Tom Welborn /R4/USEPA/US
05/07/2009 06:08 AM

To Rebecca Fox/R4/USEPA/US@EPA, Philip Mancusi-Ungaro/R4/USEPA/US@EPA, Jennifer Derby/R4/USEPA/US@EPA
cc
bcc
Subject Fw: PCS Phosphate 404q Decision and Documents

History: This message has been replied to.

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

----- Forwarded by Tom Welborn/R4/USEPA/US on 05/07/2009 06:07 AM -----

Brian Frazer /DC/USEPA/US
05/06/2009 07:56 PM

To Robert Wood/DC/USEPA/US, Palmer Hough/DC/USEPA/US, "Tom Welborn" <Welborn.Tom@epamail.epa.gov>
cc
Subject Fw: PCS Phosphate 404q Decision and Documents

Here is the Corps decision.

Brian Frazer
Chief, Wetlands & Aquatic Resources Regulatory Branch
O:202-566-1652
C:202-379-6906

Sent from my BlackBerry Wireless Handheld

----- Original Message -----
From: "Smith, Chip R Mr CIV USA ASA CW" [Chip.Smith@HQDA.Army.Mil]
Sent: 05/06/2009 07:52 PM AST
To: Bob Sussman; Gregory Peck; Jim Giattina; Stan Meiburg
Cc: David Evans; Brian Frazer
Subject: PCS Phosphate 404q Decision and Documents

Mr. Salt, Acting ASA(CW), signed the findings and reply to EPA. The attachments are the staff assessment and selected special conditions on adaptive management, monitoring, and reclamation that were already in the permit, but which address agency concerns. Mr. Salt called Mr. Shapiro, Mr. Sussman, and Mr. Meiburg and left messages. I will call Jim Giattina tonight or first thing in the morning. Bottom line is that our direction is for the

Corps to engage in a meeting and discussions with EPA, NMFS, FWS, and the applicant next week, focused on items noted in the reply to EPA (certain headwater stream areas). There is more in the letter. Thanks for your assistance and patience.

Chip Smith
Office of the Assistant Secretary of the Army (Civil Works)
Assistant for Environment, Tribal and Regulatory Affairs
108 Army Pentagon 3E427
Washington, D.C. 20310-0108
703-693-3655 Voice
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FINAL Staff Assessment.pdf


FINAL Conditions.pdf


FINAL Reply to EPA.pdf

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET NW
WASHINGTON, D.C. 20314-1000

CECW-CO

APR 2 8 2009

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

SUBJECT: U.S. Environmental Protection Agency, Elevation Request for Section 404 Permit Decision, Potash Corporation of Saskatchewan Phosphate Division, Aurora Operation (PCS Phosphate), Beaufort County, North Carolina

1. This is in response to your memorandum, dated April 9, 2009, concerning the U.S. Environmental Protection Agency's (EPA) request for elevation of the U.S. Army Corps of Engineers Wilmington District proposal to issue a permit to PCS Phosphate. The permit would authorize a project to enable the continuation of phosphate mining and mine-related activities to directly impact via various forms of discharge into 3,961 acres of wetlands, 11 acres of open water, and 25,727 linear feet of streams over a period of 37 years at a location in the Pamlico-Tar River watershed in Beaufort County, North Carolina.

2. The EPA request contends that the issuance of the proposed permit would cause substantial and unacceptable impacts to an aquatic resource of national importance (ARNI). The EPA alleges that the District did not (1) conduct an unbiased alternatives analysis including all appropriate avoidance and minimization of direct and indirect impacts of the project, (2) require adequate compensatory mitigation for the project's unavoidable impacts including mandating permanent protection of all avoided resources via binding real estate instruments, (3) decrease the indirect effects of the project on avoided resources by improving the quality of the reclamation areas, and (4) include measures to ensure effective monitoring and adaptive management of the mining project and mitigation sites. The EPA offered an alternative to the proposed project on March 24, 2009, and in light of the deficiencies they identified, they recommend withdrawing the proposed permit authorization and initiating further analysis on their proffered alternative to determine if it is practicable.

3. We have reviewed the Environmental Protection Agency's request and relevant District documentation. We do not agree that the aquatic resources on the project site themselves individually or cumulatively qualify as ARNI. The wetlands and streams on site have been impacted for at least the last six decades through extensive agriculture and silviculture practices. While there are areas that are of higher quality, such as primary nursery areas, coastal marsh, and some bottomland hardwood forest, those systems have been avoided. Furthermore, the comprehensive mitigation plan that is proposed will return more than twice the impacted acreage from degraded agricultural/silvicultural lands to wetland with more than 10 miles of associated stream restoration included. In addition to the comprehensive mitigation package, all mined property must be reclaimed to a stable, vegetated state with restored surface hydrology; acreage that is not included in any impact offsets calculated by the District. Special conditions have been included that require mined areas to be reclaimed on a specific schedule, require capping with overburden and then topsoil, specify plant species for revegetation, and establishes an

interagency panel for adaptive management of the success of the reclamation areas. Finally, a special condition has been included to establish an independent panel of qualified experts to annually evaluate the direct and indirect impacts of mining and the benefits of the compensatory mitigation in accordance with the expectations at the time of permit issuance. We do not agree that the proposed permit will result in substantial and unacceptable impacts to the aquatic environment or that other alternatives need to be reviewed. The District performed a careful, unbiased economic evaluation of all alternatives during their practicability determination, which was performed through a comprehensive EIS process over an 8 year period. The alternative proposed by the EPA on 24 March 2009, well into the 404(q) process, is less cost effective than several alternatives that were dismissed as not practicable.

4. We support the District's determinations on these issues, including their application of the Section 404(b)(1) Guidelines that resulted in a determination that the applicant's project was the least environmentally damaging, practicable alternative. The District's review and evaluation of this permit application fully comports with all regulation and current policy guidance. Moreover, the decision shows a careful consideration of the quality of the impacted aquatic resources, their contributions to the watershed, and a sound and complete compensatory mitigation package to offset unavoidable impacts to those resources. The overall project purpose was adequately presented and resulted in a fully acceptable alternatives analysis.

5. I recommend that this case not be elevated and that the District Commander proceed with the permit decision with two policy-specific recommendations, as follows:

a. The addition of a special condition regarding avoided aquatic resources to strengthen what is already a firm protective stance on the remaining aquatic resources in the project area, and

b. Revision of the Record of Decision to clearly reflect the aquatic resource functions being impacted and how those functions are being offset by the comprehensive mitigation package.

6. The resources within the Albemarle Pamlico Estuary play an important economic and environmental role and regulatory decisions involving these resources are difficult. We applaud the District for its diligence in completing an exhaustive EIS analysis of alternatives and pursuing mitigation options that would compensate for the losses that would occur as a result of permitting this project.

CECW-CO
SUBJECT: U.S. Environmental Protection Agency, Elevation Request for Section 404 Permit Decision, Potash Corporation of Saskatchewan Phosphate Division, Aurora Operation (PCS Phosphate), Beaufort County, North Carolina

7. Enclosed is a copy of the "HQUSACE Analysis and Options Paper" prepared for this elevation case and, as requested, we are also enclosing a draft reply to the requesting official from the Environmental Protection Agency. If you have any additional questions or disagree with my recommendation, please call me or contact Ms. Jennifer Moyer, Program Manager, Regulatory Community of Practice at (202) 761-7763.

FOR THE COMMANDER:

STEVEN L. STOCKTON, P.E.
Director of Civil Works

Enclosure

CECW-CO 28 April 2009

HQ ANALYSIS AND OPTIONS PAPER

SUBJECT: U.S. Environmental Protection Agency, Elevation Request for Section 404 Permit Decision, Potash Corporation of Saskatchewan Phosphate Division, Aurora Operation (PCS Phosphate), Beaufort County, North Carolina.

1. **PURPOSE:** This paper provides the Headquarters, U.S. Army Corps of Engineers (Corps) analysis of the elevation request from the U.S. Environmental Protection Agency (EPA) to the ASA(CW) of a proposed decision by the Corps Wilmington District to issue a Section 404 permit to PCS Phosphate.

