

**Addendum to the Final Areawide
Environmental Impact Statement
on Phosphate Mining in the
Central Florida Phosphate District**

July 2013

**U.S. ARMY CORPS OF ENGINEERS,
JACKSONVILLE DISTRICT**

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The Notice of Availability for the Final Areawide Environmental Impact Statement (AEIS) on phosphate mining in the Central Florida Phosphate District was published in the Federal Register on May 3, 2013. Subsequent to that publication date, the lead agency for the AEIS, the United States Army Corps of Engineers, Jacksonville District (USACE) determined that there were comments received on the Draft AEIS during the comment period that were not responded to in the Final AEIS, that a Spanish language translation of the Executive Summary of the Final AEIS that was described in the Draft AEIS had not been prepared, and that corrections were needed for part of the surface water hydrology analysis.

NEPA requires preparation of a supplement to a final EIS where:

- (i) the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or
- (ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or impacts. (40 C.F.R. § 1502.9(c)(1))

The USACE has not made substantial changes to the proposed action relevant to environmental concerns. Furthermore, the USACE has determined that the new information outlined above is not significant new information relevant to environmental concerns and bearing on the proposed action or impacts.

In the case of the comments received and not included, the Final AEIS already addresses the concerns raised, as described in the table of comments and responses attached to this Addendum as Appendix A. For the Spanish language Executive Summary, there will be a 30-day period following the Notice of Availability for this Addendum to provide the public with additional time for review; however, there are no changes in the content of the Executive Summary. Finally, the revised surface water hydrology analysis now shows that the four proposed phosphate mines individually and cumulatively have less impact on predicted stream flows with 50% capture of stormwater within the mine boundaries than with 100% capture of stormwater under both average rainfall and low rainfall scenarios. However, these changes do not change the determinations of significance or effect made for any of the alternatives, including the Applicants' Preferred Alternative, that are stated in the Final AEIS. As described in the Final AEIS, the Corps will do further project-specific analyses of the proposed projects' impacts on surface water flows as part of the project-specific public interest reviews and 404(b)(1) Guidelines analyses.

Therefore, the USACE has prepared this Addendum to respond to the comments received during the comment period on the Draft AEIS which were not included in the Final AEIS, to provide the Spanish language translation of the Executive Summary, and to provide the corrections to the surface water hydrology analysis. The table of comments and responses and the comments received are attached as Appendix A, the Spanish language translation of the Executive Summary is attached as Appendix B, and the summary of the corrections and the replacement pages for the Final AEIS with the corrections are attached as Appendix C.

The USACE will file this Addendum with the US Environmental Protection Agency for publication in the Federal Register. The USACE will also publish a public notice for the Addendum, provide copies of the Addendum to the parties listed in the Final AEIS distribution list including the libraries that received the Final AEIS, and make the document available on the AEIS website: www.phosphateaeis.org. There will be a 30-day review period following the publication of the Notice of Availability of the Addendum in the Federal Register. The USACE will accept comments on the Final AEIS and on the Addendum during this period, and will continue to accept comments until final action is taken on each of the four proposed actions considered in the AEIS.

**Appendix A:
Comments Received on the Draft
AEIS Not Included in the Final AEIS
and Comment and Response Tables**

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**Appendix A:
Comments Received on the Draft
AEIS Not Included in the Final AEIS**

Comment Source:
Paul Kripli

From: [Paul](#)
To: [Fellows, John P SAJ; teamaeis@phosphateaeis.org](mailto:teamaeis@phosphateaeis.org)
Subject: Regarding Phosphate mining in Florida- comments
Date: Tuesday, July 31, 2012 11:59:24 AM
Attachments: [AEIS Comments July 2012-14.pdf](#)

Please see the attached letter and my comments regarding the Phosphate Mining plan for Florida. This is a tragedy and needs to stop. The Phosphate is causing terrible environmental damage and polluting our water.

Paul Kripli
321-541-8122

Comment Source: Terry Worthington,
United Way of Central Florida

From: [Terry Worthington](#)
To: ["teamaeis@phosphateaeis.org"](mailto:teamaeis@phosphateaeis.org)
Subject: Phosphate Industry's impact on local non-profits
Date: Monday, July 09, 2012 4:39:47 PM

Mosaic and CF Industries have contributed \$7,441,175 to the United Way of Central Florida over the last five years. The average gift from Mosaic employees is \$443.23 while CF employees contribute an average gift of \$428.08. United Way receives broad community support from other types of business, but those that work in the phosphate industry are unparalleled in their generosity. This is also true at the corporate level. Mosaic Company provides a dollar for dollar matching gift.

As the President of United Way of Central Florida I am fortunate to be involved in many respected community organizations. I see first hand the benefit that Mosaic provides to area Chambers of Commerce, public education, and individual non-profits. Mosaic is the leader in support that sustains our youth programs that elevate the importance of agriculture.

Mosaic and CF employees are also engaged as volunteers. Whether serving on a Board or pulling a fallen tree off the roof of a senior citizen's home, Mosaic and CF can be counted on to help. There is a culture of multidimensional engagement.

Without the Phosphate Industry in Polk and Hardee Counties this United Way's capacity to serve would be reduced by nearly 20%. Volunteers capable of performing major projects would be impossible to enlist. Our community's quality of life would be quite different without the wages and benefits that quality phosphate-related jobs provide. I'm sure others can explain what the taxes paid by the Phosphate Industry make possible or the recreational impact of the many industry provided parks.

I believe those that lead and work for CF Industries and Mosaic recognize the critical importance of environmental stewardship. This priority is consistent with the value placed on taking care of this generation and those that follow.

I respectfully urge that the AEIS economics analysis take into account the Phosphate Industry's impact on local non-profit agencies.

Invest Today. Impact Tomorrow.

Terry Worthington

President

United Way of Central Florida

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LIVE UNITED



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July 10, 2012

MR. JOHN FELLOWS, AEIS PROJECT MANAGER
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
10117 PRINCESS PALM AVENUE, SUITE 120
TAMPA, FLORIDA 33610-8302

RE: Comments on Draft AEIS on Phosphate Mining in the CFPD

Dear Mr. Fellows,

The Florida Association of Mitigation Bankers (FAMB) represents the interests of mitigation banking in Florida and serves our members by monitoring regulatory decisions affecting the industry. The above-referenced draft AEIS has come to our attention because the document omits certain critical information and may lead decision-makers to conclusions not fully supported by federal rules for the compensation of aquatic resources losses (i.e., the 2008 Compensatory Mitigation Rule¹).

Please consider the following comments on the wetland mitigation proposed for the Chapter 5 – Mitigation – in the Draft AEIS.

1. Regarding the importance of hydrology, the Draft AEIS says in section 5.3.4,

“The development of appropriate hydrology is of vital importance to wetland and stream mitigation. Hydrology has and continues to be one of the most challenging aspects of wetland and stream design. Hydrologic predictions for early wetland designs were simple, full of assumptions, and often proved to be inadequate in capturing the hydrologic processes of the targeted wetland systems. Today, the phosphate industry uses sophisticated integrated surface water/groundwater modeling to predict target hydrologic conditions in mitigation wetlands and streams. Today’s advanced construction technology, such as laser and global positioning system (GPS)-guided earthmoving equipment, provides the means to precisely contour the land to achieve desired elevations and hydroperiods. Grading precision is particularly important for the design of shallow wetland systems that require subtle changes in elevation.”

¹ 33 CFR Parts 325 and 332, Federal Register Vol. 73 No.70, pages 19593 – 19075, April 10, 2008.

We agree that predicting the post-reclamation hydrology has been a challenge historically, but we fail to see how advances in technology have addressed the issue, especially the ability to do more precise grading. The problems of the past have been the inability to predict the post-reclamation water table, and the tendency of some post-reclamation soils to continue to subside. Precision grading in these circumstances could just make the grading more precisely wrong. We believe the risk of unsuccessful mitigation on mined sites is understated in the Draft AEIS, and that the above discussion should reflect the issues that have plagued the industry's post-reclamation (on-site) mitigation in the past, rather than optimistic speculation about the ability of new technology to resolve these issues.

2. Regarding the minimum requirement for determining mitigation success, the Draft AEIS says in section 5.3.7,

“The federal Section 404 program does not have minimum establishment periods for regulatory release of mitigation wetlands. Mitigation wetlands created to compensate impacts to waters of the United States are not considered for regulatory release at any specified time, only at the point when all success criteria are demonstrated to have been met.”

We believe a more accurate representation of the minimum establishment period is in the Compensatory Mitigation Rule, which states,

“The mitigation plan must provide for a monitoring period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years. A longer monitoring period must be required for aquatic resources with slow development rates (e.g., forested wetlands, bogs).”

We respectfully request that the Final AEIS reflect the requirements of the Compensatory Mitigation Rule.

3. Regarding the comparison of in-lieu fee programs to mitigation banks, the Draft AEIS states in section 5.5.2.2,

“In contrast [to an in-lieu fee program], an established commercial bank may have less flexibility with regard to addressing watershed needs, due to banks typically being single projects. Also, a permittee may have fewer options for selection of a location to implement a private mitigation project.”

We only imagine one set of circumstances in which a commercial mitigation bank could not address the watershed needs as well as an in-lieu fee program. The only way the commercial mitigation banker would have fewer options for selection of locations is if the in-lieu fee sponsor was a government agency exercising powers of eminent domain.

Is this the intent of the statement above? If not, we believe the quoted statement above is erroneous, not consistent with the rationale that was used to support the adoption of the Compensatory Mitigation Rule and should be removed from the Final AEIS.

4. Regarding the discussion of “advance credits” in section 5.5.2.3, the Draft AEIS incorrectly characterizes mitigation banking as follows,

“To address financial considerations that may be important to the development of a mitigation bank, a percentage of the total credits projected for the bank at maturity is regularly authorized for sale once adequate financial assurances are in place to guarantee completion of the mitigation bank site. These *advance credits* also require demonstration of a high likelihood of success (Federal Register, 1995). With a mitigation bank, most permitted impacts are mitigated in advance, with the operational bank being in place at the time of the permit application. However, this would not be the case with *advance credits* authorized to support initial development of a mitigation bank.” (emphasis added)

The citation to the “Federal Guidance for the Establishment, Use and Operation of Mitigation Banks,” which was issued on November 28, 1995 is inappropriate because the 1995 Guidance was superseded by the Compensatory Mitigation Rule issued in 2008. Under the rule in effect today, only in-lieu fee programs receive “advance credits.” Therefore, the discussion of the risks associated with “advance credits” should be properly moved to the discussion of in-lieu fee programs in section 5.5.2.2.

5. Regarding the Draft AEIS’s speculative forecast of the inability of commercial mitigation banks to meet the industry’s need as stated in the following passage from section 5.5.2.3,

“The amount of commercial mitigation bank credits currently available for purchase by potential users within the Peace River and Myakka River watersheds would not exclusively satisfy the mitigation needs of the currently proposed phosphate mines. *It is also unlikely that future commercial mitigation banks that may be developed would exclusively satisfy the mitigation needs of the currently proposed or future mines.* However, the use of commercial mitigation banks in combination with other forms of mitigation (onsite and/or in-lieu fee) could be a feasible approach for the phosphate industry.” (emphasis added)

Given the earliest proposed start date of 2019 (Alternative 4) and the latest proposed end date of 2050 (Alternative 3), we fail to understand why the Draft AEIS states it would be unlikely that commercial mitigation banks would be able to satisfy the needs of industry mitigation. In the 17 years since mitigation banking rules were adopted in Florida, 63 mitigation banks have been approved covering over two-thirds of the State. Our point is simple: Where there is demand for mitigation credits, it is reasonable to assume that supply will be developed to meet the demand, especially given the seven year gap before

start-up and the 30-year duration of mining. We respectfully request that the speculative statement be deleted, and that a realistic appraisal of the market response to demand created by the industry be substituted in its place.

6. Regarding the discussion of single user mitigation banks developed by the industry in section 5.5.2.3, an important consideration is omitted. Commercial mitigation banks offer protection from the liability for mitigation performance. Establishing industry-owned single user mitigation banks would, as the discussion implies, carry all the costs of a commercial mitigation bank, but without the key advantage of liability protection.
7. Regarding the conclusions to the mitigation options discussion in section 5.5.3, we strongly suggest that the conclusions address the hierarchy established in the Compensatory Mitigation Rule and in the U.S. Army Corps of Engineers' Memorandum for Record template used by Jacksonville District permit reviewers. The Draft AEIS discussion does not mention the hierarchy and treats all options equally, when in fact, by rule the options are not on equal footing. The failure to recognize the hierarchy in the Compensatory Mitigation Rule is a misleading omission of material fact that should be corrected in the Final AEIS.
8. Regarding the discussion of non-existent mitigation plans in section 5.6, we believe that the limitation cited for the industry having not submitted mitigation plans (i.e. not yet having approved jurisdictional determinations) must have by now been resolved, and that mitigation plans should be part of the Final AEIS. Given the extent of aquatic resource losses proposed, we believe it is fruitless to evaluate the alternatives without considering concrete plans to compensate for these losses. We respectfully request that the Final AEIS include a discussion of proposed mitigation plans, specifically addressing their consistency with the federal Compensatory Compensation Rule.

Thank you for the hard work and thoughtful analysis that the Draft AEIS portrays. A comment letter such as this necessarily focuses on what we perceive as deficiencies or opportunities to improve the document. On the positive side, we find much to commend the Draft AEIS, but in the interest of time, we refrain from itemizing them. Know, however, that the industry appreciates the work and support of the U.S. Army Corps of Engineers and its cooperating agencies in this endeavor.

Sincerely,
Florida Association of the Mitigation Bankers



Les Alderman
President



Southwest Florida Regional Planning

Comment Source: Margaret Wuerstle,
Southwest Florida Regional Planning Council

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July 31, 2012

Ms. Lauren P. Milligan
Department of Environmental Protection Florida State Clearinghouse
3900 Commonwealth Boulevard, M.S .47
Tallahassee, Florida 323 99-3 000

RE: Department of the Army, Jacksonville District Corps of Engineers – Draft Areawide Environmental Impact Statement (DAEIS) on Phosphate Mining in the Central Florida Phosphate District – Charlotte, DeSoto, Hardee, Hillsborough, Lee, Manatee, Polk and Sarasota Counties, Florida.
SAI # FL201205296249C

Dear Mr. Fellows:

The staff of the Southwest Florida Regional Planning Council reviews various proposals, Notifications of Intent, Pre-applications, permit applications, and Environmental Impact Statements for compliance with regional goals, objectives, and policies, as determined by the Strategic Regional Policy Plan. The staff reviews such items in accordance with the Florida Intergovernmental Coordination and Review Process (Chapter 291-5, F.A.C.), and adopted regional clearinghouse procedures.

These designations determine Council staff procedure in regards to the reviewed project. The four designations are:

Less Than Regionally Significant and Consistent- No further review of the project can be expected from Council.

Less Than Regionally Significant and Inconsistent- Council does not find the project of regional importance, but will note certain concerns as part of its continued monitoring for cumulative impact within the noted goal area.

Regionally Significant and Consistent- Project is of regional importance, and appears to be consistent with Regional goals, objectives, and policies.

Regionally Significant and Inconsistent- Project is of regional importance and does not appear to be consistent with Regional goals, objectives, and policies. Council will oppose the project as submitted, but is willing to participate in any efforts to modify the project to mitigate the concerns.

We have been requested to review the Draft Area-wide Environmental Impact Statement (DAEIS) Phosphate Mining in the Central Florida Phosphate District by the Florida State Clearinghouse.

The SWFRPC has determined that the Draft Areawide Environmental Impact Statement on Phosphate Mining in the Central Florida Phosphate District (DAEIS) is Regionally Significant and Inconsistent in its current form. Specifically, Chapters 4 and 5 are inadequate and preclude meaningful analysis. The SWFRPC requests that the U.S. Army Corps of Engineers (ACOE) prepare and circulate revised drafts of Chapters 4 and 5 for review and comment. Moreover, the SWFRPC recommends that the DAEIS include a recommended action alternative selection based upon the analysis that selects the alternative that has the least impact on the environment and provides the best health, safety and welfare for the people of Florida.

Methodical Treatment of Alternatives,

We question the adequacy of the environmental analysis given that the 25 alternatives are not addressed in a consistent fashion. The alternatives are grouped by “No Action” (1 alternative), “Proposed” (4 alternatives), “Foreseeable” (3 alternatives) and “Potential” (17 alternatives).

We request that each analysis be completed by group on a stepwise basis. No action, then Proposed, then Proposed plus Foreseeable and finally, all alternatives together. It appears that the document is designed for it to be referenced for future mining permitting action particularly since “Foreseeable” mine alternatives include potential mining after the “Proposed” alternatives are completed and into the year 2070.

Discussing the “foreseeable” mines individually avoids discussion of cumulative impacts. In addition, a cumulative analysis could help answer the question of when cumulative impacts would overwhelm the natural resources and degrade the economy of central and southwest Florida.

3.3.1.3 Soil Characteristics of the CGPD (beginning page 3-17)

An overview of soils is provided in Chapter 3 of the DAEIS but no analysis of soils beyond hydric soils for wetland assessment is provided for the alternatives. Chapter 3, page 3-17, states “In the Peace River Basin, the most predominant soil group is A/D with a total cover of 49 percent. Although these are sandy type soils, they are characterized by having high groundwater levels. Soil hydrologic group A covers approximately 18 percent of the Peace River Basin.” Given that the most predominant group of soils for the basin are of high and low permeability, changes as a result of phosphate mining may be expected. We request that soil changes as a result of phosphate mining be assessed for the alternatives.

4.4 Groundwater Resources (beginning page 4-63)

We are doubtful of the accuracy of the groundwater resources analysis, comparing the “No Action” to the “Proposed” alternatives. The estimated end of rock production for Wingate Creek and South Pasture Wingate is 2013 and 2025, respectively. Under a “No Action” scenario, the withdrawal for these two mines would cease within the study period (except for a small amount

associated with reclamation activities). Only two "Proposed" mines are analyzed in the DAEIS because South Pasture Extension and Wingate East are expansions of Wingate Creek and South Pasture Wingate and moving the existing Water Use Permits is proposed. If "No Action" occurred, the existing Water Use Permits from Wingate Creek and South Pasture Wingate expire at the end of mining and that water would not be withdrawn. Therefore we request cumulative groundwater modeling comparing the "No Action" and "Proposed" alternatives include reduced mining withdrawals at the appropriate periods.

The DAEIS assesses "Foreseeable" alternatives as if they have no impact because Water Use Permits would be moved from existing and "Proposed" mines and beneficiation plants. If the "Foreseeable" alternatives were not constructed, that water use would not occur. "Foreseeable" alternatives should be compared to "Proposed" mines within the same period (2025 to 2045) and to "No Action." This would compare "Proposed" to "Foreseeable" as alternative scenarios. In addition, we request an analysis adding the "Foreseeable" mine production after "Proposed."

We question the adequacy of the analysis which models only the impacts to the deep Floridan aquifer (FAS) impacts. Groundwater monitoring well data are available for the surficial aquifer, Peace River aquifer, upper/lower Arcadia aquifer and Hawthorn group and these need to be addressed.

Pages 3-59 and 3-60 lists a number of way that phosphate mining can impact the Surficial Aquifer System, including extensive earthwork, dewatering and changed surficial soils, including addition of clay. The section states that the issue is addressed in Chapter 4. However, no analysis of the alternatives relative to these issues is presented in Chapter 4. The DAEIS is internally inconsistent when analyses are promised and not provided. The DAEIS needs to address and analyze Surficial Aquifer System (SAS) impacts of the alternatives.

Analysis relative to the Intermediate Aquifer System (IAS) water levels is limited to Page 3-60 and concludes that "within the Polk County area (the IAS) provide conveyance routes between the SAS and the FAS but such features are less frequently encountered to the south within the Peace River watershed." In the proposed area of mining impact wells are permitted to use the IAS. An analysis of impacts of alternatives to the IAS needs to be conducted.

Tables 4-69 and 4-70 (page 4-227 through 4-230) do not cite maximum drawdown and maximum increase modeled for the alternatives. The tables should include modeled maximum drawdown or increase. In addition, the tables should be ordered so the wells that are most relevant to the analysis are listed first (Upper Peace, SWIMAL, then Ridge Lakes).

Existing wells are not identified in the DAEIS. Water levels and cones of depression (or increase) for each alternative should be compared with the depths of existing permitted wells that intersect those cones of effect. Potentially impacted permitted well should be identified and enumerated for each alternatives.

4.5 Surface Water Resources (beginning page 4-82)

Given that the capture analysis for other alternative mines demonstrates changes, reclamation of existing lands mined and not yet reclaimed (page 4-191) suggests that between 2000 and 2028, acreage of all past and present mines (25,000 acres) will be reclaimed. Given better flows after reclamation is complete within alternatives analysis (e.g. Figure 4-40 on page 4-91), it is reasonable to assume greater flows once capture areas are reclaimed in past and present mines. CHNEP requests that the “No Action” alternative be assessed with reclamation introduced as shown by 2028.

There are questions regarding the adequacy of projected river flows analysis for the alternatives. Each alternative is assessed separately. The “No Action” changes, as described in the preceding paragraph, should be introduced to the “No Mining” comparison for figures 4-37, 4-38, 4-40, 4-41, 4-43, 4-45, 4-46, 4-48, 4-50, and 4-51 (pages 4-88 through 4-102.) The Capture area graphs (Figures 4-36, 4-39, 4-42, 4-44, 4-47 and 4-49) that display cumulative capture areas for the alternatives should be utilized to assist in the cumulative analysis. The cumulative analysis for the alternatives within the Peace River basin should be assessed related to surface water flows at the confluence of the Peace River and Horse Creek.

It is inadequate and inaccurate to only provide an alternatives analysis using average annual rainfall conditions considering average annual flows. Average rainfall conditions and average flow conditions within the year represent a rare condition when ecological resources are under the least amount of stress. The alternatives should assess the cumulative impacts of mines on Peace River, Horse Creek and Big Slough utilizing the 2003 and 2007 hydrographs, when conditions were at more extreme within the period of record (see Figure 4-32 on page 4-83 and Figure 4-33 on page 4-84).

Discussion regarding “Cumulative Impacts to MFLs or MFL Target Water Levels” begins on page 4-220. However, this analysis is limited to Minimum Aquifer Levels (MALs) and does not address the MFLs as outlined in table 3-5 on page 3-49. The Lower Peace River MFL includes a 625 cfs maximum diversion and a low flow threshold of 90cfs. A draft rule is available for the Lower Myakka River and is expected to be submitted to the Southwest Florida Water Management District Governing Board by August. The alternatives should be assessed for the Lower Peace MFLs in a consistent fashion as was assessed for the MALs. The 2003 hydrograph, the median hydrograph, and 2007 hydrograph should be used to assess potential withdrawal impacts by block and for any change to the 90 cfs threshold period. All alternatives need to be quantitatively assessed for MFL.

We question the adequacy of alternatives analysis related to Lower Peace River and Charlotte Harbor salinities. Page 3-45 states that “the AEIS evaluations will ... need to address the potential influence of phosphate mines on river flows in relation to whether any such influences would be of sufficient magnitude to result in ecologically meaningful changes in salinity regimes.” No analyses related to effects on salinity in the Lower Peace or Charlotte Harbor are offered. On page 4-238, one paragraph is offered stating “The net effects of the four proposed new mine projects are not predicted to cause significant cumulative effects on downstream flow regimes and are not likely to impact

Peace and Myakka River discharge volumes sufficiently to impact salinity regimes in the tidal portions of these rivers leading to Charlotte Harbor Estuary.” This statement has no quantitative basis in fact presented in the DAEIS. The mines are assessed separately and not cumulatively. Peace River volume changes are shown at the Arcadia gauge, upstream of most of the “Proposed” and “Foreseeable” mine alternatives. The DAEIS assessment should include changes in salinity, especially the isohalines associated with the oligohaline (0.5 to 5 parts per thousand) and in the context of predicted sea level rise.

4.6 Water Quality (beginning page 4-103)

Chapter 3 (page 3-85) offer links to impairments lists rather than providing them as tables. The first link goes to an EPA search engine. The second link goes to a list of adopted Total Maximum Daily Loads (TMDLs) in Florida. Neither link provides information related to verified impairments in the Peace and Myakka River basins. Impairments within and downstream of the mine alternatives include: Chlorophyll a, dissolved oxygen, fecal coliform, total coliform, iron and mercury. The DEIS should acknowledge existing water quality impairments and potential (numeric nutrient) impairments in the study area and downstream.

Table 4-19 on page 4-109 does not include the Class III Chlorophyll-a criteria. In addition, the table includes only mean values. Table 4-19 should include chlorophyll-a standards and proposed numeric nutrient standards (as identified on page 3-92). The minimums, maximums, and standard deviations should be included in Table 4-19. Pollutant and hydrologic loads and estimated changes in concentrations for each alternative should be presented and analyzed.

