwood forests on Bonnerton. Any mine plan that includes destruction of this nationally significant resources is contrary to the public interest and will result in significant degradation of the aquatic environment and cannot be permitted.

V. Conclusion

The FEIS does not comply with NEPA and does not support issuing a permit for Alternative L under the CWA § 404(b)(1) Guidelines. Not only does the FEIS fail to fully address the shortcomings of the DEIS and SDEIS, it is inconsistent and internally contradictory. Further, the FEIS's responses to comments on the economic analysis include false statements that undermine the analysis and violate NEPA. Finally, the FEIS's proposed mitigation is wholly inadequate. It not only fails to propose any specific mitigation for the more than 500 acres of wetlands and 14,000 linear feet of streams that would be impacted in S33 under Alternative L, the mitigation is insufficient.

For these reasons and others stated above, the FEIS is inadequate. It does not satisfy NEPA and cannot serve as the basis for issuing any permit under the CWA §

⁸⁸ Michael P. Schafale, *Nonriverine Wet Hardwood Forests in North Carolina: Status and Trends*, January 2008, available at <http://www.ncnhp.org/Images/Other%20Publications/nrwhf2008rpt.pdf>.

⁸⁹ 33 C.F.R. § 320.4(b)(2)(viii).

⁹⁰ *James City County v. U.S. Evtl. Protection Agency*, 12 F.3d 1330, 1337 (4th Cir. 1993).

⁹¹ Schafale, *supra* n.71 at 7.

⁹² *Id.* at 1.

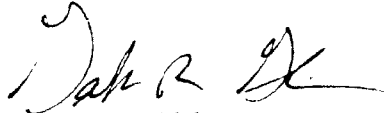
⁹³ FEIS App. I at 5.

404(b)(1) Guidelines. Therefore, we request that the Corps enlist the expertise of the Review Team to prepare a supplement to the Final EIS that repairs the shortcomings of that document or in the alternative, we request that the Corps deny PCS's permit request for Alternative L.

Sincerely,

A handwritten signature in black ink, appearing to read "Derb S. Carter, Jr.", with a stylized flourish at the end.

Derb S. Carter, Jr.
Senior Attorney/Carolinas Office Director
Southern Environmental Law Center

A handwritten signature in black ink, appearing to read "Geoffrey R. Gisler", with a stylized flourish at the end.

Geoffrey R. Gisler
Associate Attorney
Southern Environmental Law Center



Palmer
Hough/DC/USEPA/US
03/27/2009 11:05 AM

To "Pace.Wilber" <Pace.Wilber@noaa.gov>
cc mike_wicker@fws.gov, pete_benjamin@fws.gov, Rebecca
Fox/R4/USEPA/US@EPA, ron.sechler@noaa.gov
bcc
Subject Re: elevation package

Pace:

The econ analysis/LEDPA designation is critical/central to the case but we want our argument to be two fold:

- 1) the environmental impacts of the project, as currently proposed, are unacceptable; and
- 2) less environmentally damaging alternatives are available

-Palmer

Palmer F. Hough
US Environmental Protection Agency
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EPA West -- Room 7231-L
Mail Code 4502T
1301 Constitution Avenue, NW
Washington, DC 20460

"Pace.Wilber" Hi Becky. The outline surprises me I though... 03/27/2009 11:00:58 AM

From: "Pace.Wilber" <Pace.Wilber@noaa.gov>
To: Rebecca Fox/R4/USEPA/US@EPA
Cc: mike_wicker@fws.gov, pete_benjamin@fws.gov, ron.sechler@noaa.gov, Palmer
Hough/DC/USEPA/US@EPA
Date: 03/27/2009 11:00 AM
Subject: Re: elevation package

Hi Becky.

The outline surprises me I thought the cornerstone of EPA's position was the economic analysis behind the LEDPA designation. Is that the case?

I'm still doing the GIS crunching, but have to go to a dr appt. I'll complete as soon as I return.

Pace

Fox.Rebecca@epamail.epa.gov wrote:

> Hey FWS and NMFS!

>

> Palmer and I are diligently working on the elevation package and would
> love any input we could get from you all. I think we can all use a lot
> of the same information for our individual packages. Below is the
> outline, Palmer put together. We would especially like input on item
> IV. Any write up of info you can prepare for us would be very helpful.
> Unfortunately, time is very tight and we need to have a draft ready
> early next week. We have to have elevation to Army by 4-6 and package
> has to go through reviews and briefings, etc. Thanks! b

>

> I. Introduction

> II. Project History

> III. Aquatic Resources of National Importance

> IV. Substantial and Unacceptable Impacts

> V. Alternatives Analysis

> VI. Compensatory mitigation

> VII. EPA/FWS/NMFS Recommended Alternative

>

> Becky Fox

> Wetland Regulatory Section

> USEPA

> Phone: 828-497-3531

> Email: fox.rebecca@epa.gov

>

>

--

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Atlantic Branch Chief, Charleston (F/SER47)
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FAX 843-953-7205
pace.wilber@noaa.gov

<http://sero.nmfs.noaa.gov/dhc/habitat.htm>



"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/27/2009 01:36 PM

To Palmer Hough/DC/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA
cc
bcc
Subject Re: elevation package

Thanks for the clarification. I think it would be good for us to talk about NOAA's position. Since we are not at the same stage as EPA and FWS in the 404(q) process, as an agency we've not had to wrestle as deeply yet with some of these issues. Please call when you have a chance.

843-953-7200

Pace

Hough.Palmer@epamail.epa.gov wrote:

Pace:

The econ analysis/LEDPA designation is critical/central to the case but

we want our argument to be two fold:

- 1) the environmental impacts of the project, as currently proposed, are unacceptable; and
- 2) less environmentally damaging alternatives are available

-Palmer

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1301 Constitution Avenue, NW
Washington, DC 20460

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| Subject: |
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| Re: elevation package
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of the same information for our individual packages.
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early next week. We have to have elevation to Army by
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b

- I. Introduction
- II. Project History
- III. Aquatic Resources of National Importance
- IV. Substantial and Unacceptable Impacts
- V. Alternatives Analysis
- VI. Compensatory mitigation
- VII. EPA/FWS/NMFS Recommended Alternative

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

--

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--

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"Walker, William T SAW"
<William.T.Walker@usace.army.mil>

03/27/2009 02:22 PM

To "Pace.Wilber" <Pace.Wilber@noaa.gov>, Rebecca
Fox/R4/USEPA/US@EPA
cc Jennifer Derby/R4/USEPA/US@EPA, "Mike Wicker"
<Mike_Wicker@fws.gov>, Palmer
Hough/DC/USEPA/US@EPA, "Pete Benjamin"
bcc

Subject RE: PCS Draft Permit Conditions for Monitoring and Adaptive
Mgmt

Pace,

Thanks for the input. I think the information, in the format provided, can easily be developed into a permit condition. We have worded into all conditions requiring monitoring and/or reporting (e.g mitigation, reclamation, progression of impacts, etc) the requirement that reports be submitted by certain dates and be made available in whole or in summary to any interested parties. It is also our intention to accept comments on these reports when appropriate and convene regular (annual?) meetings of some oversight group to provide input to the Corps. Our thoughts currently are that this group be similar in composition to the review team.

Thanks
Tom

-----Original Message-----

From: Pace.Wilber [mailto:Pace.Wilber@noaa.gov]
Sent: Friday, March 27, 2009 9:40 AM
To: Fox.Rebecca@epamail.epa.gov
Cc: derby.jennifer@epa.gov; Mike Wicker; hough.palmer@epa.gov; Pete Benjamin; smtp-Sechler, Ron; Welborn.Tom@epamail.epa.gov; Walker, William T SAW
Subject: Re: PCS Draft Permit Conditions for Monitoring and Adaptive Mgmt

Hi Becky.

Hopefully this will be clear As noted in past emails, three of the the state-designated inland PNAs border NCPC, only one state-designated inland PNA borders Bonnerton (Porter Creek). Other creeks at both tracts undoubtedly function as pnas, but they lack the the PNA designation. NMFS discussions about monitoring have primarily focused on the four state-designated inland PNAs (hence we emphasize NCPC). Our draft permit condition, though, includes Porter Creek (so we are not emphasizing NCPC to point of excluding Bonnerton). To examine these creeks, reference areas are needed, and given the sequencing of mining, it is conceivable that reference creeks for NCPC could later become baselines for for examining impacts from mining the Bonnerton tract--these are details that would have to worked out with PCS. As for duration of the baseline monitoring, that depends on when the permit is issued, we are comfortable with adapting monitoring schedules to mining schedules. Given the sequencing and duration of each sequence, baselines for some creeks will be better than for others--IMHO that is just a reality we have to cope with.

Lastly, regarding "approval" of the detailed plan, I believe the federal and state permits should adhere to the same schedules to the extent practicable. The extent this can be achieved is still to be determined. The COE would be the approving authority for the plan, but we expect they would seek everyone's input in when doing that evaluation . . . and, obviously, we (including some participation by our Beaufort lab) are preparing to work with PCS and COE as much as it takes develop the plan details.

Pace

Fox.Rebecca@epamail.epa.gov wrote:

> Thanks Pace! Couple of questions: Plan is for NCPC creeks only --
> are there no plans for Porter Creek on Bonnerton because the results
> from NCPC monitoring will be used to predict and adapt
> mining/mitigation for Bonnerton? I assume the plan will include
> baseline data collection -- it may be implicit in conditions, in that
> to determine if alteration has occurred will need baseline. As you
> state 401 gives 6 months after permit issuance for submittal of
> monitoring plan and then is reviewed for approval by DWQ -- who would
> review and approve this plan? Thanks again! b

>
> Becky Fox
> Wetland Regulatory Section
> USEPA
> Phone: 828-497-3531
> Email: fox.rebecca@epa.gov

>
>
>
> "Pace.Wilber"
> <Pace.Wilber@noa
> a.gov>
>
> 03/27/2009 07:47
> AM

To
Jennifer Derby/R4/USEPA/US@EPA,
Rebecca Fox/R4/USEPA/US@EPA,
Palmer Hough/DC/USEPA/US@EPA,
Mike Wicker
<Mike_Wicker@fws.gov>, Pete
Benjamin <Pete_Benjamin@fws.gov>,
Tom Welborn/R4/USEPA/US@EPA,
"Walker, William T SAW"
<William.T.Walker@usace.army.mil>
, Ron Sechler
<ron.sechler@noaa.gov>

> cc

Subject
PCS Draft Permit Conditions for
Monitoring and Adaptive Mgmt

> Hi everyone.

>
> Please check the addressees of this email. If I've inadvertently
> omitted anyone from your office that should be getting this message,
> please forward.

>
> Attached are draft permit conditions that speak to monitoring impacts
> to

>

> PNAS and adaptive management. On the phone call, I mentioned an
> outline
>
> for a monitoring plan. While cleaning up what Ron and I had developed
> after getting input from the Beaufort Lab, FWS, and a few others, it
> seemed the outline could be couched as a permit condition, so that is
> what we've done. Also in the attached is a very brief background
> section meant to review some of the context for the monitoring an
> adaptive mgmt.
>
> Any comments are welcome. And if CESAW has a preferred format they
> would like me to follow or similar draft conditions already in
> development , I am happy to adjust.
>
> Pace
>
> --
>
> -----
>
> Pace Wilber, Ph.D.
> Atlantic Branch Chief, Charleston (F/SER47) Southeast Regional Office,
> NOAA Fisheries PO Box 12559 Charleston, SC 29422-2559
>
> 843-953-7200
> FAX 843-953-7205
> pace.wilber@noaa.gov
>
> <http://sero.nmfs.noaa.gov/dhc/habitat.htm>
>
>
> (See attached file: PCSMonitoringPlanDRAFT.doc)

--

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<http://sero.nmfs.noaa.gov/dhc/habitat.htm>



Mike_Wicker@fws.gov
03/27/2009 03:27 PM

To Rebecca Fox/R4/USEPA/US@EPA
cc Palmer Hough/DC/USEPA/US@EPA,
pace.wilber@noaa.gov, pete_benjamin@fws.gov,
ron.sechler@noaa.gov

bcc

Subject Some verbage, will work to provide more later, feel free to use whatever you want I think we may need to reduce some of our concerns to bullet format without so much technical jargon, I will try to work on that next week

The PCS mine expansion is proposed adjacent to the Albemarle Pamlico Estuary Complex, the largest lagoonal estuary in the country and nationally significant estuarine resource. The fringe marshes, creeks, and beds of submerged aquatic vegetation in the Albemarle Pamlico Estuary Complex provide essential nursery habitat for most commercial and recreational fish and shellfish in the North Carolina coastal area (Street et al. 2005) and important habitat for waterfowl (<http://www.fws.gov/birddata/databases/mwi/mwidb.html>), shorebirds and other migratory birds. The importance of wetlands to coastal fish is not unique to North Carolina. Over 95% of the finfish and shellfish species commercially harvested in the United States are wetland-dependent (Feierabend and Zelazny 1987). The estuary also provides important habitat for anadromous fish, including the endangered shortnose sturgeon (*Acipenser brevirostrum*). The Albemarle Pamlico Estuary Complex supports an important recreationally-based economy. According to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (U.S Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau 2006) fishing expenditures for 2006 in North Carolina totaled over 1.1 billion dollars. Given that the proposed expansion would result in such large-scale impacts it would likely have direct effects on the environmental quality of the Albemarle Pamlico Estuary Complex. We are especially concerned about the potential for mine expansion and operation to be detrimental to the food webs of the Albemarle Pamlico Estuary Complex. Consequently, as stated in our January 5, 2007 letter, the Service continues to believe that the proposed PCS mine expansion will result in substantial and unacceptable impacts to aquatic resources of the Albemarle Pamlico Estuary Complex. Our concerns regarding the FEIS revolve around three specific issues discussed below.

1. Proposed mining operations will negatively impact estuarine trophic structure through disruption of substrate inputs crucial to primary producers; reduction of energy sources that fuel estuarine productivity; and degradation of the nutrient sequestration capacity of the estuarine system. Estuary productivity is dependent on the complex interactions among the

various components of the aquatic food web; with epiphytes (attached to wetland macrophytes) and submerged aquatic vegetation; (SAV) forming the foundation of the estuarine food web (Odum 1971; Mitsch and Gosselink 2000; Wetzel 2001). SAV populations have recently declined by as much as 50%, possibly because of anthropogenic impacts (North Carolina Division of Marine Fisheries 2005). As a result, detritus supplied by wetland macrophytes has become more important as an epiphytic substrate. While phytoplankton are also important for productivity, the role of wetland plants and SAV detritus is of greater importance to the overall stability of shallow aquatic food webs (Rich and Wetzel 1978). It is our opinion that the proposed mining operations will negatively impact both types of epiphytic substrates, and adequate mitigation is not proposed in the FEIS. However, adequate restoration is available if PCS focuses their expansion and other operations on lands south of Hwy 33.

Also of importance to estuarine food webs is the gradual and episodic release of dissolved organic matter (DOM) from the contributing basins and wetlands immediately adjacent to the Albemarle Pamlico Estuary Complex. This energy source fuels bacterial communities that, through mineralization, provide inorganic nitrogen, phosphorous and carbon, supporting productivity. In addition, DOM supported bacteria are an important component of the “microbial loop” (Pomeroy 1974; Sherr and Sherr 1988). This part of aquatic food webs links DOM (of autochthonous and/or allochthonous origin) to higher trophic levels, via bacteria-protist-metazoan-zooplankton interactions. The impacts associated with the proposed alternative would decrease the quantity and quality of allochthonous DOM supplied to the estuary because of the close proximity of PCS’s proposed mining operations.

Marsh systems provide additional functions that can influence estuarine food webs. For example, carbon of wetland origin is also exported from marsh systems in the guts of migratory feeding fish and birds or cycled through the marsh to the upper ends of tidal creeks and back to the marsh (Mitsch and Gosselink 2000). Also, marshes act to sequester and process inorganic nutrients from flood waters. The major tributaries to the Pamlico Sound, the Neuse and Tar Rivers, have been found to be excessively polluted with nutrients and are currently being managed to reduce nutrient loads. Nutrient enrichment, or eutrophication, has promoted increased algal

productivity, which had resulted in hypoxia, anoxia, and fish kills in the lower estuary. Removal of wetlands in the Pamlico Sound system acts to exacerbate the impacts of this loading by removing the system's nutrient uptake capability.