2. **BACKGROUND:** The Corps proposes to issue a Department of Army permit to PCS Phosphate to authorize a project to enable the continuation of phosphate mining and mine-related activities to occur upon 11,454 acres of a 15,100 acre project site. The project area contains 6,380 acres of jurisdictional wetlands and open waters and 115,843 linear feet of jurisdictional streams. The alternative the Corps proposes to authorize will directly impact via various forms of discharge (mechanized land clearing, direct discharge of over burden, construction of ancillary facilities, etc.) 3,961 acres of wetlands, 11 acres of open water, and 25,727 linear feet of streams over a period of 37 years. PCS Phosphate proposes to restore, enhance, and/or preserve a total of 11,196 acres of wetland and 84,888 linear feet of stream to offset direct and indirect impacts to jurisdictional aquatic resources. All compensatory mitigation will be constructed in advance of impacts and will be subject to monitoring requirements to ensure success.

The Wilmington District published a draft Environmental Impact Statement (EIS) for the no-build alternative and nine of the build alternatives considered in October 2006. A supplemental draft EIS with two additional build alternatives was published in November 2007. The final EIS containing the complete analysis for all alternatives was published in May 2008.

3. **PROJECT SETTING:** PCS Phosphate currently owns and operates an open pit mining operation on the Hickory Point peninsula adjacent to the Pamlico River and South Creek, north of Aurora, in Beaufort County, North Carolina, which has been in operation since 1965. In 1997, PCS Phosphate was issued a Department of Army permit to impact 1,268 acres of waters of the United States to mine phosphate adjacent to its onsite manufacturing facilities which produce sulfuric acid, phosphoric acid, purified acid, liquid fertilizer, superphosphoric acid, diammonium phosphate, deflourinated phosphate, animal feed, and solid fertilizers.

The project area lies on the Atlantic Coastal Plain in the Tidewater Region and has elevations of approximately 10 to 20 feet above sea level. The drainage systems of the area are modified dendritic and empty into tributaries of the Pamlico River, which flows east into the Pamlico Sound, west of Cape Hatteras. Drainage of soils in the project area has been poor, as demonstrated by their hydric nature, and the natural hydrology of the area has been extensively altered by agricultural and silvicultural ditches over at least the past six decades prior to any mining activities commencing in the area (Figures 1 and 2).

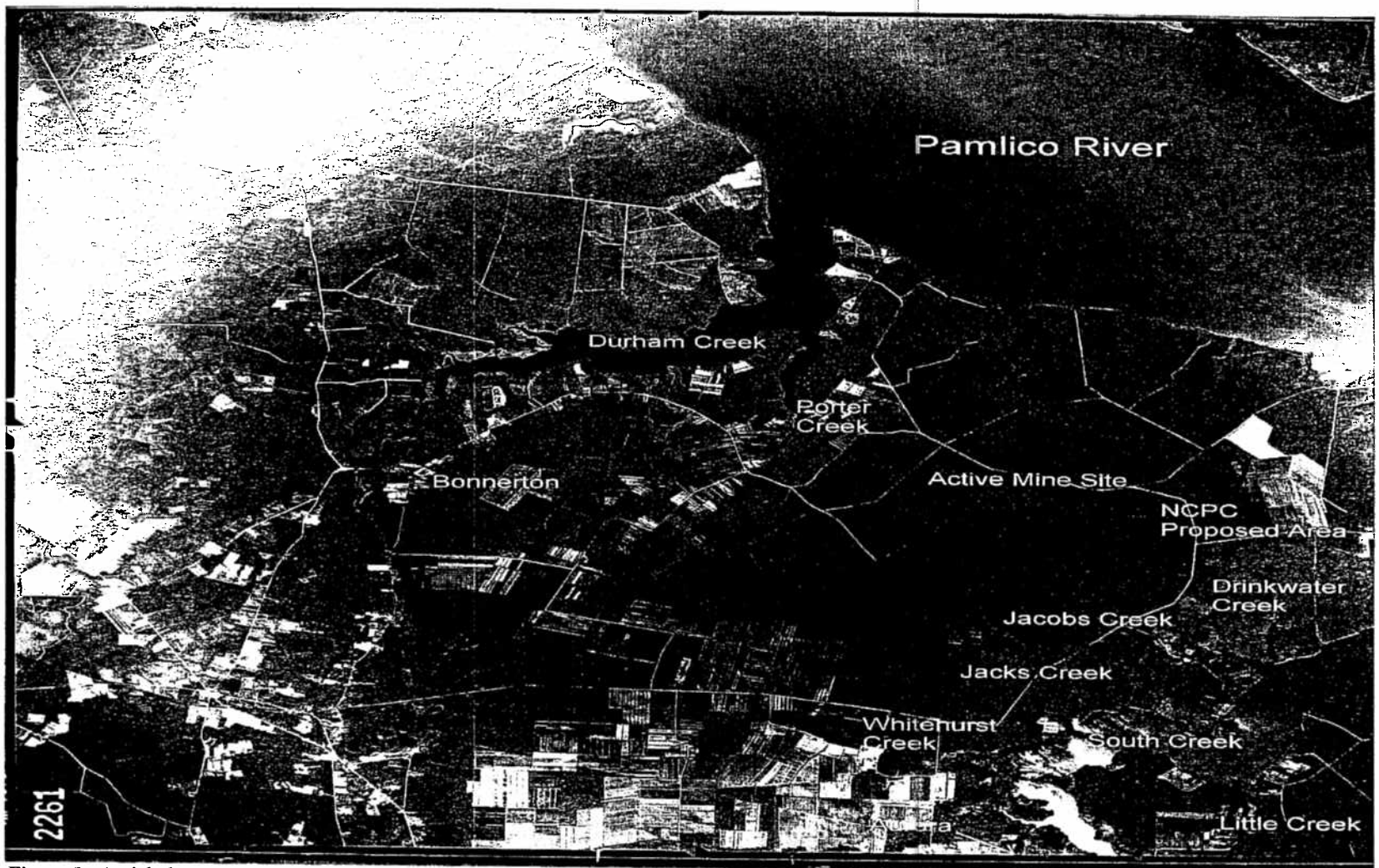

Figure 1: Aerial photograph from November 1961 showing Durham Creek in the center, the Pamlico River to the north, and South Creek to the southeast. The proposed Bonnerton Tract is located directly to the east of Durham Creek, proposed NCPC Tract to the west of South Creek. (Photo credit: USGS, DOI)