4.9 Environmental Justice Review (beginning page 4-150)

The environmental justice (EJ) review screening techniques focus on block group populations of over 50% minority or 20% within poverty intersecting site alternative boundaries. Though that technique is suitable for infrastructure such as roadways to identify potentially affected communities, the impacts of phosphate mining can be as much from changes in employment opportunities as physical proximity. How will hiring practices change as alternative sets move from agriculture to phosphate mining, especially for the working poor? The analysis should include numbers of jobs and education requirements for agriculture versus phosphate production for the entire process including extraction, processing and transport for the mines.

SWFRPC requests that EJ analysis be broadened to address health concerns (including air quality particulate, well water quality, noise, and night lighting) and employment of working poor.

4.11.6 Climate and Sea Level Rise (page 4-165)

The DAEIS devotes eight lines to the climate and sea level rise. The SWFRPC and CHNEP have completed extensive review of climate change vulnerabilities for the project area that can be found at www.chnep.org/CRE.html and http://www.swfrpc.org/climate_change.html. The DAEIS study area of central and south Florida is currently experiencing climate change. The natural setting of southwest Florida coupled with extensive overinvestment in the areas most vulnerable to the effects of climate change have placed the region at the forefront of geographic areas that are among the first to suffer the negative effects of a changing climate. Climate change

is an important social, economic, and community health issue facing our nation and Florida. It is not solely an environmental or scientific issue. The questions and answers surrounding climate change take root in economic, physical, and social structures. The SWFRPC has a two-decade history of addressing climate issues, beginning with its ground-breaking disaster and severe storm preparedness planning. Economic, social, community health, infrastructure and environmental issues have been addressed in the context of storm surge, wind speeds, and infrastructure resilience.

Longer, more severe dry season droughts coupled with shorter duration wet seasons consisting of higher volume precipitation have generated a pattern of drought and flood impacting both natural and man-made ecosystems. Even in the most probable, lowest impact future climate change scenario predictions, the future for central and southwest Florida will include increased climate instability; wetter wet seasons; drier dry seasons; more extreme hot and cold events; increased coastal and riparian erosion; continuous sea level rise; shifts in fauna and flora with reductions in temperate species and expansions of tropical invasive exotics; increasing occurrence of tropical diseases in plants, wildlife and humans; destabilization of aquatic food webs including increased harmful algae blooms; increasing strains upon and costs in infrastructure; and increased uncertainty concerning variable risk assessment with uncertain actuarial futures.

Climate change drivers include air temperature, air chemistry, water temperature and water chemistry. Climate change stressors include changes to rainfall, storm severity, humidity, drought, wildfires, hydrology, salt water intrusion, sea level rise and geomorphic changes. Changes in many of the drivers and stressors of climate change have been measured within and downstream of the CFPD. These include average air temperature, days per year over 90 degrees F, rainfall delivered in the rainy season sea level rise and evapo-transpiration. Much of the DAEIS analysis relates to these changing conditions that will be exacerbated by climate change factors. However, past conditions are applied throughout the analysis. Section 4.11.6 is the opportunity to suggest changing condition adjustments to consideration of alternatives.

For example, over the past 100 years, 6 percent of annual rainfall has moved from the dry season to the rainy season, creating wetter rainy seasons and drier dry seasons. Drops in river flow contributions exacerbate the effects of sea level rise by increasing salinities, moving aquatic species up the system. This may put the DeSoto County bulrush marshes and Peace River/Manasota Water Supply Authority intake at risk.

SWFRPC requests a methodical assessment of how each driver and stressor is exacerbated or ameliorated by the phosphate mining and processing alternatives.

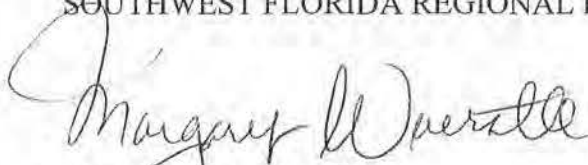
5. Mitigation (beginning page 5-1)

Chapter 5: Mitigation of the DAEIS is inadequate and incomplete. Chapter 5 should include a presentation of avoidance and minimization techniques for all of the alternatives. This would include protecting existing stream riparian systems and restoring stream courses ditched for agriculture. The wide array of avoidance and minimization techniques employed through modern phosphate mining permits and through best management practices should be presented in detail, by each of the primary issues of concern identified in the executive summary, page 3.

The mitigation for the alternatives should follow the federal sequencing of Avoidance, Minimization, Adaptation, and then Mitigation (AMMA). Going directly to mitigation short circuits principles of good project design and proper conservation stewardship.

Thank you for the opportunity to participate in the development and review of the DAEIS. If you have specific questions about the content of this letter, please contact Mr. Jim Beever directly at (239) 33802550 ext 224, e-mail jbееver@swfrpc.org.

Sincerely,
SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL



Margaret Wuerstle, AICP
Executive Director

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July 31, 2012
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3PR REVIEW COMMENTS:
Draft Area-Wide Environmental Impact Statement
On Phosphate Mining In The
Central Florida Phosphate District
US Army Corps of Engineers, Jacksonville District, May 2012

Re: Draft Area-Wide Environmental Impact Statement
On Phosphate Mining In The Central Florida Phosphate District

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INTRODUCTION

27 The "Substantive Comments" contained herein are prepared and submitted by the People for
28 Protecting Peace River, Inc. (3PR), a Florida non-profit organization. They are provided in response to the
29 document entitled "Draft Area-Wide Environmental Impact Statement on Phosphate Mining in the Central
30 Florida Phosphate District" (DAEIS) issued by the US Army Corps of Engineers (USCOE), Jacksonville
31 District, May 2012". 3PR has been an active and public participant in phosphate mining/planning/permitting
issues and is interested in all environmental concerns which have the potential to affect west Central Florida.

32 The DAEIS was prepared by the US Army Corps of Engineers, Jacksonville District. It is required to
33 have been prepared based on, and consistent with, the policies, regulations, and public laws of the United States
34 including, but not limited to, The National Environmental Policy Act (NEPA), hereafter referred to as the "Act"
35 or "NEPA", and 40 CFR, which is administered by the United States Environmental Protection Agency
36 (USEPA).

37 The Congress of the United States has declared as a "National Policy", "*to promote efforts which will*
38 *prevent or eliminate damage to the environment and biosphere*":

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42 USC § 4321 - Congressional declaration of purpose

41 *The purposes of this chapter are: To declare a national policy which will encourage*
42 *productive and enjoyable harmony between man and his environment; to promote efforts*
43 *which will **prevent or eliminate damage to the environment and biosphere** and stimulate*
44 *the health and welfare of man; to enrich the understanding of the ecological systems and*
45 *natural resources important to the Nation; and to establish a Council on Environmental*
46 *Quality.*

47 Additionally, "Congress recognized that nearly all federal activities affect the environment in some
48 way and mandated that before federal agencies make decisions, they must consider the effects of their actions
49 on the quality of the human environment"¹.

50 The specific purpose and mandate of NEPA, "**as our basic national charter**", is "**Protection of the**
51 **Environment**" through actions which "protect, restore, and enhance the environment", through "accurate
52 scientific analysis" and "decisions that are based on understanding of environmental consequences", without
53 including "needless detail". Its provisions require that the information upon which decisions are made must be
54 of "high quality". The Act also stresses that "expert agency comments and public scrutiny are essential".

55 40 CFR 1500.1 Purpose

56 (a) The National Environmental Policy Act (NEPA) is our basic national charter for
57 **protection of the environment**. It establishes policy, sets goals (section 101), and provides
58 means (section 102) for carrying out the policy.

59 (b) NEPA procedures must insure that environmental information is available to public
60 officials and citizens before decisions are made and before actions are taken. The
61 information must be of high quality. **Accurate scientific analysis, expert agency comments,**
62 **and public scrutiny are essential to implementing NEPA.** Most important, NEPA
63 documents must concentrate on the issues that are truly significant to the action in
64 question, rather than amassing needless detail.

65 (c) Ultimately, of course, it is not better documents but better decisions that count. NEPA's
66 purpose is not to generate paperwork--even excellent paperwork--but to foster excellent
67 action. **The NEPA process is intended to help public officials make decisions that are**
68 **based on understanding of environmental consequences, and take actions that protect,**
69 **restore, and enhance the environment.**

70 40 CFR 1500.3 Mandate

71 Parts 1500 through 1508 of this title provide regulations applicable to and binding on all
72 Federal agencies for implementing the procedural provisions of the National
73 Environmental Policy Act
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75 In preparing its substantive comments for the DAEIS, 3PR is relying on adherence to the Act and other
76 relevant federal laws by all federal agencies.

77 3PR is questioning the information and analysis contained in the DAEIS in terms of its accuracy and
78 adequacy, and is doing so by presenting its assertions with sound and reasonable basis. As cited below, 40 CFR
79 provides that the comments may address the adequacy of the DAEIS and merits of the alternatives, and that the
80 agency will assess, consider, and respond to all comments:

81 40 CFR 1503.3 Specificity of Comments

82 (a) Comments on an environmental impact statement or on a proposed action shall be as
83 specific as possible and may address either the adequacy of the statement or the merits of
84 the alternatives discussed or both.

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86 40 CFR 1503.4: Response to Comments

87 (a) An agency preparing a final environmental impact statement shall assess and consider
88 comments both individually and collectively, and shall respond by one or more of the
89 means listed below, stating its response in the final statement. Possible responses are to:

- 90
- 91 • Modify alternatives including the proposed action.
 - 92 • Develop and evaluate alternatives not previously given serious consideration by
93 the agency.
 - Supplement, improve, or modify its analyses.

¹ Executive Office of the President of the United States: <http://ceq.hss.doe.gov/>

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- *Make factual corrections.*
- *Explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response.*

The legal purposes of an Environmental Impact Statement include, but are not limited to, assuring a "full and fair discussion of significant environmental impacts", and development of reasonable alternatives which avoid or minimize adverse impacts. It is required to be "concise, clear, and to the point", and "supported by evidence that the agency has made the necessary environmental analyses":

40 CFR 1502: "Environmental Impact Statement"
*1502.1: Purpose - The primary purpose of an environmental impact statement is to serve as an action-forcing device to insure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the Federal Government. It shall **provide full and fair discussion of significant environmental impacts and shall inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.** Agencies shall focus on significant environmental issues and alternatives and shall reduce paperwork and the accumulation of extraneous background data. Statements shall be concise, clear, and to the point, and shall be supported by evidence that the agency has made the necessary environmental analyses. An environmental impact statement is more than a disclosure document. It shall be used by Federal officials in conjunction with other relevant material to plan actions and make decisions.*

3PR GENERAL POSITION STATEMENT

* Substantive Comment:

3PR presents its comments as respectfully as is morally possible. In our comments we have strived for objectivity and sincerity. Even so, it is "truth", "transparency", and "compliance" in federal permitting that we wish to further. We fully anticipate forthright, sober evaluations and replies to our comments.

In the sections which follow, 3PR supports with sound and legal and scientific basis that the information provided in the DAEIS is generally inadequate and inaccurate for its intended purposes of "**Protection of the Environment**". 3PR considers that many statements and portions of the DAEIS consists merely of large volumes of *pro forma* data and cookie-cutter analyses which do not further the "**understanding of environmental consequences, and take actions that protect, restore, and enhance the environment**" as required by NEPA.

In general, 3PR contends that the environmental analysis is so highly inadequate, inaccurate, and in many instances misleading that the DAEIS should be completely rejected in favor of the development of a new, more objective, complete, reasonable, clear and concise document which provides the meaningful and measurable directives needed to protect west-central Florida from the diverse negative impacts associated with phosphate strip mining.

135 INAPPROPRIATE AEIS SCOPE

136 * Substantive Comment:

137 3PR objects to the narrow and short-sighted view of the DAEIS, because its narratives nowhere
138 express proper concern for the scale and intensity of mining impacts, the diversity of impacts, or especially the
139 inestimable cumulative impacts and legacy of environmental disaster which phosphate strip mining has
140 bequeathed west-central Florida.

141 The DAEIS purports to include an "affected area" or "study area" designated as the Central Florida
142 Phosphate District (CFPD)[which is actually the FDEP 'Conceptual Mineable Limit'] (Figure 1) which
143 encompasses approximately 1.32 million acres of land (actually closer to 1.35 million acres), and which
144 physically extends through parts of six counties. It is obvious that phosphate strip mining within the CFPD will
145 not only profoundly affect the landscape of west-central Florida, but that the negative effects of mining will
146 extend far outside of this artificial boundary, especially impacting "downstream" jurisdictions including
147 Charlotte, Lee and Sarasota counties.

148 The boundary of the CFPD represents merely the mineable limit, that is, the extent to which the
149 phosphate industry eventually will mine, or the currently economically feasible phosphate strip mining limit.
150 However, an Environmental Impact Statement must include all regions and all types of potential "impact",
151 including environmental impacts, economic impacts, and impacts to human society. For this reason, a much
152 broader study area is needed. The study area should include the mineable limit plus a broad buffer extending
153 downstream along the four affected major rivers (and Horse Creek) to, and including, the receiving bays and
154 estuaries. Such a study area would then "truly" represent the "affected area" which will most certainly be
155 negatively impacted by phosphate strip mining.

156 The four phosphate strip mining approvals would, if permitted to do so, result in mining which would
157 extend over decades, transcending politics, political terms, and changes in socioeconomic patterns. Post-
158 mining scenarios will require the perpetual maintenance and management of inestimable liabilities such as
159 CSAs, pollution spills, and various forms of other contamination. The negative economic of environmentally
160 damaging industries "*are generally hidden from traditional economic accounting*" (Daily 1997). Eventually
161 future generations which had no role in the permitting process, and which did not share in any of the short-term
162 economic benefits, such as the very slight increases in jobs for local residents, will inherit the sad
163 environmental and economic legacy left by phosphate strip mining. That is, the counties actually being
164 sacrificed for mining will not share significantly in its huge profits.

165

166 DAEIS AVOIDS NEPA PURPOSE

167 * Substantive Comment:

168 3PR considers that the DAEIS is substantially incomplete because it appears to center its attentions on
169 Section 404 (CWA) Dredge and Fill permitting as though the vast and controversial phosphate strip mining
170 proposals were merely small, necessary, business or residential projects with no significant environmental
171 impacts, and as though wetland permitting were the only "real" issue. Nowhere does the DAEIS provide
172 sufficient data, analysis, and direction commensurate and consistent with fulfilling NEPA's purpose of

173 **"Protection of the Environment"** in preparing and administering **"Environmental Impact Statements"**.
174 Incredibly, Alternative-1 ("No-Action") does not appear to restrict or prohibit continued mining in uplands and
175 upland ecosystems, which is where the most profound and irreparable impacts of phosphate strip mining take
176 place. Such mining "strips" away the landscape, then "mines" the earth (matrix) below it. It appears that the
177 DAEIS allows, even with "no permit", that the most significant and devastating of all aspects of phosphate strip
178 mining will still be allowed to take place. The direct impacts include, but are not limited to: near total
179 topographic alteration of the landscapes of entire regions, regional wide destruction of aquifers, vast and
180 extensive alteration of recharge systems, area-wide reconfiguration of the surface-water runoff patterns of
181 rivers, creeks, and seepage regimes, and area-wide changes to the average evapotranspiration rate.

182 The totality of upland transfiguration and ecosystem destruction will also have profound negative
183 impacts to water quality and quantity. In fact, the DAEIS cites that phosphate strip mining in uplands will
184 result in excavation of pits and pumping, potential reductions in water table elevations of "20 feet", and direct
185 impacts to the surficial aquifer system (SAS), hydrology and sensitive habitats, groundwater dewatering,
186 impacts to shallow wells, lowering of local water tables, and further extensive alterations to surface water
187 management systems by ditching and construction of clay waste disposal (CSAs) sites including dams and
188 berms. Acknowledgement or analysis of the relationship of the specialized vegetative communities which
189 occur in the Southwestern Florida Flatwoods Ecoregion (Figure 4) and their high degree of correlation to
190 regionally specific and unique soils is conspicuously absent throughout the DAEIS. Possibly it is inconvenient
191 to discuss the destruction of ecological resources which can never be restored or replaced.

192 NEPA requires coordination with state and local agencies and consistency with their laws,
193 regulations, and planning. *"The AEIS study area is located within a water supply planning area that SWFWMD*
194 *has defined as the Southern Water Use Caution Area (SWUCA) on the basis of concerns that cumulative*
195 *reliance on withdrawals from the upper FAS through well systems to meet potable, agricultural, and industrial*
196 *water supply demands has resulted in an unsustainable lowering of the potentiometric surface of the Floridan*
197 *aquifer."* The DAEIS acknowledges SWUCA, discusses SWUCA, then fails to appropriately consider the
198 tremendous magnitude of the negative water resource impacts potentially threatening the "Water Use Caution
199 Area" by area-wide phosphate strip mining, most of which takes place in uplands, yet the impacts of which
200 absolutely and profoundly affect river flows, aquifers, and wetlands.

201 Natural systems are composed of the interrelated and inseparable factors of physical/geologic,
202 hydrologic, atmospheric/climatic, and biotic. Damage to one creates damage to the others. Phosphate strip
203 mining has a long history of obliterating these life-giving assets and precluding their natural recovery.

204 A Florida Administrative Law Judge recently found that *"Modern (phosphate) mining still has a*
205 *devastating impact on the local natural environment."* (J. Lawrence Johnston 2003).

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207 DAEIS VOLUMINOUS - LACKING "REAL" INFORMATION

208 * Substantive Comment:

209 The DAEIS is insufficient and/or unsupported by independently developed, regionally relevant data
210 and proper site-specific evaluations and research. Most sections are highly deficient and preclude meaningful

211 review and comment. The content of the DAEIS appears to rely disproportionately on representations, data,
212 and analyses obtained from the Applicants and/or other sources directly or indirectly related to the phosphate
213 strip mining industry, such as The Phosphate Council. These interactions may be procedurally "technically"
214 permissible? However, they greatly tarnish transparency in the NEPA process, and server to erode the
215 credibility of the DAEIS. Voluminous information, data, and analysis are provided in the DAEIS. However, in
216 large part, the quality, appropriateness, and relevancy of the information are perceived by 3PR as grossly
217 unacceptable. It appears that the DAEIS includes precisely the types and bulk of content that NEPA
218 specifically warns not to include or indulge in: "*Agencies shall focus on significant environmental issues and*
219 *alternatives and shall reduce paperwork and the accumulation of extraneous background data. Statements*
220 *shall be concise, clear, and to the point, and shall be supported by evidence that the agency has made the*
221 *necessary environmental analyses*". These points are more particularly described in later sections below.

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223 DAEIS PROMOTES APPLICANTS NEEDS AND VIEWPOINTS

224 * Substantive Comment:

225 3PR questions and contends that the DAEIS promotes many positions for which there is intense and
226 adamant disagreement among scientists and researchers who are "independent" of the phosphate industry, and
227 its related agencies, consultants, attorneys and public relations personnel. Many of these disagreements have to
228 do with the tremendous extent of wetlands, upland native ecosystems, and native biota historically destroyed by
229 phosphate strip mining, and the fact that many of these systems can never, and have not, been replicated,
230 replaced, or effectively restored to any reasonably viable or functional ecological systems, and that the native
231 assets involved are essential to protect in trust for the future of humanity.

232 The DAEIS almost completely omits and avoids the tremendous body of scientific literature and
233 research data and analyses which show the negative impacts which phosphate strip mining and its related
234 industries have imparted to native upland and wetlands ecosystems and biota, rivers, streams, estuaries and
235 other aquatic resources, groundwater resources, surface water resources, aquifers, water quality, availability,
236 and distribution, climate, community planning, and public health and safety, and many other areas of concern to
237 the environment and the human population which depends upon it.

238

239 DAEIS IGNORES THE PROTECTION OF ECOSYSTEMS

240 * Substantive Comment:

241 3PR questions the adequacy of the environmental analysis and the accuracy of information in the
242 DAEIS, because it fails to consider the extremely important role of native ecosystems, especially native upland
243 ecosystems as repositories of ecological diversity, in maintaining climate, in sequestering carbon, in providing
244 for native wildlife, including plants and animals, providing aesthetics and a healthy human environment, and
245 many other benefits essential to humans and the environment. Also ignored are the irreplaceable values of
246 native soils in maintaining water quality, regulating hydrology, ameliorating the climate, and supporting
247 regionally adapted vegetation associations and unique gene pools.

248 Upon examination of the DAEIS it occurs to 3PR that there are some who do not know what an
249 "Ecosystem" represents:

250 An ecosystem is a community of animals and plants interacting with one another and with
251 their physical environment. Ecosystems include physical and chemical components, such
252 as soils, water, and nutrients that support the organisms living within them. These
253 organisms may range from large animals and plants to microscopic bacteria. Ecosystems
254 can be thought of as the interaction among all organisms in a given habitat. People are part
255 of ecosystems. The health and well-being of human populations depends upon intact and
256 carefully managed ecosystems and their components - organisms, soil, water, and nutrients.
257 ²

258
259 Ecosystems and Biodiversity provide "services" that:

- 260 • Moderate weather extremes and their impacts.
- 261 • Disperse seeds
- 262 • Mitigate drought and floods.
- 263 • Protect people from the sun's harmful ultraviolet rays.
- 264 • Cycle and move nutrients.
- 265 • Protect stream and river channels and coastal shores from erosion
- 266 • Detoxify and decompose wastes.
- 267 • Control the vast majority of agricultural pests.
- 268 • Maintain biodiversity.
- 269 • Generate and preserve soils and renew their fertility.
- 270 • Partially stabilize climate.
- 271 • Purify the air and water.
- 272 • Partially stabilize climate.
- 273 • Regulate disease carrying organisms.
- 274 • Pollinate crops and natural vegetation. (Daily et al 1997).
- 275

276 The recognition of the value of ecosystems and the natural environment is conspicuously absent,
277 virtually omitted from much of the DAEIS. 3PR therefore expounds on this primary issue throughout its
278 comments. "*It is the web of life which supports humanity*"; a fact which is fatally ignored throughout the
279 DAEIS.

280

281 SCOPING PROCESS BIASED AND RESTRICTIVE

282 * Substantive Comment:

283 3PR questions the adequacy of the scoping process for the DAEIS, because it did not sufficiently
284 include involvement of well-known research institutions, regional ecologists, and sources of credible research,
285 especially Archbold Biological Station (preeminent research center for conservation biology, plant ecology and
286 restoration biology in central Florida), the Natural Resources Flight of the Avon Park Air Force Range
287 (conducting federal research for large-scale ecosystem conservation land management involving many listed
288 plants and animals native to central Florida), Center for Plant Conservation Network at Bok Tower Gardens
289 (conducting extensive research relating to listed/endemic native plant relocations, reintroduction strategies, and
290 endemic plant ecology), Tall Timbers (ecological, botanical, management, and forests research) and other

² U.S Dept. of the Int., U.S. Geol. Sur. Understanding Ecosystems and Predicting Ecosystem Change.

291 central Florida biologists who have conducted independent ecosystems studies. Neither has their relevant
292 published research been cited or considered.

293 3PR questions the adequacy of the scoping process for the DAEIS, because important relevant
294 ecosystem research and analyses, as discussed and cited elsewhere herein, were not independently formulated
295 and conducted specific to the ecosystems, environs, and biota found within the CFPD, particularly within the
296 southern half of this area. Because of the immense size of the CFPD, and the intensity and indelibility of
297 phosphate strip mining impacts, independent, objectively verifiable studies should have been conducted so that
298 the immediate impacts, as well as the cumulative impacts of mining could be properly evaluated. However, this
299 was not the case, as much of the important information which should have been "*objective*", and subjected to
300 the "*public scrutiny*" as NEPA requires, appears merely to have been provided by the Applicants, their agents,
301 or phosphate strip mining proponents.

302 3PR questions the adequacy of the scoping process for the DAEIS in terms of "*Environmental*
303 *Justice*", because low-income and minorities may not have been well represented and accorded fair treatment
304 and meaningful involvement, and because the Applicants appear to have been overrepresented throughout the
305 process, including interactions relating to the development of the DAEIS. As previously indicated, the latter
306 may be permissible under the Act, but tremendously and untenably biases the DAEIS.

307

308 3PR SCOPING PROCESS OBJECTION

309 * Substantive OBJECTION:

310 3PR vehemently objects to the scoping process as providing any legitimate bases for the development
311 of the AEIS under NEPA, because the data and analyses, recommendations, and opinions of independent
312 scientists and environmental professionals were not properly considered or incorporated.