Most of the wetlands that would be subjected to impacts are wet forests, including bottomland hardwood forests. These areas are subjected to repeated periods of inundation and desiccation. This is important from a biogeochemical perspective as it allows for the accumulation of particulate organic matter and its subsequent processing (dissolution and mineralization). This leads to episodic exports of dissolved organic materials to the estuary. It also retains nutrient loads carried by high flow events, which are later sequestered into forest biomass. Such systems are also important for denitrification. These areas also provide refugia and nursery habitat for aquatic organisms during high flow periods. Productivity is high in such wetlands with pulsing hydroperiods (Mitsch and Gosselink 2000).

2. Mining will directly affect the rate at which water is routed through the watershed. As the mine expansion progresses, there is an ever increasing trend of diverting surface water drainage which once promoted estuarine productivity into National Pollutant Discharge Elimination System (NPDES) channels, pipes and outfalls. This redirection of surface flows contributes to estuarine degradation because it removes natural watershed drainage patterns that 1) promote infiltration and trapping of sediments and other pollutants, and 2) provide a beneficial diffuse source of water to the estuary. This critical watershed function is reflected in the DEIS (paragraph 3, A-91) "Mr. Wicker stated that the ... catchment basin is critically important for these streams, because rainfall is the stream's source of water. Dr. Skaggs replied that Mr. Wicker's summation was correct." In light of this concern, we are troubled that the rate of mine expansion far exceeds the rate of recovery completed. According to page 4-78 of the SDEIS between 1965 – 2005 a total of 7,729 acres were mined but only 1,101 were reclaimed. In short, reclamation (including vegetation and hydrology restoration) will allow the water quality benefits of natural drainage to return to the estuary over time; however, the discrepancy in progress between mining and reclamation activities significantly limits the potential for system recovery.

Offsets to wetland plant community losses through the proposed mitigation schedule may not be adequate to maintain the wetland functions within the watershed. Replacing mature wetlands with

immature restored or created wetlands will not provide the physical or chemical functions of existing wetland systems. Plant communities drive many physical and chemical processes within wetlands such as 1) sedimentation, and, because of adsorption, nutrient retention, 2) hydrological demand through transpiration, 3) nutrient (inorganic nitrogen and phosphorous) cycling, 4) soils for microbial communities responsible for denitrification and 5) flood mitigation because mature communities are stable sources of hydraulic roughness.

It is our opinion that the applicant should provide upfront mitigation for stream, riparian buffer and wetland impacts. By replacing mature watershed systems with restored wetlands, there will be significant lag time (several decades at least) before vegetation and soils can develop so they can adequately mitigate for the losses of DOM production and nutrient sequestration/processing provided by the present ecosystems. Given the estuary's designation as an aquatic resource of national importance, this large-scale loss of habitat quality for a period of decades is not acceptable.

The Albemarle Pamlico Estuary Complex is a bar-built estuary (Odum 1971), enclosed by North Carolina's Outer Banks. These barrier islands create a lake-like, brackish water body with only small outlets connecting it to the Atlantic Ocean (Paerl et al. 2001). Such geomorphic character produces a relatively closed system with a hydrologic residence time of about one year (Giese et al. 1985). This means that the Albemarle Pamlico Estuary Complex is highly effective at retaining nutrients, sediments and organic matter conveyed by its freshwater sources. These sediments and organic materials have absorptive relationships with nutrients, heavy metals and other toxicants that may cause chronic ecosystem impacts during hydrologic events that resuspend benthic materials in the estuaries. Thus, the impacts represented by PCS Phosphate's mining expansion should be considered with considerable diligence, as such impacts are likely to produce a legacy of environmental effects that could last for years, affecting estuarine food webs.

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Academic
Press. San Diego. 1006 pp.

Fox.Rebecca@epamail.epa.gov

**Fox.Rebe
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mail.epa.
gov**

Tomike_wicker@fws.gov, pete_benjamin@fws.gov,
pace.wilber@noaa.gov, ron.sechler@noaa.gov

ccHough.Palmer@epamail.epa.gov

03/27/20
09 10:24
AM

Subject: elevation package

Hey FWS and NMFS!

Palmer and I are diligently working on the elevation package and would love any input we could get from you all. I think we can all use a lot of the same information for our individual packages. Below is the outline, Palmer put together. We would especially like input on item IV. Any write up of info you can prepare for us would be very helpful. Unfortunately, time is very tight and we need to have a draft ready early next week. We have to have elevation to Army by 4-6 and package has to go through reviews and briefings, etc. Thanks! b

- I. Introduction
- II. Project History
- III. Aquatic Resources of National Importance
- IV. Substantial and Unacceptable Impacts
- V. ~~Alternatives Analysis~~
- VI. Compensatory mitigation
- VII. EPA/FWS/NMFS Recommended Alternative

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

Jim Giattina /R4/USEPA/US

03/27/2009 07:49 PM

To arthur.l.middleton@usace.army.mil,
william.t.walker@usace.army.mil,
samuel.k.jolly@usace.army.mil,
cc Stan Meiburg/R4/USEPA/US@EPA, Tom
Welborn/R4/USEPA/US@EPA, Brian
Frazer/DC/USEPA/US@EPA, Jennifer
bcc

Subject Follow-up to March 24 Meeting re PCS

Ken, Tom W, Arthur, David, Ross, Jeff, Tom R, and George:

We want to thank everyone again for participating in Tuesday's meeting. We found the discussions very productive. A number of action items were identified at the end of the meeting. I would like to capture that list, identify the lead for each action, and provide you with the status of actions which EPA/NMFS/FWS are responsible for. According to my notes, we identified the following four actions:

- 1) EPA in coordination with FWS and NMFS will provide GIS coverages identifying the proposed "EPA/FWS/NMFS" mining boundaries for the NCPC and Boninerton tracts presented yesterday (the boundary for S33 continues to be the boundary certified by the State). We will forward this information to you on Monday 3/30.
- 2) FWS will provide language describing the reclamation provisions discussed on 3/24. We will forward this information to you on Monday 3/30.
- 3) NMFS will provide the language describing the monitoring provisions discussed on 3/24. We will forward this information to you on Monday 3/30.
- 4) Once it receives the GIS coverages, PCS will evaluate the economic viability of the EPA/FWS/NMFS alternative and share its results with the agencies.

In addition to expanded impact avoidance and improved reclamation and monitoring provisions, the EPA/FWS/NMFS alternative also includes measures to ensure that avoided aquatic resources are provided long-term protections from future mining with the appropriate binding real estate instrument. As discussed on 3/24, we suggest the use of conservation easements. As noted on 3/24, we are also open to discussion regarding compensatory mitigation credit for the protection of these avoided areas. We welcome your recommendations regarding the appropriate level of compensation credit for the preservation, enhancement, and/or restoration of avoided aquatic resources.

At the 3/24 meeting PCS requested that the agencies continue to pursue formal elevation of the Corps' proposed permit for the alternative known as "Modified Alternative L" that was certified by the State. Although not discussed on 3/24, we would like to organize a site visit for agency officials who would be involved in the review of this elevated permit decision. We would like to know your availability on April 27 and the morning of April 28.

Please let me know if I you have any changes to the action item list and indicate your availability for a site visit. Again thank you for participating in yesterday's meeting.

Thanks, Jim



"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/27/2009 10:36 PM

To Jennifer Derby/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, Palmer
Hough/DC/USEPA/US@EPA, Mike Wicker

cc

bcc

Subject Acre table

History: This message has been replied to.

Hi everyone.

Attached is a draft table that compares the acres by "Biotic ID" between the Mod Alt L and the new line proposed Tuesday. I'm still error checking, so please consider this a draft and let me know of anything you see that is awry.

Pace

--

Pace Wilber, Ph.D.
Atlantic Branch Chief, Charleston (F/SER47)
Southeast Regional Office, NOAA Fisheries
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Charleston, SC 29422-2559

843-953-7200
FAX 843-953-7205
pace.wilber@noaa.gov

<http://sero.nmfs.noaa.gov/dhc/habitat.htm>



Palmer
Hough/DC/USEPA/US
03/28/2009 02:44 PM

To "Pace.Wilber" <Pace.Wilber@noaa.gov>
cc Rebecca Fox/R4/USEPA/US@EPA
bcc
Subject Re: Acre table]

Pace:

I did find one thing that raised concerns. When I added the wetlands impacts for the Mod Alt L (left out perennial and intermittent streams) to compare it to our alternative, it came out to 3905.9 acres. But I thought the wetland impacts for Mod Alt L were 3,953. Not a big deal considering the scale but an inconsistency nonetheless.

Thanks, Palmer

Wetland Impacts

	Mod ALT L	EPA/FWS/NMFS
	69.1	55
	322.7	213.1
	420.9	338.5
	624.2	565.4
	958.6	491.5
	862	549.5
	351	258.9
	264	264
	21.6	21.6
	11.8	1.1
total	3905.9	2758.6

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Street/Courier Address
USEPA
Palmer Hough
EPA West -- Room 7231-L
Mail Code 4502T
1301 Constitution Avenue, NW
Washington, DC 20460

"Pace.Wilber"

Hi everyone. Attached is a draft table that comp...

03/27/2009 10:37:18 PM

From: "Pace.Wilber" <Pace.Wilber@noaa.gov>
To: Jennifer Derby/R4/USEPA/US@EPA, Rebecca Fox/R4/USEPA/US@EPA, Palmer

Hough/DC/USEPA/US@EPA, Mike Wicker <Mike_Wicker@fws.gov>, Pete Benjamin
<Pete_Benjamin@fws.gov>, Tom Welborn/R4/USEPA/US@EPA, "Walker, William T SAW"
<William.T.Walker@usace.army.mil>, Ron Sechler <ron.sechler@noaa.gov>

Date: 03/27/2009 10:37 PM
Subject: Acre table

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--

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Southeast Regional Office, NOAA Fisheries
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[attachment "AcreSummariesPurpleLine_March27.pdf" deleted by Palmer
Hough/DC/USEPA/US]



"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/28/2009 03:11 PM

To Palmer Hough/DC/USEPA/US@EPA
cc Rebecca Fox/R4/USEPA/US@EPA
bcc
Subject Re: Acre table

Hi Palmer.

While the checking is going generally well, there are a few things that have caught my eye. From what I can tell, there are some oddities in the CZR data that are just propagating through into our analysis. Some of this may simply reflect the vagaries of GIS, some are minor problems with the data I got from CZR (e.g., polygon slivers), some may reflect things I've done. Once we are happy with the purple line, we just need to pass it to CZR and let them do the full analysis.

Pace

Hough.Palmer@epamail.epa.gov wrote:

Pace:

I did find one thing that raised concerns. When I added the wetlands impacts for the Mod Alt L (left out perennial and intermittent streams) to compare it to our alternative, it came out to 3905.9 acres. But I thought the wetland impacts for Mod Alt L were 3,953. Not a big deal considering the scale but an inconsistency nonetheless.

Thanks, Palmer

(Embedded image moved to file: pic20399.jpg)

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Street/Courier Address
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Mail Code 4502T
1301 Constitution Avenue, NW
Washington, DC 20460

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| From: |
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| "Pace.Wilber" <Pace.Wilber@noaa.gov>
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| To: |
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| Jennifer Derby/R4/USEPA/US@EPA, Rebecca
Fox/R4/USEPA/US@EPA, Palmer Hough/DC/USEPA/US@EPA, Mike
Wicker <Mike_Wicker@fws.gov>, Pete |
| Benjamin <Pete_Benjamin@fws.gov>, Tom
Welborn/R4/USEPA/US@EPA, "Walker, William T SAW"
<William.T.Walker@usace.army.mil>, Ron Sechler |
| <ron.sechler@noaa.gov>
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Pace

--

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[attachment "AcreSummariesPurpleLine_March27.pdf" deleted by
Palmer
Hough/DC/USEPA/US]

Wetland Impacts		
Mod	ALT L	EPA/FWS/NMFS
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"Heather"
<riverkeeper@ptrf.org>
03/29/2009 04:45 PM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc

Subject: RE: revised additional reclamation measures

History:  This message has been replied to.

Thanks Becky. Have passed on. This is a much cleaner and more concise version than the first draft that was sent.

Geoff and I have already developed draft recommendations. WE have sent to the wider group for any comments /edits. We plan to get that to you all by Monday afternoon.

I will be on the call Monday-- but am at a 2-day meeting in Mebane tomorrow and Tuesday, so will have limited access to email. If you need something, check in with Geoff at SELC and he can track me down (or just call my cell).

Thanks. (Hope you are at least enjoying part of your weekend. I was able to play in our garden today for a bit).

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Saturday, March 28, 2009 12:26 PM
To: Heather
Subject: revised additional reclamation measures

Heather,

We have revised the additional reclamation measures from what I sent you last week. I'm attaching the revised plan. Please forward on to the other NGOs for their review. Thanks! bf

(See attached file: Additional Reclamation Measures_3-28-09.doc)

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov



"riverkeeper@ptrf.org"
<riverkeeper@ptrf.org>

03/29/2009 10:02 PM

Please respond to
riverkeeper@ptrf.org

To Rebecca Fox/R4/USEPA/US@EPA

cc

bcc

Subject RE: revised additional reclamation measures

I will have my laptop with me. I'm just not sure if I'll have access to the internet where the meeting is. I've asked Geoff to keep me in the loop via phone if anything is needed before Tuesday night.

The monitoring and reclamation package looks good...we have a few suggestions that Geoff will tidy up and get to you tomorrow.

Your hard work is much appreciated by many.

Heather Jacobs Deck
Pamlico-Tar Riverkeeper
Pamlico-Tar River Foundation
Phone: (252) 946-7211
Cell: (252) 402-5644
Fax: (252) 946-9492
www.ptrf.org
Waterkeeper Alliance Member

-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Sunday, March 29, 2009 5:10 PM
To: Heather
Subject: RE: revised additional reclamation measures

Thanks Heather! Yep, the first version was created by Mike and was a bit rambling and not specific enough as to what we were asking for but we liked the general ideas. Mike has been a great help! Not much off time here this weekend -- did take off about an hour to eat lunch and walk the dogs to the mailbox (have a half mile drive so that was a little bit of a getaway) but it's been from dawn to late night most of the time. Palmer and I have to get the elevation package ready for reviews by hopefully tomorrow... would like to get a yoga session in but it's not looking good... b

ps assume you will not have a laptop with you so won't be able to get emails in the evening???

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

"Heather"
<riverkeeper@ptrf.org>

03/29/2009 04:45

Rebecca Fox/R4/USEPA/US@EPA

To

cc

PM

Subject

RE: revised additional
reclamation measures

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-----Original Message-----

From: Fox.Rebecca@epamail.epa.gov [mailto:Fox.Rebecca@epamail.epa.gov]
Sent: Saturday, March 28, 2009 12:26 PM
To: Heather
Subject: revised additional reclamation measures

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(See attached file: Additional Reclamation Measures_3-28-09.doc)

Becky Fox
Wetland Regulatory Section

USEPA

Phone: 828-497-3531

Email: fox.rebecca@epa.gov

mail2web.com - Enhanced email for the mobile individual based on Microsoft®
Exchange - <http://link.mail2web.com/Personal/EnhancedEmail>



Mike_Wicker@fws.gov
03/30/2009 11:04 AM

To Palmer Hough/DC/USEPA/US@EPA
cc Rebecca Fox/R4/USEPA/US@EPA, "Pace.Wilber"
<Pace.Wilber@noaa.gov>
bcc
Subject Citations that you asked for

Farmer, E.E. and W.G. Blue. 1978. Reclamation of lands mined for phosphate. Pages 585-608 In: F.W. Schaller and P. Sutton (eds.). Reclamation of Drastically Disturbed Lands. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, WI.

Schuman, G.E. and J.F. Power. 1981. Topsoil management of mined soils. Journal of Soil and Water Conservation 36: 77-78.

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Cieslinski, G., K.C.J. Van Rees, P.M. Huang, L.M. Kozak, H.P.W. Rostad and D.R. Knott. 1996. Cadmium uptake and bioaccumulation in selected cultivars of durum wheat and flax as affected by soil type. Plant and Soil 182: 115-124.

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Farmer, E.E. and W.G. Blue. 1978. Reclamation of lands mined for phosphate. Pages 585-608 In: F.W. Schaller and P. Sutton (eds.). Reclamation of Drastically Disturbed Lands. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, WI.