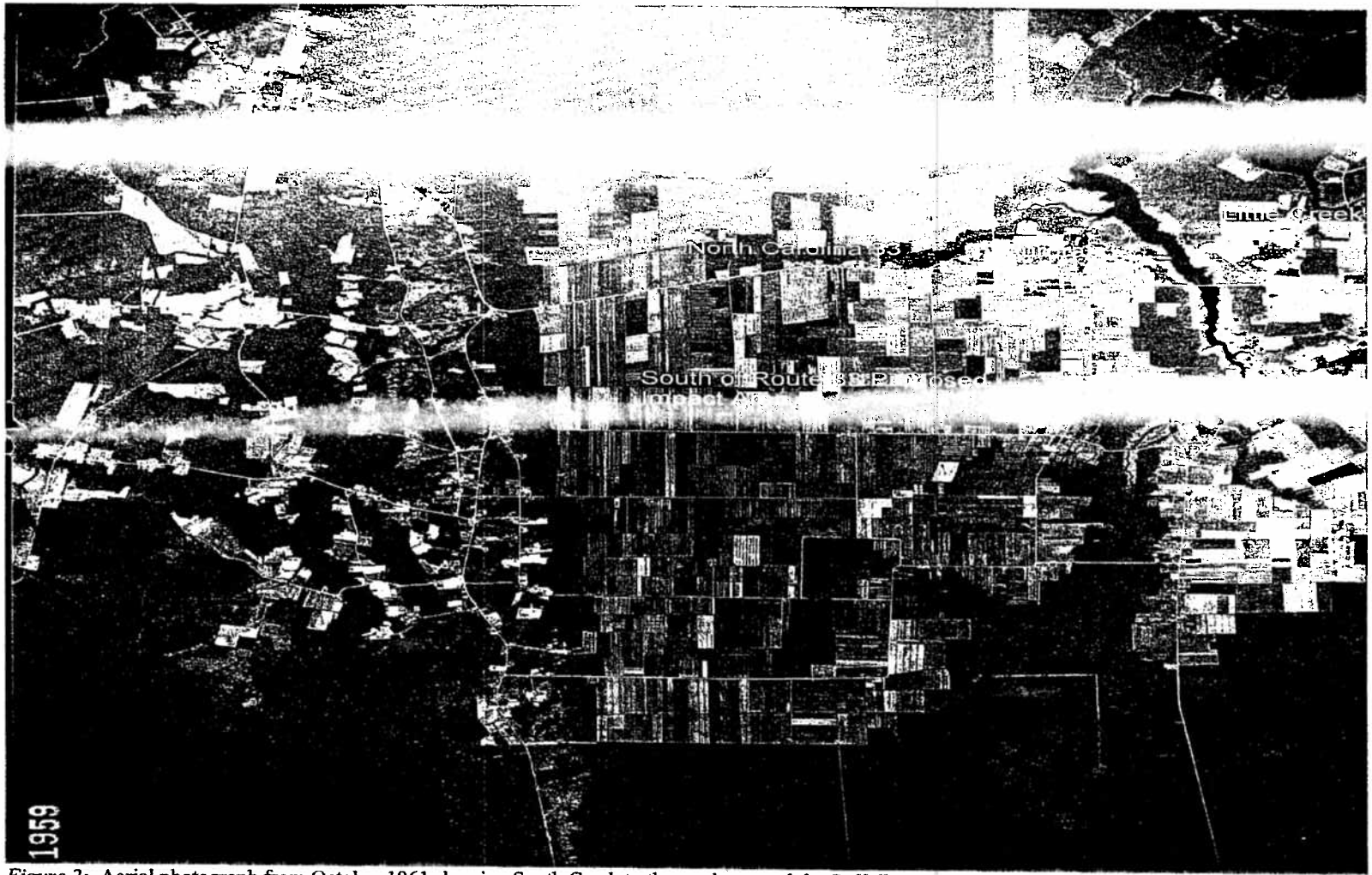

Figure 2: Aerial photograph from October 1961 showing South Creek to the northeast and the Suffolk Scarp to the west. The proposed S33 Tract is located in the headwater areas of South Creek, south of Whitehurst Creek. (Photo credit: USGS, DOI) (Photo credit: USGS, DOI)

In total, the project area is comprised of 15,100 acres containing 6,380 acres of wetlands and 115,843 linear feet of streams. The project area consists of three basic tracts; a 3,608 acre area east of the current operation, and adjacent to South Creek, identified as the NCPC Tract; a 2,806 acre area west of the current operation, and adjacent to Durham Creek, identified as the Bonnerton Tract; and a 8,686 acre area south of the current operation, and south of NC Highway 33, identified as the S33 Tract. (Figure 3)

Figure 3: Project Area showing three tracts; NCPC, Bonnerton, and S33.

a. Resources. The terrestrial resources in the project area are typical of herbaceous assemblages in various stages of succession as much of the area not currently being farmed has been in agricultural production in the past. Various other disturbances, such as fire and logging, have also influenced the vegetative communities present on the site. The terrestrial biotic communities identified within the project area include: hardwood forest, mixed pine-hardwood forest, pine plantation, pine forest, sand ridge, forest, pocosin-bay forest, bottomland hardwood forest, brackish marsh complex, agricultural land, herbaceous assemblage, shrub/scrub assemblage, maintained area, and non-vegetated/maintained area. The NCPC Tract contains

2,549 acres of waters of the U.S. and 55,549 linear feet of streams; the Bonnerton Tract contains 2,130 acres of waters of the U.S. and 17,106 linear feet of streams, none of which drain directly into the Pamlico River; and the S33 Tract contains 1,701 acres of waters of the U.S and 43,209 linear feet of stream, with no areas or stream segments draining directly into the Pamlico River.

The Bonnerton and NCPC Tracts contain tidally influenced forested wetlands, streams, and salt marsh designated as Essential Fish Habitat by the South Atlantic Fisheries Management Council (SAFMC) for Federally managed species including peneaid shrimp, gray snapper, summer flounder, and bluefish. A subset of these areas has also been designated by the state of North Carolina as primary nursery areas (PNAs). Pursuant to that designation, the SAFMC designated the PNAs as Habitat Areas of Particular Concern (HAPC).

Table 1: Impact Data for Proposed Project (Modified Alternative L)

	NCPC	Bonnerton	S33	Total
Total Tract Acreage	3,608	2,806	8,686	15,100
Total Mining Area (acres)	2,157	2,559	6,738	11,454
Total Wetland/Open Water Acreage	2,549	2,130	1,701	6,380
Total Streams (lf)	55,528	17,106	43,209	115,843
Wetland/Open Water Impacts (acres)	1,559	1,922	491	3,972
Stream Impacts (lf)--Total	6,093	8,499	11,135	25,727
Perennial		3,050	7,799	10,849
Intermittent	6,093	5,449	3,336	14,878
% Impacts—Wetlands/Open Water	61%	90%	29%	62%
% Impact—Stream	11%	50%	26%	22%
% Impact—Total Site	60%	91%	77%	76%

b. Impacts. The proposed project would authorize impacts allowing PCS Phosphate to mine the NCPC Tract first, impacting a total of 1,559 acres of jurisdictional wetlands and open water and 6,093 linear feet of intermittent streams. The operation would then move to the Bonnerton Tract where 1,922 acres of jurisdictional wetlands, 3,050 linear feet of perennial stream, and 5,449 linear feet of intermittent stream will be impacted. Finally, PCS Phosphate would move south of NC Route 33 to the S33 Tract where 491 acres of wetland and 7,799 linear feet of perennial streams and 3,336 linear feet of intermittent streams will be impacted (Table 1). Pursuant to the conditions of a mandated mining permit from the North Carolina Division of Land Resources, all mined areas will be reclaimed to comply with the following criteria:

1) stable condition;
2) useful purpose;
3) designed to protect adjacent surface resources including preventing/eliminating conditions that may be hazardous to animal or fish life;
4) in compliance with state air and water quality laws;
5) restoring/reestablishing stream channels and stream banks in a manner that minimizes erosion, siltation, and other pollution; and
6) vegetated.

Previously reclaimed areas owned by PCS Phosphate have included extensive stream and wetland restoration (e.g. Whitehurst Creek, see PCS Pamphlet).

4. **AGENCY POSITION:** The EPA's request for elevation cites the criteria of Part IV of the Section 404(q) Memorandum of Agreement (MOA). The primary issues raised, and upon which this analysis focuses, are summarized as follows:

a. Aquatic Resources of National Importance (ARNI). According to the MOA, the elevation of specific individual permit cases will be limited to those cases that involve an ARNI. The EPA contends that the resources involved in this application deserve this designation for the following reasons: 1) collectively, all aquatic resources in the project area perform important ecological functions that support the Albermarle Pamlico Estuary, which has received numerous grants in recent years as part of EPA's National Estuary Program; 2) several tidal creeks on the project site have been designated Primary Nursery Areas by the state of North Carolina; and 3) the Bonnerton Tract contains an area of non-riverine, hardwood, forested wetland that has been designated as a Nationally Significant Natural Heritage Area by the North Carolina Natural Heritage Program.

b. Substantial and unacceptable impacts. According to the MOA, elevated cases must propose resource damages of similar magnitude to cases evaluated under section 404(c) of the Clean Water Act. Section 404(c) authorizes EPA to prohibit, restrict, or deny the discharge of dredged or fill material at defined sites in waters of the United States (including wetlands) whenever it determines, after notice and opportunity for public hearing, that use of such sites for disposal would have an unacceptable adverse impact on one or more of various resources, including fisheries, wildlife, municipal water supplies, or recreational areas. The EPA asserts that the impact proposed for authorization will be the single largest impact authorized in North Carolina under the Clean Water Act and the loss of the functions provided by the aquatic and non-aquatic resources on the PCS Phosphate site will contribute to the significant degradation of waters of the Unites States.