313 3PR provided the results of qualified site specific environmental studies, which were summarily
314 rejected without comment or explanation. 3PR provided these environmental analyses through its professional
315 consultants, Winchester Environmental Associates, Inc. Several important primary concerns relating to
316 phosphate strip mining were evaluated through on-site and offsite environmental analyses, including wetlands
317 mitigation, wetland reclamation, endangered species, cumulative impacts, and downstream estuarine concerns.
318 The lead scientist for this exercise is one the most experienced professional consultants in the region, and has
319 qualified as an expert witness and testified in legal proceedings many times.

320 Resistance to independent scientific information appears to be endemic to phosphate strip mine
321 permitting procedures. However, such rejection of public involvement is diametrically inconsistent with the
322 spirit and intent of NEPA and the public participation and involvement requirements guaranteed under the Act.
323 Moreover, NEPA stresses that public scrutiny is essential to its fair implementation and sole mission of
324 "*Protection of the Environment*". NEPA requires that agencies encourage participation at all levels and
325 requests involvement and comments from the public, affirmatively soliciting comments from those persons or
326 organizations which may be interested or affected.

327 If important site-specific relevant research and information provided directly by the highly
328 experienced and reputable representative of a prominent local professional consulting firm is not welcomed by
329 the USCOE, then it is clear that no independent voices were to be considered in the scoping process.

330 This single example is emblematic of the dreadful deficiencies of the scoping process and insincere
331 efforts to claim public involvement and objectivity. This incident solidifies the appearance evident throughout
332 the scoping process of near total reliance on information and representations provided by the Applicants and
333 pro-mining interests.

334

335 PUBLIC INVOLVEMENT LACKING

336 * Substantive Comment:

337 3PR questions the adequacy of the measures taken in the DAEIS to assure appropriate levels of public
338 involvement and participation, especially fair treatment and meaningful involvement of low-income and
339 minority (non-English speaking) segments of local communities, which are prevalent in many areas of the
340 CFPD, especially in rural jurisdictions such as Hardee County, an impoverished area, and DeSoto County, the
341 poorest county in Florida.. Such socially and economically disadvantaged residents represent special cases of
342 concern. They are deserving of the additional efforts needed to effectively involve and educate them
343 concerning AEIS process, and concerning the myriad of potential negative impacts phosphate strip mining will
344 ultimately have on their lives, livelihoods, and futures. They are also entitled to other supplementary and
345 ancillary considerations which are necessary in order achieve "*Environmental Justice*".

346

347 "ENVIRONMENT JUSTICE" NEEDED FOR MINORITIES AND LOW-INCOME

348 * Substantive Comment:

349 3PR questions the adequacy of the environmental analyses and accuracy of the information in the
350 DAEIS, because the "Environmental Justice Review" is inappropriate and not without bias, and because the
351 processes involved in the review were not open and transparent to low-income and minority communities. 3PR
352 also contends that low-income and minority communities may not have been appropriately informed, in
353 accordance to their special needs, and as to the potential negative impacts which continued phosphate strip
354 mining may have on their communities.

355 Definition of "Environmental Justice" (EPA's Office of Environmental Justice): "*The fair*
356 *treatment and meaningful involvement of all people regardless of race, color, national*
357 *origin, or income with respect to the development, implementation, and enforcement of*
358 *environmental laws, regulations, and policies. Fair treatment means that no group of*
359 *people, including racial, ethnic, or socioeconomic group should bear a disproportionate*
360 *share of the negative environmental consequences resulting from industrial, municipal, and*
361 *commercial operations or the execution of federal, state, local, and tribal programs and*
362 *policies.*"

363

364 It is stated in the DAEIS that "*Consistent with EO 12898, this Draft AEIS incorporates by reference*
365 *the studies conducted by the Applicants on socioeconomic conditions in the CFPD*". Firstly 3PR cannot
366 determine the meaning of "incorporate by reference" in this context because none document(s) of the
367 "Applicants" was/were referenced in this section or elsewhere in the DAEIS (as far as 3PR can determine).

368 Clearly, it is not appropriate, or in the best interests of minority and low-income populations for phosphate strip
369 mining Applicants to determine their special needs or purport to administer environmental justice. The
370 previously cited statement shows a clear conflict of interests in that the Applicants were allowed to provide data
371 and analyses, and draw conclusions which have the potential to profoundly and negatively affect public welfare
372 in regard to "*Protection of the Environment*" which is the purpose of NEPA. Executive Order 12898 is a
373 presidential order directing the federal government, and all federal agencies, to investigate the environmental
374 impacts of federal action on the lives, communities, and economies of "*minority populations and low-income*
375 *populations*". Also, there is no mention in the Executive Order of addressing these concerns at the census block
376 level as the DAEIS suggests. Quite to the contrary, the Presidential Memorandum that accompanied the
377 Executive Order speaks only about communities and specifically cautions that minority and low-income
378 "communities" may be missed and that "distortion" may occur by using census data (USEPA 1997).

379 *The fact that census data can only be disaggregated to certain prescribed levels (e.g.,*
380 *census tracts, census blocks) suggests that pockets of minority or low-income communities,*
381 *including those that may be experiencing disproportionately high and adverse effects, may*
382 *be missed in a traditional census tract-based analysis. Additional caution is called for in*
383 *using census data due to the possibility of distortion of population breakdowns, particularly*
384 *in areas of high Hispanic or Native American populations. In addition to identifying the*
385 *proportion of the population of individual census tracts that are composed of minority*
386 *individuals, analysts should attempt to identify whether high concentration "pockets" of*
387 *minority populations are evidenced in specific geographic areas.*
388

389 *Four specific actions were directed at NEPA-related activities, including:*
390 *1. Each federal agency must analyze environmental effects, including human health,*
391 *economic, and social effects, of federal actions, including effects on minority communities*
392 *and low-income communities, when such analysis is required by NEPA.*
393 *2. Mitigation measures outlined or analyzed in EAs, EISs, or Records of Decision (RODs),*
394 *whenever feasible, should address significant and adverse environmental effects of*
395 *proposed federal actions on minority communities and low-income communities.*
396 *3. Each federal agency must provide opportunities for community input in the NEPA*
397 *process, including identifying potential effects and mitigation measures in consultation with*
398 *affected communities and improving accessibility of public meetings, official documents,*
399 *and notices to affected communities.*
400 *4. In reviewing other agencies' proposed actions under Section 309 of the CAA, EPA must*
401 *ensure that the agencies have fully analyzed environmental effects on minority communities*
402 *and low-income communities, including human health, social, and economic effects.*
403

404 Executive Order 12898 requires federal actions to address environmental justice in minority
405 populations and low-income populations. The DAEIS does not consider the mandates of Environmental Justice
406 in its deliberation, analyses, conclusions, and recommendations.

407 Executive Order 12898 of February 11, 1994

408 Section 1-1. Implementation.

409 *1-101. Agency Responsibilities. To the greatest extent practicable and permitted by law,*
410 *and consistent with the principles set forth in the report on the National Performance*
411 *Review, each Federal agency shall make achieving environmental justice part of its mission*
412 *by identifying and addressing, as appropriate, disproportionately high and adverse human*
413 *health or environmental effects of its programs, policies, and activities on minority*
414 *populations and low-income populations in the United States and its territories and*
415 *possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the*
416 *Commonwealth of the Mariana Islands.*

417 Of the six counties intersecting the CFPD, and the three "downstream" counties which are also greatly
418 affected (Charlotte, Lee and Sarasota counties), Hardee and Desoto are the most impoverished, and support the
419 highest percentages of minorities. 2011 US Census Bureau estimates that 44.5% of the population of DeSoto
420 County belongs to minority classes, and that the per capita income in (2010 dollars) is only \$15,989. 26.9% of
421 persons (nearly double the national average of 13.9%) are below the poverty level³. 52.4% of the population of
422 Hardee County is estimated to belong to a minority. The per capita income is a mere \$14,668, with about
423 26.1% of persons (nearly double the national average of 13.9%) existing below the poverty level⁴. These two
424 counties are entitled to additional protection under the following federal action to address Environmental
425 Justice in Minority Populations and Low-Income Populations. In addition, it has been demonstrated, and
426 documented, that immigrant minorities often intentionally avoid being counted by the Census, or by
427 government. It is therefore very likely that the "actual" minority and low-income statistics for Hardee and
428 DeSoto counties may be even more dismal than officially reported. In any case, it is certain that wide-spread
429 destruction of native agriculture soils and potential farmlands, some of which have been in production for
430 decades, and extensive alterations of topography and water resources, will negatively impact these rural
431 communities whose residents traditionally derive their livelihoods from local agriculture, historically the
432 dominant industry of the region. Hardee and DeSoto counties rely almost totally on natural resources, in the
433 form of agriculture, as an economic base. Many decades are required to build the infrastructure necessary to
434 sustain such agriculture as citrus farming, truck (vegetable) farming, berry farming, cattle ranching, and others.
435 Area-wide phosphate strip mining is an exploitive, short-sighted industry, out for huge profits at the expense of
436 lands, traditions, and communities. Mining erodes agricultural infrastructure and the rural way of life by
437 temporarily moving part of the economy to an industry which merely passes through, destroying agricultural
438 land as it goes, and leaving perpetual community liabilities in its wake. Some agricultural lands recently mined
439 have been in continuous agricultural production for nearly 100 years. The traditional way of life and futures of
440 Hardee and DeSoto counties are thus threatened by mining.

441 When communities become reliant on a polluting and environmentally destructive industry for jobs
442 and tax revenues, local governments become reluctant to take actions which would avoid risks to health and the
443 environment that cost the industry money. In this scenario, minority and low-income communities usually do
444 not enjoy other benefits in proportion to the health risks and economic impacts they bear.

445 Although a great body of science exists which provides technologies which enable efficient, profitable,
446 and safe farming in areas supported by native soils, much less is known concerning the unnatural
447 rocky/marl/sand/clay/etc (Arents-Hydraquents-Neilhurst) substrates resulting from phosphate strip mining.
448 Table 1 suggests that 7,241 acres of dam-enclosed waste clay facilities (CSAs) would result from a previously
449 proposed mine at Ona as analyzed by Hazen & Sawyer (2003), and that the vast majority of native soils would
450 be transformed to post-mine substrates. The CH2M-Hill economic analysis in the DAEIS and the BOCC Ona
451 Mine economic study (Hazen & Sawyer 2003) prepared by the Hardee County Board of County
452 Commissioners, indicate that only a small number of temporary jobs will be created as the phosphate industry

³ US Census Bureau, "Quick Facts", DeSoto County, FL: <http://quickfacts.census.gov/qfd/states/12/12027.html>

⁴ US Census Bureau, "Quick Facts", Hardee County, FL: <http://quickfacts.census.gov/qfd/states/12/12049.html>

453 mines its way through the southern counties (mainly Hardee, DeSoto, and Manatee). "On average, there will
 454 be about 73 more jobs in the county each year than would exist without mining on the Ona Property"
 455 Additionally, the Hazen & Sawyer study did not consider the positive economic impacts and social values
 456 provided by non-game wildlife, safe commercial outdoor recreation, and environmental/wilderness aesthetics
 457 which benefit Hardee County, and which if further developed, could very greatly benefit the county and quality
 458 of life in the county, in perpetuity, as self-sustaining assets (FFWCC 2003). Additionally, the study did not
 459 fully investigate all aspects of the potential for increased residential and commercial development which
 460 include ranges of land uses infinitely less damaging than phosphate strip mining. The impacts of this single
 461 project (Ona) has the potential to negatively affect local communities and the environment on a large scale, and
 462 especially to reduce job opportunities for members of low-income and minority communities which
 463 traditionally rely on viable agriculture for the livelihoods in this region of Florida, and which, unfortunately,
 464 generally have much lower educational attainment than whites and certain other segments of society.

Table 1

Land Use on the Ona Property by Scenario (Acres)

Scenario	Year					
	1	10	20	30	40	50
Mine						
Mined This Year	320	800	800	0	0	0
Mined Out - Unreclaimed	0	1,084	854	0	0	0
Reclaimed Areas						
Natural Systems / CSAs (CSAs total 6,269 acres)	0	1,284	5,844	7,241	7,241	7,241
Agriculture – Cow-Calf	0	992	4,662	8,595	8,595	8,595
Agricultural Uses On Land Not Yet Mined						
Improved Pasture	7,314	3,474	306	306	306	306
Wooded Pasture	637	637	269	269	269	269
Other	146	146	114	27	27	27
Rangeland	3,053	3,053	524	524	524	524
Natural Areas	9,164	9,164	7,288	3,713	3,713	3,713
Residential and Related Infrastructure	41	41	15	1	1	1
Total	20,675	20,675	20,675	20,675	20,675	20,675
Phosphate Production (Tons)	1,613,440	4,033,600	4,033,600	0	0	0

(Source: Hazen & Sawyer, 2003)

465
 466
 467 3PR additionally questions the adequacy of the environmental analyses in the DAEIS, because
 468 independent, site-specific research (Hazen & Sawyer 2003) indicates that mining will be at the expense of
 469 viable agriculture, long-term economic growth, future development, and protection of the environment, water
 470 resources, and public health. Minorities and low-income residents are invested in their communities the same
 471 as other classes. No matter where they live in a jurisdiction (county) their lives will be negatively affected by
 472 phosphate strip mining. The economic profits of mining can never compensate for ecosystem destruction, or
 473 repair the damage to soils, aquifers, and geology. Only a small fraction of the residents of Hardee and DeSoto
 474 are employed by mining, the vast majority of profits of which benefit external destinations and entities. To
 475 allow phosphate strip mining to move through a county, or in this case an entire region, leaving a wasteland in
 476 its wake, is not Environmental Justice. In the case of Hardee County, and as explained previously, such far-

477 reaching and diverse impacts as associated with phosphate strip mining will disproportionately affect minorities
478 and those of low-income.

479 The majority of residents living within the southern half of the CFPD, mostly Hardee and DeSoto
480 counties, either do not have a computer with Internet service, or do not have adequate Internet performance to
481 effectively acquire and manage the documents involved. Not that they would actually be in a position to
482 evaluate them. Disproportionately, the residents of these impoverished, less educated, mainly agricultural-
483 based, strikingly lower socioeconomic jurisdictions, are much less able to become aware or acquire notice of
484 federal actions, to analyze and understand the consequences of such actions, or effectively respond or comment.
485 In many cases these residents do not possess an adequate level of education to comprehend the significance of
486 the proposed action. This neglect is compounded by the fact that little or no effort has been made to
487 specifically ensure that these special classes have been made aware of the scope, level of impacts, and long-
488 term implications and consequences of the proposed, extensive, phosphate strip mining. In addition large
489 percentages of these populations are minority classes, mainly Hispanic. Significant portions of the populations
490 of Hardee and DeSoto counties do not read or speak English, or only marginally understand, read, or speak
491 English as a second language. An exclusion of minorities, poorer classes of people, and less educated people
492 has occurred through lack of consideration of their special circumstances in the development of the DAEIS, and
493 in phosphate strip mining matters in general. This is evidenced by their lack of participation proportionate to
494 their population shares in DeSoto and Hardee counties. The minority classes in particular are not represented,
495 or are poorly represented in local politics and government. Many do not hold jobs with industries that will pay
496 them to attend public meetings, such as the phosphate industry. Such matters represent class discrimination
497 based on national origin, race/color, and education, and are important "Environmental Justice" concerns not
498 considered in the development of the DAEIS, or in the large permit applications currently being considered for
499 approval which are intrinsically the subject and current focus of this federal action.

500 Because the minority and low-income classes, particularly those of Hispanic origin, represent the
501 fastest growing segment of the populations of Hardee and DeSoto counties. Hispanic people will soon become
502 heir to these counties, both socially and politically. Sadly, they are also destined to inherit the extreme
503 liabilities and other negative legacies of area-wide phosphate strip mining. These generally include, but are not
504 limited to, extensive clay waste facilities, wholesale ecosystem and wildlife habitat destruction, degradation and
505 alteration of wetlands, creeks, streams, and water resources, elevated radiation levels, and pollution and spills of
506 various types from various sources. The DAEIS is inadequate and inaccurate in that it does not specifically
507 provide planning considerations for this social change, or social phenomenon, in consideration of the
508 community impacts and economic shifts associated with phosphate strip mining.

509 As previously indicated, many extreme environmental impacts, and many crucial environmental issues
510 are directly involved in large-scale phosphate strip mining and its related industries. Much has been reported
511 and published concerning the negative effects of such mining on minorities and low-income residents, and on
512 their impoverished communities.

513 Unfortunately, because of the completely inadequate amount of time provided by the USCOE/USEPA
514 to obtain and comment on the contents of a 1,063 page report, 3PR can only respond on a few issues. Because

515 an insufficient amount of time was allotted for review and comment, this too is inconsistent with ensuring
516 "Environmental Justice". It is not merely a deficiency in providing for the special rights of the low-income
517 residents, impoverished communities, and minorities, which are guaranteed through special consideration, but
518 communication of important issues and concerns, which in such communities requires a significant special
519 effort because such citizens have less education, financial means, time, and lack access to the technical
520 resources needed to read, verify, and comment on such a voluminous and technically specialized document as
521 the DAEIS.

522 Of additional significance and concern with the abbreviated comment period allotted the DAEIS, is
523 that the document contains a large number of very complex and technical alternatives, each of which would
524 independently require substantial time and resources to evaluate. Even to verify and comment on a single
525 significant issue, such as hydrologic impacts, may require months. The DAEIS is thus further inadequate and
526 deficient in that it contains a highly excessive amount of technical information. This is discussed further later,
527 but in essence, the DAEIS does not only treat the geographic area involved as a single area-wide project, but
528 includes many renditions of multiple subprojects, which must each be analyzed separately.

529 Lisa F. Garcia, senior adviser to the EPA administrator for environmental justice, emphasized the
530 importance of advancing environmental justice and the goals of Plan EJ 2014, "*Far too often, and for far too*
531 *long, low-income, minority and tribal communities have lived in the shadows of some of the worst pollution,*
532 *holding back progress in the places where they raise their families and grow their businesses. Today's release*
533 *of Plan EJ 2014 underscores Jackson's ongoing commitment to ensuring that all communities have access to*
534 *clean air, water and land, and that all Americans have a voice in this environmental conversation.*"

535 The DAEIS is therefore inadequate and requires reconsideration of all environmental issues, and
536 introduction and of additional/new environmental data, analyses, and issues relevant to the well-known
537 negative impacts of phosphate strip mining on low-income poverty stricken and high-minority communities and
538 jurisdictions. In addition, the DAEIS is inaccurate because environmental analyses did not consider the
539 particular and unique needs of minority populations and low-income populations as required by executive
540 order. Changes and revisions are required throughout the DAEIS in order to correct this legal and moral
541 deficiency.

542 * Recommendation:

543 A comprehensive Environmental Justice analysis should be performed for Hardee and DeSoto
544 counties. The development of data and analyses should include a broad effort to extensively involve and
545 objectively educate the residents of these communities as to how their lives, jobs, properties, and other interests
546 may be impacted by area-wide phosphate strip mining.

547

548 CUMULATIVE IMPACTS NOT CONSIDERED

549 * Substantive Comment:

550 3PR questions the accuracy of information and adequacy of environmental analyses contained
551 throughout the DAEIS, and contends that it is deficient in describing and characterizing the "actual" current,
552 historic, and projected negative effects of regional phosphate strip mining, both individually for the four

553 proposed mines, and cumulatively for all mining, and the CFPD. 3PR asserts that the following mission
554 statement and stated purpose of the AEIS is not accomplished through the current draft (DAEIS).

555 *"Based on the continued applications for expanded mining in the CFPD, the size of the*
556 *project area, the CFPD characteristics, and the **potential environmental impacts, both***
557 ***individually and cumulatively**, of the proposed actions, the Corps will prepare an*
558 *Areawide Environmental Impact Statement (AEIS) in compliance with the National*
559 *Environmental Policy Act (NEPA) to render a final decision on the permit applications."*
560

561 Many important issues and negative impacts resulting from individual and cumulative effects of large-
562 scale phosphate strip mining are not identified or discussed in the DAEIS and essential "current" and
563 "independent" data and analyses are omitted or not referenced. The DAEIS does not include or consider
564 important basic issues relating to large-scale destruction of ecosystems, the irreparable area-wide impacts to
565 native soils and geology, the destruction of irreplaceable flora and fauna, the elimination of gene pools, or the
566 reduction of biodiversity. Neither have the resources at risk been adequately or competently characterized or
567 quantified, but only generally or vaguely, mainly through data supplied by the Applicants, and from generic
568 sources.

569 3PR therefore contends that the DAEIS is insufficient for the purposes of evaluating the discrete,
570 direct, or cumulative and ongoing impacts of phosphate strip mining in west-central Florida, and in providing
571 for the stated NEPA purpose of "*Protection of the Environment*". These significant issues and others are
572 presented in more detail in the substantive comments in the following sections.

573 * Recommendation:

574 Many questions concerning the cumulative impacts of phosphate strip mining on ecosystem services
575 must be answered before any further consideration of mining is entertained:

- 576 • What is the relative impact of the various mining-related activities upon supply of
577 ecosystem services.
- 578 • To what extent have various ecosystem services already been impaired by mining,
579 and how are impairment and risk of future impairment distributed as a result of
580 mining.
- 581 • To what extent are the different ecosystem services in the study area interrelated.
- 582 • How does damaging one ecosystem service influence the functioning of others.
- 583 • What proportion and spatial extent pattern of land (ecosystems and restorable
584 areas) must remain undisturbed with the study area in order to sustain the delivery
585 of essential ecosystem services.
586

587 "The human economy depends upon the services performed "for free" by ecosystems. The ecosystem
588 services supplied annually are worth many trillions of dollars. Economic development that destroys habitats
589 and impairs services create costs to humanity over the long term that may greatly exceed the short-term
590 economic benefits or the development. These costs are generally hidden from traditional economic accounting,
591 but are nonetheless real and are usually borne by society at large. Tragically, a short-term focus in land-use
592 decisions often sets in motion potentially great costs to be borne by future generations" (Daily 1997).

593

594 LOSS OF BIODIVERSITY IGNORED

595 * Substantive Comment:

596 3PR vehemently objects to the accuracy of the information and adequacy of the environmental
597 analyses in the DAEIS, because the USCOE has not considered the extremely important issue of "loss of
598 biodiversity. Agency action(s) may therefore contribute greatly to the decline of biodiversity in the Southwest
599 Florida Flatwoods Ecoregion, and contribute to losses globally. Biodiversity declines are not limited to
600 increased rates of species extinction, but include losses of genetic and functional diversity across populations,
601 communities, and ecosystems (Chart 1).

602 "The wide-ranging decline in biodiversity results largely from habitat modifications and destruction,
603 increased rates of invasions by deliberately or accidentally introducing non-native species (such as
604 "cogongrass", and the many weeds and non-native species encourage by the effects of phosphate strip mining)
605 or over-exploitation (like phosphate strip mining) and human-caused impacts. (Naeem 1999).

606 "At a global scale, even at the lowest estimated current extinction rate, about half of all species could
607 be extinct within 100 years. Such an event would be similar in magnitude to the five mass extinction events in
608 the 3.5 billion year history of life on earth." (Naeem 1999). In view the chart below it must be considered that
609 "genetic" extinctions occur when a significant portion of a local gene pool is lost/depleted, or when essential
610 genetic traits necessary for reproduction and survival are lost or weakened. Phosphate strip mining has already
611 mostly deleted the gene pools of many species, over wide regions, many of which were mostly locally
612 developed and adapted. A cumulative analysis of genetic erosion caused by the industry is needed.

Chart 1

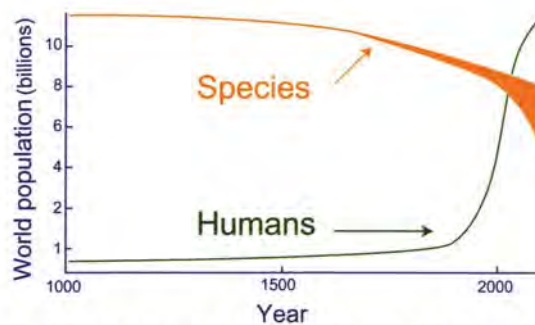


Figure 1 - The predicted decline of biodiversity in association with increases in human populations. Estimates for global biodiversity loss are between 50 and 75% by 2100, but in many transformed habitats, such as crop farms, local declines of similar magnitude have already occurred. (From Soulé 1991 Science.)

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615 "Unprecedented changes are taking place in the ecosystems of the world." "Recent evidence
616 demonstrates that both the magnitude and stability of ecosystem functioning are likely to be significantly
617 altered by declines in local diversity, especially when genetic diversity reaches the low levels of managed
618 ecosystems" (Naeem 1999).

619

- Human impacts on global biodiversity have been dramatic, resulting in unprecedented losses of global biodiversity at all levels, from genes and species to entire ecosystems.
- Local declines in biodiversity are even more dramatic than global declines.
- Many ecosystem processes are sensitive to declines in biodiversity.

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- Changes in the identity and abundance of species in an ecosystem can be as important as changes in biodiversity in influencing ecosystem process.