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Schuman, G.E. and J.F. Power. 1981. Topsoil management of mined soils. Journal of Soil and Water Conservation 36: 77-78.

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Van Driel, W. B. Van Luit, K.W. Smilde and W. Schuurmans. 1995. Heavy-metal uptake by crops from polluted river sediments covered by non-polluted topsoil. I. Effects of topsoil depth on metal contents. Plant and Soil 175: 93-104.

Van Noordwijk, M. W. Van Driel, G. Brouwer and W. Schuurmans. 1995. Heavy-metal uptake by crops from polluted river sediments covered by non-polluted topsoil. II. Cd-uptake by maize in relation to root development. Plant and Soil 175: 105-113.

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Washington, DC.

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Palmer
Hough/DC/USEPA/US
03/30/2009 12:10 PM

To "Pace.Wilber" <Pace.Wilber@noaa.gov>
cc Mike_Wicker@fws.gov, Rebecca Fox/R4/USEPA/US@EPA
bcc
Subject Re: Question about Joint Elevation Packages _1

Pace:

Thanks for agreeing to review the package, will get it to you and Mike ASAP. If NMFS does decide to withdraw its elevation letters, we appreciate your doing so in a way that does not weaken ours.

Also, what is the status of the GIS coverages? We were hoping to be able to share those with the Applicant and the District today.

Thanks, Palmer

Palmer F. Hough
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EPA West -- Room 7231-L
Mail Code 4502T
1301 Constitution Avenue, NW
Washington, DC 20460

"Pace.Wilber"

Hello Palmer and Becky. We would be happy to...

03/30/2009 12:02:07 PM

From: "Pace.Wilber" <Pace.Wilber@noaa.gov>
To: Rebecca Fox/R4/USEPA/US@EPA
Cc: Palmer Hough/DC/USEPA/US@EPA, Mike_Wicker@fws.gov
Date: 03/30/2009 12:02 PM
Subject: Re: Question about Joint Elevation Packages

Hello Palmer and Becky.

We would be happy to review the elevation package. There is a point about essential fish habitat (EFH) that has gotten lost in some of the discussion, so we'd want to make sure this point is clear. In short, the portions of the inland Primary Nursery Areas that have intermittent flows as well as the wetlands that serve as headwaters to those portions of those streams are EFH but they are not Habitat Areas of Particular Concern (HAPCs). This is important to us because HAPCs are afforded a higher level of protection under Magnuson-Stevens Act. So while there will be

direct impacts to EFH, there will only be indirect impacts to HAPCs, and the COE will condition any permit to require close monitoring of the HAPCs for these impacts and to require corrective actions.

We expect the COE will send us a 3(c) letter today. After discussion with our Regional Administrator this morning, I doubt we will elevate further due to competing time commitments and the COE having been pretty responsive to the specific concerns we raised in past letters. If we do chose to withdraw our elevation, we would want to do so in a manner that does not weaken points made by EPA and FWS. I think reviewing your elevation package will help us better grasp how to walk that thin line.

Pace

Fox.Rebecca@epamail.epa.gov wrote:

Mike and Pace,

We are just putting the finishing touches on our DRAFT impacts section and it would be very helpful if your agencies could take a look and provide input -- caveat is that it would have to happen very quickly -- it is only several pages long. Thanks! b&p

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

Palmer
Hough/DC/USEPA/U
S

To

Mike_Wicker@fws.gov

03/30/2009 11:28

cc

AM

"Pace.Wilber"
<Pace.Wilber@noaa.gov>

, Rebecca

Fox/R4/USEPA/US@EPA

Subject

Question about Joint

Elevation

Packages (Document

link: Rebecca

Fox)

Mike:

We were asked by our upper management about the possibility of having a joint elevation package between FWS and EPA (I presume this would apply to NMFS but not sure how that would work since NFMS has not technically started an elevation since it has not received an NOI - but I was not asked this question).

While we are developing all the components, points, arguments, etc in our package based on your input and will share parts or all of our draft package with you - b/c we want to ensure that we are taking a stand that represents the collective judgment of all three agencies - I just assumed that having an actual joint letter signed by both EPA and DOI - by EPA's deadline of 4/6 would be logistically impossible.

What are your thoughts? I assumed that FWS would need its extra days just to get it package through your Regional Office, FWS HQ office and then to DOI.

-Palmer

ps: continued thanks to you and Pace for all of your years of work on this effort and your fantastic support over the last few weeks.

Palmer F. Hough
US Environmental Protection Agency

Wetlands Division
Room 7231, Mail Code 4502T
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Office: 202-566-1374
Cell: 202-657-3114
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--

Pace Wilber, Ph.D.
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843-953-7200
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<http://sero.nmfs.noaa.gov/dhc/habitat.htm>



"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/30/2009 01:09 PM

To Rebecca Fox/R4/USEPA/US@EPA, Palmer
Hough/DC/USEPA/US@EPA, Tom
Welborn/R4/USEPA/US@EPA, Jennifer

cc

bcc

Subject Newest NCPC lines

Hi everyone.

This is a bit rushed, so hopefully no big errors. Attached ppt shows the latest line for the NCPC tract. There are some issues with calculating the acres, and we hope to meet with CZR tomorrow to see what is going on here. I propose we send COE and PCS the only the line, not the acreages. For technical reasons, we should rely upon CZR to do those calculations.

Pace

--

Pace Wilber, Ph.D.
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Palmer
Hough/DC/USEPA/US
03/30/2009 03:39 PM

To "Pace.Wilber" <Pace.Wilber@noaa.gov>,
Mike_Wicker@fws.gov
cc Rebecca Fox/R4/USEPA/US@EPA

bcc

Subject PCS Elevation: Draft Impacts Discussion for your expedited review

Pace/Mike:

Attached is the Impacts discussion from our draft permit elevation package for PCS. We are very interested in your thoughts and comments on this. As you know we are under great pressure to get a draft package pulled together for broader review here at EPA, so would we appreciate you thoughts/edits etc as soon as possible.

Thanks, Palmer



Impacts section_v5.doc

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IV. Substantial and Unacceptable Impacts

40 CFR 230.10(c): Significant Degradation

EPA is concerned that compliance with requirements of Section 230.10(c) of the Guidelines has not been demonstrated. Section 230.10(c) requires that no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of waters of the United States. The Guidelines explicitly require evaluation of all direct, secondary, (i.e., indirect), and cumulative impacts reasonably associated with the proposed discharge in determining compliance with Section 230.10(c). In accordance with the Guidelines, determining significant degradation requires specific consideration of effects on such functions and values as wildlife habitat, aquatic system diversity, stability and productivity, recreation, aesthetic and economic values.

Of the 15,100 acre project area, the proposed mine advance would impact approximately 11,454 total acres and result in direct impacts to approximately 3,953 acres of wetlands, 19 acres of open waters and 25,727 linear feet of streams. This represents the single largest wetland impact ever authorized under the Clean Water Act in NC and represents a significant loss of wetlands, streams and other waters of the United States within the nationally significant Albemarle Pamlico Estuary Complex.

As previously noted, all of the site's wetlands perform important ecological functions that support the Albemarle Pamlico Estuary such as temporary storage of surface water, nutrient cycling, organic carbon export, pollutant filtering/removal, and maintenance of biologically diverse plant and animal habitat. Also as previously noted, all of the site's stream resources perform important ecological functions that support the Albemarle Pamlico Estuary such as the transport of water, nutrients and sediment downstream, pollutant processing and removal, and maintenance of biologically diverse plant and animal habitat. We recognize that not all of the approximately 3,953 acres of wetlands and 25,727 linear feet of streams that would be impacted by the proposed project perform all of these respective functions to the same degree (because of their position in the landscape and/or their level of prior disturbance), however, the complete loss of this entire suite of wetland and stream functions on this scale raises serious ecological concerns.

The habitat functions provided by wetlands and streams that would be lost are particularly important in light of the ecological and economic value of the Albemarle Pamlico Estuary's commercial and recreational fishery/shellfish resources. Also, the state has designated the entire Tar – Pamlico River Basin as Nutrient Sensitive Waters because of problems associated with excessive levels of nutrients in the river such as harmful algal blooms, low oxygen levels, increased fish kills, and other symptoms of stress and diseases in the aquatic biota. The state developed a strategy to reduce nutrient inputs from around the basin to the estuary that is yielding improvements to water quality. Nonetheless, we are very concerned that loss of the water quality enhancement functions provided by the approximately 3,953 acres of wetlands and 25,727 linear feet of streams that would be completely eliminated by the proposed project could

impact the perennial reaches of the four Primary Nursery Areas, the headwater drainages of the project site's tidal creeks, including those designated as Primary Nursery Areas, would be reduced by approximately 70 percent. Our concerns regarding the proposed drainage basin reductions are amplified on the NCPC tract since its watersheds have already lost approximately 1,268 acres of wetlands as part of the Applicant's 1997 mining permit.

Eliminating the headwater streams and wetlands and significantly reducing the drainage areas of the project site's Primary Nursery Areas and other tidal creeks would:

- Reduce flow from ground water and stormwater runoff to the tidal creeks, thereby decreasing fresh water input and increasing their salinity through estuarine tidal influences.
- Reduce filtration of nutrients and other contaminants previously accomplished by the site's streams and wetlands, increasing sedimentation and turbidity in tidal creeks and reducing the introduction of organic materials critical for biological activity in the tidal creeks.

We believe the disruption of these processes and functions in the drainage basin will significantly impact the site's tidal creeks and impair the ability of these systems to function as Primary Nursery Areas.

Estuarine animals exist in a community assemblage and the influence of a factor, such as salinity on one species may be extended either directly or indirectly to affect other species. The cumulative effects of even small changes in an estuary may have a total systemic effect on the marine resources and the economic activities that depend on them. We believe the potential effect of Drainage Basin Reduction (DBR) on the production of marine fisheries resources is significant.

Besides its effect on fish production, DBR will likely result in increased sedimentation and turbidity, which are significant contributors to declines in populations of aquatic organisms. The direct effects of sedimentation and turbidity at various trophic levels are mortality, reduced physiologic functions and avoidance. Sedimentation can clog the gills of fish, reducing respiratory abilities. This stress may reduce tolerance levels to disease and toxicants and to changes in dissolved oxygen concentrations and salinity, compromising the health of local fisheries resources. Decreases in primary production are associated with increases in sedimentation and turbidity and produce negative cumulative effects through depleted food availability to zooplankton, insects, freshwater mollusks and fish. Decreases in available food at various trophic levels also results in depressed rates of growth, reproduction and recruitment. These effects lead to alterations in community density, diversity and structure.

Mining will directly affect the rate at which water is routed through the watershed. DBR will reduce contiguous sheet flow and as the mine expansion progresses there is an ever increasing trend of diverting surface water drainage which once promoted estuarine productivity into National Pollutant Discharge Elimination System (NPDES) channels, pipes and outfalls. This redirection of surface flows contributes to estuarine degradation because it removes natural watershed drainage patterns that 1) promote infiltration and trapping of sediments and other pollutants, and 2) provide a beneficial diffuse source of water to the estuary and subsequently decreases the buffering capacity of the system. These changes will likely increase the amount of

the conclusion that current and future DBRs from mining activities would have no significant effect on downstream ecosystems. Data collected by NC Wildlife Resource Commission in November 2006 to determine species present in Jacks, Jacobs and South Creeks does not support that fish production originates from downstream estuarine environments. The report does not address freshwater species nor did it establish a connection between biota and previous mining impacts in the area including watershed reduction and ground water draw down. The report used "baseline" data for Jacks Creek collected after the watershed had already been reduced by almost 20 percent. Small reductions in watershed area may have large biotic impacts and therefore it is problematic using this data as a baseline to determine DBR impacts. This report also makes a troubling extrapolation that since past smaller DBRs did not adversely impact the tidal creeks, the much larger DBRs associated with the proposed project (i.e., 70 to 80 percent DBRs) also would not adversely impact the tidal creeks. However, data does not exist to draw this conclusion.

The Entrix report and the Corps' February 24, 2009, Notice of Intent letter both present the success of the PA II man-made marsh on the PCS project area to hypothesize that the DBRs will not cause significant loss of habitat value and nursery functions of the tidal creeks. The West (2000) study evaluating PA II is frequently cited in these discussions and is used by the Entrix report to argue broad scale functional equivalency of PA II to local tidal creeks. We do not believe it is valid to use the West study to make these inferences. The study's objective was to assess how well PA II could provide suitable habitat for fish, benthic and plant species and not to evaluate the effects of DBR on these populations. The data was collected from the lower reaches of the stream channel and did not fully assess the upper channel's biota. These results support the potential for species repopulation in the lower reaches of the creeks but do not support the proposition that DBR will not impact the upper channel's biota. The report does not provide data on the functional equivalence of factors, such as stream substrate, biogeochemical processes, wetland plants, etc. and in fact, there was no evidence of accretion of natural sediment structure (woody detrital covering, large peat component, etc) or organic carbon in the 10 years of the study. We believe the data presented does not overcome the large body of scientific information showing that mining through the headwaters of estuarine streams and their riverine habitat will have a significant negative impact on the functioning and structure of the creeks impacted by the proposed mining activities. There is, however, a large amount of scientific data supporting the importance of headwater streams and wetlands on downstream water quality.

Summary

In summary, the proposed project would eliminate critical ecological functions provided by approximately 3,953 acres of wetlands and 25,727 linear feet of streams within the nationally significant Albemarle Pamlico Estuary. Wetland functions include temporary storage of surface water, nutrient cycling, organic carbon export, pollutant filtering/removal, and maintenance of biologically diverse plant and animal habitat. Stream functions include transport of water, nutrients and sediment downstream, pollutant processing and removal, and maintenance of biologically diverse plant and animal habitat. Of particular concern are the proposed projects:

- Direct impacts to portions of a nonriverine hardwood wetland forest that has been designated as a Nationally Significant Natural Heritage Area by the NC Natural Heritage Program, and



Derb Carter
<derbc@selcnc.org>

03/30/2009 04:04 PM

To "Pete_Benjamin@fws.gov" <Pete_Benjamin@fws.gov>,
Mike Wicker <mike_wicker@fws.gov>, Tom
Welborn/R4/USEPA/US@EPA, Rebecca

cc

bcc

Subject FW: press on PCS elevation

Some of the press on PCS I thought you might find of interest

Derb

An editorial also ran in the Charlotte Observer over the weekend:
<http://www.charlotteobserver.com/opinion/story/371034.html>

EPA has second thoughts on coal, phosphate mines

Agency rightly questions impact on streams, rivers and wetlands.

Resulting articles:

AP <http://www.newsobserver.com/1565/story/1458993.html>

N&O (also in today's print) <http://www.newsobserver.com/news/story/1458425.html>

WDN <http://www.wdnweb.com/articles/2009/03/26/news/news01.txt>



"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/30/2009 04:24 PM

To Jim Giattina/R4/USEPA/US@EPA
cc arthur.l.middleton@usace.army.mil,
william.t.walker@usace.army.mil,
samuel.k.jolly@usace.army.mil,
bcc

Subject Re: Follow-up to March 24 Meeting re PCS

History: This message has been forwarded.

Hello everyone.

At the close of the meeting last Tuesday, NMFS offered to capture into a GIS the lines that were drawn for the NCPC and Bonnerton tracts and distributed in hard copy. The attached zip file contains three sets of shapefiles, one set for NCPC and two sets for Bonnerton (north and south). The attached pdf shows these lines in purple relative to the GIS data provided to us in January by CZR. Please note the area indicated for the NCPC tract is a bit larger than what was provided last Tuesday. This increase in area of the proposed mine reflects clarification of conversations between EPA and NGOs. The approximate area of this addition is shown in the pdf. Questions about that clarification should be directed to EPA since they were the agency that participated in the original and follow-up conversations. I would be happy to answer any questions you have about how the hard copies distributed last week were formatted for a GIS.