The EPA contends that water quality enhancements are provided by the existing wetlands and streams on the PCS Phosphate site. They go on to assert that these waters function to assist in alleviating the problems of excessive nutrients causing harmful algal blooms, low oxygen levels, increased fish kills, and other symptoms of stress and disease recorded in the Tar-Pamlico River Basin. Should waters be impacted as proposed, EPA argues the benefits of these waters will be permanently eliminated.

c. 404(b)(1) Guidelines Analysis. The analysis of alternatives is part of the CWA's Section 404(b)(1) Guidelines. Part of this analysis is the rebuttable presumption that, for non-water dependent projects such as the one at issue, there are practicable upland alternatives that are less damaging to the environment. In this case, the purpose of the proposed project has been defined as,

> "to continue mining PCS Phosphate reserves in an economically viable fashion. More specifically, this is defined as a long-term, systematic and cost-effective mine advance

within the project area for the ongoing PCS Phosphate mine operation near Aurora, North Carolina."

The evaluation of practicable alternatives which satisfy the project's primary purpose is a key provision of the 404(b)(1) Guidelines, which further define practicable as "capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." (40 CFR 230.10(a)(2)). The selection of the least environmentally damaging, practicable alternative (LEDPA) that does not have other, significant environmental consequences, is a requirement of the Guidelines.

The EPA asserts that the proposed project does not represent the LEDPA for three primary reasons:

1) The economic analysis performed to determine the practicability of alternatives inappropriately excluded practicable alternatives with fewer impacts from further consideration; therefore, there are less environmentally damaging, practicable alternatives that meet the project purpose; and

2) All appropriate and practicable steps have not been taken to avoid, minimize, and compensate for the project's adverse impacts to waters of the U.S. including requiring permanent protection of avoided areas via binding real estate instruments; and,

3) Adequate compensatory mitigation to offset unavoidable direct impacts to mature forested wetlands to account for temporal loss has not been required.

Alternatives Framework. Eleven alternatives, each with sequencing variations, were considered in the evaluation process, which was initiated in November 2000 with the submission of a Department of Army permit application to the Wilmington District. Alternatives reviewed included the following groups:

1. No Action: No permit would be issued. No discharge of fill material would be authorized. The current mining operation would continue under its current permit until the limits of authorization were reached. Additional mining could occur on upland areas. This alternative was deemed not practicable as it did not meet the project purpose.

2. Other project configurations & sequences (smaller, larger, different, etc.). During the permit review process, the permittee responded to requests to consider reconfiguration to increase avoidance and minimization with incremental reductions in the mining footprint. In addition, the permittee also responded to requests to mine the three tracts (NCPC, Bonnerton, S33) in varying sequences in order to maximize avoidance and minimization while maintaining economically viable ore recovery. These considerations resulted in increased avoidance and minimization to aquatic resources such that a grouping of practicable alternatives was identified that ultimately included a project that was considered permittable. The proposed project represents the smallest area and configuration to meet the stated project purpose and allow mining to occur in a safe and efficient manner.

3. Other sites available to the applicant. North Carolina has three phosphate districts, two of which, Frying Pan and Northeast Onslow Bay, lie beneath the Atlantic Ocean. The remaining district is the Aurora District and is the district from which PCS Phosphate proposes to extract ore under this permit. Although technologically possible, the logistics of offshore mining of phosphate make the other sites problematic; additionally, it is likely that production costs and environmental impacts of such mining would be significantly higher than extraction of onshore ore deposits. Therefore, the study area was limited to an approximate 70,000 acre area primarily within the Richlands Township of Beaufort County, North Carolina.

EPA Proposed Alternative. The EPA believes an alternative, which they proposed at a meeting with the applicant on 24 March 2009 after the 404(q) elevation process was well underway and well after the conclusion of the extensive, nine-year integrated, interagency review process and NEPA evaluation, if determined to be practicable, represents a less environmentally damaging alternative. This proposal differs from the proposed project in two primary ways:

a) Provides additional avoidance of areas of particular concern to the EPA including the areas listed by the state of North Carolina as Natural Heritage Areas and Primary Nursery Areas; and

b) Requires permanent protection of all avoided areas from future mining via binding real estate instruments.

d. Recommendations. Based on their concerns and understanding of the proposed project, the EPA recommends that the Assistant Secretary of the Army (Civil Works) direct the District Commander to do the following:

1) In coordination with (PCS Phosphate), withdraw the NOI letter and initiate further analysis of the new proposed alternative to determine whether such alternative, or a modification of it, would be practicable, and thus the "LEDPA"; or,

2) Revise the proposed permit consistent with the following:

a) revise its alternatives analysis for the proposed project to address inconsistencies that bias identification of the LEDPA;

b) in development of the LEDPA, avoid direct impacts to the Nationally Significant Natural Heritage Area and indirect impacts to the site's tidal creeks, including those identified as Primary Nursery Area, to the maximum extent practicable;

c) incorporate all appropriate and practicable measures to minimize the impact of the mining project on avoided aquatic resources by improving the quality of the reclamation areas (i.e., re-using top soil and re-vegetating with target plant species);

d) ensure that all avoided aquatic resources are provided with permanent protection from future mining with the appropriate binding real estate instruments such as conservation easements;

e) revise the compensatory mitigation plan to effectively offset impacts to mature forested wetlands; and

f) include measures to ensure effective monitoring and adaptive management of both the mining and mitigation sites.

5. HQUSACE ANALYSIS: The EPA states that the wetlands and streams contained within the project site collectively represent an ARNI because they perform important ecological functions that support the Albemarle Pamlico Estuary complex. We do not agree that the aquatic resources located on the NCPC, Bonnerton, and S33 Tracts constitute an ARNI individually or cumulatively. We also do not agree that the issuance of a permit for the proposed action will result in substantial and unacceptable adverse impacts on the Albemarle Pamlico Estuary complex. The proposed project's impact area, including uplands, (11,454 acres) represents considerably less than 1% of the 19,200,000 acre Albemarle Pamlico Estuary. Furthermore, we disagree with the EPA's assertion in their 3 April 2009 Detailed Comments in support of this elevation request that the proposed project will result in, "the complete loss of this entire suite of wetland and stream functions" to the extent that this permit action will cause or contribute to significant degradation of waters of the U.S.

a. Aquatic Resources of National Importance (ARNI). There is little doubt regarding the environmental and economic importance of the Albemarle Pamlico Estuary and no argument that as the second largest estuarine complex in the United States. Draining an approximately 19,200,000 acre watershed, it serves an essential role in the life cycles of many species of commercially and recreationally important finfish and shellfish as well as providing good habitat for many species of waterfowl and shorebirds. We are aware that EPA has funded projects in the greater Albemarle Pamlico Estuary aimed at addressing the priority problems facing the watershed, such as non-point source pollution from urban and agricultural run-off, but are not aware of any projects in the near vicinity of the project area that would or could be directly or indirectly impacted by the proposed project.

1. Natural Heritage Area, Bonnerton Tract. The majority of the project area has been extensively timbered and/or under agricultural practices for at least the last six decades (Figures 1 and 2). The Bonnerton Tract contains an approximately 271 acre area that has been designated by the North Carolina Natural Heritage Program (NCNHP) as a Nationally Significant Natural Heritage Area (SNHA). However, the total area includes not only nonriverine wet hardwood forest but also secondary areas that act as connections between patches of higher quality wetlands. The NCNHP has no standard criteria by which wetlands or sites are evaluated and ranked, the process is not peer reviewed within the state, with other states, or with the Federal government to establish its "national" status; the listing as nationally significant is purely a product of the state program and is vetted entirely and only within that state program.