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The DAEIS, as written will encourage an onslaught unbridled phosphate strip mining, which will result in permanent large-scale gene pool loss and genetic erosion through irreplaceable destruction of many plant and animal populations, and in the elimination of much of the few remaining large tracts of native ecosystem in the region. The secondary and tertiary impacts of this ecological disaster will extend into the surrounding counties and regions, and far beyond because, due to its vast scale and severity phosphate strip mining is one of the largest single offenders of the environment in Southeastern United States.

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OBJECTION TO DAEIS REVIEW TIME LIMIT

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Substantive Comment:

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3PR objects and questions the excessive length of the DAEIS, and to the completely insufficient 60-day time period allotted for review and comment. This restriction is both unreasonable and untenable for any person, any group, or any agency. The length, unnecessary complexity, and lack of clear succinctness, is inconsistent with NEPA, which requires that an EIS not just "*generate paperwork*", but that it should "*reduce paperwork and the accumulation of extraneous background data*". NEPA recommends that such documents be less than 150 pages long, or normally less than 300 pages for more complex proposals. The 1,063 page length of the DAEIS is highly excessive, and exceeds the maximum of these recommended standards by well over three fold. In effect, its extreme length and complexity precludes review and comment on all but a few of the important issues and, in so doing, violates the public trust, greatly diminishes public participation, and suppresses public scrutiny.

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The severe time limit restriction for the DAEIS review and comment has the effect of censoring and effectively precluding public involvement. The USCOE should have mailed every resident a succinct description of the proposed action, including simple summaries which explain the project and describe prior phosphate strip mining, in terms the layperson can understand, including a wide range of photos showing the impacts of phosphate mining from the air and ground, and listing and showing all environmental impacts and concerns. The public must be much more broadly and fully informed about phosphate strip mining so that communities will possess "real" information upon which to base their public involvement and their actions.

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In addition, the USCOE, almost simultaneously issued notice four individual and distinct mine permit applications which include impact areas totaling approximately 60,000 acres. These documents and related materials are individually voluminous and include many separate exhibits and appendices, and they are repeatedly referred to in the DAEIS. The effect of overlapping the DAEIS review with such vast libraries is that only the most minimal comments are possible:

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40 CFR 1500.1 Purpose

*(c) Ultimately, of course, it is not better documents but better decisions that count. NEPA's purpose is **not to generate paperwork**--even excellent paperwork--but to foster excellent action.*

40 CFR 1500.2 Policy

664 (b) *Implement procedures to make the NEPA process more useful to decisionmakers and*
665 *the public; to **reduce paperwork and the accumulation of extraneous background data;***
666 ***and to emphasize real environmental issues and alternatives.** Environmental impact*
667 *statements shall be concise, clear, and to the point, and shall be supported by evidence*
668 *that agencies have made the necessary environmental analyses.*

669 40 CFR 1502.7 Page limits.

670 *The text of final environmental impact statements (e.g., paragraphs (d) through (g) of Sec.*
671 *1502.10) shall normally be less than **150 pages** and for proposals of unusual scope or*
672 *complexity shall normally be less than **300 pages**.*
673

674 Concerned citizens, and interested parties and organizations, have therefore been completely
675 overwhelmed by the amount of documentation contained in these documents, and by the scope of the ancillary
676 documents, research publications, regulations, and website materials which must also be collectively digested
677 and considered in responding to the DAEIS.

678 Because of the immense, once-in-history importance of the DAEIS, and consideration of the four
679 expansive phosphate strip mining projects, 3PR is compelled to continue and thoroughly articulate this
680 significant issue, and further object to the unnecessary length and complexity of the DAEIS (included its related
681 documents and sources). The public is entitled to a fair and liberal opportunity to thoroughly evaluate the
682 DAEIS, because "*public scrutiny is essential to implementing NEPA*", and because the resulting Area-wide
683 EIS will in large part determine the destiny of an entire region and ultimately affect the lives of millions of
684 people. As phosphate strip mining has done historically, it will most certainly leave a legacy of environmental
685 and economic liability, in perpetuity, resulting from its diverse and comprehensive negative environmental
686 impacts. This is true because phosphate strip mining is non-renewable, non-sustainable. It is a here-then-gone,
687 purely exploitive industry, which leaves an extensively altered and often abandoned, or forgotten, alien
688 landscape in its wake. See Photos 1 through 7.

689 A thorough review of the DAEIS document alone, not including the time and resources needed to
690 verify any of the data or analyses, would require many months. Advertising for and contracting professional
691 consultants capable of performing a thorough review of such a vast and diverse region, involving such a huge
692 number of severe cumulative impacts and other issues, requires considerable time in itself. A 60-day comment
693 timeframe may be acceptable for a very small, single project, which does not involve native ecosystems and
694 water resources impacts, but is completely inadequate for an action involving a geographic area as great as that
695 of the CFPD, which considers such a large range of extreme environmental impacts, and a report of such
696 magnitude, complexity, and length as the DAEIS.

697 The DAEIS is a technical document involving terminology, data and analyses from many specialized,
698 even unique fields of industry and science. Its development has taken the USCOE, its cooperating agencies,
699 CH2M-Hill (one of largest industry-support consulting firms of its kind), other consultants and advisors,
700 phosphate representatives and employees, and personnel from various agencies, many months to develop. Even
701 if the resources of private sector organizations and government commenters were unlimited, it would be
702 impossible for even a minimal review of the DAEIS in a just 60 days. In order to perform a review and
703 comment on such a voluminous and technical document, and to actually verify some of the data and analyses
704 provided, a much greater span of time would be required, including time for the field verifications, essential

705 investigations, and other analyses necessary to generally evaluate and objectively verify the thousands of
706 statements of the DAEIS, and the actual extent, attributes, and status of ecological/biological resources within
707 the CFPD.

708

709 RELATED DOCUMENTS LARGE OR INACCESSIBLE

710 * Substantive Comment:

711 In addition to the excessive length and complexity of the DAEIS, the document states that information
712 has been taken from a number of other voluminous publications, either by incorporating them by reference, or
713 by vaguely alluding to them, as in Chapter 1.7, "*These documents have helped to inform the USACE as it*
714 *developed this AEIS on phosphate mining in the CFPD*". Precisely 9 major documents were referred to in
715 Sections 1.7.1 thru 1.7.9. There is no mention of precisely what information, or conclusions were adapted from
716 these documents. Although the USCOE may incorporate by reference, the inclusion of entire encyclopedic
717 documents without references to the specific information or sections used, is both unreasonable and untenable.

718 Further, the four phosphate strip mine permit applications simultaneous noticed for review and
719 comment, are referred to repeatedly throughout the DAEIS (e.g. ES.5.2). To 3PR's knowledge, these
720 documents were not previously and formally made available to the public, or either their availability was not
721 widely advertised or known.

722 Also, copies of the publications cited in Chapter 7 "References" are not included in the DAEIS. Many
723 of these can only be obtained in physical form from distant repositories, or from paid digital document services,
724 or may not be publicly or conveniently available at all. This problem adds significantly to the time and
725 resources needed for review and comment and, in many instances, precludes objective verification where
726 information from these references may have been cited or incorporated into the DAEIS.

727 A related issue is that private research and possibly other documents have been submitted to the
728 USCOE by the Applicants, some of which are in-house reports or letters, or unpublished studies conducted by
729 private concerns which have been presented in legal arguments relating to the interpretation of provisions for
730 the development of the DAEIS, or the process through which it was to be developed, although not cited in the
731 DAEIS. There is no reasonable means, other than continuous Freedom of Information Act requests for "any
732 new documents", through which 3PR could officially become aware of these reports, or gain insight into the
733 degree to which they may have been considered in the review and/or development of the DAEIS.

734 3PR therefore questions the adequacy of the DAEIS, and the accuracy of its information, in that it does
735 not cite these documents, and therefore circumvents or diminishes the NEPA "*public scrutiny*" requirement.
736 These include, but are probably not limited to, the following documents cited in a 25-Apr-2010 "hand-
737 delivered" letter from Deedra Allen (Mosaic):

738 *Potential Future Mining Areas in the Central Florida Phosphate District, Environmental*
739 *Consulting, Technologies, Inc.*

740

741 *Water Quantity Issues Associated with Phosphate Mining, Dr. John E. Garlinger, Ardaman*
742 *Associates, Inc.*

743

744 *Stream Condition Assessments and Stream Reclamation in the Central Florida Phosphate*
745 *Mining District, Environmental Consulting & Technology, Inc.*

746 *Characterization of Forested Seepage Swamps on Mosaic Lands in the Bone Valley of West-*
747 *Central Florida, Dr. Shirley Denton, Cardno ENTRIX.*
748
749 *Why we need to mine Phosphate Rock in the United States, Ken Nyiri, CRU.*
750
751 *Surface Water Quality Associated with Central Florida Phosphate Mining, Dr. Douglas*
752 *Durbin, Cardno ENTRIX.*
753
754 *Comments and Corrections of the Peace River Cumulative Impact Study, Joshua W. House,*
755 *Mosaic Fertilizer LLC.*
756
757 When 3PR asked for a copy of one the documents from its author, the request was politely refused by
758 stating "I'll have to get permission from our (phosphate mine) client".
759

760 DAEIS INAPPROPRIATE AND POOR QUALITY

761 * Substantive Comment:

762 In addition to all other issues commented on herein, 3PR has determined that a very large number of
763 errors, omissions and internal inconsistencies exists in the DAEIS. These include, but are not limited,
764 inconsistencies in various wetland acreages of wetlands to be dredged, mining and reclamation time periods,
765 incomplete and inaccurate tables, large quantities of included irrelevant, erroneous, and misleading pro-
766 phosphate-mining content which read like phosphate company sponsored newspaper and TV ads, grammatical
767 and organization errors, and countless omissions of important data, analyses, tables, maps and exhibits readily
768 available from public sources. Often highly significant issues and concerns are ignored, omitted, or summarily
769 dismissed with little or no analysis or comment. The DAEIS is obviously, for many reasons, not a product
770 which should have been presented to the public for review and comment. The USCOE must consider the
771 unnecessary expenditures of time and resources, and other impacts to the citizens, businesses, and other
772 organizations which are concerned with phosphate strip mining, in releasing such an inappropriate proposal for
773 public review and comment. The DAEIS should be concise, accurate, objective, and soundly supported by data
774 and analysis developed and presented independent of the Applicants.
775

776 PERMIT DURATIONS FAR TOO LONG

777 * Substantive Comment:

778 3PR objects to the issuing of phosphate strip mine permits (such as 404 CWA and other permits and
779 approvals), which are valid for periods greater than 5 years. (1) Phosphate strip mining and its related activities
780 are very intensive industries which create large-scale and far-reaching impacts within short periods of time.
781 Granting long-term approvals of up to 30 years or more, and planning mining nearly 80 years into the future is
782 absurd. These massive projects disturb very extensive tracts of land, destroy large tracts of native ecosystem
783 and wildlife habitat, and induce rapid changes in local communities and economies in profound, significant, and
784 often irreversible ways. It is highly important that permits expire within reasonable periods of time so that
785 federal, state, regional, and local governments, and especially local communities, may reevaluate such projects
786 in accordance with society's constantly changing needs.

787 The durations of the permits of currently approved phosphate strip mines are unacceptable, especially
788 when the extensive negative impacts are considered collectively, that is cumulatively. To approve four new
789 mines with such extremely excessive durations is unconscionable. Considering the 300,000 plus acres of past
790 phosphate mining impacts, with the existing mine permits considered collectively, and adding the four projects
791 described in the DAEIS, the cumulative impact will be the utter destruction of much of eastern west-central
792 Florida, plus potentially massive impacts to "downstream" jurisdictions and coastal communities such as
793 Charlotte, Lee, and Sarasota counties.

794 Issuing permits and approvals for phosphate strip mining for such extended durations represents an
795 injustice to society. Such long-term approvals preclude affected communities from being able to respond to
796 changes in societal needs including, but not limited to, protection of public health and safety, changes in the
797 economy, natural disasters and disaster response, increases in the need for local natural resources including
798 food from traditional local agriculture. It is therefore essential that only the shortest possible permit durations
799 be granted.

800 * Recommendation:

801 In no case should any phosphate strip mining permits be issued or granted for time periods extending
802 five years. Within this 5-year span, permit compliance and local community must be reviewed at least
803 annually. Also, because phosphate strip mine "extensions" are actually "new" mining, all extensions must be
804 permitted as individual phosphate strip mines. No projects which do not currently have permits should be
805 granted until the historic cumulative impacts of phosphate strip mining in the CFPD have been completely
806 evaluated, and until phosphate strip mining technologies can be developed which may allow some limited
807 mining to take place in an environmentally acceptable manner. Also, the cumulative analysis is needed in order
808 to determine the additive impacts and contribution of other factors by the currently permitted or operating
809 mines.

810

811 IMPROPER PURPOSE AND NEED

812 * Substantive Comment:

813 3PR objects to the "purpose and need" as stated in the DAEIS. "The Applicants' purpose and need
814 forms the basis for the alternatives analysis. The purpose and need for an Environmental Impact Statement is
815 ***"Protection of the Environment"*** in federal actions. Nowhere is this NEPA directive found in the DAEIS. The
816 position taken by the USCOE is inconsistent with federal law, and has the effect not only of promoting
817 phosphate strip mining, but to virtually assure and predetermine that alternatives proposed by the Applicants are
818 approved (permitted). This position taken by the USCOE effectively excludes Alternative-1 ("No Action" / "no
819 permit"). It is clear that all of the other alternatives are merely additional scenarios acceptable to the
820 Applicants. In actuality, NEPA requires that ***"the agency"*** propose the ***"alternatives, including the proposed
821 action"***, not the Applicants.

822 *40 CFR 1502.13 Purpose and need.*

823 *The statement shall briefly specify the underlying purpose and need to which the agency is*
824 *responding in proposing the alternatives including the proposed action.*

825

826 * Recommendation:

827 The "Purpose and Need" for the AEIS should be changed to: "The purpose of the proposed action is
828 "Protection of the Environment" via comprehensive analysis of the direct and cumulative environmental
829 impacts of phosphate strip mining in the CFPD, and assuring the protection the natural environmental, public
830 health safety, and the conservation of water and air resources in considering federal permit applications."

831

832 MINING NOT A TEMPORARY IMPACT

833 * Substantive Comment:

834 Phosphate mining has often been presented by the mining industry as a "temporary" disturbance of
835 land. However, it is unrealistic and inaccurate to assert that a 30-plus year mining project is a "temporary"
836 disturbance, or that large-scale removal, disturbance, mixing of native soils, and construction of CSAs and
837 phosphogypsum stacks, maintenance corridors, ditches, berms, pipelines, and processing facilities, will result in
838 anything other than "major", "long-term", and complete destruction to native ecosystems, as it has with
839 phosphate strip mining in the past. Mined land, whether in the process of being mined, whether reclaimed or
840 not, is an impediment to wildlife and ecosystem function through habitat fragmentation, the creation of physical
841 barriers, altered hydrology, soil changes, and many other problems. Mined land fragments habitats and
842 prohibits wildlife from moving within their home ranges and thus restricts them from the resources needed for
843 their survival and reproduction. In addition, the disturbed, physically altered, often chemically different soils,
844 promotes the spread of nuisance and/or exotic opportunistic plant species that, under these conditions, invade,
845 exclude, and/or preclude native species and habitats on-site and, through dispersal mechanisms, jeopardize the
846 integrity of adjacent native habitats, and well beyond.

847 * Recommendation:

848 The diverse, extreme, and usually permanent impacts associated with phosphate strip mining must be
849 considered honestly. A brief tour by air and ground through the phosphate mining district will dispel any myths
850 concerning the level of impacts and destruction created by this industry. Seeing is knowing and believing.

851 Questions regarding whether phosphate strip mining should take place must be decided in an academic
852 environment, while seeking out and acknowledging the difficult problems which must be overcome in order to
853 find methods of phosphate mining which impart only acceptable impacts. Phosphate mining is an industry in
854 business for profit. From the industry's perspective its mission is no doubt to increase efficiency and make
855 more money. Profit must in no way be the basis of decision-making where the NEPA mission of "*Protection of*
856 *the Environment*" is concerned.

857

858 CUMULATIVE IMPACT ANALYSIS

859 * Substantive Comment:

860 3PR questions the adequacy of the environmental analyses and accuracy of the information in the
861 DAEIS, because it does not evaluate the ALL-IMPORTANT "cumulative" impacts which the phosphate strip
862 mining and certain associated industries have inflicted on west-central Florida. In general, the DAEIS
863 effectively avoids and obfuscates meaningful discussions and analyses relating to cumulative impacts.

864 A comprehensive cumulative analysis of all significant potential impacts must be a primary
865 requirement and prerequisite before issuing new phosphate strip mining permits. The DAEIS states "*The*
866 *temporal scope of the cumulative impact analysis is based on the overall operational periods of the four*
867 *proposed actions, plus any overlap with the operational period of the two reasonably foreseeable actions.*"
868 This concept does not include the historic impacts of phosphate strip mining, which have been extremely
869 extensive, and therefore does not constitute a cumulative impact analysis. NEPA is explicit that cumulative
870 impacts include "*past*", "*present*", and "*future*" actions regardless of their sources, scale, or scope:

871 *40 CFR 1508.7 Cumulative impact*
872 *Cumulative impact is the impact on the environment which results from the incremental*
873 *impact of the action when added to other past, present, and reasonably foreseeable future*
874 *actions regardless of what agency (Federal or non-Federal) or person undertakes such*
875 *other actions. Cumulative impacts can result from individually minor but collectively*
876 *significant actions taking place over a period of time.*
877

878 The DAEIS does not accurately identify or quantify, as required by NEPA, all of the direct and
879 indirect impacts resulting from past and on-going actions (prior to 1978). No maps, illustrations, analyses, or
880 narratives adequately or sincerely consider the incredibly massive environmental disaster of historic and
881 ongoing phosphate strip mining. Comprehensive analyses are needed in order to accurately determine the
882 existing status of significant aquatic/hydrologic/biologic resources, which in turn, are necessary to determine
883 the "real" impacts of the proposed projects on significant resources within the CFPD and in the other
884 "downstream" regions which will obviously be affected. Further, because surface and ground waters are very
885 vulnerable to incremental impacts, and because their cumulative historical impacts are overwhelmingly
886 significant, it is absolutely essential that the USCOE expand the temporal scope of the AEIS to also identify
887 and analyze all direct and indirect past major actions needed to accurately describe the direct, indirect and
888 cumulative impacts the four proposed phosphate strip mining projects on existing and projected human
889 resources and needs. That is, comprehensively evaluate all of the known and potential environmental and
890 social impacts of phosphate strip mining in west-central Florida, past, present, and future.

891 An essential element of cumulative analysis involves the phosphate strip mining industry's tremendous
892 generation of waste clays. Because waste clay disposal areas (CSAs) permanently reduce recharge of the
893 surficial aquifer and lateral base-flows to adjacent streams in the regions they occupy, the DAEIS should be
894 revised to identify, map and calculate the total acreage of clay settling areas to be constructed. Further, the total
895 of post mining pits/ponds/lakes, which also significantly reduces stream and river flows to the estuaries, need to
896 be identified and their impacts quantified. To this, add the millions of gallons per day in stream flows lost to
897 the many sinkholes created, in part, by the consumptive use and withdrawals associated with phosphate strip
898 mining. Very comprehensive and intensive analyses of the historic hydrology of the relating to the phosphate
899 mining district are needed.

900 The information and analyses provided in the DAEIS does not fully identify or quantify the many
901 adverse, permanent impacts caused by 350,000 acres of past mining (which occurred before the State's
902 Mandatory Reclamation Rule). This serious omission invalidates any conclusions assigned to cumulative

903 impacts. Ironically, the DAEIS maintains that the analysis of cumulative impacts is one of the most important
904 elements of an EIS, although the information in the document does not reflect this value.

905 Conspicuously missing from the DAEIS are photographs of the many aspects of phosphate strip
906 mining which would be informative to the public, and which would genuinely characterize and depict
907 phosphate strip mining activities, etc. The body of the document contains exactly 1 photograph of a dredge
908 peacefully floating in a lake. In reviewing the DAEIS a question arises as to how much time the USCOE
909 personnel listed in the "List of Preparers" actually spent in active and reclaimed phosphate strip mines. Most
910 how visit the phosphate mining district return with many photographs, a few artifacts, and clay-gummy shoes.

911 The current age is a digital one. We live in a "visual" world. Literacy is at an all time low in central
912 Florida, with graduates reading at or below 8-grade levels. Language is also a barrier (discussed elsewhere).
913 The DAEIS is devoid of adequate visual representation and communication appropriate to inform the general
914 public concerning phosphate mining, especially materials which would be appropriate to educate the
915 proportionally high minority and low-income populations of Hardee and DeSoto counties some of which
916 exhibit low levels of educational attainment. The DAEIS fails to communicate in every regard, through its
917 exceedingly poor organization and lack of clarity and measurability, through inestimable numbers of errors,
918 omissions, internal inconsistencies and improper content [incorporated here by reference: the DAEIS
919 additional comments submitted collectively on behalf of Manasota-88, People for Protecting Peace River
920 (3PR), Protect Our Watersheds (POW), Sierra Club Florida Phosphate Committee. The comments of which
921 speak to many technical deficiencies of the document], and because it does not attempt to accommodate the
922 general public through adhering to the NEPA requirements of concise and meaningful succinctness.

923 * Recommendation:

924 Before any new phosphate strip mining applications are considered, it is scientifically essential and
925 morally imperative that all mining, past, present, and proposed, be comprehensively evaluated in terms of its
926 cumulative impacts to the environment and human society. The analyses should include evaluations extending
927 as far back in time as records or evidence exists. See the 3PR "Significant Environmental Issues" section, and
928 other comments relating to the essential need of fully evaluating the cumulative impacts of phosphate strip
929 mining.

930

931 ADDITIONAL HYDROLOGIC / EVAPOTRANSPIRATION IMPACTS

932 * Substantive Comment:

933 3PR questions the adequacy of the environmental analyses in the DAEIS, because it fails to address
934 the tremendous negative hydrologic impacts from phosphate strip mining, past, present, and predictable for the
935 future, even though a very considerable body of very broad-ranging, multi-disciplinary scientific research has
936 determined these problems.

937 The primary land-altering and re-contouring activities of phosphate strip mining comprehensively
938 destroys watersheds and hydrology, greatly altering and compromising patterns of runoff, and regionally
939 altering aquifer recharge, especially the inducing or increasing of recharge to the IAS and FAS. The vast
940 historic areas of dry prairie (flatwoods / pine-palmetto flatwoods) are removed along with their native soils,

941 many of which included spodic horizons which restrict recharge near the soil surface and maintaining the
942 seasonally high ground water levels needed to support the ecosystem. These native soils, which are essential to
943 the self-sustaining existence of native plants and wildlife are removed by the phosphate strip mining process
944 and are replaced by unnatural Arents-Hydraquents-Neilhurst substrates. This results in profound impacts to
945 local and regional hydrology by altering low-flow and patterns of low-flow, changes in recharge (inducing or
946 reducing recharge, depending on various factors), increasing or reducing runoff (depending on various factors),
947 and eliminating or substantially altering seepage regimes, and other hydrology.

948 One of the hydrologically significant aspects of removing and/or disrupting vast regions of native soils
949 and replacing them with materials which exhibit vastly different properties, constructing many large CSAs, re-
950 contouring much of the landscape, and also creating many open bodies of water where virtually none existed
951 before, is that evapotranspiration (ET) rates and coefficients are altered over large areas. Open bodies of water
952 often have the highest ET rates.

953 A reevaluation of ET rates is needed which better establishes the moisture lost from the many open
954 water bodies and inundated areas created by the phosphate strip mining industry, whether temporary, or
955 permanent. A cumulative analysis of ET especially needed so that water lost may be determined for all past,
956 present and future phosphate strip mining..