Pace

Giattina.Jim@epamail.epa.gov wrote:

> Ken, Tom W, Arthur, David, Ross, Jeff, Tom R, and George:
>
> We want to thank everyone again for participating in Tuesday's meeting.
> We found the discussions very productive. A number of action items were
> identified at the end of the meeting. I would like to capture that
> list, identify the lead for each action, and provide you with the status
> of actions which EPA/NMFS/FWS are responsible for. According to my
> notes, we identified the following four actions:
>
> 1) EPA in coordination with FWS and NMFS will provide GIS coverages
> identifying the proposed "EPA/FWS/NMFS" mining boundaries for the NCPC
> and Bonnerton tracts presented yesterday (the boundary for S33 continues
> to be the boundary certified by the State). We will forward this
> information to you on Monday 3/30.
>
> 2) FWS will provide language describing the reclamation provisions
> discussed on 3/24. We will forward this information to you on Monday
> 3/30.
>
> 3) NMFS will provide the language describing the monitoring provisions
> discussed on 3/24. We will forward this information to you on Monday
> 3/30.
>
> 4) Once it receives the GIS coverages, PCS will evaluate the economic
> viability of the EPA/FWS/NMFS alternative and share its results with the
> agencies.
>
> In addition to expanded impact avoidance and improved reclamation and
> monitoring provisions, the EPA/FWS/NMFS alternative also includes

> measures to ensure that avoided aquatic resources are provided long-term
> protections from future mining with the appropriate binding real estate
> instrument. As discussed on 3/24, we suggest the use of conservation
> easements. As noted on 3/24, we are also open to discussion regarding
> compensatory mitigation credit for the protection of these avoided
> areas. We welcome your recommendations regarding the appropriate level
> of compensation credit for the preservation, enhancement, and/or
> restoration of avoided aquatic resources.
>
> At the 3/24 meeting PCS requested that the agencies continue to pursue
> formal elevation of the Corps' proposed permit for the alternative known
> as "Modified Alternative L" that was certified by the State. Although
> not discussed on 3/24, we would like to organize a site visit for agency
> officials who would be involved in the review of this elevated permit
> decision. We would like to know your availability on April 27 and the
> morning of April 28.
>
> Please let me know if I you have any changes to the action item list and
> indicate your availability for a site visit. Again thank you for
> participating in yesterday's meeting.
>
> Thanks, Jim
>
>
>

--

Pace Wilber, Ph.D.
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***** ATTACHMENT NOT DELIVERED *****

This Email message contained an attachment named
PCS_30March2009.zip
which may be a computer program. This attached computer program could
contain a computer virus which could cause harm to EPA's computers,
network, and data. The attachment has been deleted.

This was done to limit the distribution of computer viruses introduced
into the EPA network. EPA is deleting all computer program attachments
sent from the Internet into the agency via Email.

If the message sender is known and the attachment was legitimate, you
should contact the sender and request that they rename the file name
extension and resend the Email with the renamed attachment. After
receiving the revised Email, containing the renamed attachment, you can

rename the file extension to its correct name.

For further information, please contact the EPA Call Center at
(866) 411-4EPA (4372). The TDD number is (866) 489-4900.

***** ATTACHMENT NOT DELIVERED *****



Geoff Gisler
<ggisler@selcnc.org>
03/30/2009 04:25 PM

To Rebecca Fox/R4/USEPA/US@EPA, David McNaught
<dmcnaught@edf.org>, Palmer
Hough/DC/USEPA/US@EPA, Tom
cc David Emmerling <david.emmerling@ptrf.org>, Derb Carter
<derbc@selcnc.org>, Jim Stephenson <jims@nccoast.org>,
"Mike_Wicker@fws.gov" <Mike_Wicker@fws.gov>, Molly
bcc

Subject RE: Monday Agency/NGO discussion 1 PM

History:  This message has been forwarded.

All,
I have attached our recommended modifications to the monitoring and reclamation plans. In summary of today's phone call:

Although we believe that the mine advance should move immediately South of 33, the environmental NGOs are willing to accept a mine plan that allows considerable mining on the two tracts North of 33: NCPC and Bonnerton. That mining, however, must be conditioned upon a guarantee that ALL mining-avoidance areas are put under some sort of conservation instrument that ensures their perpetual exemption from mining. Perhaps a conservation easement to an appropriate land trust. That mechanism must include protection of the vegetation within the nationally significant natural heritage area on the Bonnerton Tract.

With that condition, we agree to the "option B" mining avoidance lines offered by the EPA/USFWS/NOAA on the NCPC tract. That plan will protect the two NMFS areas at Huddy's and Tooley's headwaters (areas 4 and 5), but will allow the mining of the area included in the red polygon, part of Drinkwater Creek's headwaters.

We are concerned about the impacts to the SNHA on Bonnerton due to mining in the vicinity of the SNHA and any relocation of equipment through the area. But we can agree to the mine advance offered by the EPA/USFWS/NOAA on the Bonnerton tract under the condition that the Company can ensure (and demonstrate) that relocation of its equipment between the North and South mining segments of the Bonnerton tract can be made without significant, long-term degradation of the important SNHAs or tributaries or riparian areas of Porter and Durham Creeks, which are the key targets of additional avoidance on that tract (NMFS avoidance areas 3, 6, and 7).

Lastly, the environmental NGOs also would endorse a mine advance South of 33 that follows the SCR boundary.

Geoff Gisler
Staff Attorney
Southern Environmental Law Center
200 W. Franklin St. Suite 330
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Additional Measures to Improve Reclamation Areas

EPA, FWS and NMFS recommend the following measures to minimize the impact of the mining project on avoided aquatic resources by improving the quality of the reclamation area. It should be noted that these improvements would be in addition to the already agreed-upon 3-foot site cap needed to address the cadmium risk assessment recommendations. PCS's reclamation plan shall describes the process that it will use to implement these reclamation efforts, sets measurable success criteria, establishes a process to measure those criteria, and creates a mechanism for releasing those results to our agencies and the public annually. Reclamation under the plan must be completed and released within 15 years of initial land clearing for mine expansion.

1) We recommend that a topsoil cover be added to the reclaimed areas utilizing, to the extent appropriate and practicable, the topsoil removed prior to site mining. Reuse of on-site topsoil takes advantage of the soil structure, organic matter, nutrients, and seed sources available in that material (i.e. the A Horizon) which is removed as mining operations advance. There is support for such an approach in the published literature (Farmer and Blue 1978; Schuman and Power 1981) and addition of topsoil to phosphate reclamation sites in Florida has yielded positive environmental results. Adding approximately one foot of topsoil on average (no less than six inches) would allow the site to recover at a greatly accelerated pace in contrast to not having topsoil and would make the reclaimed area suitable for a broader array of tree species. While we recognize that adequate amounts of topsoil will likely not be available to re-cover the entire reclamation area because of losses during removal and site preparation, reasonable targets for the percent of the reclamation site amended with topsoil should be established.

2) We also recommend that upland portions of the reclamation area be replanted in longleaf pine (*Pinus palustris*) and wetland areas be replanted in bald cypress (*Taxodium distichum*) and/or Atlantic white cedar (*Chamaecyparis thyoides*) if Atlantic white cedar is shown to do well on the reclamation sites. All three of these species will grow on low fertility sites and longleaf pine and bald cypress are long lived species that despite slow growth rates can be expected to live long enough to eventually establish moderate stand coverage even on sterile sites and will produce decay resistant litter that over the very long term will rebuild soil. All of these species provide wildlife habitat and all occur naturally in monotypic stands.

3. We recommend that reclamation efforts in riparian areas receive priority treatment, particularly for those riparian areas adjacent to streams that will be connected to existing surface waters (e.g. Whitehurst Creek). PCS's reclamation plan must include an explanation of site development that will minimize erosion, eliminate contaminant transportation from the clay/gypsum blend through the stream channel, and facilitate the development of a mature vegetated riparian buffer.

Recommendations for the Monitoring of Impacts to Primary Nursery Areas

Background

Throughout reviews of the proposal by PCS to expand its mine into the NCPC, Bonnerton, and S33 tracts, resource agencies expressed concerns over direct and indirect impacts to creeks that function as nursery areas for estuarine and marine fauna. South Creek, which borders the NCPC tract, is designated by the State of North Carolina as a ~~Special Secondary~~ Nursery Area, and the NC Division of Marine Fisheries has jurisdiction over this aspect of South Creek. Three creeks that discharge into South Creek from the NCPC tract, Tooley, Jacobs, and Jacks Creeks, and one creek that borders the Bonnerton tract, Porters Creek, are designated as Inland PNAs and are under the jurisdiction of the NC Wildlife Resources Commission. At the federal level under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), these creeks are Habitat Areas of Particular Concern, which is the highest level of protection afforded by the Magnuson-Stevens Act, and wetlands that serve as headwaters of those creeks are essential fish habitat (EFH) under the Magnuson-Stevens Act.

Deleted: Primary

While the footprint of the proposed mine does not extend into the PNAs, the resource agencies are concerned that the extensive mining of wetlands that serve as the headwaters of these creeks may impair the function of these PNAs. Accordingly, a monitoring program coupled with an adaptive management process is proposed to gauge the impacts to the PNAs from the mining so that appropriate adjustments can be made to mine operations. By "appropriate adjustments," we simply mean compliance reviews common for permits that authorize projects of this size and duration, and recognition of the inevitable uncertainties at the time of permitting about how large projects affect the landscape, and vice versa. Similar monitoring should be part of the mitigation and reclamation activities so that the expected benefits from these activities can be evaluated. The monitoring program and adaptive management process described below are viewed as consistent with the recently issued water quality certification to the extent that the water quality certification describes the monitoring. PCS has six months to flesh out the monitoring program required by the water quality certification. We expect a single monitoring and adaptive management program would meet the requirements of state and federal authorizations.

Deleted: are

Proposed Permit Conditions

Monitoring of Affected Creeks and Streams

PCS shall develop and implement a plan of study to address the effects of a reduction in headwater wetlands on the utilization of Porters Creek, Tooley Creek, Jacobs Creek, Drinkwater Creek, and Jacks Creek as nursery areas by resident fish and appropriate invertebrate species and on all other creeks and streams whose headwaters are reduced 10% or more by mine expansion. This plan shall be submitted to NMFS, US FWS, NCWRC, NCDME, NCDWQ, NCDLR for review and approval prior to initiation of land clearing activities in the headwater wetlands of PNAs within the NCPC tract. PCS shall make the plan publicly available for comment at the time it submits the plan to the reviewing agencies and shall provide individual notice of the plan to those persons that request notice. The plan shall identify reference creeks (at least four – Muddy Creek's usefulness as a reference creek should be reevaluated, not assumed); sampling stations, schedules, and methods; laboratory methods; data management and analysis; and quality control and quality assurance procedures.

Deleted: PNA Functions

Monitoring under the plan shall begin 10 years before land clearing is anticipated. For those streams with impacts expected to occur within the first 10 years of the mine expansion, monitoring shall begin as soon as possible following plan approval. Monitoring shall continue for 30 years following completed reclamation (to match North Carolina's solid waste monitoring requirements).

At a minimum, the plan shall address the following issues and include the following data collection:

1. Has mining altered the amount or timing of water flows within the creeks?

- Continuous water level recorders to measure flow
- Rain gauges to measure local water input
- Groundwater wells to measure input to the creeks
- Continuous salinity monitoring
- Periodic DO monitoring (continuously monitored for several days at strategic times of year)

2. Has mining altered the geomorphic or vegetative character of the creeks?

- Aerial photography to determine creek position, length, width, sinuosity (annual)
- Cross section of creeks at key locations (annual)
- Sediment characteristics (texture, organic content, and contaminants) (annual);--Vegetation (percent cover by species) along the creek to determine zonation changes and invasions (spring and fall)
- Sediment chlorophylls or organic content in vegetation zone (spring and fall)
- Determination of location of flocculation zones with each creek (spring and fall)
- Erosion of overburden cap that forms the streambed banks in any reconnected stream system

Deleted: 1

3. Has mining altered the forage base of the creeks?

- Benthic cores to sample macroinfauna (spring and fall)
- Benthic grabs focused upon bivalves, such as *Rangia* sp. (spring and fall)
- Net samples for grass shrimp, blue crabs, and small forage fish (such as *Fundulus* spp.); sampling gears would be chosen to reflect ontogenetic shifts in creek usage (monthly)

4. Has mining altered the use of the creeks by managed fish?

- Life-stage specific sampling based on time year, sampling gears would be chosen to reflect ontogenetic shifts in creek usage. (monthly or seasonally)

5. Do creek sediments include contaminants at levels that could impact fish or invertebrates?

- Creeks would be sampled for metals, including cadmium, mercury, silver, copper, and arsenic (annual)
- Availability and uptake by appropriate aquatic species (e.g., *Rangia* sp., blue crabs) should be measured using appropriate bioassay techniques (annual);--Effect on heavy metal concentrations in bottom sediments of connecting reclaimed areas to downstream creeks (e.g. Whitehurst Creek)

Deleted: 1

Groundwater Monitoring

- Groundwater monitoring wells should be placed in reclamation areas and peripheral areas. Number and location of wells shall be determined in consultation with the North Carolina Department of Environment and Natural Resources (Department).
- Groundwater monitoring should commence with weekly samples for a period of 5 years to generate an acceptable baseline. After 5 years, monthly monitoring is acceptable.
- Monitoring must continue for 30 years post reclamation. The post-reclamation time period can be lengthened by the Department.
- If elevated levels of heavy metals are detected, monitoring should continue to be conducted weekly.
- At a minimum, heavy metals, including cadmium, arsenic, and chromium should be analyzed. Other parameters may be added per the discretion of the Department.
- PCS Phosphate shall develop a remediation strategy for heavy metal contamination of groundwater and tributaries that drain or are adjacent to mined areas. That strategy must be made available for public review and comment before approval by the Department.

Monitoring of Reclaimed Areas

PCS's monitoring plan must include specific conditions that measure the viability of capping and top soil cover approaches. Those conditions must include measurable standards and regular inspection intervals. The plan should further include an evaluation of the following characteristics:

- 1) physical conformation (to measure the rates of settling and erosion, the resulting changes in conformation)
- 2) patterns in overall water balance and groundwater levels,
- 3) soil profile development and quality (especially looking for toxicants),
- 4) vegetative community development patterns, and
- 5) animal use patterns, along with some body burden testing for resident animals as sentinels for cadmium movement.

Adaptive Management

PCS shall establish an independent panel of scientists and engineers to annually evaluate whether direct and indirect impacts from mining and benefits from the compensatory mitigation are in accordance with expectations at the time of permitting. The panel shall meet during January or February of each calendar year and shall review data collected through the previous calendar year. By March 31, the panel shall provide the Wilmington District and PCS with recommended changes to the mining and mitigation that are necessary to bring the project into alignment with expectations. Every fifth year, the panel shall review the monitoring methods, sampling locations, parameters analyzed, and other elements of monitoring protocol to determine if modifications to the plan are appropriate. The Wilmington District will consider this information and comments from resource agencies to determine if corrective actions or permit modifications are needed. If the panel concludes that the mine expansion has caused significant adverse environmental impacts that are not offset by mitigation, then corrective action shall be taken. All data, reports, and presentations reviewed by the panel shall be placed and maintained on a publically accessible internet site.



Palmer
Hough/DC/USEPA/US
03/30/2009 04:58 PM

To: Rebecca Fox/R4/USEPA/US@EPA
cc
bcc
Subject: Re: Fw: Monday Agency/NGO discussion 1 PM

Becky:

On the second point, can you follow up with Geoff, did he mean to say modified ALT L?

Regarding monotypic stands, I guess I assumed having one target species is better than the proposed option of a moonscape. Can we assume there will be a lot of volunteer species that will move in? Do you have language that you want to add to the reclamation provisions to address this concern?

-Palmer

Palmer F. Hough
US Environmental Protection Agency
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1301 Constitution Avenue, NW
Washington, DC 20460

Rebecca Fox Palmer, What do you think about EPA input on r...

03/30/2009 04:42:37 PM

From: Rebecca Fox/R4/USEPA/US
To: Palmer Hough/DC/USEPA/US@EPA
Date: 03/30/2009 04:42 PM
Subject: Fw: Monday Agency/NGO discussion 1 PM

Palmer,

What do you think about EPA input on reclamation re monotypic stands.