The NCNHP defines nonriverine wet hardwood forests as being dominated by various hardwood trees typical of bottomland situations, such as swamp chestnut oak (*Quercus michauxii),* Laurel Oak (*Q. laurifolia),* Cherrybark Oak *(Q. pagoda (falcata var. pagodaefolia),* Tulip Poplar *(Liriodendron tulipifera),* Sweetgum (*Liquidambar styraciflua),* American Elm *(Ulmus Americana),* Red Maple (*Acer rubrum),* and Swamp Tupelo (*Nyssa biflora),* with the key indicator species being the three oaks. PCS Phosphate hired James D. Gregory, Ph.D. to conduct an assessment of the Bonnerton Tract in light of its identification as a nonriverine wet hardwood forest of national significance by the NCNHP and the weight the EPA assigned to that designation in their request for elevation to the ASA(CW). Dr. Gregory determined that the Bonnerton Tract is divided into three units. While there is little argument that the Eastern Unit is an excellent quality area, it did not contain the key indicator species necessary or the requisite number of mature trees (>75 years) or large enough in diameter trees for a high quality nonriverine wet hardwood forest biotic community designation. The Western Unit was determined to be of "poor quality" due to the vegetative community being dominated by species adapted to drained soil conditions (i.e. non-wetland soils). The Northern Unit was found to be of "very poor quality" as its predominant vegetative cover is comprised of saplings and small trees of less desirable species, such as Red Maple (*Acer rubrum)* and Sweetgum (*Liquidambar styraciflua)* interspersed with large canopy gaps. Dr. Gregory further determined that the Eastern and Western Units are not hydrologically interdependent with the Eastern Unit related to the Porter's Creek headwaters and the Western Unit more closely related to the Suffolk Scarp.

Considering the documented logging via aerial photography; an affidavit from Curtis Brown, PCS Land Supervisor, which details logging records from the Bonnerton Tract from 1960 to present; and confirmation from the NCNHP that the areas designated as SNHA received such designation in part due to undesirable species being logged from them, it is clear that the tract has been significantly disturbed and manipulated over at least the past six decades. This makes the overall national significance of this area negligible. Notwithstanding the lack of national significance, it is recognized that the wetlands on the project site and specifically the Bonnerton Tract do perform important functions; therefore, the proposed project avoids impacts to approximately 212 acres (approximately 78%) of the SNHA. All avoided areas of the SNHA on the Bonnerton Tract are being permanently protected from impact via binding real estate instruments (i.e. conservation easements); this acreage is not included in the preservation component of the mitigation package. Additionally, the compensatory mitigation package includes the restoration of over 1,000 acres of nonriverine wet hardwood forest to a higher quality than the impacted area on the Bonnerton Tract and preservation of 34 acres of excellent quality nonriverine wet hardwood forest.

2. Tidal Creeks/Primary Nursery Areas. The North Carolina Wildlife Resources Commission has designated four tidal streams, Jacks, Jacobs, Tooley, and Porter Creeks, within the project area as Primary Nursery Areas (PNAs). These creeks have also been identified as HAPC by the South Atlantic Fisheries Management Council, affording them the highest level of protection under the Magnusen-Stevens Fisheries Management Act (MSFMA).

In recognition of their importance to the continuing health and function of the surrounding fishery and their regional importance to the Albemarle Pamlico Estuary, all impacts to PNAs have been avoided by the proposed project as have all impacts to brackish marsh which are adjacent to and contribute collectively to the overall functioning of these nursery areas. The National Marine Fisheries Service (NMFS), responsible for implementing the MSFMA, concurred with the determination via correspondence indicating their declination to pursue elevation under the provisions of 404(q), dated 17 April 2009, that direct impacts to HAPCs in the project area were unlikely.

In response to concerns over indirect impacts to PNAs via direct impacts to headwater wetlands associated with these tidal streams, the District has proposed a special condition that will require the development of an extensive monitoring plan aimed at adaptive management in the vicinity of these resources, which includes coordination with NMFS and state resource agencies, tied to the direct impacts to ensure the continued health of these important, avoided, aquatic resources. Based on previous mining in the area and the successful preservation of PNA streams in close proximity to active mine areas, we believe that many of the tidal streams in the project area will continue to function as PNAs with the proposed project in place.

b. Substantial and unacceptable impacts. We reviewed the District's record relating to the project proposal to impact 3,972 acres of wetlands/open water and 25,727 linear feet of streams. While the magnitude of the impacts is daunting at first glance, it is important to note that the impacts will occur over approximately 37 years, with nearly 3,481 acres of impact to wetlands occurring in the first 15 years of mining (about 232 acres of impact per year). In the same 15 year timeframe, nearly 14,592 linear feet of streams will be impacted (roughly 973 linear feet of impact per year). As mentioned above, the Albemarle Pamlico Estuary Complex drains a 19,200,000 acre watershed. The lower Pamlico River has a watershed in excess of 800,000 acres; the proposed project would affect substantially less than 1% of this area.

Due to efforts to avoid and minimize impacts to less disturbed and/or higher quality wetlands, many of the impacted wetlands are in extreme headwater and non-riparian landscape positions. Many impacted areas are wet flats and many are either agricultural fields or are currently being manipulated and maintained in an early to mid-successional condition through silvicultural practices. All stream reaches impacted are in the upper headwaters of tributaries to the Pamlico River Estuary in a concerted effort to reduce impacts to higher quality, downstream resources.

Although not required, all compensatory mitigation for the proposed project will be constructed prior to impacts and is designed to restore entire watersheds. A portion of the proposed mitigation has already been constructed by the permittee and has been deemed successful by the District. Moreover, the District has established permit conditions that comprehensively offset the unavoidable impact authorized. A special condition has been added to the permit that will ensure that impacts do not occur on any area until necessary to facilitate mine progression thus reducing temporal loss of vegetative cover and ecological function. An additional special condition has been included that requires reclamation of mined areas be accomplished in accordance with

milestones established in coordination with the North Carolina Division of Land Resources to ensure sequenced revegetation and stream reestablishment. This will ensure the timely start of the biotic processes that will return the impacted watersheds to full ecological productivity.

The compensatory mitigation plan is comprised of 9 sites and will provide a total of 11,196 acres of wetland mitigation, including restoration, enhancement, and preservation; and 84,888 linear feet of stream restoration and preservation (Tables 2 and 3). The plan has been designed to replace the aquatic resource functions being impacted by the mining operation and, when fully successful, will result in higher functioning wetland and stream systems than those impacted. The EPA expressed dissatisfaction with the replacement ratio for impacts to mature forested wetlands due to the temporal loss of these resources to the biotic community for an extended period while the vegetative community matures. Impacts to bottomland hardwood forests have been minimized to 70 acres total. Mitigation for these impacts has already been constructed and has been functioning for 10-12 years, providing a high quality offset for impacts to a disturbed resource. Overall, wetland impacts will be mitigated at a minimum of a 2:1 ratio. This does not include reclamation areas or additional stewardship in the impacted watersheds. The compensatory mitigation package is consistent with the requirements of the joint Corps/EPA Mitigation Rule.

Table 2: Compensatory Mitigation for Stream Impacts by Site

Mitigation Site	Restoration (lf)	Enhancement (lf)	Preservation (lf)	Total (lf)
Bay City	3,000			3,000
Hell Swamp	19,783			19,783
Gum Run				
Parker Farm			3,960	3,960
SC Corridor			26,736	26,736
P Lands				
U Lands				
Upper Back Creek	7,066		1,149	8,215
Rutman	8,793	7,994		16,787
Sage Gut	5,401		1,006	6,407
Total	44,043	7,994	32,851	**84,888**

Table 3: Compensatory Mitigation for Wetland/Open Water Impacts by Site

Mitigation Site	Restoration (ac)	Enhancement (ac)	Preservation (ac)	Total (ac)
Bay City	565		119	684
Hell Swamp	885	46	41	972
Gum Run	27			27
Parker Farm	245	162	196	603
SC Corridor			1,143	1,143
P Lands	2,075	381	135	2,591
U Lands	608		117	725
Upper Back Creek	116	38	18	172
Rutman	3,342	129	701	4,172
Sage Gut	105		2	107
Total	7,968	756	2,472	**11,196**

The comprehensive nature of the compensatory mitigation package is expected to provide direct benefits to the South Creek and lower Pamlico River estuary through enhanced flood storage, nursery habitat, nutrient storage, input and cycling, as well as improving overall water quality. Wildlife habitat will be restored and enhanced as well as increasing groundwater recharge opportunity zones in the project area. All mitigation areas will be protected in perpetuity by appropriate real estate instruments.