957

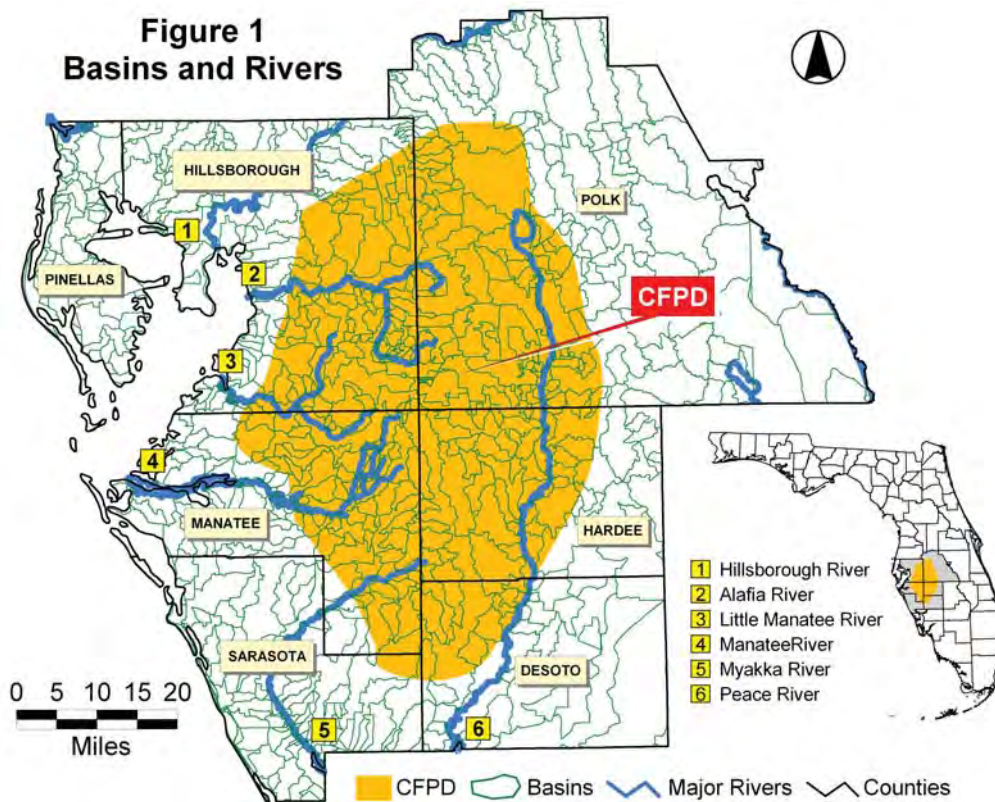
958 DESTRUCTION OF A VERY LARGE NUMBER OF BASINS

959 Substantive Comment:

960 3PR further questions the reasonableness and fairness of the abbreviated DAEIS review and comment
961 timeframe, because of the importance of the resources at risks. The CFPD includes a large portion of the
962 diverse physical and hydrologic features, and extensive environmental and biotic assets of west-central Florida.
963 As a single example, the CFPD includes vast areas in the headwaters of 7 major watersheds, and 269 drainage
964 basins (Figure 1). Of the 269 basins, 195 are entirely included, approximately 30 are about "90%" included,
965 and only about 44 are less than 90% included⁵. Although not all of this region has been mined, or is planned to
966 be mined, it is reasonable to assume that it will be mined at some time in the future. The four proposed
967 phosphate strip mining permits will impart extremely large impacts within the CFPD.

⁵ FDEP GIS data sets: Conceptual Phosphate Mineable Limit; Drainage Basins 1997 (areas).

**Figure 1
Basins and Rivers**



968
969

970 **UNQUALIFIED ECOSYSTEM STUDIES**

971 * Substantive Comment:

972 3PR questions the accuracy of information and the adequacy of the environmental analyses in the
 973 DAEIS, because it does not include adequate assessments of these native systems, or include competent site-
 974 specific (on-site) evaluations and ecosystem analyses of these irreplaceable biosphere assets as is required by
 975 NEPA. West-central Florida, and in particular the xeric uplands and certain other vegetative communities and
 976 ecosystems which occur within the CFPD, are known to support unique floras and other ecologically
 977 specialized biota. Because the vegetative communities have not been adequately classified, and their ecological
 978 requirements are unknown, it is not possible consider their values and provide the proper protection required by
 979 NEPA. In Chapter 8 "List of Preparers", the DAEIS does not list any regional experts, or any experts, qualified
 980 in the fields of systems ecology, plant ecology, or botany. Of the specialist cited as preparers of the DAEIS,
 981 Steven Gong (CH2M-Hill, Project Manager) has a zoology degree from the University of Florida, and Tunch
 982 Orsoy, (USCOE, Ecology Lead) has a marine science degree from the University of South Florida. None of
 983 the officials or scientists listed as "preparers" possessed (or possess) regionally recognized expertise with the
 984 environs of the Southwestern Florida Flatwoods Ecoregion. As commented on later, NEPA requires the
 985 agencies to be sufficiently capable of independently evaluating an EIS, including the work done by others, even
 986 though external consultants and assistance may have been retained for much of the work.

987 The expansive and diverse landscape of the CFPD, and the included regions involved in the proposed
 988 permits or alternatives fall with the Southwestern Florida Flatwoods Ecoregion, and as such, are characterized

989 by highly complex, regionally unique, combinations of topography and hydrology, and very extensive globally
990 unique ecosystems and regional wildlife food webs. Because the southern half of this region supports extensive
991 xeric upland areas that are distinctly separated from other major ridges and uplands systems (particularly in
992 Manatee County), its vegetative communities have recently been found to include additional unique endangered
993 species. Several species thought to have been extinct in the region have also been found, and additional
994 unknown taxa are under scientific review. These discoveries indicate a highly unique floristic region; one that
995 is being rapidly pushed towards extinction mainly by the phosphate strip mining industry.

996 Additionally, research in molecular phylogenetics is regularly revealing new genetically distinct
997 species, many of which are monophyletic. Areas of native ecosystems involving the four proposed phosphate
998 strip mining proposals (including all alternatives), as well as potentially restorable lands which have reasonably
999 intact native soils and geology, must be protected until genetic studies can be conducted in these regions. There
1000 is considerable potential that genetically unique taxa will be discovered in this region when such studies are
1001 conducted.

1002

1003 USCOE INSUFFICIENT CAPABILITY TO EVALUATE DATA AND ANALYSIS

1004 * Substantive Comment:

1005 3PR questions the accuracy of information in the DAEIS, because the USCOE project team does not
1006 individually or collectively possess the full in-house capability of developing a document which is technically
1007 sufficient and competent, or which would be necessary in order to evaluate the work of external consultants and
1008 sources, thereby assuring NEPA compliance. The DAEIS is therefore inappropriate for ensuring the protection
1009 of important native ecosystems and other biota, including upland ecosystems and other related considerations.

1010 *40 CFR 1507.2 Agency capability to comply*
1011 *Each agency shall be capable (in terms of personnel and other resources) of complying*
1012 *with the requirements enumerated below. Such compliance may include use of other's*
1013 *resources, but **the using agency shall itself have sufficient capability to evaluate what***
1014 ***others do for it.***
1015

1016 Ecological impacts are predicted by "*professional knowledge of plant and animal life and their habitat*
1017 *requirements, professional judgment of the biotic community's ability to withstand or respond to disturbance,*
1018 *professional experience with the impending changes and impacts, and results from similar studies, and common*
1019 *sense (a biologist who simply lists the names of organisms observed on the site - without an interpretation of*
1020 *key life histories, ecological interrelationships, and habitat requirements -- misses the primary intent of the*
1021 *environmental impact report"* (Rau & Wooten 1980).

1022

1023 UNIQUE PHYSIOGRAPHY / GEOMORPHOLOGY

1024 * Substantive Comment:

1025 3PR questions the accuracy of the information and adequacy of the analyses in the DAEIS, because
1026 values and attributes associated with unique physiography / geomorphology were not properly evaluated and
1027 considered. The important assets found in the biological, physical/geomorphologic, aesthetic, and geological
1028 uniqueness of the various physiographic regions found within the CFPD, and within the geographic extents of

1029 the four proposed phosphate strip mining projects (including the various alternatives), were all but ignored in
1030 the DAEIS. Especially lacking in the document was any thorough evaluation of impacts and measurable
1031 guidance for protecting the important resources and attributes which relate to physiography/geomorphology.

1032 Most of the various physiographic / geomorphologic features of central Florida, including west-central
1033 Florida, are known as regions of high biotic endemism and ecosystem specialization. Because, in 3PR's
1034 opinion, the preparers of the DAEIS are not qualified to evaluate these specialized features, regions, and areas
1035 of potentially high endemism, and because there is no evidence of their personnel having sufficient experience
1036 or expertise in west-central Florida ecosystems and regionally-specialized areas of biological sciences, the
1037 document is intrinsically flawed, inadequate, and inaccurate, or simply unqualified in this context.
1038 Additionally, its statements and conclusions in regard to ecosystem resources are unqualified in that no
1039 appropriate, adequate site-specific ecosystem evaluations were conducted by qualified regional biological
1040 research institutions, or qualified regional experts, using modern biological and ecological techniques and
1041 resources. NEPA requires that environmental components be properly evaluated so that the best possible
1042 decisions may be made. The data and analyses which are needed for the protection of ecosystems, specialized
1043 vegetative associations and biota are highly site specific. Species lists and general descriptions do not provide
1044 the levels of ecological understanding necessary to evaluate important NEPA conservation decisions.

1045 Aesthetic value is also a highly important value associated with geomorphology. Ridges, valleys,
1046 plain, and unique regional feature are important to the identities of people, communities, and regions. The
1047 DAEIS ignores or omits consideration of the fact that phosphate strip mining complete transforms regional
1048 character and regional and community identity. With most people, there is tremendous pride and sentiment
1049 associated with the physical and environmental character of the areas they live in.

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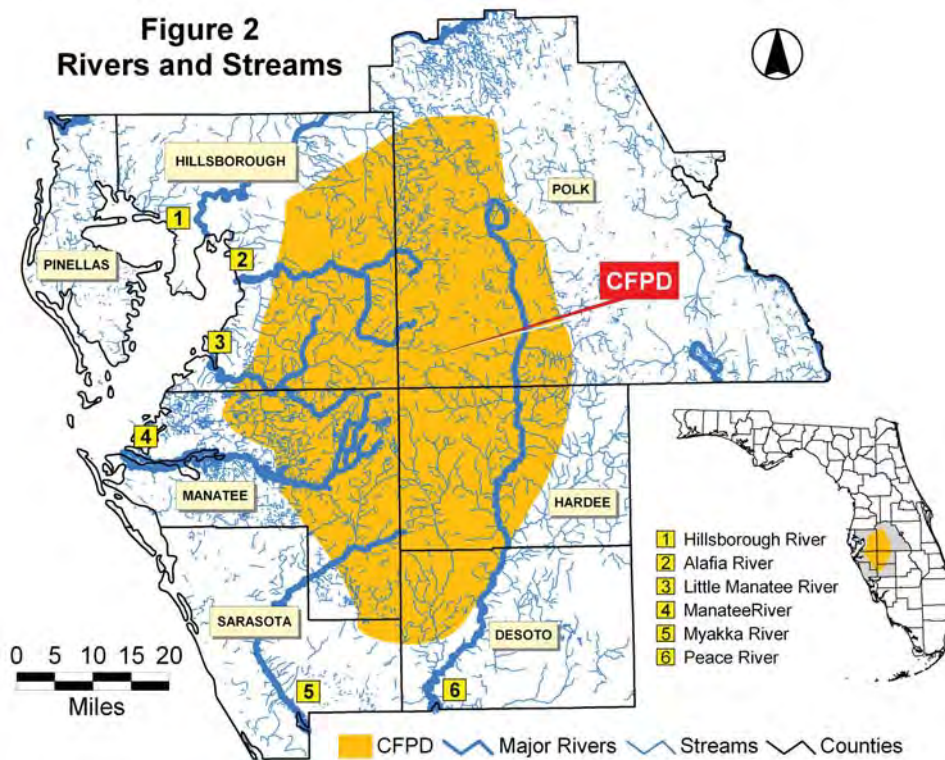
1051 PHOSPHATE STRIP MINING IMPACTS 5 MAJOR RIVERS

1052 * Substantive Comment:

1053 The region within the CFPD provides the primary sources and flows of clean, life-giving water to the
1054 numerous bays, estuaries, and inlets, both large and small, along the west Florida coast. Comprehensively
1055 destroying the vast native wildlife ecosystems in this area, and disrupting native soils and geology, will
1056 adversely impact the fisheries, marine ecosystems, essential estuary systems, wildlife sanctuaries, property
1057 values, including waterfront properties, businesses, and other coastal and "downstream" physical and
1058 environmental assets, as well as the quality of life in the most densely populated regions of west-central
1059 Florida, which are located near the coast and along rivers and waterways, mainly in Lee, Charlotte and Sarasota
1060 counties.

1061 The CFPD is the source of 5 major rivers and includes part of the drainage basins of 2 others
1062 (Hillsborough River and Withlacoochee River), 1 minor river (Braden River), approximately 150 named creeks
1063 and streams, and large number of unnamed tributaries and small streams or water courses (Figure 2).

**Figure 2
Rivers and Streams**



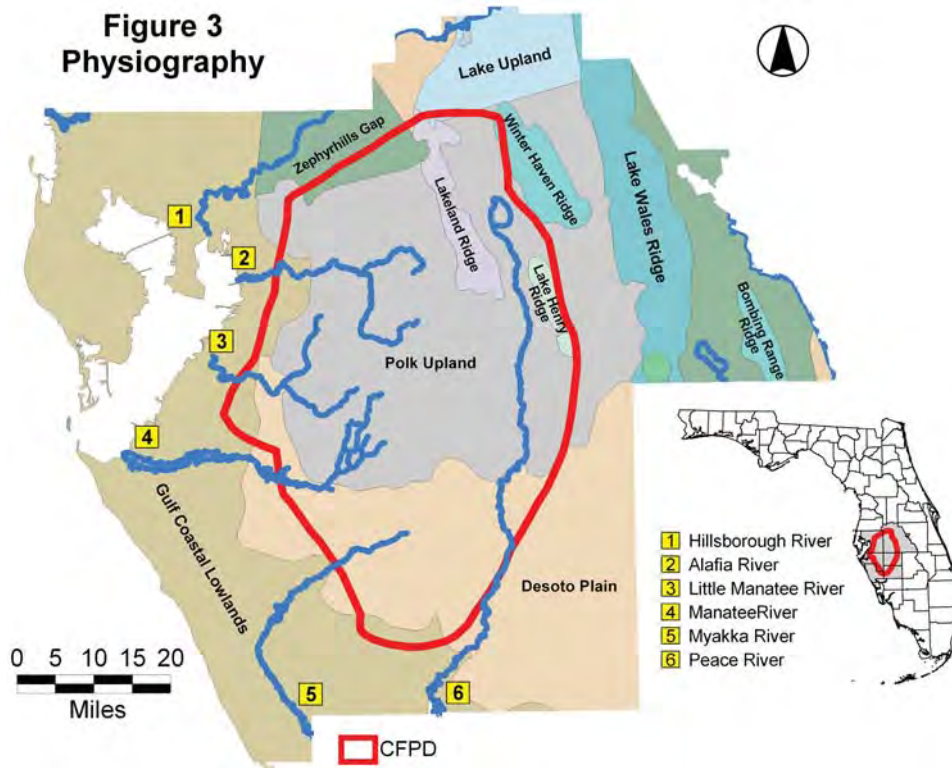
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The southern half of the CFPD in the Southwestern Florida Flatwoods Ecoregion supports one of the most dense and diverse mosaics of wildlife habitats and ecosystems extant in central and south Florida. The wildlife habitat in the CFPD represents the bulk of the little remaining high-quality wilderness in west-central Florida. This region is one of the last great repositories of Florida wilderness, and the most invaluable, self-renewing, essential and irreplaceable upstream asset upon which coastal fisheries, rookeries, and marine spawning grounds from Hillsborough County southwards to southern Lee County utterly depend. It provides primary "ecosystem services", that is, environmental sustenance for humans, animals and plant life in west-central Florida.

Because open public access to most of the lands within the CFPD has not been available, many of its great tracts of native land in Manatee, Hardee, Desoto, and Sarasota counties have not been adequately explored zoologically and floristically! No comprehensive searches have been conducted for species which may be "unknown to science". Even so, private scientists have made major discoveries including the discovery of several new plant species as well as several species formerly believed to be extinct in the region. It is clear that the DAEIS does not address the astounding diversity and concentrations of wildlife which exists in this region. Although not reported, or not accurately reported by the phosphate industry, limited local government surveys and observations have revealed ecosystems supporting a remarkable abundance of animal life as well as diverse and pristine natural plant communities. In addition to endangered flora and fauna occurring in the native ecosystems, very large populations of deer, gopher tortoise, snakes, other reptiles, turkeys, and numerous birds and other animals are abundant. Some of the native vegetative communities found within the CFPD may represent the last of their kind in west-central Florida. That is, no site-specific, current, relevant studies were

1086 conducted by independent scientists and used as a basis for development of the DAEIS in fulfilling its NEPA
1087 mandate of "*Protection of the Environment*".

1088 As stated, the vast geographic footprint of the CFPD extends across many unique landscapes,
1089 ecosystems, and physiographic features. These physiographic features/regions, generally depicted in Figure 3
1090 (based on, White 1970), are the result of distinct, and mostly independent, natural histories. Each is
1091 characterized by a unique set of soils, geology, and geomorphology. As a result of unique natural histories and
1092 other regionally specific attributes, and because of the isolating factors and pressure they apply, each region
1093 supports distinct elements of flora and fauna, and distinctly different ecosystems.



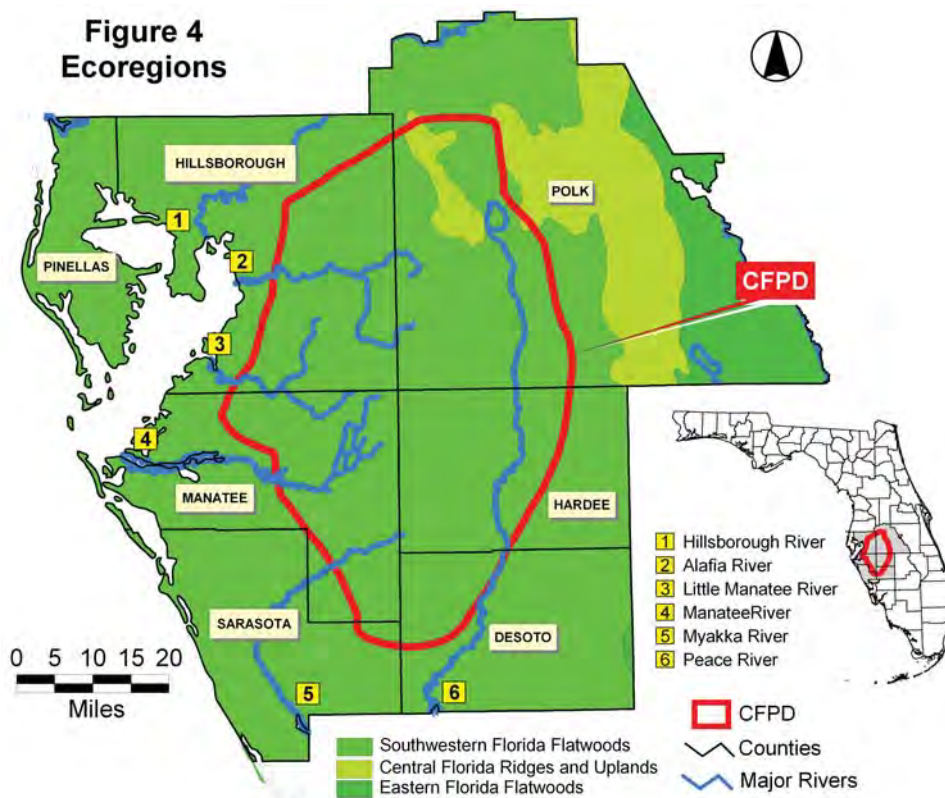
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1096 LACK OF CONSIDERATION FOR ENDEMISM AND GENETIC DIVERSITY

1097 * Substantive Comment:

1098 3PR questions the adequacy of the environmental analyses and the accuracy of the information
1099 provided in the DAEIS, because it does not adequately or accurately evaluate or consider the fact that
1100 phosphate strip mining has destroyed much of the central Polk Upland, and is currently destroying some of the
1101 last vestiges of the Lake Henry Ridge, a unique geomorphologic feature with only small fragments of its original
1102 native ecosystem remaining. Also not adequately addressed in the DAEIS, are the xeric uplands and xeric
1103 upland systems of western Hardee and eastern Manatee counties. These environs are essentially unknown in
1104 the scientific literature, are of great interest to science, and of great importance to environmental conservation.

**Figure 4
Ecoregions**



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Many important wildlife areas have been completely eliminated by phosphate strip mining and other land uses. No trace remains of entire biotic systems which once existed before phosphate mining. The DAEIS is inadequate and inaccurate in that, in the context of unique ecosystems and endemism, there is no discussion of, or consideration for, the unique geomorphology within the CFPD impact area, nor is there a discussion of the "biogeography" of the endemic and/or listed plant and animal species in these distinct, unique regions. The terms "geomorphology", "biogeography", "endemism", "endemic", "genetic", "genetic diversity", and "critical habitat" (except in the glossary), do not appear in anywhere in the DAEIS. The DAEIS does contain some discussion of physiography (i.e., "physiographic" regions), but not in the context of plant and animal endemism, specialization of ecosystems, regional aesthetic character and value, and certainly not in terms of the NEPA EIS requirement of "*Protection of the Environment*".

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Conspicuously omitted or absent from the DAEIS are investigations and discussions of plant and animal endemism. Objectively verifiable, site-specific, comprehensive ecological surveys should have been prepared specifically for the DAEIS by third parties, or recognized regional experts.

1121

SPECIAL ECOSYSTEM ANALYSES NEEDED

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* Substantive Comment:

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3PR questions the accuracy of the information and the adequacy of the environmental analyses in the DAEIS, because it does not properly characterize the invaluable, irreplaceable, and virtually (in scientific terms) "unknown" natural resources within the CFPD, including the project sites of the four proposed

1126 phosphate strip mines, including the various alternatives. If the remaining fractions of natural ecosystems and
1127 vegetative and wildlife communities are not protected through the final AEIS, a monumental ecological and
1128 environmental catastrophe will result for west-central Florida.

1129 * Recommendation:

1130 The USCOE should consult with Archbold Biological Station for the purposes of developing plans for
1131 conducting comprehensive ecosystem analyses in the regions containing the four proposed mine permits
1132 (including the various alternatives) and throughout the remaining natural areas of the CFPD. These base
1133 studies are essential for competent and objective review of phosphate strip mining applications, including the
1134 cumulative impacts which they would potentially contribute. The studies fully analyze and provide a
1135 classification system for regional vegetative communities within regional ecosystems by correlating native flora
1136 components to their essential ecological, edaphic, geologic, topographic, hydrologic, and climatic requirements.
1137 At a minimum, ecosystem classification base studies, necessary for further analyses, should be of similar design
1138 and include the same level of analysis as those conducted by the Natural Resources Flight of the US Air Force
1139 Range at Avon Park (Orzell & Bridges 2006). The cumulative effects of multiple stressors should also be
1140 analyzed for the extant ecosystem and biota of the CFPD.

1141

1142 DAEIS GENERALLY INAPPROPRIATE

1143 The DAEIS is insufficient and inappropriate in its range of content. It includes many sections of
1144 irrelevant, superfluous, and unnecessary content. Federal law required the DAEIS be clear, concise, and
1145 condensed.

1146 The DAEIS is inappropriate in that it mostly avoids the "Purpose" for issuing an Environmental
1147 Impact Statement under NEPA, which is "*Protection of the Environment*". 3PR perceives that the DAEIS
1148 disproportionately favors the desires and positions of the Applicants throughout: which is to strip mine nearly
1149 every available acre! NEPA requires that the focus of the DAEIS "*shall*" be on "*significant environmental*
1150 *issues and alternatives*", not on furthering or ensuring the goals the Applicants.

1151 The "Assessing Environmental Impact" section of The Environmental Impact Analysis Handbook
1152 (Rau & Wooten 1980) identifies several deficiencies in biotic impact assessment reporting which should be
1153 avoided:

- 1154 (1) "Evasion of possible impacts and lack of their assessment."
- 1155 (2) "Omission of pertinent information necessary for unbiased evaluation of impacts."
- 1156 (3) "Inadequate descriptions of adverse impacts."
- 1157 (4) "A plethora of biotic data or information without interpretation or correlation with
1158 possible impacts."

1159

1160 The DAEIS is inadequate and inaccurate because it clearly contains and furthers the above listed
1161 deficiencies. 3PR specifically addresses these deficiencies and provides evidence and documentation of their
1162 existence and deleterious effects on the DAEIS throughout its comments.

1163 The DAEIS "omits" discussion of elevated radiation levels relating to phosphate strip mining,
1164 including potential threats to human health and safety, plants, animals (particularly birds), and to the general
1165 environment. It "omits" discussion of the extensive infestations of the noxious species known commonly as

1166 "Cogongrass" which is and will continue to have profound and wide-spread impacts on the environment and
1167 economy of west-central Florida, particularly in and around areas of the phosphate industry's "reclaimed" lands.
1168 It "omits" important research relevant to "*Protection of the Environment*" within the CFPD, and also proper
1169 evaluations and characterization of ecosystems and biota (see quotes in next paragraph) which are important to
1170 examine in order to assure public health and safety. It is "inadequate" in that through its omissions, and
1171 generally throughout its narratives, it does not clearly and completely describe the potential adverse impacts to
1172 the environment. In fact, these impacts should be clearly and prominently tabulated for the lay person to fully
1173 comprehend, because such is a primary purpose of NEPA through public involvement, public scrutiny, and
1174 Environmental Justice. Further, the DAEIS clearly consists of a "plethora" of data and information much if not
1175 most of which is not accompanied by clear correlations to the possible or probable negative impacts of
1176 phosphate strip mining. The DAEIS is therefore unacceptable and inappropriate in these regards.