Also Geoff's write up still says SCR boundary S33... b

Becky Fox
Wetland Regulatory Section
USEPA
Phone: 828-497-3531
Email: fox.rebecca@epa.gov

----- Forwarded by Rebecca Fox/R4/USEPA/US on 03/30/2009 04:40 PM -----



Geoff Gisler
<ggisler@selcnc.org>
03/30/2009 04:25 PM

To Rebecca Fox/R4/USEPA/US@EPA, David McNaught
<dmcnaught@edf.org>, Palmer
Hough/DC/USEPA/US@EPA, Tom
Welborn/R4/USEPA/US@EPA
cc David Emmerling <david.emmerling@ptrf.org>, Derb Carter
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<SPearsall@edf.org>, Todd Miller <toddm@nccoast.org>
Subject RE: Monday Agency/NGO discussion 1 PM

All,
I have attached our recommended modifications to the monitoring and
reclamation plans. In summary of today's phone call:

Although we believe that the mine advance should move immediately South of 33,
the environmental NGOs are willing to accept a mine plan that allows
considerable mining on the two tracts North of 33: NCPC and Bonnerton. That
mining, however, must be conditioned upon a guarantee that ALL
mining-avoidance areas are put under some sort of conservation instrument that
ensures their perpetual exemption from mining. Perhaps a conservation easement
to an appropriate land trust. That mechanism must include protection of the
vegetation within the nationally significant natural heritage area on the
Bonnerton Tract.

With that condition, we agree to the "option B" mining avoidance lines offered
by the EPA/USFWS/NOAA on the NCPC tract. That plan will protect the two NMFS
areas at Huddy's and Tooley's headwaters (areas 4 and 5), but will allow the
mining of the area included in the red polygon, part of Drinkwater Creek's
headwaters.

We are concerned about the impacts to the SNHA on Bonnerton due to mining in
the vicinity of the SNHA and any relocation of equipment through the area.
But we can agree to the mine advance offered by the EPA/USFWS/NOAA on the
Bonnerton tract under the condition that the Company can ensure (and
demonstrate) that relocation of its equipment between the North and South
mining segments of the Bonnerton tract can be made without significant,
long-term degradation of the important SNHAs or tributaries or riparian areas
of Porter and Durham Creeks, which are the key targets of additional avoidance
on that tract (NMFS avoidance areas 3, 6, and 7).

Lastly, the environmental NGOs also would endorse a mine advance South of 33
that follows the SCR boundary.

Geoff Gisler
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Southern Environmental Law Center
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[attachment "Additional Reclamation Measures_3-28-09.ngo.doc" deleted by
Rebecca Fox/R4/USEPA/US] [attachment "PCS monitoring (draft).ngo.doc" deleted
by Rebecca Fox/R4/USEPA/US]



Mike_Wicker@fws.gov
03/30/2009 05:06 PM

To Palmer Hough/DC/USEPA/US@EPA
cc Rebecca Fox/R4/USEPA/US@EPA, "Pace.Wilber"
<Pace.Wilber@noaa.gov>
bcc

Subject Re: PCS Elevation: Draft Impacts Discussion for your
expedited review

History:  This message has been replied to.

Pete and I are reviewing your impact discussion.

While we are doing that I thought you might like to look at DMF letter on the FEIS. It has some good language in it that Sean (DMF) put together. I called Sean and he said use whatever we want. We are all in this together.

(See attached file: PCS FEIS 6-30-08.doc)



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor
William G. Ross Jr., Secretary

Division of Marine Fisheries

Dr. Louis B. Daniel III, Director

MEMORANDUM

To: Melba McGee
Through: Anne Deaton
From: Sean McKenna
Date: June 27, 2008
Subject: PCS Phosphate mine advance, Beaufort County

The following comments by the North Carolina Division of Marine Fisheries (NCDMF) on the Final Environmental Impact Statement (FEIS) are offered pursuant to G.S. 113-131. The Potash Corporation of Saskatchewan Phosphate Division (PCS), Aurora Operation has applied for a Department of the Army authorization to continue its phosphate mining operation on the Hickory point peninsula adjacent to the Pamlico River and South Creek, north of Aurora, in Beaufort County. The applicant's purpose and need is to continue mining its phosphate reserve in an economically viable fashion. More specifically, the applicant's purpose and need is to implement a long-term systematic and cost-effective mine advance within the project area for the ongoing PCS phosphate mine operation at Aurora (Beaufort county), North Carolina. The mining method is "open pit." The upper soil layers are completely removed to reach target phosphate ore at varying depths. All surface features, including topography, vegetation, and waters, are destroyed, when mining occurs, and the soils and surface features are rebuilt in an altered fashion some years later.

On April 25, 2008 the PCS requested that it's application be modified to request a permit for Alternative L. Based on information provided by the applicant this alternative would provide approximately 37 years of mining at current production levels (5M tons of concentrated phosphate rock per year). Alternative L avoids all areas regulated by CAMA. Alternative L is an 11,909-acre project area with direct mining impacts to 4,135 acres of wetlands and 20 acres of open waters (8 acres of streams and 12 acres of ponds). There will also be drainage basin reduction to a number of creeks and streams in the project area. Impacted waters include Whitehurst Creek (4%), Jacks Creek (68%), Jacobs Creek (54%), Drinkwater Creek (61%), Tooley Creek (46%), and 45% of the unnamed tributaries of South Creek. These creeks drain into South Creek, a MFC designated Special Secondary Nursery Area, and their loss will have significant adverse impacts on the function of the downstream nursery area. Huddles Cut and Huddy Gut drainage basins would be permanently reduced by 63% and 58% respectively. An unnamed tributary of the Pamlico River would be reduced by 45%. In the Bonnerton Tract, Porter Creek would be reduced by 70%, Durham Creek would be reduced by two percent, and Bailey Creek would see a 3% reduction. Drainage reductions in the S33 Tract include Bailey Creek (40%), Broomfield Swamp (72%), and Cypress Run (75%). Jacobs, Tooley, Jacks and Porter creeks are designated inland PNAs by the NC Wildlife Resources Commission.

Based on the discussion below, the NCDMF finds this FEIS to be inadequate. Therefore, it is not suitable for use as a decision support document in its current form. Furthermore, if this document were to be utilized as the primary support document for issuance of a permit for the requested mine advance, the NCDMF would be opposed to Alternate L or any alternate that involves further mining in the NCPC tract due to the significant negative adverse impacts to estuarine fisheries resources, fish habitats, water quality, and public trust waters in the Pamlico River system. Impacts would include both direct and indirect effects. Direct effects would be seen through drainage basin reductions, sedimentation, and loss of habitat.



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Indirect effects would include negative impacts to Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPCs), impacts associated with heavy metal contamination, drainage basin reductions, impacts to commercial and recreational fisheries, long-term water quality impacts from the mining activity, and loss of wetland functions.

As noted in Section 1.6 (Areas of Controversies and Unresolved Issues) of the FEIS;

“Areas of potential controversy include avoidance, minimization, and/or mitigation of impacts to wetlands and waters; **overall level and extent of impacts to aquatic resources**; direct, indirect, and cumulative impacts to surface and groundwater quality, air quality, and terrestrial and aquatic communities; elevated cadmium concentration in reclaimed lands; and length of the authorized permit activities.”

The NCDMF raised concerns about these unresolved issues in our comments on the Draft EIS [DEIS (2/2/07)] and the supplement to the DEIS (12/4/07), and is very disappointed that the CORPS chose not to adequately address them in the FEIS. Not only were our concerns not fully addressed, but the CORPS never contacted the NCDMF to talk about these issues during the preparation of the FEIS. The NCDMF understands that this is a CORPS document and ultimately they have the final say on the adequacy and content of the document. However it is important to remember that this document will also be used to satisfy the requirements of the State Environmental Policy Act, and the NCDMF is the state agency charged with the stewardship of the marine and estuarine resources of the State of North Carolina and is responsible for the management of all marine and estuarine resources. Therefore the NCDMF believes that our concerns merit full consideration by the CORPS since the proposed action will have significant negative adverse impacts to estuarine fisheries resources, and fish habitats of the state, based on the information provided.

In addition to significant concerns with the proposed mining activity and the inadequacy of the FEIS, the mitigation plan only addresses direct impacts. According to the National Environmental Policy Act of 1969 (NEPA) “Effects include: (a) Direct effects, which are caused by the action and occur at the same time and place. (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects and impacts as used in these regulations are synonymous. Effects include ecological (such as the effect on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.” (40 CFR 1508.8). Mitigation under the NEPA process (40 CFR 1508.20) includes “(a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (e) Compensating for the impact by replacing or providing substitute resources or environments.” Based on these NEPA requirements the NCDMF feels that the mitigation plan must also address indirect impacts. Indirect impacts to EFH/HAPC total 3,349 acres (Table 1). Since there are no suitable habitats to mitigate



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for these losses the NCDMF feels that the only option available is avoidance and minimization. To that end over 88% of the impacts to EFH/HAPC can be avoided by not allowing any further mining on the NCPC tract, by avoiding these areas impacts to EFH/HAPC would be minimized to 13%. In view of the fact that indirect impacts were not accounted for in the mitigation section of the FEIS the NCDMF finds this section FEIS to be inadequate, and requests that no action be taken on this permit until such time as a complete mitigation plan is developed that provides mitigation for both direct and indirect impacts as required by NEPA. Additionally, the mitigation plan needs to include a contingency plan and financial assurances to address potential long-term increased metal concentration in the aquatic and terrestrial environment from mining and reclamation activities. Also, if the CORPS determines that indirect impacts do not need to be mitigated for, then a contingency plan and financial assurances for these indirect impacts needs to be provided.

Table 1. Alternative L impacts (total acres) to Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPCs) by area.

EFH/HAPC	Area impacted (acres) ¹		
	NCPC	Bonnerton	S33
Tidal freshwater (palustrine) emergent wetlands	46	2	0
Tidal palustrine forested areas	15	0	0
Estuarine wetlands	87	0	0
Unconsolidated bottom (soft sediments)	38	0	0
Tidal creeks	38	0	0
Tidal freshwater	1	0	0
Estuaries	130	0.5	4
Mixing and seawater zone of the Pamlico River	87	0	0
Primary nursery Area ²	28.8	70.8	0
Special Secondary Nursery Area ³			
Tidal freshwater SAV	1	0	0
Estuarine SAV	33	0	0
Submerged rooted vascular plants (seagrasses)	31	0	0
Total EFH/HAPC impacts	535.8	73.3	4
Percent of EFH/HAPC impacts	87.39%	11.96%	0.65%

¹ Data provided in the FEIS by the applicant

² FEIS states that there are only 22 acres of impacts, but they only included the portion of the PNA in the Public trust areas. Also Designation of PNAs is done entirely under state authority; however, the South Atlantic Fishery Management Council includes North Carolina's PNAs as Essential Fish Habitat by reference.



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³ Total SSNA in the South Creek Complex total 2,736 acres, all of which would be indirectly impacted by this project.

CONCERNS/DEFICIENCIES:

4.1.3.1 Elemental Contaminant Issues

"There are many interactions between and among metals, the species of metals, and the physical environment (pH, salinity). Some factors enhance uptake while others inhibit or moderate absorption. Some metals have greater effects on invertebrate organisms, while other metals affect vertebrates more acutely. Fish and wildlife are often used as sentinel species and bioindicators during ecological risk studies (Peakall and Burger 2003). The elemental contaminants within the reclamation areas and found in plant and animal tissues at PCS are cadmium, arsenic, chromium, and zinc. Cadmium is a teratogen, a carcinogen, and a possible mutagen. Arsenic is also a carcinogen and disrupts production of the multifunctional nucleotide ATP involved with intracellular energy transfer. While chromium and zinc are considered essential trace elements, health effects from chromium depend upon its oxidation state. Zinc as a free ion in solution is highly toxic for fish and invertebrates and can suppress copper and iron absorption. Other determining factors in the bioavailability of metals are host, age, gender, size, genetic characteristics, behavior (food chain relationships), and the interactions and synergies between all factors. Indirect effects of contaminants are difficult to determine and are likely to disrupt aquatic populations at several trophic levels (Fleeger et al. 2003)."

A review of the CZR Incorporated (1999) report indicates the following:

1. Clay, produced during the initial processing of the phosphate rock, has elevated concentrations of silver, arsenic, cadmium, chromium, manganese, uranium, zinc, phosphorus, total organic carbon, and calcium carbonate.
2. Sand tailings, produced with clay during the initial processing of the phosphate rock, have elevated concentrations of arsenic, cadmium, uranium, and phosphorus.
3. Bucket wheel spoil, overburden removed from above the main phosphate rock deposit has a slightly elevated concentration of silicon.
4. Gypsum, a byproduct of the reaction of sulfuric acid with phosphate rock, showed levels of arsenic, at or above the average level for continental rock. Cadmium levels were enriched, on average, 156 times above background. Levels of uranium, zinc, and phosphorus were also significantly elevated.
5. Blend, composed of clay (1 part) and gypsum (2 to 4 parts), is used in the reclamation process. Blend showed elevated concentrations of silver, arsenic, cadmium, manganese, uranium, zinc, phosphorus, and total organic carbon.



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6. Concentrations of metals in the sediment of R-3 North and R-3 South showed elevated concentrations of silver, arsenic, cadmium, chromium, copper (R-3 North), molybdenum, selenium, and zinc. Levels of cadmium and chromium (R-3 South) on the sampled reclamation sites (R-3 North and R-3 South) exceeded the effects-range-median value which is defined as the concentration above which harmful effects would occur frequently. Levels of silver, arsenic, copper, and zinc exceeded the effects-low-range value which is defined as the concentration below which adverse effects would occur only rarely.
7. Dissolved metal concentrations in surface waters of R-3 North and R-3 South showed elevated levels of arsenic, cadmium, molybdenum, and zinc. Particulate metals for these sites was high in arsenic, cadmium, chromium, molybdenum, and zinc (R-3 South only). These sites exceed chronic freshwater water quality criteria for cadmium and chromium (R-3 North).

The transfer of toxic chemicals through marine food chains can result in bioaccumulation in fishery resources. Ecological concerns of contamination in the marine environment include changes in species distributions and abundance, habitat alterations, and changes in energy flow and biogeochemical cycles. The toxic effects of chemical contaminants on marine organisms are dependent on bioavailability and persistence, the ability of organisms to accumulate and metabolize contaminants, and the interference of contaminants with specific metabolic or ecological processes. Accumulation of contaminants in biological resources may occur through aqueous, sedimentary and dietary pathways.

The FEIS must thoroughly address the movement, metabolism, bioaccumulation, fate, and short-term and long-term impacts of these substances (silver, arsenic, cadmium, chromium, copper, molybdenum, selenium, manganese, uranium, phosphorus, zinc, total organic carbon, and calcium carbonate) on commonly occurring estuarine organisms important in the estuarine food chain, as well as in vertebrate and invertebrate fishes taken in the commercial and recreational fisheries of the Pamlico River system and other areas to which fishes from that area may migrate and support the food chain or be harvested. This analysis is important given that section 3.6.2.9 (Bottom Sediments) of the FEIS states "In the 1997 study and NCPC monitoring, arsenic, cadmium, molybdenum, selenium, and zinc were found to be elevated above the level in the continental crust in most, if not all, of the sampling stations (CZR Incorporated, Trefry, and Logan.1999)." This analysis should look at direct, indirect, and cumulative impacts.

The importance of the elemental contaminant issues cannot be understated given the potential biological, and economic impacts. In 1987 a severe outbreak of shell disease (complete breakdown of the crystalline matrix of the endocuticle) in blue crabs in the Pamlico River was investigated (McKenna et. al. 1990). The majority of diseased crabs were caught between Durham and South creeks. Possible causes of this outbreak were cadmium and/or fluoride (McKenna et. al. 1990). The authors of this study concluded, "The association between Texasgulf and the outbreak of shell disease in the Pamlico River cannot be dismissed as a fortuitous event and warrants further investigation." This outbreak had significant biological impacts to the blue crab resource in the river by causing mortalities of effected crabs, and resulted in local and national concern about potential human health concerns related to eating seafood from this system, and to a lesser extent consumption of all seafood caught in North Carolina. Fishermen and dealers were not able to sell their product, resulting in lost income and markets. No further outbreaks of this disease have been seen since the completion of the plants water recycling system in 1992. However, this event does show the need to examine the direct, indirect, and cumulative impacts of these toxins. This is especially important given the uncertainty



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surrounding the current method of capping overburden (see section 4.1.3.1). As noted at the end of section 4.1.3.1 "Any permit issued by the Corps for further mining at the Aurora operation will necessarily include conditions to successfully address the cadmium and other heavy metals issue. **The specific conditions will be developed after considering the success of capping methods employed to date. The conditions will also likely include a monitoring program and contingency plans.**" The NCDMF feels that the ecological consequences warrant delaying action on this permit until this issue is resolved.