When viewed in context of the overall watershed, whether the lower Pamlico River or the Albemarle Pamlico Estuary, considering the total avoidance of the PNAs and all coastal marsh, and with the District required extensive and comprehensive mitigation package developed to offset the unavoidable impacts, we disagree with the EPA that the proposed project will result in substantial and unacceptable impacts to the aquatic environment.

c. 404(b)(1) Guidelines Analysis. The 15,100 acre project area contains 262,000,000 tons of recoverable phosphate ore. The permittee has expressed a desire to mine as completely as possible the economically viable phosphate reserves within the project area. Much of this recoverable ore lies beneath aquatic resources, many of which perform functions which contribute to the surrounding ecosystem and for which there is concern among the resource and environmental communities.

We have reviewed the project purpose (see section 4(c) above), which was agreed to by the Interagency Review Team (IRT), which included the EPA, and the permittee during the review process. Although the subject of much discussion after the results were realized, the structure and variables of the economic model used to determine practicability was also agreed to by the IRT. As part of their review, the District required the permittee to evaluate the practicability of the alternatives from a cost standpoint, in addition to logistics and existing technology, based on the framework agreed to by the IRT and according to the 404(b)(1) Guidelines.

What is of particular issue to the EPA is their perception that the cost model used by the District in determining practicability unfairly biased the alternatives analysis by precluding certain alternatives from further consideration. In part, this discomfort results from the fundamental requirement that alternatives must first be screened for practicability prior to being evaluated for environmental considerations. This discomfort has caused the EPA and other resource agencies to suggest revisiting alternatives, and to develop a new alternative, with fewer impacts to aquatic resources without regard for the necessary practicability determination as a first step. The District has undertaken an appropriate level of analysis for evaluating the practicability of the various alternatives in this case.

As a result of discussions with the applicant, it was determined that, from a practicability standpoint, the project area tracts had to be mined in the following order: NCPC-Bonnerton-S33. From the economic modeling, the Corps consistently found that mining S33 alone or first in the sequence was not practicable due to the high annual cost of mining the southern portion of the tract. In addition, the move to S33 would incur a $103,000,000 cost to the permittee to relocate NC Route 33 and receding face costs, actions that potentially have impacts to the human

environment, which would necessarily be committed at the time a decision was made to move to this tract. However, the phosphate market is also volatile; therefore, predicting future viability of an already uncertain practicability becomes even more difficult.

Therefore, the District determined it was best to take a holistic approach to assessing alternatives to ensure all reasonably foreseeable actions were assessed and, if appropriate, permitted as part of a single and complete action. Based on the permittees initial application and their revised application, which demonstrated a viable mining planning window of 15 years, the District established an approximate 15-year window as what was necessary to fulfill the project purpose.

Currently, S33 is not practicable to mine. It may become so in the future due to technological advances or to changing market conditions; therefore, it is included in the proposed project as the third tract, in series, for impact. However, since it is not practicable now, it is not reasonable to include only portions of the site into overall calculations. Due to the uncertainty that mining all of S33 will become practicable in the future and thus allow the permittee to recoup the investment costs of moving to the site, we agree that the District has not been inconsistent or biased in their approach. The District has been reasonable in determining that a practicable alternative must allow approximately 15 years of mining before requiring a move to S33.

Regardless, the EPA headquarters and regional office introduced an alternative to the proposed project when meeting with the applicant, other resource agencies, and the District on 24 March 2009, suggesting it represented the Least Environmentally Damaging Practicable Alternative. We disagree with this assertion based on our analysis of the alternatives considered by the District, of the limited information provided by the EPA on their proposed alternative, and input from the permittee. The EPA did not provide detailed information on the new alternative. Rather, a boundary line was provided with no supporting information to warrant reopening the NEPA analysis to fully vet the alternative with the public. The EPA proposal appears to allow for significantly less ore extraction than any of the previously examined alternatives based upon its area, many of which were dismissed as not practicable from a cost standpoint. Furthermore, the permittee evaluated the cost of ore that would be lost to them with this alternative at $442,680,000 (70,000,000 short tons of ore); a cost that was not factored into the cost model for this alternative. Finally, there was no mention by the EPA about a reduction in the overall comprehensive mitigation package commensurate with the decreased impact areas, leading to the supposition that there is an expectation that the current comprehensive compensatory mitigation package for the proposed project would be required for the EPA alternative. We believe this is unreasonable.

The District fully considered alternatives, performed a rigorous and valid economics analysis, and worked diligently with the permittee to avoid and minimize direct impacts to aquatic resources to the maximum extent practicable while still achieving the project purpose.

6. **OPTIONS:** The MOA with EPA provides three basic options:

   a. Proceed with Final Action. ASA(CW) would inform the District Engineer to proceed with final action on the permit decision;

b. Proceed Based on Case Specific Policy Guidance. ASA(CW) would inform the District Engineer to proceed with final action in accordance with case specific policy guidance; or

c. Elevate the Decision. ASA(CW) would elevate the permit decision to the MSC, HQUSACE, or the ASA(CW) to review the case and make the final permit decision in accordance with 33 CFR 325.8 or provide case specific guidance back to the District.

7. **HQUSACE DECISION AND RECOMMENDATION:** Based on this analysis, the case specific options are as follows:

a. Proceed with Final Action. Selection of this option is contingent on a determination that there are not substantial unacceptable impacts to aquatic resources of national importance as a result of the District's proposed permit decision.

b. Proceed Based on Case Specific Policy Guidance. Selection of this option also requires a determination that there are not substantial unacceptable impacts to aquatic resources of national importance as a result of the District's proposed permit decision, but further recognizes that policy guidance may be necessary to ensure that the decision is appropriate. Our analysis supports selection of this option; therefore, we recommend that the District Commander proceed with the permit decision following the addition of the following special condition to the permit,

> "Wetland Avoidance/Minimization Areas: The Permittee shall avoid the remaining ____acre(s) of onsite wetlands and waters (Attachment___/as detailed on Drawings through___of___). These natural wetland areas and streams were avoided as part of the permit application review process and therefore will not be disturbed by any dredging, filling, mechanized land clearing, mining, agricultural activities, or other construction work whatsoever. The Corps reserves the right to deny review of any requests for future impacts to these natural wetland and stream areas."

In addition, the draft Record of Decision must be revised to clearly explain the functions being affected at each impact area (wetland/open water and stream) and provide an explanation of where and how, both quantitatively and qualitatively, those functions are being replaced within the comprehensive mitigation package. Using tables within the text of the document to represent this data would be helpful to the reader.

c. Elevate the Decision. This option requires a determination that there would be substantial and unacceptable impacts to aquatic resources of national importance as a result of the proposed permit or that the permit review/decision should be made at a higher level in the organization. Our analysis does not support this determination and therefore do not suggest this action is required.

8. **CONCLUSION AND RECOMMENDATION:** We do not believe the aquatic resources within the project area, either individually or cumulatively, qualify as an ARNI. Furthermore, we do not believe the proposed project to be permitted would cause substantial and unacceptable

adverse impacts to the aquatic environment. Moreover, we believe the District's decision shows sound application of regulation and existing policy to reach a reasonable decision that is appropriately mitigated. The effort the District put forth to minimize impacts to the maximum extent practicable, and offset unavoidable impacts via compensatory mitigation, is clear. Therefore, following the addition of the special condition included above and revision of the Record of Decision, we recommend the District Engineer proceed with the permit decision.