1177 The process of preparing the DAEIS should have involved the development of high-quality, site-
1178 specific, independently developed and objectively verifiable data, which should have been immediately made
1179 available for public scrutiny and certification. In terms of ecosystems and biota it is necessary that the DAEIS
1180 provide "*an evaluation of the key plant and animal species, to give an ecological perspective of important*
1181 *species present, and to evaluate the biota in a regional context. This observation comes from direct*
1182 *observation and study on the site*" (Rau & Wooten 1980). As explained in this section of 3PR's comments, and
1183 as detailed in others, the DAEIS does not provide an adequate "*evaluation of the key plant (species)*" because it
1184 is not based on current site-specific data and direct observation of the study area (the CFPD, including all
1185 permit alternatives), it does not competently list and provide relevant discussions as to the conservation of
1186 specialized, rare, or protected flora. It does not discuss the important and relevant aspects of plant endemism,
1187 and does not consider the protection of biodiversity and genetic diversity. The DAEIS is therefore inadequate
1188 and incomplete in this regard. Note: It seems important that these issues be addressed at public forums where
1189 regional experts have been invited to participate. NEPA requires that contributions to the EIS process be
1190 "solicited". An obvious deficiency in the DAEIS is a lack of knowledge and understanding concerning the
1191 environs (mainly the Flora of the southern half of the CFPD).

1192 Because of the extremely inadequate review and comment period allotted, 3PR's comments will
1193 represent only a small fraction of the many important concerns and disputable issues found in DAEIS. As
1194 expressed in detail in previous narratives, it is clear that no individual or organization would be capable of
1195 evaluating the huge amounts of data, analyses, information, external documents, and references, and respond to
1196 a reasonable number of the issues and concerns under such time constraints.

1197

1198 SIGNIFICANT ENVIRONMENTAL ISSUES

1199 * Substantive Comment:

1200 3PR asserts that the DAEIS is inadequate and inaccurate in accomplishing the legal NEPA purpose,
1201 because numerous highly significant environmental issues relating to the negative environmental impacts of
1202 phosphate strip mining, are either entirely omitted, or not adequately or accurately addressed in the DAEIS.
1203 Nowhere are these important concerns sufficiently considered, either individually, collectively, or cumulatively

1204 in full consideration of known negative impacts of historic and current phosphate strip mining. A considerable
1205 body of scientific literature exists which is omitted and ignored through the DAEIS. These highly significant
1206 and relevant issues include, but are not limited to (in no particular order of ranking):

- 1207 • Increased radiation exposure as short-term and long-term public health risks, and threats to
1208 plant and animal life.
- 1209 • Region-wide destruction of native ecosystems and vegetative communities through direct
1210 destruction or disturbance of their specific native soils and geology [of particular concern is
1211 the dependence of the native vegetative communities of the Southwestern Florida Flatwoods
1212 Ecoregion on highly specialized soils and geology].
- 1213 • Large-scale destruction of critical habitat for endangered and threatened plants and animals,
1214 including those federally listed, and those listed by local, state, and regional agencies.
- 1215 • Extensive regional habitat fragmentation involving tremendously broad gaps between intact
1216 ecosystems.
- 1217 • Vast infestations of cogongrass and other invasive, noxious, or weedy plants which dominate
1218 the disturbed, non-native, unnatural substrate left after mining.
- 1219 • Large-scale, permanent loss of genetic diversity through direct destruction of large tracts of
1220 native ecosystems, and their cumulative impacts.
- 1221 • Complete eventual destruction of 195 entire natural drainage basins in the CFPD.
- 1222 • Area-wide deforestation and its regional and state-wide impacts.
- 1223 • Lack of consideration for newly discovered/described taxa.
- 1224 • Creation of extensive above-ground clay waste disposal facilities (misnomered as "clay
1225 settling areas", CSAs, by the phosphate industry"), including their existence as permanent
1226 barriers to terrestrial wildlife, and their perpetual management requirements, and other
1227 economic and environmental liabilities.
- 1228 • Injuries and deaths associated with mining-related activities, or ancillary to the industry.
- 1229 • Extensive loss of economically viable agricultural lands, and destruction of Hardee County's
1230 rural and agricultural heritage.
- 1231 • Large-scale impairment and physical obstacles to west-central Florida transportation and
1232 future urban planning.
- 1233 • Extensive secondary pollution via wide-scale contamination of surface waters and aquifers
1234 with phosphate chemical fertilizers, such as the well-documented contamination of
1235 groundwater along the Lake Wales Ridge which, in concert with other chemical
1236 contaminants, continues to be a growing economic and environmental liability.
- 1237 • Degradation of regional aesthetics.
- 1238 • Large-scale reduction of essential wilderness lands needed for non-game wildlife and
1239 ecologically-related recreational activities.
- 1240 • The inappropriateness of allowing large-scale mitigation in exchange for the destruction of
1241 natural ecosystems.
- 1242 • The inappropriateness of offsite mitigation in exchange for the destruction of natural on-site
1243 ecosystems, which represents a 100% net loss of habitat at the project sites.
- 1244 • Loss of living space, water resources, and agricultural products which could provide for the
1245 support of hundreds of thousands of people, and probably more, as a result of future
1246 population growth.
- 1247 • Loss of future jobs and tax bases due to loss of living space and water resource degradation.
- 1248 • Historic loss of the potential for jobs, growth and development, and tax base due to phosphate
1249 land industry land ownership.
- 1250 • The phosphate industries long history of effluent spills, chemical spills and releases, both
1251 large-scale and small-scale, into wetlands, waterways, soils, groundwater, air, and into the
1252 general environment, both locally and into other regions. These include, but are not limited
1253 to, discharges which travel down the Peace River, Myakka River, and Horse Creek towards
1254 Charlotte, Lee, and Sarasota counties on the Gulf Coast of Florida (as an example, see
1255 pictorial of the 2002 Homeland Spill beginning with Photo 1).

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(a) "In late 1997 acidic process water from a phosphogypsum stack spilled into the Alafia (River), causing a massive fish kill and damage to the river's aquatic life and ecosystem."⁶
(b) Mid 2002- Homeland Mine Spill: Effluent Discharge into the Peace River, Polk County. Phosphate waste clay laden effluent discharged into the river for several days before an approximate 30-foot wide breach in an earthen dam/impoundment/containment could be repaired. The disaster was apparently caused by improper maintenance (abandonment) followed by the effects of heavy rains. The spill "silted" the Peace River for miles, fish were killed, and the floor of the adjacent wetland floodplain forest was silted with phosphate waste clay and other strip mining waste materials⁷



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1268 Except for the select few who have visited active/inactive phosphate strip mines, or have per chance
1269 flown over such devastated regions in a plane or helicopter, the general public has no conception as to the
1270 degree and magnitude of the impacts, permanency, or associated long-term liabilities and human health risks.
1271 The extensive alterations to the Florida landscape which have already occurred within the CFPD are among the
1272 most prominent collection of land disturbance features visible from space. 3PR has no doubt that the
1273 advertising conducted for the scoping meetings and the narratives, figures, and exhibits of the DAEIS, were/are
1274 inadequate to educate the general public concerning the magnitude and impacts of strip mining in west-central
1275 Florida. A very large effort, much broader in scope and intensity, should have been made to educate and
1276 engage the general public on the very profound issue of regional-scale phosphate strip mining. Involvement in
1277 the initial scoping meetings for the DAEIS was therefore unnecessarily selective and restrictive, and constitutes
1278 a general public injustice.

1279 Although at least one scoping meeting reportedly hosted over 100 attendees, a large percentage of
1280 those present were, intrinsically, representatives of the phosphate industry and various assortments of
1281 government officials, agency personnel and assistants. The public has not been adequately noticed and

⁶ FIPR - <http://www.fipr.state.fl.us/about-fipr-general.htm>.

⁷ Hardee County Dept. of Planning Development, PowerPoint report to BOCC, 2-July 2002.

1282 appropriately educated as to the extent, value, complexity, and irreplaceably of the natural resources which may
1283 be destroyed by continued phosphate mining. Neither have they been appropriately informed in clear terms,
1284 which are meaningful to laypersons, as to the vast array of regional and global consequences of destroying a
1285 large percentage of west-central Florida merely for the short-term economic gain of external interests.
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1291 The DAEIS focuses almost exclusively on fulfilling the primary economic strategy of the phosphate
1292 industry, which has been, and continues to be, to mine every available acre, without adequately protecting the
1293 irreplaceable subtropical ecosystems and extensive water resources which is destroys, and without assuming

1294 responsibility for the long-term liabilities which fall on local communities. Phosphate strip mining provides the
1295 potential for far-reaching and pervasive impacts such as contamination of surface waters and groundwater, and
1296 generally elevated radiation levels. Avoided in the DAEIS are competent evaluations of ecological resources
1297 and forthright discussions and proposals for "*Protection of the Environment*" within the CFPD, which is the
1298 sole purpose of NEPA as set forth in 40 CFR 1500.1.

1299 It is not possible to estimate the number of spills which have occurred within the CFPD, or the impacts
1300 they have had both internally on mine lands, and externally. Monitoring is lacking, and spills are seldom
1301 reported, even less often are they documented, or well-documented, as is the example in the previous three
1302 photos.

1303 * Recommendation:

1304 Comprehensive full time monitoring and auditing of phosphate strip mines (past and present) and its
1305 related industries is critically needed in order identify and evaluate spills and other discharges in a timely
1306 fashion. An analysis of the required staff, resources, and "independent" funding sources is needed.

1307

1308 DAEIS ERRONEOUS AND BIASED STATEMENTS

1309 * Substantive Comment:

1310 The DAEIS should be rewritten to contain only data and scientifically supported descriptions of
1311 environmental resources and potential impacts. Some representations made in the document, such as inferring
1312 that mining will actually improve the site, are erroneous and greatly erode the credibility of DAEIS.
1313 Additionally, a very significant body of valuable "independent" scientific research exists which is not utilized
1314 or appropriately cited in the DAEIS.

1315

1316 DAEIS NOT SCIENTIFICALLY QUALIFIED

1317 * Substantive Comment:

1318 3PR questions the adequacy of environmental analyses and accuracy of the information upon which
1319 the DAEIS was based, because seemingly little effort was expended in locating and utilizing regional
1320 environmental experts and regionally relevant biological and ecological research published by prominent
1321 institutions conducting research in conservation biology in central Florida, such as the Archbold Biological
1322 Station, the University of Central Florida, the Natural Resources Flight of the Avon Park Bombing Range, and
1323 Tall Timbers Research Station. NEPA requires that appropriate information be solicited from the public.

1324 40 CFR 1506.6 Public Involvement

1325 *Agencies shall:*

1326 *(d) Solicit appropriate information from the public.*

1327

1328 At a minimum, the DAEIS should include a comprehensive literature search, reviews, and independent
1329 biological evaluations and characterizations of ecosystems, vegetative communities, and other biota which
1330 occur within the CFPD (Palmer et al 2005). Without comprehensive and competent information there can be
1331 no analysis, and therefore no cumulative impact study. A comprehensive cumulative impact assessment must
1332 be based on high levels of data and analyses, developed from research conducted within the project area

1333 (CFPD) by independent, regionally-experienced, well-known, third-part scientists, plus a comprehensive and
1334 independent treatment of each important biological, wildlife, and ecosystem concern.

1335 Instead of independent evaluations, the DAEIS relies very heavily on representations and analysis
1336 which appear to have been provided by the Applicants, phosphate industry agents, or other phosphate strip
1337 mining proponents such as The Phosphate Council. This is a conflict of interests.

1338 The DAEIS and cumulative impact assessment should specifically include, but not be limited to,
1339 comprehensive evaluations and analyses conducted by scientists independent of the phosphate strip mining
1340 industry, which are based on site-specific data of:

- 1341 • The cumulative and compound negative effects of permanently destroying tens-of-
1342 thousands of acres of native soils crucial for the production of traditional types of local
1343 crops and foods, which are indispensable for the continuance of economically viable and
1344 flexible traditional agriculture, and which are also essential for the existence of native
1345 regional ecosystems including native vegetation associations.
- 1346 • The increased vulnerability to contamination of the IAS and FAS potentially caused by
1347 removal of the overlying SAS, and removal of the vital, irreparable, inscrutably complex
1348 and ecologically delicate upper soil layers and horizons, including, but not limited to, the
1349 spodic horizons of many dry prairie (flatwoods, pine-palmetto flatwoods) soils.
- 1350 • The destruction of thousands of acres of native wildlife habitat.
- 1351 • Increased Radium-226 and other radiological contamination in birds and other biota.
- 1352 • Destruction of thousands of acres of diverse, complex natural wetlands and waterfowl
1353 habitat, and attempting to replace such with biologically and hydrologically inferior
1354 reclaimed (artificial) wetlands which are "out of ecological context", and therefore lack
1355 natural ecological connections and interaction with elements of upland/wetland ecosystems.
- 1356 • Regionally altering surface and groundwater flows.
- 1357 • Creating tens of thousands of acres of surface disturbance and altering soils, resulting in
1358 large-scale ruderal conditions that promote endless and permanent infestations of noxious
1359 weeds and/or undesirable species, or disproportionate concentrations thereof, such as
1360 cogongrass, which are very difficult and massively expensive to eradicate.
- 1361 • Greatly increased evaporation loss potentially relating to the extensive areas of open water
1362 associated with clay waste disposal and settling/storage areas (CSAs), dewatering
1363 processes, water management, and exposed surface waters in mine pits.
- 1364 • Potentially excessive use and degradation of groundwater during the mining process.
- 1365 • The effects of ore processing reagents contained in sand tailing and waste clays which are
1366 disposed of, or used in, reclamation.
- 1367 • Climatic change which may result from regional deforestation and re-contoured,
1368 hydrologically altered, essentially treeless landscapes of many reclaimed lands.
- 1369 • Potential health and environmental risks associated with increased radiation, dust from
1370 unconsolidated, de-vegetated ground, and other environmental contaminants associated
1371 with the intensive operations of heavy industry.
- 1372 • Long-term aesthetic degradation.

1374 The DAEIS lacks specificity and measurability throughout, and is general unqualified because of
1375 inadequate, non-regionally-specific data and analyses, and "preparers" who lack adequate experience with the
1376 ecosystem and biota of west-central Florida. It does not provide adequate evaluations, conducted by objective,
1377 politically neutral third-party researchers, of the vast and irreplaceable natural resources proposed to be
1378 destroyed by mining.

1379

1380 INADEQUATE PUBLIC NOTICE AND EDUCATION

1381 * Substantive Comment:

1382 3PR questions the adequacy of the DAEIS development processes, because it did not adequately
1383 solicit for public input and participation. Regionally recognized, "independent" biological and conservation
1384 research institutions and wildlife experts were not sought out for assistance or consulted. Its meetings were not
1385 widely advertised in ways that would adequately, accurately, and appropriately characterize and stress the
1386 tremendous scope and importance of the proposal, and its potential for long-term negative impacts to human
1387 society and the environment. Public notices and advertising did not adequately or appropriately characterize
1388 phosphate strip mining and its demonstrated potential for diverse negative impacts to the environment and
1389 human society. Additionally, the DAEIS development efforts did not adequately inform the public, with
1390 concise descriptions, photos, and through multimedia, TV, and broad Internet advertising, which are the "media
1391 of today", as to the condition of previously mined properties. There was no reasonable effort made to inform
1392 the general public concerning phosphate strip mining, to depict or characterize their operations and activities, or
1393 make them aware of the condition, or uses, or other important issues relating to previously mined lands. An
1394 effective and comprehensive educational process is therefore essential in order for the general public is to gain
1395 a reasonable level of understanding, and conceptualize the magnitude and potential for negative impacts which
1396 phosphate strip mining will have on their communities. Tours of the landscape surrounding Mulberry and Ft.
1397 Meade, and the phosphate industrial processing district along SR-60 between Bartow and Mulberry would be
1398 very educational.

1399 The DAEIS scoping meeting with the largest turnout reportedly had a significant number of attendees,
1400 most of whom were representatives of the phosphate industry or government personnel. Those with the
1401 greatest vested interests will always ensure that they are overrepresented. Meetings merely involving small
1402 developments, public parks, and local issues often generate much more involvement solely by newspaper
1403 advertising. Although the DAEIS and proposed mining operations will result in impacts to tens-of-thousands of
1404 acres, involving 6 counties, and 2 watersheds (which include an additional 2 counties), only very limited
1405 advertising was provided to the public, and with virtually no "real" characterization of the extreme scale of the
1406 proposed projects and magnitude of impacts to the environment and human society.

1407

1408 SCOPE AND DETAIL OF DAEIS INSUFFICIENT

1409 * Substantive Comment:

1410 As detailed in 3PR's other comments herein, the DAEIS is highly insufficient in scope: (1) in terms of
1411 evaluations of ecosystems and biota including the cumulative effects of ecosystem destruction, in terms of
1412 Environmental Justice, in terms of omission of data, analyses, documentation, and consideration of potentially
1413 important public and environmental health concerns relating to increased radiation, omission of analyses,
1414 documentation, and consideration of wide-spread negative impacts of noxious and weedy, or non-native
1415 vegetation.

1416 The DAEIS states *"The USACE's decision will be to either issue, issue with modifications, or deny*
1417 *Department of the Army permits for the proposed actions. The Draft AEIS (DAEIS) is intended to be*

1418 *sufficient in scope to address federal, state, and local requirements and environmental issues*
1419 *concerning the Proposed Action and permit reviews."*

1420
1421 3PR demonstrates throughout its comments that the DAEIS is inadequate and not sufficient in scope,
1422 in terms of its site-specific data and analyses, and in consideration of the fact that state and local requirements
1423 and environmental issues are omitted or all but ignored.

1424 1425 DAEIS PREDETERMINES APPROVAL THROUGHOUT

1426 * Substantive Comment:

1427 Of 5,000 comments, the USCOE listed 4 "primary" issues, and 11 "other" issues. Most of these issues
1428 are general. The first issue, *"Ecological resources, including the loss of wetlands and mitigation of such*
1429 *losses"*, should be restated so that its meaning is clear. It should not presume "losses" or the "mitigation of such
1430 losses". 3PR questions the accuracy of the information in the DAEIS, because this important issue is
1431 inappropriately combined with the entirely separate issue of "mitigation".

1432 Refer to other 3PR comments in regard to the USCOE excessively relying on the Applicants,
1433 associated entities, and paid consultants for DAEIS content, and the predetermination of permit and mining
1434 approval which permeates the document.

1435 * Recommendation:

1436 3PR recommends that the first issue, *"Ecological resources, including the loss of wetlands and*
1437 *mitigation of such losses*, be bifurcated into two issues: (1) *"Large-scale and cumulative loss of ecological*
1438 *resources and wetlands"*; and (2) *"Potential for mitigation of environmental impacts"*.

1439 1440 INAPPROPRIATE DAEIS CONTENT / MINING EFFICIENCY ADVANCES

1441 * Substantive Comment:

1442 3PR questions the need for much of the *pro forma* information and bulk contained within the DAEIS,
1443 because, as previously established, it is not consistent with NEPA. Many sections, such as this one, do not
1444 further the understanding of the impacts of phosphate strip mining. Even so, improvements in phosphate strip
1445 mining technologies have merely increased the destructiveness of mining by more completely obliterating
1446 native ecosystems, and by producing vastly more waste clays and other environmentally unfriendly results, as
1447 the industry has become more "efficient" in extracting its products. Before "Technological Developments", the
1448 remaining, often parallel mine cuts, with overburden between, left some land which could be utilized for
1449 residential/commercial. Many homes have been built on such properties just south of Lakeland. However, the
1450 massive waste clay containment facilities now so prevalent in the core of the CFPD, which have resulted from
1451 so-called "Technological Developments" in phosphate processing, have precluded residential and commercial
1452 land uses over large areas of west-central Florida, and the many thousands of acres of new (planned) CSAs will
1453 continue to preclude valuable growth and economic development far into the future.

1454 * Recommendation:

1455 Comprehensive studies need to be conducted in order to determine the amount of residential and
1456 commercial development which has occurred on phosphate lands (including on CSA's) which have been mined

1457 during the last 20 years. The results of such studies will quickly reveal "true" economic and social potentials of
1458 properties in the post-mine post-reclamation scenario. Mine ownership precluded large areas of land from
1459 being developed during the recent economic boom. Likewise, future phosphate strip mining will continue to
1460 physically and environmentally obstruct residential and commercial growth in central Florida. See Hazen &
1461 Sawyer (2004).

1462

1463 INADEQUATE PUBLIC EDUCATION AND INVOLVEMENT

1464 * Substantive Comment:

1465 3PR questions the adequacy of the environmental analyses contained in the DAEIS, because the
1466 NEPA "Public Involvement" requirements were not fulfilled. This may represent a special concern because, as
1467 detailed in previous sections of 3PR's comments, significant areas within the CFPD fall into low-income and/or
1468 minority dominated categories, suggesting the need for special public involvement considerations. The areas of
1469 compliance in question include:

1470 *40 CFR 1506.6 Public involvement.*

1471 *Agencies shall:*

1472 *(b) ...In the case of an action with effects primarily of local concern the notice may include:*

1473 *(v) Notice through other local media.*

1474 *(vi) Notice to potentially interested community organizations including small*
1475 *business associations.*

1476 *(vii) Publication in newsletters that may be expected to reach potentially interested*
1477 *persons.*

1478 *(viii) Direct mailing to owners and occupants of nearby or affected property.*

1479 *(d) Solicit appropriate information from the public.*

1480

1481 3PR is not aware of the utilization of: the predominant television channels which are viewed locally
1482 within the CFPD, notices to churches within the CFPD, minority businesses and business associations within
1483 the CFPD, direct mailings to owners and occupants "nearby", but external to, the CFPD, or "affected"
1484 properties within or external to the CFPD.

1485 The effects of area-wide phosphate strip mining extend far beyond the boundaries of the individual
1486 mine project, or the CFPD, and the public involvement process should have been much more greatly expanded
1487 and comprehensive. Again, low-income and minority populations, including non-English speaking, should be
1488 entitled to an especially strong effort to educate them as to the potential impacts of area-wide phosphate strip
1489 mining on the future of their communities, livelihoods, and futures. Proportionate to the amount of land
1490 utilized and impacted, phosphate strip mining creates very few fulltime jobs for Hardee County residents.
1491 Many of such jobs are merely temporary, as mining moves southward through the county. Because phosphate
1492 strip mining eliminates farmland, an important and much discussed concern recently debated in the Hardee
1493 County "Sustainable Hardee, Visioning for the Future" process (HCBOCC 2010), the large low-income and
1494 minority populations of Hardee County may be very significantly impacted by loss of employment.

1495

1496 RANGE OF ALTERNATIVES IMPROPER AND INCONSISTENT

1497 * Substantive Comment:

1498 3PR questions the adequacy of the environmental analyses in the DAEIS, because the presentation and
1499 discussion of alternatives is internally inconsistent and avoids certain considerations relating to cumulative
1500 impacts, and cumulative impact analysis. The analyses of the alternatives would be more logically conducted
1501 according to each class of alternative, as in: "No Action", proposed, foreseeable, and potential.

1502 3PR primarily questions this section because, except for Alternative-1 ("No Action" / "no permit"),
1503 none of the alternatives significantly protect ecosystems, wetlands, water resources, soils, climate, geology,
1504 human environment, the rights of the majority of citizens, or the rights of future residents. The purpose of
1505 NEPA, which is "*Protection of the Environment*", the "*Congressional Declaration of Purpose*", which in part is
1506 to "*encourage productive and enjoyable harmony between man and his environment; to promote efforts which*
1507 *will prevent or eliminate damage to the environment and biosphere*", and "Environmental Justice", which is
1508 necessary to protect those who are most certainly not able to well represent themselves, are nowhere adequately
1509 furthered in the DAEIS.

1510 3PR questions Alternative-1 ("No Action" / "no permit") because, as discussed in a previous comment,
1511 this alternative potentially allows many of the most severe impacts of phosphate mining to continue with
1512 approval. This is inconsistent with the NEPA purpose of "*Protection of the Environment*".

1513 3PR questions the validity and intent of the DAEIS as a tool which furthers the interests of mankind.
1514 The document presents voluminous amounts of generic data, including many excerpts from public documents,
1515 some of which is appropriate, most of which is either inappropriate or unnecessary.