4.2.1.2 Soils

"Due to the nature of open pit mining, removal of the overburden, or all soils and stratigraphic units overlying the ore, would result in the unavoidable loss of soils in the area of impact under any of the mining boundaries. The soil character would be irreversibly altered.

Impacts to existing wetlands within the mine perimeter are permanent. The purpose of reclamation is not to restore wetland (or upland) functions of soils but to safely fill the excavated area according to state/federal laws; however, additional goals of reclamation are the establishment of both upland and wetland habitat that will invite and support wildlife."

The direct, indirect, and cumulative impacts of these losses must be examined as to their effect on downstream waters.

4.2.1.6 Surface Waters

"Long-term water quality impacts from the mining activity are more difficult to assess. Once mining is completed, PCS will be required by the North Carolina Division of Land Resources to reclaim the area mined, pursuant to an approved reclamation plan. The areas reclaimed may or may not function as wetlands. Once this area is reclaimed, drainage will also be restored, resulting in run-off from the reclaimed land entering the creeks. Potential long-term impacts to water quality in primary nursery areas include the permanent loss of the filtering and flow moderation benefits of the wetlands through which this run-off would otherwise drain. Although compensatory mitigation within the same hydrologic unit would be required, it would not be at the location of the impacted wetlands, and those wetlands would not be available to provide functions lost at this particular site.

"In addition, there is a potential for long-term water quality impacts resulting from the use of the gypsum-clay blend materials in the reclamation effort. Particular concern over the potential for cadmium, found in the gypsum-clay blend, entering the receiving waters has been expressed."

Changes in the drainage basin will affect freshwater inflow and salinity patterns in South Creek. The impact of phosphate mining on streamflow in Florida was examined by Schreuder et al. 2006. This study indicated that mined basins have increased overall stream flow. The analyses also showed that flood-flows from mined basins were reduced by mining operations, while median and base-flows were significantly increased. Mueller and Matthews (1987), Browder et al. (2002), and Galindo-Bect and Glenn (2000) showed



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that changes in freshwater inflow affects salinity patterns, which in turn affects shrimp growth, survival, and subsequent recruitment and stock size available for harvest. Estuarine animals exist in a community assemblage; thus, the influence of salinity on one species can be extended either directly or indirectly to affect other species (Pottillo et al. 1995). The cumulative effects of even small changes in an estuary may have a total systemic effect on the marine resources and the economic activities that depend on them (Monaco and Emmett 1988; Bulger et al. 1990; Orland et al 1993). Since 1994 the commercial harvest of finfish and shellfish in North Carolina has averaged 160,564,051 pounds with a average dockside value of \$94,999,172 (NC DMF Trip Ticket data 1994-2005). Effects of drainage basin reductions on the production of marine fisheries resources must be addressed.

Besides its effect on fish production, reduction in the drainage basin area will result in increased sedimentation and turbidity, which are significant contributors to declines in populations of North American aquatic organisms (Henley et al. 2000). The direct effects of sedimentation and turbidity at various trophic levels are mortality, reduced physiological function, and avoidance. Sedimentation can clog the gills of fish, reducing respiratory abilities. This stress, may in turn, reduce tolerance levels to disease and toxicants, and to changes in dissolved oxygen concentrations and salinity, compromising the health of local fisheries resources. Elevated levels of sediment (typically over background) may be harmful to fish (i. e., acutely lethal, or elicit sublethal responses that compromise their well-being and jeopardize survival), and negatively impact their habitat (DFO 2000). Decreases in primary production are associated with increases in sedimentation and turbidity and produce negative cumulative effects through depleted food availability to zooplankton, insects, freshwater mollusks, and fish. Decreases in available food at various trophic levels also result in depressed rates of growth, reproduction, and recruitment (Henley et al. 2000). These effects lead to alterations in community density, diversity and structure. The effects of changes in sedimentation on marine resources and primary and secondary production must be addressed.

Reduction of the drainage basin area will eliminate contiguous sheet flow and decrease the buffering capacity of the system. These changes will likely increase the amount of sediments, nutrients, and toxics entering the system. Nitrogen and phosphorus can accelerate eutrophication resulting in algal blooms, reduced water clarity, shifts in algal and fish populations, and fish kills. Currently South Creek is stressed, with water quality problems including algal blooms and increases in suspended solids. While these existing problems are probably not the result of current mining activities, reduction in buffering capacity of the tributaries from further mining north of NC Highway 33 will only exacerbate existing conditions. Many hypoxic zones in the world have been caused by excess nutrients exported from rivers, resulting in reduced commercial and recreational fisheries production (Council for Agricultural Science and Technology 1999). The effects of cadmium and other heavy metals and the reduction in buffering capacity must be examined.

4.2.1.9 Wetlands and Open Waters (Section 404 Jurisdictional Areas)

"All of the proposed locational mine continuation boundaries except the No Action alternative boundary would result in the disturbance or loss of wetland communities. The resulting ecological consequences include the loss or disruption of the following wetland functions: groundwater discharge and recharge, **surface water storage, organic matter production and export, sediment capture and retention of pollutants**, wildlife habitat including EFH/HAPC, and nutrient accumulation, cycling and transformation. Drainage area reductions for area creeks also would potentially



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impact adjacent Section 404 jurisdictional wetlands by altering the input of freshwater into these systems. Intact wetlands outside of the boundaries of the proposed mine continuation boundaries would potentially be affected by changes in water quality, as well as by diminished input from runoff upstream."

Wetlands have many functions including high net primary production; fish and wildlife habitat; retention of nutrients, sediments, and toxins; shoreline protection; attenuation of flood waters; recharge of groundwater aquifers; and nutrient cycling. A review of wetland functions can be found in the North Carolina Coastal Habitat Protection Plan (Street et al. 2005) and Section 4.2 of the Compensatory Section 404/401 Mitigation Plan. Specific wetland issues relating to this FEIS can be found elsewhere in this document. Hydrologic processes control the formation, persistence, size, and function of wetlands, while soils and vegetation alter water velocities, flow paths, and chemistry (Carter 1997). Wetlands restoration and creation projects do not consistently replace lost wetland structure and/or function (Erwin et al. 1997; Minello 2000; Streever 2000). In addition, there is evidence showing that some wetland attributes of natural and restored or created wetlands may be similar, while others may be different, and that different wetland attributes develop at different rates (Galatowitsch and van der Valk 1996; Minello and Webb 1997; Simenstad and Thom 1996; Streever et al. 1996; Streever 2000). Densities of both fishes and decapod crustaceans were lower in created salt marshes (2 to 15 yr in age) than in natural marshes (Minello and Zimmerman 1992; Minello and Webb 1997).

4.2.1.11.2 Aquatic Wildlife Communities

"Removal of open water habitat also would result in localized losses of aquatic organisms and their habitat and would remove some EFH/HAPC communities. However, no commercially important species are likely to be directly affected. Loss of aquatic habitat and loss of aquatic fauna will be offset over time by mitigation activities including restoration of open water and by reclamation activities through restoration and creation of additional open water habitats and other aquatic habitats as appropriate with current reclamation practice and geomorphic constraints. Aside from the AP alternative boundaries, the proposed mine continuation alternatives would excavate upper headwater intermittent or perennial streams, not brackish marsh and estuarine creeks (Section 4.2.2.11.2). Although these headwater reaches provide important support functions, they do not support the large diverse aquatic communities associated with deeper downstream reaches."

Nursery areas are those portions of estuarine waters most critical to the early life history stages of marine and estuarine organisms. Early development of the post larval stages of many fish and shellfish species occurs in Primary Nursery Areas (PNAs). More than 90% of North Carolina's commercial fisheries harvest and 60% of the sport fisheries harvest consists of species dependant on estuarine nursery areas. Direct impacts to nursery areas include drainage basin reductions, and loss of wetlands and open water habitat. As noted in Section 4.2.1.20 "...lost resources include permanent loss of existing topography and soils, and potentially permanent losses of currently existing wetlands and open water, biotic communities, and fish and wildlife habitat quality within the project area." The cumulative effects of even small changes in an estuary may have a significant systemic effect on the marine resources and the economic activities that depend on them (Monaco and Emmett 1988; Bulger et al. 1990; Orland et al. 1993). There is a high probability that the various restoration projects will be unsuccessful in fully restoring natural process. Some of



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the affected waters are PNAs, and all the waters support various aquatic organisms that contribute to the estuarine food chain, and ultimately to fisheries production. This section must address the effects on estuarine species, both direct and indirect, through the loss of open water habitat.

"Within the project area, as in other estuaries, salinity is highly variable due to wind tides and rainfall. Therefore, although optimum salinities likely exist for many species (Peterson et al. 1999; Secor et al. 2000; Specker et al. 1999), estuarine fishes at all life stages are adapted to a wide range of salinities (Malloy and Targett 1991; Banks et al. 1991; Limburg and Ross 1995; Buckel et al. 1995). Even if salinity was affected by mining, impacts to fisheries are unlikely because many studies have demonstrated the insensitivity of estuarine fishes, especially at post-larval stages, to drastic changes in salinity (Crocker et al. 1983; Zydlewski and McCormick 1997; Nordlie et al. 1998; Estudillo et al. 2000)"

While estuarine species are able to tolerate temporary fluctuations in salinity, a permanent change in salinity patterns will likely result in a total change in species assemblages.

"Similarly, monitoring data collected during NCPC monitoring suggest that mining activity would not impact fish and benthos"

The sample intensity and the parameters measured are inadequate to support such a broad generalization. The statement should be deleted unless the applicant can show with a high degree of statistical certainty that it is true.

Section 4.2.1.17.9 Recreational Resources

Recreational fishing, especially with hook and line, is growing within coastal North Carolina. On January 1, 2007 the State of North Carolina required all people (over the age of 16) fishing in coastal and joint waters for recreational purposes to purchase a coastal recreational fishing license. Revenues from license sales are used to manage, protect, restore, develop, cultivate, conserve, and enhance the marine resource. The FEIS must address probable mining effects on such fisheries. Data are available from a number of sources, and the applicant has the ability to conduct appropriate studies, as needed.

4.2.1.21 Cumulative Impacts

"The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) define cumulative effects as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). The document further states that, by definition, cumulative effects must be evaluated along with the direct effects and indirect effects (those that occur later in time or farther removed in distance) of each boundary. The range of alternatives considered must include the No Action boundary as a baseline against which to evaluate cumulative effects of the AP or EAP alternative boundary. The range of actions that must be considered includes not only the project proposal but all



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Michael F. Easley, Governor
William G. Ross Jr., Secretary

Division of Marine Fisheries

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connected and similar actions that could contribute to cumulative effects. Specifically, NEPA requires that all related actions be addressed in the same analysis (Council on Environmental Quality 1997)."

The NCDMF concurs with the need for this assessment and finds the information in the FEIS to be deficient. Significant revisions must be done to meet the federal NEPA requirements. This section should use the Council on Environmental Quality 1997 document "Considering Cumulative Effects Under the National Environmental Policy Act" as a guide in the preparation of this section.

4.3.1.4.3 Watershed Acreages and Hydrologic Regimes

"There is no evidence to support that any adverse impacts will occur. Conversely, there is evidence to show that 1) salinity levels will not be significantly affected by reduction in drainage area (and thus reduction in freshwater flow), 2) the creeks will continue to have their salinity levels determined by the Pamlico River/South Creek system, 3) the creeks will continue to function as nursery areas, and 4) no adverse impacts should occur from sediments or run-off during construction, mining, or reclamation activities (CZR Incorporated 1994)."

The referenced studies are not adequate (short duration, areas had only minimal drainage impacts, the study area has been significantly impacted since 1968 and current dewatering practices affect surface and sub-surface flow in both the study and control sites thus masking any effects) to support the above conclusions. The FEIS needs to provide a review of the scientific literature. For example, a quick review of the literature showed that restoration and creation projects do not consistently replace lost wetland structure and function (Erwin et al. 1997; Minello 2000; Streever 2000). In addition, there is evidence showing that some wetland attributes of natural and restored or created wetlands may be similar, while others may be different, and that different wetland attributes develop at different rates (Galatowitsch and van der Valk 1996; Minello and Webb 1997; Simenstad and Thom 1996; Streever et al. 1996; Streever 2000). Densities of both fishes and decapod crustaceans were lower in created salt marshes (2 to 15 yr in age) than in natural marshes (Minello, Zimmerman 1992, Minello and Webb 1997), and these are the fisheries resources of greatest importance in coastal North Carolina.

The NCDMF also strongly recommends that existing water quality monitoring programs be maintained and/or expanded, depending on the final selected alternative. In addition to water quality monitoring, programs should be designed and implemented to sample fishery resources, and heavy metal contamination.

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North Carolina Department of Environment and Natural Resources

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Dr. Louis B. Daniel III, Director

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"Pace.Wilber"
<Pace.Wilber@noaa.gov>
03/30/2009 05:28 PM

To Jim Giattina/R4/USEPA/US@EPA
cc arthur.l.middleton@usace.army.mil,
william.t.walker@usace.army.mil,
samuel.k.jolly@usace.army.mil,
bcc

Subject Re: Follow-up to March 24 Meeting re PCS

History: This message has been replied to.

Hello everyone.

Draft monitoring language is attached.

Pace

Giattina.Jim@epamail.epa.gov wrote:

> Ken, Tom W, Arthur, David, Ross, Jeff, Tom R, and George:
>
> We want to thank everyone again for participating in Tuesday's meeting.
> We found the discussions very productive. A number of action items were
> identified at the end of the meeting. I would like to capture that
> list, identify the lead for each action, and provide you with the status
> of actions which EPA/NMFS/FWS are responsible for. According to my
> notes, we identified the following four actions:
>
> 1) EPA in coordination with FWS and NMFS will provide GIS coverages
> identifying the proposed "EPA/FWS/NMFS" mining boundaries for the NCP
> and Bonner tracts presented yesterday (the boundary for S33 continues
> to be the boundary certified by the State). We will forward this
> information to you on Monday 3/30.
>
> 2) FWS will provide language describing the reclamation provisions
> discussed on 3/24. We will forward this information to you on Monday
> 3/30.
>
> 3) NMFS will provide the language describing the monitoring provisions
> discussed on 3/24. We will forward this information to you on Monday
> 3/30.
>
> 4) Once it receives the GIS coverages, PCS will evaluate the economic
> viability of the EPA/FWS/NMFS alternative and share its results with the
> agencies.
>
> In addition to expanded impact avoidance and improved reclamation and
> monitoring provisions, the EPA/FWS/NMFS alternative also includes
> measures to ensure that avoided aquatic resources are provided long-term
> protections from future mining with the appropriate binding real estate
> instrument. As discussed on 3/24, we suggest the use of conservation
> easements. As noted on 3/24, we are also open to discussion regarding
> compensatory mitigation credit for the protection of these avoided
> areas. We welcome your recommendations regarding the appropriate level
> of compensation credit for the preservation, enhancement, and/or
> restoration of avoided aquatic resources.
>
> At the 3/24 meeting PCS requested that the agencies continue to pursue
> formal elevation of the Corps' proposed permit for the alternative known
> as "Modified Alternative L" that was certified by the State. Although
> not discussed on 3/24, we would like to organize a site visit for agency

> officials who would be involved in the review of this elevated permit
> decision. We would like to know your availability on April 27 and the
> morning of April 28.
>
> Please let me know if I you have any changes to the action item list and
> indicate your availably for a site visit. Again thank you for
> participating in yesterday's meeting.
>
> Thanks, Jim
>
>
>

--

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Palmer
Hough/DC/USEPA/US
03/30/2009 05:38 PM

To Pace.Wilber@noaa.gov, Mike_Wicker@fws.gov, Rebecca
Fox/R4/USEPA/US@EPA

cc

bcc

Subject revised reclamation provisions

History:  This message has been replied to.

Pace/Mike/Becky:

Here is a redline showing the NGO additions to the reclamation provisions and a few more edits I made as well.

Let me know if this is OK and I will forward to the entire group.

Thanks, Palmer



Additional Reclamation Measures_3-30-09.doc

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Additional Measures to Improve PCS Reclamation Areas

EPA, FWS and NMFS recommend the following measures to minimize the impact of the mining project on avoided aquatic resources by improving the quality of the reclamation area. It should be noted that these improvements would be in addition to the already agreed-upon 3-foot site cap needed to address the cadmium risk assessment recommendations. PCS's reclamation plan shall describe the process that it will use to implement these reclamation efforts, set measurable success criteria, establish a process to measure those criteria, and create a mechanism for releasing those results to our agencies and the public annually. Reclamation under the plan must be completed and released within 15 years of initial land clearing for mine expansion.