ATTACHMENT 2 TO RECORD OF DECISION
ACTION ID 200110096—PCS Phosphate
PROPOSED PERMIT SPECIAL CONDITIONS

This Permit authorizes impacts associated with the modified Alternative L mining boundary depicted on the attached figures titled PCS Phosphate Mine Continuation, for the Bonnerton, NCPC and S33 Tracts, dated January 6, 2009. This includes impacts to 3,972 acres of Waters of the US included in the Modified 401 Water Quality Certification No 3771 issued by the NC Division of Water Quality on 15 January 2009.

This Permit also provisionally authorizes impacts to 4.98 acres of Waters of the US associated with the relocation of NC Highway 306 as depicted on the attached figure titled PCS Phosphate Mine Continuation, for NCPC dated January 6, 2009. Authorization of this 4.98 acre impact is provisional upon receipt of a 401 Water Quality Certification from the NC Division of Water Quality and approval from the NC Division of Coastal Management in the form of either a Coastal Zone Consistency Determination or a Coastal Area Management Act Permit.

MINING

A) This permit authorizes mining and mine related impacts as described fully in the FEIS within the boundary depicted in the attached maps labeled "Modified Alt L – NCPC Proposed Impact Boundary", "Modified Alt L – Bonnerton Proposed Impact Boundary" and "Modified Alt L – South of 33 Proposed Impact Boundary", as presented January 6, 2009. All work authorized by this permit must be performed in strict compliance with these attached plans, which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

B) Within 6-months of the issuance of this permit, the Permittee must demarcate with permanent monuments and establish with GPS coordinates, the outer limits of disturbance on all creeks/drainages, etc. This must be reviewed and approved by the U.S. Army Corps of Engineers. This will facilitate compliance monitoring by establishing long-term reference points.

C) Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

D) Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

E) Figure 1 depicts approximate timing of the requirement for major pre- mining, land manipulation and clearing impacts. These yearly figures are estimates. Actual timing and area may be in part determined by several factors including but not limited to site and equipment constraints, weather, and economics. However, to ensure that temporal losses are minimized to the extent practicable, the applicant shall not undertake major land-clearing and/or land manipulating activities within any area sooner than 1 year prior to the dates indicated on this figure. For example, major landclearing and manipulation activities within the block labeled 2012-2013 may not begin any sooner than January 1, 2011.

RECLAMATION

F) The applicant will undertake full reclamation of all areas mined under this authorization as described in Section 4.3 of the EIS. This includes reestablishment of varied topography and drainage systems. Figure 2 indicates the required completion date for the capping and successful vegetation of mine reclamation areas. To demonstrate adherence to this schedule, the applicant will submit to the Corps an annual report detailing all reclamation efforts complete within the previous year and indicating the degree of completeness of each reclamation area.

G) The Permittee shall cap all mined areas that are reclaimed with the gypsum-clay blend process. The goal of the cap will be a minimum 3-foot thick cap of overburden material (similar to background soils from the region) over 100% of the blend areas. Minimal acceptable performance standards in achieving this cap are as follows: 70% of the total surface area with a minimum of 3-foot cap; 25% of the total surface area with a minimum of 2-foot cap; 5% of the total surface area unspecified. Upon completion of capping of any area, the permittee will submit final cap depth and coverage information to the Corps.

H) Following successful completion of the capping requirements, the permittee will submit as-built topographical surveys for the reclamation areas. This survey shall 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. This survey shall also include information on surface water flows within and from the reclamation area.

I) To minimize temporal impacts and accelerate the return of watershed functions within the reclamation areas, the applicant will to the extent appropriate and practicable apply an average of 1-foot (no less than 6 inches in any location) of topsoil cover to the reclaimed areas utilizing, the topsoil removed prior to site mining. This topsoil addition should be concentrated in areas closes to points where surface waters will eventually exit the reclaimed area into the surrounding watershed.

J) To the extent appropriate and practicable, upland portions of the reclamation area shall be replanted, in longleaf pine *(Pinus palustris)* and wetland areas shall 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. It is suggested that the

applicant work with the Corps, the USFWS and any other interested parties to determine growth and survivability of these and other species utilizing areas currently being reclaimed under the previous permit action

K) To ensure satisfactory reclamation has occurred PCS shall submit to the Corps a final as-built plan detailing topographic information and vegetation success within the reclaimed areas. Any deviation from the reclamation schedule will be addressed in these reports and the report shall include an explanation for the deviation and proposed remedial action.

MITIGATION

L) Compensatory mitigation identified in the document entitled "Compensatory Section 404/401 Mitigation Plan: Comprehensive Approach" as presented in Appendix I of the FEIS shall be accomplished pursuant to that Plan and/or any subsequent Corps approved modification or amendment. Construction and monitoring of each site shall be conducted according to the schedule presented in Table 1 of the Record of Decision.

M) Within one year of the issuance of this permit, the permittee shall cause to be recorded a conservation instrument acceptable to the Corps for the permanent preservation of the area identified for preservation in the "South Creek Corridor" plan.

N) Table 2 lists the impacts as they would occur during 2-year timeframes. By Nov. 1st of year preceding the impact, PCS shall submit to the Corps a mitigation ledger demonstrating that all mitigation work is complete as described in the mitigation plan and pursuant to identified timetable. This report will be used to determine whether sufficient, mitigation is available for impacts occurring over the next 2 year timeframe. For Example, by November 1st 2009, PCS shall submit a ledger demonstrating that sufficient mitigation for impacts occurring during the 2010 – 2011 timeframe (526.56 ac) is available."

O) The Permittee shall submit yearly monitoring reports for each mitigation site. Monitoring reports will be submitted by January 31 of the year following the monitoring. Monitoring will continue until such time as the Corps deems the mitigation site successful and agrees that monitoring may be discontinued. This will generally occur after sufficient monitoring demonstrating 5 consecutive years of site success.

P) Once compensatory mitigation sites have been deemed successful and the Corps has agreed in writing that monitoring may cease, the permittee shall, within one year of the date of that correspondence, cause to be recorded an acceptable conservation instrument ensuring the permanent preservation of all mitigation sites.

MONITORING

Q) As required by the State Water Quality Certification, the applicant will work with the corps and the NC Division of Water Quality to establish a monitoring plan for groundwater in and around mine and reclamation areas. At a minimum, this plan shall include sufficient monitoring within and surrounding the reclamation areas to ensure that heavy metal/toxic pollutants including cadmium are not entering the groundwater. It is suggested that this monitoring commence with weekly samples for a period of 5 years to generate an acceptable baseline. After 5 years, monthly monitoring is acceptable. Yearly results of this monitoring shall be reported to the Corps and NCDWQ no later than January 31 of the year following data collection. The applicant and/or the Corps will make these reports available in whole or in summary to any interested party. If increases in the levels of any sampled substance are observed for more than 1 sampling occurrence in any given year, or for more than 1 year, the applicant shall include in the yearly report, a plan for mitigating the effect or satisfactory justification as to why no action is necessary. If the Corps, in consultation with other agencies, including but not limited to NCDWQ and EPA, determines that the current reclamation practices are causing an unacceptable adverse impact to groundwater, the DE may modify, suspend or revoke the permit.

R) Within 1 year of the issuance of this permit the Permittee will submit to the Corps a remediation strategy in the event heavy metal contamination of groundwater or surface tributaries that drain or are adjacent to mined areas occurs. That strategy will be made available for public review.

S) In concert with the monitoring requirements contained in the Water Quality Certification, PCS shall develop and implement a plan of study to address the effects of the 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. The applicant shall coordinate with all appropriate resource agencies including but not limited to NMFS, USFWS, NCWRC, NCDMF, and the appropriate permitting agencies including NCDWQ, NCDCM, NCDLR and the Corps in the development of this plan. This plan should be submitted to the Corps and NCDWQ for approval within 6 months of this issuance of this permit. The plan shall identify reference creeks (at least four – the usefulness of Muddy Creek 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. At a minimum, the plan shall address the following issues:

1) Has mining altered the amount or timing of water flows within the creeks? Data collection may include:
   i) Continuous water level recorders to measure flow
   ii) Rain gauges to measure local water input
   iii) Groundwater wells to measure input to the creeks
   iv) Semi-continuous salinity monitoring

v) 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? Data collection may include:
   i) Annual aerial photography to determine creek position, length, width, sinuosity
   ii) Annual cross sectional surveys of each creek at established locations
   iii) Annual sediment characterization
   iv) Annual vegetation surveys along creeks
   v) Spring and fall sediment chlorophylls or organic content in vegetation zone.
   vi) Spring and fall location of flocculation zones with each creek.