1516 3PR contends that "Alternative-1 ("No Mining") is the only acceptable alternative, because even this
1517 alternative will result in very extensive negative impacts through continued phosphate strip mining as the
1518 industry completes its permitted projects.

1519 3PR questions the validity of all alternatives presented in the DAEIS because they very obviously
1520 were not developed objectively and openly in the public interest. The alternatives are not reasonable in terms
1521 of their total direct negative impacts on the environment and society, especially their potential impacts to low-
1522 income and minority communities.

1523

1524 AFFECTED ENVIRONMENT ANALYSIS GROSSLY INSUFFICIENT

1525 * Substantive Comment:

1526 3PR questions the adequacy of the environmental analyses in the DAEIS, because Chapter 3.0
1527 "Affected Environment" is entirely inconsistent with the requirements of NEPA.

1528 *40 CFR 1502.15 Affected environment.*

1529 *"The environmental impact statement shall succinctly describe the environment of the*
1530 *area(s) to be affected or created by the alternatives under consideration. The descriptions*
1531 *shall be no longer than is necessary to understand the effects of the alternatives. Data*
1532 *and analyses in a statement shall be commensurate with the importance of the impact,*
1533 *with less important material summarized, consolidated, or simply referenced. Agencies*
1534 *shall avoid useless bulk in statements and shall concentrate effort and attention on*
1535 *important issues. Verbose descriptions of the affected environment are themselves no*
1536 *measure of the adequacy of an environmental impact statement."*

1537 Nowhere is the "environment" of the CFPD or the four proposed phosphate strip mine projects
1538 "*succinctly*" described in ways which would allow a reviewer to "*understand the effects of the alternatives*".
1539 And, as detailed in the other comments of 3PR, the data and analyses are definitely not "*commensurate with the*
1540 *importance of the impact*".

1541 As with all Chapters of the DAEIS, this section is difficult to follow and evaluate because of such
1542 erroneous statements as "*The CFPD study area is characterized by prevailing flat terrain. Minimal aesthetic*
1543 *impact concerns are anticipated for any proposed new phosphate mines so long as adequate berms and*
1544 *setbacks or buffers are maintained.*" The CFPD contains most of the Polk Upland, which is largest upland
1545 physiographic province in central Florida, and is characterized as "uplands", "ridges" and "slopes". Positioned
1546 within this vast upland region, which has many broadly rolling hills, and riverine/palustrine valleys and ravines,
1547 are the even higher hills of the topographically contrasting Lakeland Ridge and Lake Henry Ridge, as well as
1548 several unnamed ridges and extensive, intermittent xeric upland areas, such as is found throughout western
1549 Manatee County, and along the banks of the Peace River and major creeks. A more appropriate statement for
1550 the DAEIS, which is "*succinctly*" accurate, would be "Phosphate strip mining destroys the historic aesthetic
1551 character of each community and region it mines by excavating the hills and valleys, and replacing them with
1552 new contours surrounding massively tall, geographically extensive, rectangular dams and impoundments
1553 containing inestimable volumes of waste clays." See Photo 6.

1554 Much of DAEIS is composed mainly of "*useless bulk*" and its statements are generally inadequate and
1555 inappropriate in properly responding to NEPA requirement, because they do not responsibly characterize and
1556 evaluate the "*Affected Environment*" in a "*succinct*" manner. Also, they are very frequently contradictory.

1557

1558 SOILS ESSENTIAL TO NATIVE ECOSYSTEMS AND HYDROLOGY IGNORED

1559 * Substantive Comment:

1560 3PR questions the accuracy of information and adequacy of the environmental analyses in the DAEIS,
1561 because it does not consider that phosphate strip mining utterly destroys sensitive native soils, especially dry
1562 prairie soils, and replaces them with non-native substrates to which native vegetation and thus ecosystems are
1563 not adapted. This is a highly significant environmental issue not addressed in the DAEIS. The most important,
1564 and by far the most predominant natural (native) soils found on unmined phosphate-company-owned lands in
1565 Hardee County belong to the "poorly drained" drainage class, "B/D" hydrologic group (USDA 2012b).
1566 Because of very recent changes in the engineering criteria for hydrologic groups, extensive areas of B/D soils
1567 have been re-designated or redefined, as A/D hydrologic group. Both B/D and many A/D soils in Hardee
1568 County include the following types: Basinger fine sand, Bradenton loamy fine sand, Farnton fine sand, Felda
1569 fine sand - frequently flooded, Felda fine sand, Immokalee fine sand, Myakka fine sand, Pomona fine sand,
1570 Wauchula fine sand mapped by the NRCS. The crucial importance of protecting the integrity of these unique
1571 native soils, which are essential to mesic and seasonally wet native upland ecosystems, is discussed further in
1572 several other 3PR comments.

1573 Phosphate strip mining extensively alters the physical, chemical, and hydrologic properties of surficial
1574 aquifers and water tables. It is well documented that native upland ecosystems and vegetative communities are

1575 precisely adapted and require these special natural attributes (Orzell & Bridges 2006) (Cole et al 1994) (Huck
1576 1987). Natural native ecosystems and their specific vegetative communities are therefore precluded from re-
1577 establishment after and as a result of the soil impacts caused by phosphate strip mining.

1578 * Recommendation:

1579 The effects of converting vast areas of native soils to unnatural post-mining Arents-Hydraquents-
1580 Neilhurst substrates, which cannot support native upland ecosystems, including "dry prairie, pine/palmetto
1581 flatwoods" vegetative communities, are devastating to the natural environment. These essential ecological
1582 assets must be thoroughly analyzed and assessed, providing special attention to the cumulative negative impacts
1583 which area-wide phosphate strip mining has imparted, and will impart, to the regional ecology, native biota,
1584 genetic diversity (genetic erosion), natural hydrology, and critical bio-hydrologic regimes of the Southwestern
1585 Florida Flatwoods Ecoregion. The aerial extent of each native soil type must be correlated to the amount of
1586 each native vegetative community lost. Each native vegetative community must be fully characterized as in
1587 Orzell & Bridges (2006), because little is known of ecosystem structure in the regions west of the Lake Wales
1588 Ridge, and because numerous plant species have been recently discovered in that region which were formerly
1589 unknown to science, and which are planned to be proposed for federal listing. Evaluations must be conducted
1590 for each alternative, and for lands which have already been mined, so that negative environmental impacts may
1591 be evaluated separately, and then cumulatively.

1592

1593 COORDINATION AND CONSISTENCY WITH LOCAL AGENCIES LACKING

1594 Additionally, 3PR questions the adequacy of the environmental analyses and accuracy of the
1595 information in the DAEIS, because NEPA requires coordination and consistency with the laws and future
1596 planning strategies of state and local governments. The State of Florida Comprehensive Plan requires that.

1597 *Florida Statutes: 187.201(13)(b) Policy 5:*
1598 *Prohibit resource extraction which will result in an adverse effect on environmentally*
1599 *sensitive areas of the state which cannot be restored.*

1600

1601 As detailed elsewhere in 3PR's comments, throughout the DAEIS insufficient evidence of efforts to
1602 significantly coordinate with state and local agencies in terms of assuring consistency with their laws,
1603 regulations, and adopted land use or agency policy plans. In comparing the policies of the State
1604 Comprehensive Plan, Central Florida Regional Policy Plan, and Local Comprehensive Plans of the counties
1605 being impacted by phosphate strip mining, many inconsistencies and direct conflicts may be found. A few
1606 additional examples from the State Comprehensive Plan include:

1607 *State Comprehensive Plan*

1608

1609 *Florida Statutes: 187.201(5)(b)1 Goal: An environment which supports a healthy*
1610 *population and which does not cause illness.*

1611

1612 *Florida Statutes: 187.201(5)(b)1.2 Policy a: The state should assure a safe and healthful*
1613 *environment through monitoring and regulating activities which impact the quality of the*
1614 *state's air, water, and food.*

1615

1616 *Florida Statutes: 187.201(7)(a) Goal: Florida shall assure the availability of an adequate*
1617 *supply of water for all competing uses deemed reasonable and beneficial and shall*

1618 *maintain the functions of natural systems and the overall present level of surface and*
1619 *ground water quality. Florida shall improve and restore the quality of waters not presently*
1620 *meeting water quality standards.*
1621
1622 *Florida Statutes: 187.201(7)(b) Policy 2: Identify and protect the functions of water*
1623 *recharge areas and provide incentives for their conservation.*
1624
1625 *Florida Statutes: 187.201(7)(b) Policy 4: Protect and use natural water systems in lieu of*
1626 *structural alternatives and restore modified systems.*
1627
1628 *Florida Statutes: 187.201(7)(b) Policy 5: Ensure that new development is compatible with*
1629 *existing local and regional water supplies.*
1630
1631 *Florida Statutes: 187.201(7)(b) Policy 6: Establish minimum seasonal flows and levels for*
1632 *surface watercourses with primary consideration given to the protection of natural*
1633 *resources, especially marine, estuarine, and aquatic ecosystems.*
1634
1635 *Florida Statutes: 187.201(7)(b) Policy 7: Discourage the channelization, diversion, or*
1636 *damming of natural riverine systems.*
1637
1638 *Florida Statutes: 187.201(7)(b) Policy 8: Encourage the development of a strict floodplain*
1639 *management program by state and local governments designed to preserve hydrologically*
1640 *significant wetlands and other natural floodplain features.*
1641
1642 *Florida Statutes: 187.201(7)(b) Policy 9: Protect aquifers from depletion and*
1643 *contamination through appropriate regulatory programs and through incentives.*
1644
1645 *Florida Statutes: 187.201(7)(b) Policy 10: Protect surface and groundwater quality and*
1646 *quantity in the state.*
1647
1648 *Florida Statutes: 187.201(7)(b) Policy 14: Reserve from use that water necessary to*
1649 *support essential nonwithdrawal demands, including navigation, recreation, and the*
1650 *protection of fish and wildlife.*
1651
1652 *Florida Statutes: 187.201(9)(a) Goal: Florida shall protect and acquire unique natural*
1653 *habitats and ecological systems, such as wetlands, tropical hardwood hammocks, palm*
1654 *hammocks, and virgin longleaf pine forests, and restore degraded natural systems to a*
1655 *functional condition.*
1656
1657 *Florida Statutes: 187.201(9)(b) Policy 1: Conserve forests, wetlands, fish, marine life, and*
1658 *wildlife to maintain their environmental, economic, aesthetic, and recreational values.*
1659
1660 *Florida Statutes: 187.201(9)(b) Policy 3: Prohibit the destruction of endangered species*
1661 *and protect their habitats.*
1662
1663 *Florida Statutes: 187.201(9)(b) Policy 7: Protect and restore the ecological functions of*
1664 *wetlands systems to ensure their long-term environmental, economic, and recreational*
1665 *value.*
1666 *Florida Statutes: 187.201(13)(b) Policy 6: Minimize the effects of resource extraction upon*
1667 *ground and surface waters.*
1668
1669 *Florida Statutes: 187.201(13)(b) Policy 7: Protect human health from radiological or other*
1670 *adverse impacts associated with resource extraction.*
1671
1672 *Florida Statutes: 187.201(13)(b) Policy 8: Reduce the adverse impacts of waste disposal*
1673 *associated with resource extraction.*

1674 *Florida Statutes: 187.201(22)(b) Policy 9: Conserve soil resources to maintain the*
1675 *economic value of land for agricultural pursuits and to prevent sedimentation in state*
1676 *waters. 187.201(22)(b) Policy 9: Conserve soil resources to maintain the economic value*
1677 *of land for agricultural pursuits and to prevent sedimentation in state waters.*
1678

1679 There are very large numbers of state, regional, and local laws and regulations with which the
1680 provisions of the DAEIS are not consistent. 3PR also questions the degree to which the USCOE specially
1681 cooperated with local governments as required by NEPA.
1682

1683 WILDLIFE COMMENTS NOT RELEVANT OR REASONABLE

1684 * Substantive Comment:

1685 3PR questions the adequacy of the environmental analyses and the accuracy of the information in the
1686 DAEIS, because certain statements such as under 3.3.62 are not reasonable, irrelevant, and inappropriate. It is
1687 not reasonable or rational for the USCOE to compare "reclaimed" phosphate strip mines to the qualities of
1688 native Florida ecosystems. Improperly using excerpts from short-term, narrow studies to suggest that
1689 "reclaimed" phosphate strip mines are in any way comparable, or even partly mitigate for impacts to native
1690 ecosystems, is in no way defensible. Isolated artificial facades, demonstration projects which required great
1691 expense to create and/or maintain, and concentrations of wildlife which are temporarily (and unnaturally)
1692 attracted to water resources, where none existed before, are in no way indicative of a functioning or stable
1693 ecosystem, nor do they provide significant value. Such areas may actually represent hazards and risks to
1694 wildlife. Further, the area-wide destruction of native upland and wetland ecosystems by the phosphate strip
1695 mining industry results mainly in vast, seemingly endless regions of noxious weed infestations which also
1696 promote imbalances in animal life. 3PR objects to the out-of-context excerpts, and conjecture of paid industry
1697 consultants or contractors, which are all too often encountered in the DAEIS.

1698 Plant and animal species are products of their respective natural environments and range of
1699 environments. Except for certain generalist species, most native (indigenous) plants and animals are utterly
1700 dependent on specific native ecosystems, or similar classes of native ecosystems. Some mammals and reptiles,
1701 and (naturally) many birds, are mobile, to varying degrees. Some generalists may utilize man-altered sites from
1702 time to time, especially when they are forced to do, or are abnormally attracted to do so, or when they happen
1703 through a vast region of destruction and have no other alternative. Some species may occasionally breed in
1704 non-native areas, even though this is not a natural behavior of their biology or ecology.

1705 *"By altering the character of the environment, human beings bring about changes in the behavior*
1706 *patterns of within and between species so that most species are unsuccessful. However, the few that are*
1707 *successful reproduce quickly sometimes in explosive fashion"* (Rau & Wooten 1980). The animals which
1708 remain are pioneer-type animals that tolerate changes in food types, shelter, and have only limited relationships
1709 with other organisms.

1710 Because their natural native habitat is being destroyed on a massive scale in neighboring areas by
1711 phosphate strip mining, and by other types of development, many species will be forced to move into any
1712 available land, natural or unnatural, which is not actively being mined.

1713 Several important issues and concerns exist in relation to mined/reclaimed land. The natural
1714 ecosystems which are completely destroyed by mining, along with their highly specific and essential soils and
1715 geology, are replaced by rocky/marl/sand/clay/etc substrates (Arents-Hydraquents-Neilhurst). Because no
1716 indigenous plant species are adapted to these soils, there are no native ecosystems which can support the
1717 establishment of self-sustaining populations of animals, except for certain generalists, pest species such as
1718 rodents, and temporary or guest species. This unnatural situation introduces primary succession. *"Primary*
1719 *succession occurs in an area where life has not existed before, such as on bare rocks, tallus slopes (which are*
1720 *unconsolidated slopes, land slides, embankments, etc.), sand bars, and sand dunes"* (Rau & Wooten 1980).
1721 Lands impacted by phosphate strip mining and reclamation represent such "bare" lands and are therefore in a
1722 mode of primary succession. *"Secondary succession occurs on bare sites previously vegetated"* (Rau &
1723 Wooten 1980), but this assumes that unnatural changes to soils and geology have not occurred, and that such
1724 areas can be recolonized from intact external floral and faunal sources. Therefore, few, if any, native plant
1725 species naturally colonize these mined and reclaimed upland areas. Normally, native "pioneer species" would
1726 first colonize such areas. However, and quite the contrary in the case of phosphate lands, many such unnatural
1727 areas are immediately colonized by noxious plant species, weedy species, foreign species, and other undesirable
1728 plants which play little, if any normal ecological role in native ecosystems, or in ecosystem services, and
1729 typically provide few "real" resources to native wildlife. Some species, such as cogongrass, completely
1730 preclude the reintroduction of native plants, and the establishment of vegetative communities, and also present
1731 serious ongoing management and eradication liabilities.

1732 The Environmental Impact Analysis Handbook (Rau & Wooten 1980), which is widely used by
1733 federal agencies as a guide for developing environmental impact statements (e.g., by the Bureau of Land
1734 Management), concludes that "Unfortunately, we are finding that some of our most complex environmental
1735 problems are the result of environmental and ecological backlash. As a general rule we find that artificial
1736 projects and technological additions lead to the simplification of natural systems. This reductionism results in
1737 losses in biological efficiency, diversity, balance, and self-sufficiency of the biological community, and
1738 concomitant increase in pest species of plants and animals as escapees and weeds (Rau & Wooten 1980). Much
1739 of phosphate strip mine reclamation fits this dismal characterization precisely, especially after a few years, or
1740 after a few years without maintenance, that is, "life support". "Managed" biological systems, including
1741 "reclaimed" lands, and systems infested with noxious or non-native species, represent the lowest level of
1742 biodiversity, genetic diversity, and ecosystem services. For all intents and purposes these areas are effectively
1743 extinct. (Naeem 1997)

1744 *"Alteration or removal of natural vegetation has been the primary cause of habitat destruction,*
1745 *reduction in native plants and animals, and species extinctions. Any proposed project that will alter or remove*
1746 *the native vegetation must consider the impacts ... "* (Rau & Wooten 1980). The following represent some, but
1747 not all, of the significant adverse impacts and important issues identified by Rau & Wooten in relation to land
1748 clearing, draining and filling, changing watercourses, construction of dams and reservoirs, roads, and industrial
1749 use:

- 1750 • Habitat destruction - ADVERSE
- 1751 • Loss of shelter and food - ADVERSE

- 1752 • Loss of native plants and animals - ADVERSE
- 1753 • Reduced species diversity - ADVERSE
- 1754 • Enhances site for invasion of noxious and weed plants and animals - ADVERSE
- 1755 • Creates conditions suitable for rodent outbreaks - ADVERSE
- 1756 • Increased edge effect - ADVERSE
- 1757 • Loss of climax species (in the case of forested habitats) - ADVERSE
- 1758 • Changes in migratory patterns of birds and wildlife - ADVERSE
- 1759 • Interference with migratory routes or normal movement of animals (in the case of roads) -
- 1760 ADVERSE

1761
1762 3PR questions the adequacy of the environmental analyses and accuracy of the information in the
1763 DAEIS, because it does not provide "*accurate scientific analysis*", "*expert agency comments*", but relies
1764 disproportionately on representations made by the Applicants. Representations made by the Applicants
1765 intrinsically further their needs, and consequently do not fulfill the NEPA purpose of "*Protection of the*
1766 *Environment*".

1767 3PR considers that the AEIS process has been inadequate in effectively soliciting, advertising, and
1768 recruiting the independent expert assistance and judgments which are necessary in order to ensure adequate
1769 "*public scrutiny*". NEPA requires that "*Agencies shall: Solicit appropriate information from the public*". The
1770 DAEIS is therefore not founded on "*decisions that are based on understanding of environmental consequences,*
1771 *and take actions that protect, restore, and enhance the environment.*" NEPA required that "*Environmental*
1772 *impact statements shall be concise, clear, and to the point, and shall be supported by evidence that agencies*
1773 *have made the necessary environmental analyses.*" Many sections of the DAEIS present no clear point, and are
1774 not measurable, or supported by data and analyses.

1775 Even if the soils and geology of the natural ecosystems which phosphate mining destroys were
1776 preserved, local gene pools would have been destroyed by clearing away natural vegetative communities, thus
1777 creating severe regional genetic erosion, which causes essential adaptations (genes/genetics), which may have
1778 taken millennia to develop, to be permanently lost! Genetic erosion occurs because each individual organism
1779 has many unique genes which get lost when it dies without getting a chance to breed and reproduce. Genetic
1780 erosion is compounded and accelerated by habitat fragmentation. In Florida, even with considering the
1781 hundreds of thousands of acres of mined lands, the habitats of many plants and animals, including but not
1782 limited to listed species, live in smaller and smaller chunks of fragmented habitat, interspersed with human
1783 settlements and farmland, making it much more difficult to naturally interact with others of their kind for the
1784 purpose of reproduction, so many die off without getting a chance to reproduce at all, and thus are unable to
1785 pass on their unique, often regionally adapted genes to the living populations. Phosphate strip mining thus
1786 destroys genetic diversity and creates genetic erosion on a regional scale, possibly completely eliminating entire
1787 locally adapted plant genomes (landraces, locally adapted varieties, or ecotypes). It has been well established,
1788 that the only effective and self-sustaining species protection, which is actually gene pool protection, involves
1789 the protection and management of sufficiently large tracts of native ecosystems.

1790 Also, because phosphate lands have been held in ownership for such long time periods, much (or the
1791 majority) of the surrounding ecosystems have already been eliminated by other types of development, such as,
1792 necessary agriculture, residential, and business/commercial uses. Therefore, as a result of phosphate strip

1793 mining, many of the last remaining locally adapted gene pools of important plant and animal populations, and
1794 even the genetics of entire metapopulations, will be greatly reduced, or possibly entirely lost. This represents a
1795 very serious, once in history, issue of regional concern, which has the potential to affect entire bioregions of
1796 west-central Florida, and even the biosphere. The dire consequences of this situation are that there will be no
1797 ecologically appropriate, regionally-adapted, adequately diverse, genetic sources which could be used for re-
1798 colonization or secondary succession, if such were even possible. "If the Earth has lost its savor, from where
1799 forth shall it be salted?" Even in this scenario, which is in no case attainable because phosphate strip mining
1800 eliminates or completely destroys the structures of most upland native soils and geology, especially the
1801 environmental unique, sensitive and complex flatwoods soils, the results are fatal to the continued existence of
1802 our very diverse and irreplaceable native flora and uniquely Florida ecosystems.

1803 3PR questions the adequacy of environmental analyses and accuracy of information in the DAEIS,
1804 because it neglects to consider the negative impacts and effects of phosphate strip mining on bio-diversity and
1805 the essential and necessary protection of genetic diversity within west-central Florida, and beyond (as these
1806 impacts affect surrounding regions and the biosphere). It does not consider the specific soil and geologic
1807 requirements of natural upland ecosystems.

1808 It is a widely known ecological principal, and an exceedingly common phenomenon, that disturbed
1809 areas, and newly inundated areas, promote the colonization and rapid reproduction of various wildlife due to the
1810 presences of artificially and temporarily expanded resources. These short-term increases include space, water,
1811 nutrients (some native uplands in central Florida are actually low-nutrient systems which are precisely adapted
1812 to very specific acidic soils), soil de-compaction and aeration, increased light, greatly reduced or entirely
1813 eliminated competition, and the concomitant explosion of insects, larva, sprouting seeds, and small and thalloid
1814 plants which provide additional plentiful food sources for larger species. Almost any flooded area will quickly
1815 acquire and produce large amounts of wildlife for a limited amount of time.

1816 Because the phosphate industry and related uses are almost continuously destroying ecosystems and
1817 creating pits, dams, vast enclosures of inundated waste clays, other wet areas, and creating the disturbed and
1818 somewhat alien substrates of open mine land, including "reclaimed land", which are often laden with nutrients
1819 and greatly differ in chemical and physical properties as compared to the soils required to support native
1820 ecosystems, ecological imbalances are continuously and dynamically taking place. These extreme impacts
1821 temporarily provide abnormal levels of "freed" resources. Because animals are forced into these areas from
1822 other regions of ecosystems being destroyed, and because animals flying over and moving through will seek out
1823 any available sustenance, active and recent phosphate mining continuously sponsors numerous examples of the
1824 unnatural, and environmentally unhealthy "population boom" phenomenon. A sudden or temporary abundance
1825 of certain types of wildlife, more than in natural systems, is invariably an indication of an ecological imbalance
1826 from a natural disaster, atypical event, or artificially induced problem. Therefore, the short-term bird and
1827 wildlife studies such as those cited here by the Applicants are irrelevant, and completely out of context from
1828 studies of mature systems, whether native or non-native. Ecosystems out of balance represent a concern. They
1829 are not an indication of ecological health.

1830 Many mined lands eventually become overgrown with weedy and noxious plant species (such as
1831 cogongrass) and do not succeed to vegetative communities which experience natural or naturally compatible
1832 ecological succession. Such infested regions represent ecological and agricultural deserts. It would be very
1833 enlightening for the USCOE authors of the DAEIS to take broad and unrestrained tour of recently reclaimed
1834 and formerly reclaimed or abandoned phosphate lands.

1835 The health and potential for long-term stability of the native environment is not measured based on
1836 mobile animal species, but on the diversity and stability of plant communities upon which they depend.
1837 Ecosystems are self-contained and self-maintaining. "*Natural ecosystems are invariably richer in species and*
1838 *more stable than those artificially developed, due to their many interdependencies and interrelationships*" (Rau
1839 & Wooten 1980). Such natural systems draw in life-supporting materials from great distances. However, in
1840 non-natural areas, which are artificial, the interdependencies are missing, and they are therefore not self-
1841 sustaining. Energy and materials are not recycled efficiently, and constant maintenance is required. Phosphate
1842 strip mining sites, including upland "reclamation" areas, represent more severe examples of being "artificial"
1843 because of extreme alterations to soils and geology.