1) We recommend that a topsoil cover be added to the reclaimed areas utilizing, to the extent appropriate and practicable, the topsoil removed prior to site mining. Reuse of on-site topsoil takes advantage of the soil structure, organic matter, nutrients, and seed sources available in that material (i.e. the A Horizon) which is removed as mining operations advance. There is support for such an approach in the published literature (Farmer and Blue 1978; Schuman and Power 1981) and addition of topsoil to phosphate reclamation sites in Florida has yielded positive environmental results. Adding approximately one foot of topsoil on average (no less than six inches) would allow the site to recover at a greatly accelerated pace in contrast to not having topsoil and would make the reclaimed area suitable for a broader array of tree species. While we recognize that adequate amounts of topsoil will likely not be available to re-cover the entire reclamation area because of losses during removal and site preparation, reasonable targets for the percent of the reclamation site amended with topsoil should be established.

2) We recommend that upland portions of the reclamation area be replanted, to the extent appropriate and practicable, in longleaf pine (*Pinus palustris*) and wetland areas be replanted in bald cypress (*Taxodium distichum*) and/or Atlantic white cedar (*Chamaecyparis thyoides*) if Atlantic white cedar is shown to do well on the reclamation sites. All three of these species will grow on low fertility sites and longleaf pine and bald cypress are long lived species that despite slow growth rates can be expected to live long enough to eventually establish moderate stand coverage even on sterile sites and will produce decay resistant litter that over the very long term will rebuild soil. All of these species provide wildlife habitat and all occur naturally in monotypic stands. Reasonable targets for the percent of the reclamation site replanted with these species should be established.

Deleted: also

3) We recommend that reclamation efforts in riparian areas receive priority treatment, particularly for those riparian areas adjacent to streams that will be connected to existing surface waters (e.g. Whitehurst Creek). PCS's reclamation plan must include an explanation of site development that will minimize erosion, eliminate contaminant transportation from the clay/gypsum blend through the stream channel, and facilitate the development of a mature vegetated riparian buffer.



Palmer
Hough/DC/USEPA/US
03/30/2009 05:47 PM

To Pace.Wilber@noaa.gov, Mike_Wicker@fws.gov
cc Rebecca Fox/R4/USEPA/US@EPA
bcc
Subject PCS Elevation: draft ARNI section for your review

Mike/Pace:

Attached for your review is the draft discussion making our ARNI argument. We would appreciate any comments etc you have on this section as well.

-Palmer



ARNI section_v7.doc

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III. Aquatic Resources of National Importance

The 15,100 acre project area is located adjacent to the Pamlico River which is part of the nationally significant Albemarle Pamlico Estuary Complex (see Figure 2). The project area contains 6,293 acres of wetlands and 115,843 linear feet of streams that support the Albemarle Pamlico Estuary and collectively constitute aquatic resources of national importance (ARNI). The Albemarle Pamlico Estuary Complex is the largest lagoonal estuary in the country. The fringe marshes, creeks, and beds of submerged aquatic vegetation in the Albemarle Pamlico Estuary Complex provide essential nursery habitat for most commercial and recreational fish and shellfish in the North Carolina coastal area (Street et al., 2005) and important habitat for waterfowl¹, shorebirds and other migratory birds. The importance of wetlands to coastal fish is not unique to North Carolina. Over 95 percent of the finfish and shellfish species commercially harvested in the United States are wetland-dependent (Feierabend and Zelazny, 1987). More than 70 percent of the commercially or recreationally valuable fish species of the Atlantic seaboard rely on the Albemarle-Pamlico system for some portion of their life cycle and more than 90 percent of the fish caught in NC depend on the estuary as a nursery habitat (Association of National Estuary Programs, 2009).

As discussed earlier, the project site consists of three distinct tracts, NCPC, Bonnerton and S33. The NCPC tract is adjacent to the Pamlico River and South Creek. Seventy-one percent of this tract is designated as wetlands and contains six tidal creeks, including three inland Primary Nursery Areas. The Bonnerton tract is adjacent to the Pamlico River and Durham Creek. Seventy-six percent of this tract is designated as wetlands and it contains the headwater drainage to one inland Primary Nursery Area. The Bonnerton tract also contains an approximately 271 acre nonriverine hardwood forested wetland that has been designated as a Nationally Significant Natural Heritage Area. The S33 tract is farther inland than either the NCPC or Bonnerton tracts and contains the headwaters of two creeks which ultimately drain into South Creek. Approximately 20 percent of the S33 tract is delineated as wetland.

The FEIS classifies the site's wetlands into ten categories: brackish marsh complex, bottomland hardwood forest, herbaceous assemblage, shrub-scrub assemblage, hardwood forest, mixed pine-hardwood forest, pine forest, pocosin-bay forest, sand ridge forest, and pine plantation. All of the site's wetlands perform important ecological functions that support the Albemarle Pamlico Estuary such as temporary storage of surface water, nutrient cycling, organic carbon export, pollutant filtering/removal, and maintenance of biologically diverse plant and animal habitat. The FEIS classifies the site's stream resources into intermittent streams, perennial streams and public trust areas (i.e., navigable/canoeable creeks in coastal counties). All of the site's stream resources perform important ecological functions that support the Albemarle Pamlico Estuary such as the transport of water, nutrients and sediment downstream, pollutant processing and removal, and maintenance of biologically diverse plant and animal habitat. Of particular ecological importance are the wetland areas on the Bonnerton tract designated as a Nationally Significant Natural Heritage Area and the tidal creeks on the NCPC and Bonnerton tracts, four of which have been identified as Primary Nursery Areas.

Nationally Significant Natural Heritage Area

¹ See FWS waterfowl survey website: <http://www.fws.gov/birddata/databases/mwi/mwidb.html>

The Bonnerton tract contains an approximately 271 acre wetland acre that has been designated by the NC Natural Heritage Program as a Nationally Significant Natural Heritage Area. The Natural Heritage Program designates areas in the state which it has determined to be important for conservation of the state's biodiversity as Significant Natural Heritage Areas. These areas can be classified as significant by the Natural Heritage Program at the county, regional, state or national level. The fact that the Bonnerton tract's Significant Natural Heritage Area has been classified as nationally significant means the Natural Heritage Program has determined it to be one of the five best examples of this community type in the nation. The 271 acre nonriverine Wet Hardwood Forest (WHF) community type found on the Bonnerton tract is considered to be among the most threatened and endangered of NC's natural communities.

Nonriverine WHF communities are dominated by some of the same trees as wetland bottomland hardwood forests, and especially by several oak species, including swamp chestnut oak (*Quercus michauxii*), laurel oak (*Quercus laurifolia*), cherrybark oak (*Quercus pagoda*) and water oak (*Quercus nigra*). The nonriverine WHF is habitat for many species, including black bear (*Ursus americanus*) and wild turkey (*Meleagris gallopavo*). The multi-layered structure characteristic of mature WHFs supports high densities and diversities of neotropical migrant birds such as wood thrush (*Hylocichla mustelina*), Swainson's warbler (*Limnothlypis swainsonii*), worm-eating warbler (*Helmitheros vermivorus*), prothonotary warbler (*Protonotaria citrea*), hooded warbler (*Wilsonia citrina*) and white-breasted nuthatch (*Sitta pusilla*)

Some of the indicators of quality in a WHF are canopy maturity, canopy age structure, extent and connection to other natural communities. Historically nonriverine WHFs naturally occurred in large patches and it is believed that some aspects of their ecosystem function are dependent on this large extent. The Natural Heritage Program also finds that the rate of loss of this community type is greater than all other community types in the state.

Tidal Creeks/Primary Nursery Areas

There are nine tidal creeks on the project site: Jacks Creek, Jacobs Creek, Drinkwater Creek, Tooley Creek, Huddy Gut, Huddles Cut, Porter Creek, Bailey Creek and Whitehurst Creek. All nine of these tidal creeks perform similarly critical biological support functions and have thus been a focus of concern throughout our review of the proposed project. Four of these tidal creeks, Jacks Creek, Jacobs Creek, Tooley Creek and Porter Creek, have been specifically designated as Primary Nursery Areas by the NC Wildlife Resources Commission. Primary Nursery Areas are defined as those areas inhabited by the embryonic, larval or juvenile life stages of marine or estuarine fish or crustacean species due to favorable physical, chemical or biological factors. The purpose of inland Primary Nursery Areas are to establish and protect those fragile inland waters which support embryonic, larval or juvenile populations of these species. The critical input to and function of Primary Nursery Areas are not contained just within the public trust waters but includes the headwater drainages. Wetlands that surround or serve as headwaters for estuarine creeks are essential for the creeks to serve as Primary Nursery Areas.

Estuarine waters occur along three sides of the proposed mining site and support a wide range of fishery resources, including commercially or recreationally important species such as striped bass (*Morone saxatilis*), atlantic shad (*Alosa sapidissima*), atlantic herring (*Clupea harengus*), summer flounder (*Paralichthys dentatus*), blue crab (*Callinectes sapidus*), shrimp (*Caridea*) and oysters (*Ostreidae*). The estuary also provides important habitat for anadromous fish, including the endangered shortnose sturgeon (*Acipenser brevirostrum*). Nursery areas located in the creeks and embayments of the estuarine system, such as those found on the project site, are important to over 75 species of fish and shellfish (Association of National Estuary Programs, 2009).



Mike_Wicker@fws.gov

03/30/2009 06:46 PM

To Palmer Hough/DC/USEPA/US@EPA

cc Rebecca Fox/R4/USEPA/US@EPA, "Pace.Wilber"
<Pace.Wilber@noaa.gov>, Pete_Benjamin@fws.gov

bcc

Subject Re: PCS Elevation: Draft Impacts Discussion for your
expedited review

History:

This message has been replied to.

Just a few comments on page #3 relating to disruption of estuarine productivity and the benthic community. Feel free to use or reject. I thought the discussion was very good.

(See attached file: PCS impact discussion, USFWS Comments on page #3.doc)

In answer to your question as to a joint elevation. We want to use the same concerns which may have the same impact as a joint elevation (at least we think it would) but are reluctant to promise that we can get our document or a joint letter signed as quickly as you can (since you are ahead of us). It is our experience that our administration waits to the last minute to sign documents and we do not want to hold you up. We do plan on elevating and will be right behind you (just a few days later since we are on a different schedule).. We believe having a common message with EPA and NMFS and the NGO'S will be very helpful to us and hopefully to the environment and we are committed to having a common content as yours (except for agency specific boilerplate).

So we are planning on a very similar elevation package but a separate elevation package for now.

Thanks for all your good work

IV. Substantial and Unacceptable Impacts

40 CFR 230.10(c): Significant Degradation

EPA is concerned that compliance with requirements of Section 230.10(c) of the Guidelines has not been demonstrated. Section 230.10(c) requires that no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of waters of the United States. The Guidelines explicitly require evaluation of all direct, secondary, (i.e., indirect), and cumulative impacts reasonably associated with the proposed discharge in determining compliance with Section 230.10(c). In accordance with the Guidelines, determining significant degradation requires specific consideration of effects on such functions and values as wildlife habitat, aquatic system diversity, stability and productivity, recreation, aesthetic and economic values.

Of the 15,100 acre project area, the proposed mine advance would impact approximately 11,454 total acres and result in direct impacts to approximately 3,953 acres of wetlands, 19 acres of open waters and 25,727 linear feet of streams. This represents the single largest wetland impact ever authorized under the Clean Water Act in NC and represents a significant loss of wetlands, streams and other waters of the United States within the nationally significant Albemarle Pamlico Estuary Complex.

As previously noted, all of the site's wetlands perform important ecological functions that support the Albemarle Pamlico Estuary such as temporary storage of surface water, nutrient cycling, organic carbon export, pollutant filtering/removal, and maintenance of biologically diverse plant and animal habitat. Also as previously noted, all of the site's stream resources perform important ecological functions that support the Albemarle Pamlico Estuary such as the transport of water, nutrients and sediment downstream, pollutant processing and removal, and maintenance of biologically diverse plant and animal habitat. We recognize that not all of the approximately 3,953 acres of wetlands and 25,727 linear feet of streams that would be impacted by the proposed project perform all of these respective functions to the same degree (because of their position in the landscape and/or their level of prior disturbance), however, the complete loss of this entire suite of wetland and stream functions on this scale raises serious ecological concerns.

The habitat functions provided by wetlands and streams that would be lost are particularly important in light of the ecological and economic value of the Albemarle Pamlico Estuary's commercial and recreational fishery/shellfish resources. Also, the state has designated the entire Tar – Pamlico River Basin as Nutrient Sensitive Waters because of problems associated with excessive levels of nutrients in the river such as harmful algal blooms, low oxygen levels, increased fish kills, and other symptoms of stress and diseases in the aquatic biota. The state developed a strategy to reduce nutrient inputs from around the basin to the estuary that is yielding improvements to water quality. Nonetheless, we are very concerned that loss of the water quality enhancement functions provided by the approximately 3,953 acres of wetlands and 25,727 linear feet of streams that would be completely eliminated by the proposed project could

exacerbate existing water quality problems in the Tar – Pamlico River and hamper the state's ongoing efforts to improve the river's water quality.

Direct Impacts to Nationally Significant Natural Heritage Area

EPA is particularly concerned with the proposed project's direct impacts to the wetland area on the Bonnerton tract that has been designated by the NC Natural Heritage Program as a Nationally Significant Natural Heritage Area. As previously noted, the 271 acre nonriverine WHF found on the Bonnerton tract is an extremely unique and rare community type, one that has experienced a rate of loss higher than all other community types in the state. The fact that the Bonnerton tract's Significant Natural Heritage Area has been classified as nationally significant means the Natural Heritage Program has determined it to be one of the five best examples of this community type in the nation.

As previously noted, some of the indicators of quality in a nonriverine WHF are canopy maturity, canopy age structure, extent and connection to other natural communities. Historically, nonriverine WHFs naturally occurred in large patches and it is believed that some aspects of their ecosystem function are dependent on this large extent. The proposed project would directly impact approximately 97 acres¹ of this ecologically valuable and rare wetland system and would allow mining through the middle of the 271 acre area, bisecting it into two separate and smaller pieces, an eastern and a western piece. This large reduction in size and the fragmentation of the tract into two separate pieces undermines some of the key ecological characteristics which make it ecologically valuable and "nationally significant." Although the NCDWQ's CWA Section 401 Water Quality Certification requires the mined out area between the eastern and western pieces to be restored after mining, we believe it will be extremely difficult, based on the current state of the science, to restore this area to its prior condition after mining and this will have a significant detrimental impact to the integrity of this rare and threatened biological community. In addition to reducing the size of the area and fragmenting it into two pieces, the large scale disturbances associated with allowing phosphate mining through the middle of the area (land clearing, groundwater extraction, pit excavation, road and support infrastructure construction, etc) will further lower the ecological value of the remaining eastern and western pieces of the area.

Given the unique and valuable nature of this nationally significant resource, it is EPA's determination that the direct impacts of mining the 271 acre Significant Natural Heritage Area on the Bonnerton tract does not comply with Subparts C-F of the Guidelines, specifically Subpart C – Impacts on physical characteristics of the aquatic ecosystem, Subpart D – Impacts on the biological characteristic of the aquatic ecosystem, Subpart E – Impacts to special aquatic sites and Subpart F – Effects on human use characteristics (SNHA designation).

Indirect Impacts to Tidal Creeks/Primary Nursery Areas

EPA is also particularly concerned with the proposed project's indirect impacts to the project area's nine tidal creeks, four of which have been classified by the NC Wildlife Resource Commission as Primary Nursery Areas. Although the proposed project would not directly

¹ Based on the February 24, 2009, Notice of Intent letter from the Wilmington District Corps, page 6.

impact the perennial reaches of the four Primary Nursery Areas, the headwater drainages of the project site's tidal creeks, including those designated as Primary Nursery Areas, would be reduced by approximately 70 percent. Our concerns regarding the proposed drainage basin reductions are amplified on the NCPC tract since its watersheds have already lost approximately 1,268 acres of wetlands as part of the Applicant's 1997 mining permit.