3) Has mining altered the forage base of the creeks? Data collection may include:
   i) Spring and fall benthic cores to sample macroinfauna.
   ii) Spring and fall benthic grabs focused upon bivalves, such as *Rangia* sp.
   iii) Periodic sampling for pelagic species such as grass shrimp, blue crabs, and small forage fish. Sampling gears would be chosen to reflect ontogenetic shifts in creek usage.

4) Has mining altered the use of the creeks by managed fish? Data collection may include periodic sampling for species managed under the Magnuson-Stevens Fishery Conservation Management Act. Sampling would occur during appropriate times of year and gears would be chosen to reflect ontogenetic shifts in creek usage.

5) Do creek sediments include contaminants at levels that could impact fish or invertebrates? Data collection may include annual sediment and water column sampling for metals, including cadmium, mercury, silver, copper, and arsenic. If elevated levels are detected, the availability and uptake by appropriate aquatic species (e.g., *Rangia* sp., blue crabs) should measured using appropriate bioassay techniques (annual)

T) Monitoring under the plan referenced in condition 18 above shall commence immediately upon the plans approval by the Corps and NCDWQ. Monitoring shall continue for 10 years following the completion of all reclamation work within the headwaters of the subject creeks unless the Corps, in consultation with the appropriate resource agencies agrees that monitoring can be discontinued. Yearly results of this monitoring shall be reported to the Corps and NCDWQ no later than January 31 of the year following data collection. The applicant and/or the Corps will make these reports available in whole or in summary to any interested party.

ADAPTIVE MANAGEMENT

U) PCS will work with the Corps to establish an independent panel of qualified persons 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. All monitoring reports mentioned in the above mining, reclamation, mitigation and monitoring conditions will be supplied to the members of this panel at the times specified in the respective conditions. The applicant shall set a date during March of each year to convene this panel and notify the members of this panel no later than January 31 of the meeting date. By March 31, the panel shall provide the Wilmington District and PCS with any input on the collected data and analysis. At five year intervals beginning from the date of permit issuance, 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 and the Wilmington District c agrees 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 made available to the public.

MISCELLANEOUS

V) The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

W) The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

X) The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

Y) The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

Z) Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

MAY 0 6 2009

Mr. Michael Shapiro
Acting Assistant Administrator
United States Environmental
Protection Agency
Washington, DC 20460-0002

Dear Mr. Shapiro:

This is in reply to your April 3, 2009, letter requesting that I review the decision of the Army Corps of Engineers Wilmington District Commander to proffer a Department of the Army permit to Potash Corporation of Saskatchewan Phosphate Division, Aurora Operation (PCS Phosphate). Your request was made in accordance with our Clean Water Act Section 404(q) Memorandum of Agreement (MOA) of August 11, 1992.

We have carefully reviewed the concerns raised in your letter, the administrative record, including the Corps draft Record of Decision (ROD) and permit and special conditions, and information provided by the applicant. An important aspect of our review was a visit to the project site where staff from our agencies were able to observe existing mining operations, reclamation areas, completed advance compensatory mitigation projects, existing landscape conditions, and the aquatic resource areas of concern to environmental resource agencies. We found the briefings by the applicant and your staff most informative. A detailed summary of my staff's review is provided at enclosure 1.

The Corps prepared an environmental impact statement (EIS) and a supplemental EIS for public review and comment, disseminated public notices, held public meetings, and established an interagency review team consisting of applicant, State and Federal agency, and environmental advocacy group representatives. The applicant's expanded preferred alternative (EAP) would have affected 5,623 acres of wetlands, 24 acres of open water, and 89,150 linear feet of intermittent and perennial streams over a period of 50 years. As a result of the public involvement process, NEPA work, and identification of considerable avoidance and minimization measures; the project now being proposed for authorization will impact 3,961 acres of wetlands, 11 acres of open water, and 25,727 linear feet of intermittent and perennial streams over a period of 37 years. The Corps successfully worked with the applicant, Federal, and State resource agencies to significantly avoid and minimize impacts associated with the applicant's expanded preferred alternative.

In order to replace the predominantly low quality aquatic functions that would be lost as a result of mining activities, PCS Phosphate will be required to restore 44,043 linear feet of stream and 7,968 acres of wetlands, plus additionally preserve approximately 40,000 linear feet of stream and 3,200 acres of wetlands. A unique

aspect of the PCS Phosphate compensatory mitigation plan is that bottomland hardwood forest and other habitat types have already been constructed and functioning for 10-12 years. Compensatory mitigation will be accomplished prior to or concurrent with impacts for the life of the project. In addition, the mitigation sites selected for restoration and enhancement are part of a targeted watershed plan, and will provide water quality benefits to the watershed due to the reduction of agricultural runoff which has been identified by state water quality agencies to be the greatest contributor of nonpoint source pollution in the lower Tar-Pamlico River.

The Corps has added significant, project-specific, special conditions in response to concerns expressed by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (Enclosure 2). These special conditions to the proposed permit address your agency's concerns regarding adaptive management of the mining operation and compensatory mitigation success; reclamation site timing, capping, and re-vegetation; and indirect impacts to primary nursery areas (PNA). During my review, I considered the overall disturbed condition of the aquatic resources in the permit area, plans to avoid impacts to most of the higher quality areas, the extraordinary success of advance compensatory mitigation activities, and the amount and extent of compensatory mitigation in comparison to impacts. The Corps will require extensive monitoring and independent scientific peer review on an annual basis. Utilization of the monitoring information, which will also be made available to the public, will enable the applicant and resource agencies to manage adaptively. Based on the above, I have concluded that these impacts are neither substantial nor unacceptable.

Notwithstanding the above, I believe that additional measures to avoid impacts in some headwater areas may be possible. Therefore, I am directing the Corps to proceed with final action only after completing additional staff work and coordination. Although the applicant has worked hard to avoid and minimize impacts to aquatic resources, I have asked the Corps to continue to work with PCS Phosphate, your Region 4 staff and regional staff from USFWS and NMFS (if interested and available) over the next 10 days to look at specific opportunities to further reduce impacts to aquatic resources within Modified Alternative L, as generally described in the District's draft Record of Decision. Based on my review and discussions with agency staff, I would like the Corps to limit this effort to the headwater areas of Jacks, Jacobs, and Porter Creeks. These three locations appear to contain increments of headwater stream which are of particular concern to your agency as PNAs. The objective of this focused coordination effort is to quickly explore potential avoidance and minimization opportunities. For those that are practicable or otherwise agreed to by the applicant, the Corps will adopt them and revise their Record of Decision and other permit documentation as appropriate. Corps Headquarters will participate in these discussions as necessary and will keep me informed of the outcome of the focused coordination efforts. Once coordination is complete, the District Commander will proceed in accordance with Part IV, paragraph 3(h) of the 1992 MOA. I am confident I can rely on your support for this approach in order for a permit decision to be finalized by May 29, 2009.

I also am adopting the two recommendations made by Corps headquarters in their assessment (Enclosure 1). The first is a special condition developed to discourage future impacts to jurisdictional wetlands and streams avoided as part of this permit action. The second recommendation requires the Corps headquarters to work with the Wilmington District staff, through the South Atlantic Division office, to ensure that the Record of Decision clearly explains the aquatic resource functions being impacted at each site and how these functions are being replaced within the compensatory mitigation package.

If you have any questions or comments concerning my decision, please do not hesitate to contact me. Your staff may contact Mr. Chip Smith, my Assistant for Environmental, Tribal and Regulatory Affairs at (703) 693-3655.

Sincerely,

Terrence C. Salt
Acting Assistant Secretary of the Army
(Civil Works)