Eliminating the headwater streams and wetlands and significantly reducing the drainage areas of the project site's Primary Nursery Areas and other tidal creeks would:

- Reduce flow from ground water and surface water, runoff to the tidal creeks, thereby decreasing fresh water input and increasing their salinity through estuarine tidal influences.
- Reduce filtration of nutrients and other contaminants previously accomplished by the site's streams and wetlands, increasing sedimentation and turbidity in tidal creeks.
- Reduce productivity of native fish and shellfish in the downstream estuary by disrupting the estuarine food web (caused by a reduction of organic materials critical for biological activity in the surface water drainage).
- Shift downstream estuarine productivity from the benthic community which is dominated by sensitive submerged aquatic vegetation and benthic invertebrate species to tolerant phytoplankton species (exacerbate ongoing environmental stress and create an open niche for problem invasive plant and animal species that are adapted to degraded environments to colonize the estuary).

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We believe the disruption of these processes and functions in the drainage basin will significantly impact the site's tidal creeks and impair the ability of these systems to function as Primary Nursery Areas.

Estuarine animals exist in a community assemblage and the influence of a factor, such as salinity on one species may be extended either directly or indirectly to affect other species. The cumulative effects of even small changes in an estuary may have a total systemic effect on the marine resources and the economic activities that depend on them. We believe the potential effect of Drainage Basin Reduction (DBR) on the production of marine fisheries resources is significant.

Besides its effect on fish production, DBR will likely result in increased sedimentation and turbidity, which are significant contributors to declines in populations of aquatic organisms. The direct effects of sedimentation and turbidity at various trophic levels are mortality, reduced physiologic functions and avoidance. Sedimentation can clog the gills of fish, reducing respiratory abilities. This stress may reduce tolerance levels to disease and toxicants and to changes in dissolved oxygen concentrations and salinity, compromising the health of local fisheries resources. Decreases in primary production are associated with increases in sedimentation and turbidity and produce negative cumulative effects through depleted food availability to zooplankton, insects, freshwater mollusks and fish. Decreases in available food at various trophic levels also results in depressed rates of growth, reproduction and recruitment. These effects lead to alterations in community density, diversity and structure.

Mining will directly affect the rate at which water is routed through the watershed. DBR will reduce contiguous sheet flow and as the mine expansion progresses there is an ever increasing

trend of diverting surface water drainage which once promoted estuarine productivity into National Pollutant Discharge Elimination System (NPDES) channels, pipes and outfalls. This redirection of surface flows contributes to estuarine degradation because it removes natural watershed drainage patterns that 1) promote infiltration and trapping of sediments and other pollutants, and 2) provide a beneficial diffuse source of water to the estuary and subsequently decreases the buffering capacity of the system. These changes will likely increase the amount of sediment, nutrients and toxics entering the system. Nitrogen and phosphorus can accelerate eutrophication resulting in algal blooms, reduced water clarity, shifts in algal and fish populations and fish kills. Currently South Creek, which is stressed with water quality problems including algal blooms and increases in suspended solids, is designated as a Nutrient Sensitive Water (NSW) by the state, as is the entire Tar-Pamlico River Basin. We believe the reduction of the South Creek's buffering capacity associated with the large scale removal of wetlands and streams from the watersheds draining to the creek will likely exacerbate its existing water quality problems by removing the system's nutrient uptake capability. Hypoxic conditions caused by excess nutrients can result in reduced commercial and recreational fisheries production.

We believe proposed mining operations will negatively impact estuarine trophic structure through disruption of substrate inputs crucial to primary producers; reduction of energy sources that fuel estuarine productivity; and degradation of the nutrient sequestration capacity of the estuarine system. Estuary productivity is dependent on the complex interactions among the various components of the aquatic food web; with epiphytes (attached to wetland macrophytes) and submerged aquatic vegetation (SAV) forming the foundation of the estuarine food web. SAV populations have recently declined by as much as 50 percent, possibly because of anthropogenic impacts. As a result, detritus supplied by wetland macrophytes has become more important as an epiphytic substrate. While phytoplankton are also important for productivity, the role of wetland plants and SAV detritus is of greater importance to the overall stability of shallow aquatic food webs. It is our opinion that the proposed mining operations will negatively impact both types of epiphytic substrates.

Also of importance to estuarine food webs is the gradual and episodic release of Dissolved Organic Matter (DOM) from the contributing basins and wetlands immediately adjacent to the Albemarle Pamlico Estuary Complex. This energy source fuels bacterial communities that, through mineralization, provide inorganic nitrogen, phosphorous and carbon, supporting productivity. In addition, DOM supported bacteria are an important component of the "microbial loop." This part of aquatic food webs links DOM (of autochthonous and/or allochthonous origin) to higher trophic levels, via bacteria-protist-metazoan-zooplankton interactions. The impacts associated with the proposed project would decrease the quantity and quality of allochthonous DOM supplied to the estuary because of the close proximity of PCS's proposed mining operations.

Most of the drainage basin wetlands that would be subjected to impacts are wet forests, including bottomland hardwood forests. These areas are subjected to repeated periods of inundation and desiccation. This is important from a biogeochemical perspective as it allows for the accumulation of particulate organic matter and its subsequent processing (dissolution and mineralization). This leads to episodic exports of dissolved organic materials to the estuary. Wetlands impacted by the proposed project also retain nutrient loads carried by high flow events, which are later sequestered into forest biomass. Such systems are also important for

denitrification. These areas also provide refugia and nursery habitat for aquatic organisms during high flow periods.

The applicant provided a December 2007 report prepared for PCS by Entrix, on "*Potential Effects of Watershed Reduction on Tidal Creeks – An Assessment*". We believe that while the report clarifies currently known characteristics of the South Creek tributaries, it does not support the conclusion that current and future DBRs from mining activities would have no significant effect on downstream ecosystems. Data collected by NC Wildlife Resource Commission in November 2006 to determine species present in Jacks, Jacobs and South Creeks does not support that fish production originates from downstream estuarine environments. The report does not address freshwater species nor did it establish a connection between biota and previous mining impacts in the area including watershed reduction and ground water draw down. The report used "baseline" data for Jacks Creek collected after the watershed had already been reduced by almost 20 percent. Small reductions in watershed area may have large biotic impacts and therefore it is problematic using this data as a baseline to determine DBR impacts. This report also makes a troubling extrapolation that since past smaller DBRs did not adversely impact the tidal creeks, the much larger DBRs associated with the proposed project (i.e., 70 to 80 percent DBRs) also would not adversely impact the tidal creeks. However, data does not exist to draw this conclusion.

The Entrix report and the Corps' February 24, 2009, Notice of Intent letter both present the success of the PA II man-made marsh on the PCS project area to hypothesize that the DBRs will not cause significant loss of habitat value and nursery functions of the tidal creeks. The West (2000) study evaluating PA II is frequently cited in these discussions and is used by the Entrix report to argue broad scale functional equivalency of PA II to local tidal creeks. We do not believe it is valid to use the West study to make these inferences. The study's objective was to assess how well PA II could provide suitable habitat for fish, benthic and plant species and not to evaluate the effects of DBR on these populations. The data was collected from the lower reaches of the stream channel and did not fully assess the upper channel's biota. These results support the potential for species repopulation in the lower reaches of the creeks but do not support the proposition that DBR will not impact the upper channel's biota. The report does not provide data on the functional equivalence of factors, such as stream substrate, biogeochemical processes, wetland plants, etc. and in fact, there was no evidence of accretion of natural sediment structure (woody detrital covering, large peat component, etc) or organic carbon in the 10 years of the study. We believe the data presented does not overcome the large body of scientific information showing that mining through the headwaters of estuarine streams and their riverine habitat will have a significant negative impact on the functioning and structure of the creeks impacted by the proposed mining activities. There is, however, a large amount of scientific data supporting the importance of headwater streams and wetlands on downstream water quality.

Summary

In summary, the proposed project would eliminate critical ecological functions provided by approximately 3,953 acres of wetlands and 25,727 linear feet of streams within the nationally significant Albemarle Pamlico Estuary. Wetland functions include temporary storage of surface water, nutrient cycling, organic carbon export, pollutant filtering/removal, and maintenance of

biologically diverse plant and animal habitat. Stream functions include transport of water, nutrients and sediment downstream, pollutant processing and removal, and maintenance of biologically diverse plant and animal habitat. Of particular concern are the proposed projects:

- Direct impacts to portions of a nonriverine hardwood wetland forest that has been designated as a Nationally Significant Natural Heritage Area by the NC Natural Heritage Program, and
- Indirect impacts to the site's tidal creeks, four of which have been designated as Primary Nursery Areas by the NC Wildlife Resources Commission, associated with the 70 percent reduction in the drainage basins for these creeks.

EPA believes that impacts to these ecological functions at the scale associated with this project will result in significant degradation [40 CFR 230.10(c)] of the Nation's waters. Further, as discussed below, we do not believe the proposed compensatory mitigation would reduce these adverse impacts to an acceptable level.

IV. Substantial and Unacceptable Impacts

40 CFR 230.10(c): Significant Degradation

EPA is concerned that compliance with requirements of Section 230.10(c) of the Guidelines has not been demonstrated. Section 230.10(c) requires that no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of waters of the United States. The Guidelines explicitly require evaluation of all direct, secondary, (i.e., indirect), and cumulative impacts reasonably associated with the proposed discharge in determining compliance with Section 230.10(c). In accordance with the Guidelines, determining significant degradation requires specific consideration of effects on such functions and values as wildlife habitat, aquatic system diversity, stability and productivity, recreation, aesthetic and economic values.

Of the 15,100 acre project area, the proposed mine advance would impact approximately 11,454 total acres and result in direct impacts to approximately 3,953 acres of wetlands, 19 acres of open waters and 25,727 linear feet of streams. This represents the single largest wetland impact ever authorized under the Clean Water Act in NC and represents a significant loss of wetlands, streams and other waters of the United States within the nationally significant Albemarle Pamlico Estuary Complex.

As previously noted, all of the site's wetlands perform important ecological functions that support the Albemarle Pamlico Estuary such as temporary storage of surface water, nutrient cycling, organic carbon export, pollutant filtering/removal, and maintenance of biologically diverse plant and animal habitat. Also as previously noted, all of the site's stream resources perform important ecological functions that support the Albemarle Pamlico Estuary such as the transport of water, nutrients and sediment downstream, pollutant processing and removal, and maintenance of biologically diverse plant and animal habitat. We recognize that not all of the approximately 3,953 acres of wetlands and 25,727 linear feet of streams that would be impacted by the proposed project perform all of these respective functions to the same degree (because of their position in the landscape and/or their level of prior disturbance), however, the complete loss of this entire suite of wetland and stream functions on this scale raises serious ecological concerns.

The habitat functions provided by wetlands and streams that would be lost are particularly important in light of the ecological and economic value of the Albemarle Pamlico Estuary's commercial and recreational fishery/shellfish resources. Also, the state has designated the entire Tar – Pamlico River Basin as Nutrient Sensitive Waters because of problems associated with excessive levels of nutrients in the river such as harmful algal blooms, low oxygen levels, increased fish kills, and other symptoms of stress and diseases in the aquatic biota. The state developed a strategy to reduce nutrient inputs from around the basin to the estuary that is yielding improvements to water quality. Nonetheless, we are very concerned that loss of the water quality enhancement functions provided by the approximately 3,953 acres of wetlands and 25,727 linear feet of streams that would be completely eliminated by the proposed project could

exacerbate existing water quality problems in the Tar – Pamlico River and hamper the state's ongoing efforts to improve the river's water quality.

Direct Impacts to Nationally Significant Natural Heritage Area

EPA is particularly concerned with the proposed project's direct impacts to the wetland area on the Bonnerton tract that has been designated by the NC Natural Heritage Program as a Nationally Significant Natural Heritage Area. As previously noted, the 271 acre nonriverine WHF found on the Bonnerton tract is an extremely unique and rare community type, one that has experienced a rate of loss higher than all other community types in the state. The fact that the Bonnerton tract's Significant Natural Heritage Area has been classified as nationally significant means the Natural Heritage Program has determined it to be one of the five best examples of this community type in the nation.

As previously noted, some of the indicators of quality in a nonriverine WHF are canopy maturity, canopy age structure, extent and connection to other natural communities. Historically, nonriverine WHFs naturally occurred in large patches and it is believed that some aspects of their ecosystem function are dependent on this large extent. The proposed project would directly impact approximately 97 acres¹ of this ecologically valuable and rare wetland system and would allow mining through the middle of the 271 acre area, bisecting it into two separate and smaller pieces, an eastern and a western piece. This large reduction in size and the fragmentation of the tract into two separate pieces undermines some of the key ecological characteristics which make it ecologically valuable and "nationally significant." Although the NCDWQ's CWA Section 401 Water Quality Certification requires the mined out area between the eastern and western pieces to be restored after mining, we believe it will be extremely difficult, based on the current state of the science, to restore this area to its prior condition after mining and this will have a significant detrimental impact to the integrity of this rare and threatened biological community. In addition to reducing the size of the area and fragmenting it into two pieces, the large scale disturbances associated with allowing phosphate mining through the middle of the area (land clearing, groundwater extraction, pit excavation, road and support infrastructure construction, etc) will further lower the ecological value of the remaining eastern and western pieces of the area.

Given the unique and valuable nature of this nationally significant resource, it is EPA's determination that the direct impacts of mining the 271 acre Significant Natural Heritage Area on the Bonnerton tract does not comply with Subparts C-F of the Guidelines, specifically Subpart C – Impacts on physical characteristics of the aquatic ecosystem, Subpart D – Impacts on the biological characteristic of the aquatic ecosystem, Subpart E – Impacts to special aquatic sites and Subpart F – Effects on human use characteristics (SNHA designation).

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Eliminating the headwater streams and wetlands and significantly reducing the drainage areas of the project site's Primary Nursery Areas and other tidal creeks would:

- Reduce flow from ground water and surface water runoff to the tidal creeks, thereby decreasing fresh water input and increasing their salinity through estuarine tidal influences.
- Reduce filtration of nutrients and other contaminants previously accomplished by the site's streams and wetlands, increasing sedimentation and turbidity in tidal creeks.
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We believe the disruption of these processes and functions in the drainage basin will significantly impact the site's tidal creeks and impair the ability of these systems to function as Primary Nursery Areas.

Estuarine animals exist in a community assemblage and the influence of a factor, such as salinity on one species may be extended either directly or indirectly to affect other species. The cumulative effects of even small changes in an estuary may have a total systemic effect on the marine resources and the economic activities that depend on them. We believe the potential effect of Drainage Basin Reduction (DBR) on the production of marine fisheries resources is significant.

Besides its effect on fish production, DBR will likely result in increased sedimentation and turbidity, which are significant contributors to declines in populations of aquatic organisms. The direct effects of sedimentation and turbidity at various trophic levels are mortality, reduced physiologic functions and avoidance. Sedimentation can clog the gills of fish, reducing respiratory abilities. This stress may reduce tolerance levels to disease and toxicants and to changes in dissolved oxygen concentrations and salinity, compromising the health of local fisheries resources. Decreases in primary production are associated with increases in sedimentation and turbidity and produce negative cumulative effects through depleted food availability to zooplankton, insects, freshwater mollusks and fish. Decreases in available food at various trophic levels also results in depressed rates of growth, reproduction and recruitment. These effects lead to alterations in community density, diversity and structure.

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Most of the drainage basin wetlands that would be subjected to impacts are wet forests, including bottomland hardwood forests. These areas are subjected to repeated periods of inundation and desiccation. This is important from a biogeochemical perspective as it allows for the accumulation of particulate organic matter and its subsequent processing (dissolution and mineralization). This leads to episodic exports of dissolved organic materials to the estuary. Wetlands impacted by the proposed project also retain nutrient loads carried by high flow events, which are later sequestered into forest biomass. Such systems are also important for

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Summary

In summary, the proposed project would eliminate critical ecological functions provided by approximately 3,953 acres of wetlands and 25,727 linear feet of streams within the nationally significant Albemarle Pamlico Estuary. Wetland functions include temporary storage of surface water, nutrient cycling, organic carbon export, pollutant filtering/removal, and maintenance of

biologically diverse plant and animal habitat. Stream functions include transport of water, nutrients and sediment downstream, pollutant processing and removal, and maintenance of biologically diverse plant and animal habitat. Of particular concern are the proposed projects:

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EPA believes that impacts to these ecological functions at the scale associated with this project will result in significant degradation [40 CFR 230.10(c)] of the Nation's waters. Further, as discussed below, we do not believe the proposed compensatory mitigation would reduce these adverse impacts to an acceptable level.