1844 Additionally, the primary vegetative cover of a very large number of acres of "reclaimed" phosphate
1845 strip mines is dominated by the invasive species cogongrass (*Imperata cylindrica*), which forms irrevocable
1846 monocultures over these vast ruderal landscapes. More thorough comments regarding cogongrass are presented
1847 in a separate comment.

1848

1849 RADIUM-226 IN BIRDS, WILDLIFE, AND PLANTS

1850 * Substantive Comment:

1851 3PR strongly objects and questions the accuracy of the information, the adequacy of the environmental
1852 analysis, and indeed the validity of the DAEIS, because of the fact that the well-known problem of generally
1853 elevated low-level radiation and the assimilation of Radium-226 in wildlife and plants is not treated with great
1854 concern. The scientific studies and publications of government, prestigious research institutions, universities,
1855 and others warn of this potential health and safety issue which faces the environment and human population
1856 alike. Even conservative authors caution that "*we assume that low doses also cause human health effects to a*
1857 *directly proportional, but smaller degree*" (FIPR 1986b).

1858 Of great potential concern, and one of the largest potential problems with phosphate strip mining, is
1859 that birds are attracted to clay waste ponds, mine cuts, and wetlands created, either intentionally or
1860 unintentionally, on or near mined lands, or where discharges have taken place. Research suggests that these
1861 areas may act as a kind of radiation poisoning stations for wildlife, because the radioactive isotope Radium-226
1862 (which reportedly has a half-life of 1601 years and decays into Radon-222, a radioactive gas) has been
1863 commonly shown to accumulate in the bones of fish and birds feeding in these areas, particular in the clay
1864 waste ponds referred to by the Applicants in this section. It was reported that "the average bone concentration
1865 in waterfowl from settling ponds in central Florida was about 4 times the recommended maximum for humans"
1866 (FIPR 1986a & 1986b). This issue is reinforced by additional research which concluded that "*As a result of*
1867 *mining and processing operations, most of the radioelements accumulate in the waste clays.* Radium and

1868 thorium also are present in the gypsum stacks and uranium is present in the acid products and fertilizer" (FIPR
1869 1985). Runoff and leachate from phosphate processing sources into ditches, wetlands, and other areas which
1870 may be utilized by plants, animals, or humans, may also be a concern as indicated by the conclusion that the
1871 EPA "... does not allow the use of central Florida gypsum. Material from central Florida generally contains
1872 about twenty-five pCi/g" (FIPR 1987).

1873 3PR questions the accuracy of information and the adequacy of environmental analyses in the DAEIS
1874 where elevated levels of low-level radiation are concerned, because nowhere is the mining-induced
1875 phenomenon low-level radiation treated with the proper concern, especially so considering the potential for
1876 such radiation to negatively impact human health, nor does it analyze these documented concerns in regard to
1877 overall "*Protection of the Environment*", which is the stated purpose of NEPA.

1878 As for Radon-222, "*When radon undergoes radioactive breakdown, it decays into other radioactive*
1879 *elements called radon daughters. Radon daughters are solids, not gases, and stick to surfaces such as dust*
1880 *particles in the air. If contaminated dust is inhaled, these particles can adhere to the airways of the lung. As*
1881 *these radioactive dust particles break down further, they release small bursts of energy which can damage lung*
1882 *tissue and therefore increase the risk of developing lung cancer. In general, the risk increases as the level of*
1883 *radon and the length of exposure increases.*" (MASS 2012).

1884

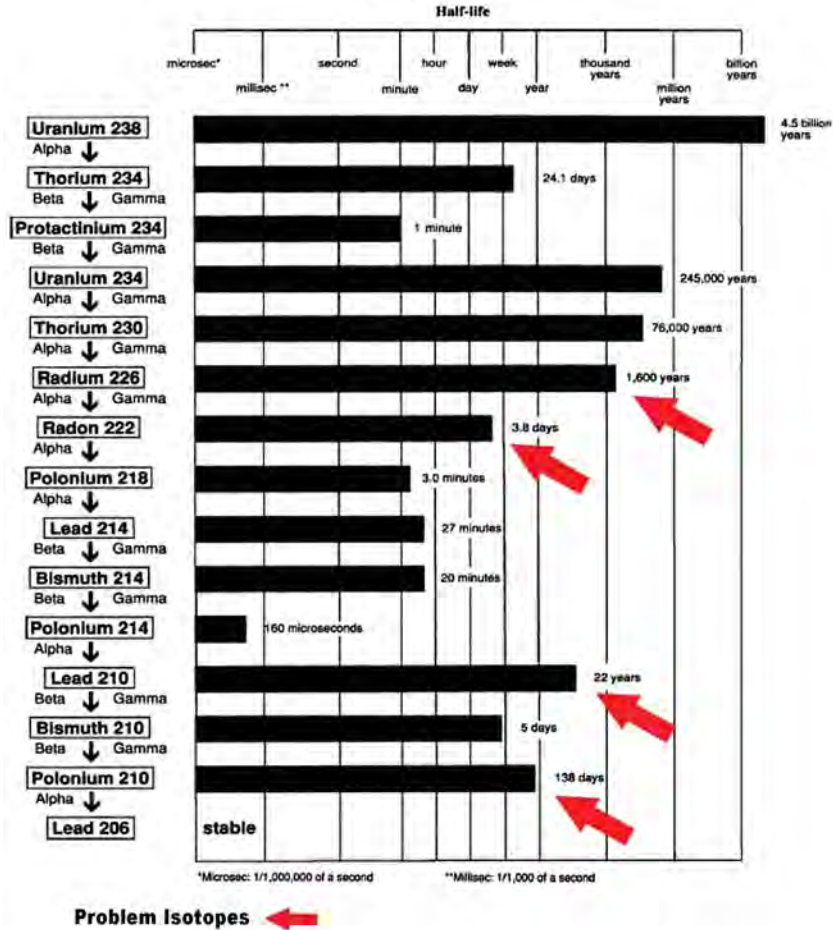


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1887 Table 2 shows the decay chain starting with Uranium-238. The chart is very helpful in understanding
1888 the relationships between the radioactive elements, their various isotopes and half lives.

Table 2



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Additionally, there was not much permanent water at many of the sites prior to mining. This may greatly compound the issue of radium in birds, fish, aquatic plants, and other wildlife. It is also reported that radioactive isotopes travel with phosphate fertilizers and are taken up by tobacco and other agricultural plants (FIPR 1983). This may present a particular problem for other animals, including animals from distant regions, which consume such radioactive phosphate mine wildlife because they are attracted to the many wet and submerged areas resulting from the extensive excavations associated with mining. The apparent foundation of this problem is the accumulation of radiation in aquatic plants, especially small, thalloid, floating species eaten by water fowl, which grow quickly in the higher nutrient waters associated with mined lands.

The presence of such elevated concentrations of Radium-226 in wildlife, particularly in mobile wildlife such as birds, is potentially of great concern. Elevated radiation in the phosphate strip mining district in general, represents a very large and highly significant issue of contention which is not adequately addressed in the DAEIS. 3PR therefore questions the accuracy of information and adequacy of the environmental analysis in the DAEIS, because it does not consider this important health and safety issue which may have the potential to affect the human population and the precious and irreplaceable plants and animals of Florida. Additionally, this readily available research, as well as considerable other published research, is not cited in the Chapter 7 references of the DAEIS.

1906 WATER RESOURCES

1907 * Substantive Comment:

1908 Throughout the DAEIS scientific data developed by the federal government, SWFWMD, and
1909 published in scientific journals is cited. Immediately afterwards erroneous or arbitrary statements are then
1910 presented by the Applicants (or from the industry perspective), presumably in refutation or rebuttal. However,
1911 either the statements made by the Applicants are unreferenced, or cite a letter or document from the phosphate
1912 industry, such as The Phosphate Council. The USCOE should not entertain conjecture and unqualified
1913 statements or information, or information from those with obvious or suspected conflicts of interests. For
1914 example:

1915 Page 3-63 states: *"The case of Kissengen Springs is well documented. Kissengen Spring was a major*
1916 *spring which once contributed an average of 20 million gallons per day (mgd) of flow to the Peace River Basin*
1917 *in Polk County (Metz and Cimitile, 2010). USGS indicated that phosphate mining use of FAS wells for water*
1918 *supply was a contributing factor to the regional FAS drawdown that resulted in the cessation of flow from this*
1919 *spring (Metz and Lewelling, 2009)."*

1920 Page 3-65 states: *"Garlanger (2002) estimated that groundwater pumping supporting phosphate*
1921 *mining contributed less than 10 percent of the drawdown that occurred at a particular affected spring*
1922 *(Kissengen Springs) and that other man-made withdrawals contributed to the rest of the effect."*

1923 The fact that Kissengen Springs was destroyed by the phosphate strip mining industry is extremely
1924 well documented. At that time in history very few people lived at Bartow, and there were very few agricultural
1925 water users because irrigated agriculture was rare. Irrefutable evidence of this disaster remains to this day in
1926 the form of a legacy of utter environmental destruction along both banks of the Peace River from well above
1927 Bartow, through the defunct Kissengen Springs, south to Hardee County. USGS and SWFWMD publications
1928 indicate that the consumptive use of water from FAS greatly lowered the potentiometric surface and contributed
1929 to the formation of collapse sink holes along the Peace River which drain away much of the river's flow. Also,
1930 it was not only massive consumptive use which ruined Kissengen Springs, but the complete alteration of the
1931 surrounding surface water management system, SAS. It is also well documented that these impacts caused
1932 Kissengen Springs to fill in with clay. This is one of many prime examples illustrating how the phosphate strip
1933 mining industry has destroyed, or contributed to the destruction of resources which were hugely valuable to
1934 society. Today, Bartow is a very small town. It is the original county seat for Polk County, but because of
1935 phosphate strip mining early in its history, its growth was restricted and Lakeland became the county's major
1936 city. Mulberry, Ft. Meade, and now the City of Bowling Green has suffered an even a worse fate. Next in line
1937 will be the communities of Wauchula, Ona and Zolfo Springs.

1938 * Recommendation:

1939 The objectiveness, credibility and appropriateness of the comments and references which are included
1940 in an EIS, should be more carefully considered. One of the main problems with the DAEIS is that
1941 documentation/information is presented from government or scientific sources in one paragraph or on one page
1942 and then opposite statements are presented in/on the next which apparently emanate from industry-related
1943 sources. This is a recurring theme throughout the DAEIS. The USCOE should only include data, information,

1944 and analyses to which it is willing to attest as being the best possible scientific evidence, and the most honest
1945 and objective (untainted) available! An Environmental Impact Statement is a very important instrument
1946 designed to guide the permitting of large projects ensuring "*Protection of the Environment*". The document
1947 should not be used as a platform for presenting debate or opposing arguments. Often, 3PR could not identify
1948 the position of the agency in relation to important issues. Usually, only discussion, data, and results are
1949 presented, but without an affirmative conclusion and agency accepted determination. NEPA requires that the
1950 information in the DAEIS be clear and succinct, and with the most credible scientific foundations. Very few
1951 sections of the DAEIS meet any of these criteria, or other NEPA requirements.

1952

1953 WATER QUALITY - NONPOINT POLLUTION

1954 * Substantive Comment:

1955 3PR questions the accuracy of the information and adequacy of the environmental analyses in the
1956 DAEIS, because it does not recognize the significance of the degree and extent of pollution generated by the
1957 phosphate strip mining, including, but not limited to, nonpoint pollution involving elevated phosphorous from
1958 runoff and spills, and from the use of chemical phosphate fertilizers for lawns, agriculture, golf courses, etc.

1959 Nonpoint pollution is considered to "*the major source of water pollution in the U.S. today*". (Carpenter
1960 1998). Eutrophication is currently the most widespread water quality problem in the country. Restoration of
1961 eutrophic water requires reduction in the contaminants. The most important barriers to the control of nonpoint
1962 nutrient pollution are social, political, and institutional.

1963

1964 IMPORTANCE OF UPPER SAS OMITTED: (HYDROLOGY OF NATIVE SOILS)

1965 * Substantive Comment:

1966 3PR questions the accuracy of the information and adequacy of the environmental analyses of the
1967 DAEIS, because significant issues relating to the SAS were not evaluated. All aquifers are impacted by
1968 phosphate strip mining, but the SAS is usually completely removed. Phosphate strip mining utterly disrupts
1969 natural geology and hydrology, removes native soils including their ecologically essential "unique" physical,
1970 chemical, and hydrologic properties, and replaces them with Arents-Hydraquents-Neilhurst substrates. These
1971 are unnatural wastes, overburden, or other unused substrates discarded as a result of phosphate strip mining and
1972 processing, and are documented to exhibit entirely different, and often environmentally extreme properties as
1973 compared to native soils (USDA. 1990; 2012a; 2012b). Other 3PR comments also address these issues.

1974 Arents are moderately well drained to excessively well drained discarded overburden from the strip
1975 mining process, which exhibit a consistently alkaline pH. Hydraquents, called "slickens", are up to 85% clay
1976 and exhibit a high (alkaline) pH, and Neilhurst, which is excessively drained and usually composed mostly of
1977 sand with other inclusions. These unnatural substrates are intrinsically physically and chemically variable, and
1978 can be randomly homogeneous or heterogeneous in formulation. All are incompatible with the soils,
1979 hydrology, and ecology of native ecosystems, vegetation associations, and other natural systems.

1980 In addition to creating landscape dominated by substrates which cannot support natural or diverse
1981 natural upland ecosystems, the removal or alteration of the SAS will also cause hydrologic changes, including

1982 above and below ground alterations in flows and levels, that negatively impact all types of wetlands, including
1983 herbaceous marshes, bay heads and swamps, hardwood swamps, cypress swamps, seeps, etc. Man-made
1984 "reclaimed" wetlands seldom provide the same hydrologic functions as natural wetlands, exhibit altered
1985 hydroperiods, do not support equivalent species richness, often require continuous maintenance due to noxious
1986 or nuisance vegetation, are "out of context" with natural ecosystems, and are therefore of little ecological value.
1987 Such artificial systems may also present unusual environmental and physical risks to birds and other biota (as
1988 discussed elsewhere).

1989 * Recommendation:

1990 An integrated hydrologic model is needed in order to better determine the cumulative effects of
1991 phosphate strip mining on the flows of streams, runoff and surface flows, low-flow/base flows, and
1992 hydroperiods.

1993

1994 WETLANDS AND STREAMS NOT RESTORABLE

1995 * Substantive Comment:

1996 3PR questions the adequacy of the environmental analyses in the DAEIS, because it does not consider
1997 the irreplaceable values of natural wetlands systems, or the essential role of native soils relative to ecosystem
1998 function and hydrology. Evaluations of the important dynamics of surface water, groundwater and soil
1999 interaction are completely omitted. And, the DAEIS does not appropriately recognize and consider: (1) the
2000 regional (CFPD) and statewide cumulative impacts of area-wide destruction of entire classes of native
2001 wetlands, such as isolated wetlands; (2) the fact that wetlands systems are complex and have often taken
2002 hundred of years to develop, and that the phosphate industry does not have the technology (presuming it could
2003 exist), the resources, or the will to properly construct and manage, in perpetuity (or until stable and self-
2004 sustaining) many hundreds of isolated wetlands, miles of creeks, streams and tributaries; and, (3) that the
2005 processes required for wetlands to establish, stabilize, and begin to efficiently remove nutrients requires time
2006 — a long time in the case of forested wetlands.

2007 The phosphate industry's track record of restoring the environment is dismal. In most phosphate strip
2008 mining operations the natural SAS is completely or mostly removed. The surficial aquifer system is the
2009 unconsolidated zone or strata, important in formation of seepage slopes and seep springs in Florida, generally of
2010 little or limited interest to most hydrologists due to small discharge or diffuse nature of seepage, but valuable to
2011 the residents of rural areas such as Hardee, DeSoto, and western Manatee counties, because they use the SAS as
2012 their primary source of drinking water, household water, and often irrigation water. There are many
2013 unanswered public health questions, both chemically and radiological, having to do with drinking and using
2014 water from shallow wells located on or near land formerly strip mined. There are also unanswered questions
2015 regarding the economic impact of mitigating these concerns, especially in low-income and minority
2016 communities which are present in these regions.

2017 * Recommendation:

2018 An independent scientific committee should be established to comprehensively and exhaustively
2019 evaluate the impacts which phosphate strip mining causes, and has caused, to native soils, natural aquifers,

2020 wetlands, and native ecosystems. Nowhere in the DAEIS are these impacts or natural resources properly
2021 evaluated, cumulatively evaluated, or their values genuinely considered as is required by NEPA in its single
2022 legally authorized mission and "*Basic National Charter*" of "*Protection of the Environment*". The protection of
2023 ecosystems is essential for the protection of all aspects of Florida's precious water resources, and for the
2024 protection public health and society.

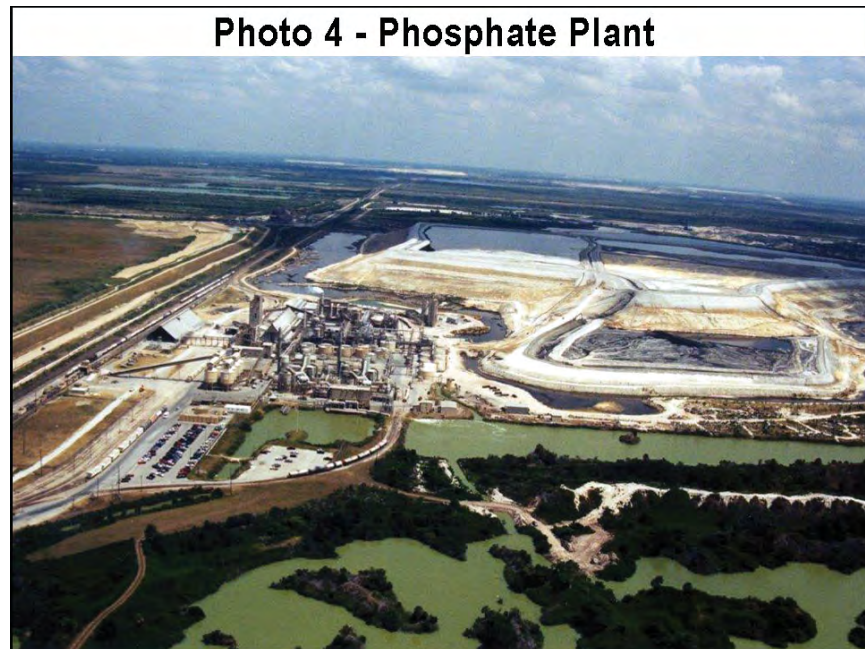
2025

2026 WELLS IMPACTED BY MINING

2027 * Substantive Comment:

2028 3PR questions the accuracy of the information and the adequacy of environmental analyses in the
2029 DAEIS, because there is insufficient discussion of wells on and near phosphate strip mines. A highly
2030 significant issue is that existing wells are not analyzed, discussed, or even identified in the DAEIS. Local
2031 residents near phosphate strip mining areas sometimes complain of "dry" wells.

2032



2033

2034

2035 * Recommendation:

2036 The DAEIS should very comprehensively analyze all aspects of the existing and potential negative
2037 impacts which wells and well water withdrawals have on local and regional water resources. Data and analyses
2038 are for the question of: (1) the effects of excessive consumptive use (2) the enhanced potential for aquifer
2039 contamination (particularly the surficial and intermediate aquifers) via well transport and induced recharge fro
2040 major geologic alterations; (3) the physical and hydrologic alteration of aquifers which impedes or alters their
2041 natural functions and negatively impacts dependent biotic systems; (4) the economic impacts associated with
2042 mitigating aquifer damage, and; (5) the contamination or other alteration of aquifers which contribute to public
2043 health concerns.

2044

2045 **WATER DEMANDS VERSUS WETLAND HYDROLOGY AND ECOLOGY**

2046 * Substantive Comment:

2047 3PR questions the validity of certain combinations of alternatives presented in the DAEIS, because
2048 some combinations of alternatives appear to allow 50 to 80 or more miles of stream alteration (difficult to
2049 precisely determine), which would be potentially devastating to the regional environment and water resources,
2050 including external impacts to the "downstream" jurisdictions of Charlotte, Lee and Sarasota counties. The vast
2051 majority of Florida's population lives near the coasts. Coastal areas rely to great extent on inland sources of
2052 water. As sea levels rapidly rise for the next 50 years due to global warming, brackish invasion and saltwater
2053 intrusion will increase, and coastal populations will simultaneously be retreating inland and increasing in
2054 density. The spring of 2012 reported record high temperatures. Winters are getting much warmer, and
2055 evapotranspiration rates are increasing concomitantly, disproportionately so because considerable herbaceous
2056 vegetation does not die back and continues transpiration as central Florida winters, on average, become warmer
2057 and warmer. The natural water resources of the CFPD are thus needed in order to support future increases in
2058 human occupation, and therefore must not be destroyed or degraded by phosphate strip mining.

2059 Mining requires the use of vast volumes of water. Mined lands greatly alter surface water
2060 management systems, and create many large open bodies of water which lose moisture much more quickly than
2061 native ecosystems and other pre-mine land covers. Such open water typically exhibits the highest evaporation
2062 rate of all land covers (Table 3), and especially large areas of water pigmented with fines. These and other
2063 hydrologic impacts of phosphate strip mining are hugely important concerns to human occupation in west-
2064 central Florida and southwest Florida. The concerns are not appropriately considered in the DAEIS.

2065 The DAEIS does not provide analysis of dry-season and wet-season meteorological/hydrologic cycles
2066 and influences which are all-important factors in modeling and predicting hydrologic systems, nor does it
2067 thoroughly evaluate La niña - El niña cycles, or factor in the projected effects and impacts of global warming
2068 on weather patterns, severity of storms including increased potential for floods and high winds, increased
2069 evapotranspiration rates, particularly in the winter, and other predicted impacts.

2070 The Peace River Manasota Regional Water Supply Authority (PRMRWSA) possesses a high level of
2071 regional scientific expertise in managing water resources. They are also the single most important agency
2072 providing water to several large populations in southwest central Florida. Although the PRMRWSA was
2073 referenced in several sections of the DAEIS, it does not appear as though adequate involvement has not been
2074 solicited from this agency. NEPA requires appropriate information be solicited from the public. Certainly the
2075 PRMRWSA possess relevant information, data, and analyses which should have been more thoroughly
2076 considered in formulating the DAEIS where potential impacts to the water resources of south-central Florida
2077 (Charlotte, DeSoto, Lee and Sarasota counties) are concerned.

2078

2079 **WATER USE, "DOWNSTREAM" USERS, AND CHARLOTTE HARBOR**

2080 * Substantive Comment:

2081 3PR questions the adequacy of the environmental analyses in the DAEIS, because nowhere are the
2082 total water uses and water availability impacts of phosphate strip mining analyzed for the purposes ensuring

2083 that the need for new public water sources will not be created. Photos 4, 5, and 6 communicate a genuine level
2084 of concern where phosphate strip mining has the ability to interfere with runoff, recharge, storage,
2085 evapotranspiration, low flow, and climate. Of great concern is that the Applicants are proposing to use models
2086 and massive-scale engineering to control the flows of rivers, creeks, and tributaries. The implementation of
2087 these elaborate artificial systems will require continuous maintenance and, as a consequence, the natural ability
2088 of watersheds to deliver water to man and the environment will be greatly altered. Whereas, before mining,
2089 these systems were self-sustaining and auto-regulating, they were much more predictable and not subject to
2090 human error, miscalculation or abandonment. Most affected by these region-wide hydrologic, geologic, and
2091 ecological modifications, will be the "downstream" counties of Charlotte, Lee, and Sarasota counties. The
2092 water supplies of these downstream users will become "artificially" controlled by upstream interests.

2093 Not only is there a great environmental cost to disrupting the water resources of an entire region, but
2094 an ongoing and tremendous economic cost, much of which falls on the taxpayers, or those who inherit
2095 unforeseen or miscalculated problems. Intrinsically, based on the existing approved mine permits, the current
2096 four proposals, and future proposals, which will no doubt involve more extensive mining further south, these
2097 problems will be inherited by the same "downstream" jurisdictions. Any problems or interruptions in water
2098 supply or decreases in water quality will inherently affect these counties disproportionately because they
2099 support the greatest human populations. That is, Charlotte, Lee and Sarasota counties have the greatest need for
2100 water now, and will have an ever-increasing need for stable water supplies in the future. Further, man-made
2101 systems, especially those involving thousands of potentially large-scale risks, as in for spills and discharges, or
2102 interruptions of water flows, or excessive increases in flows, are much more subject to failure from natural and
2103 man-made disasters.

2104 3PR questions the adequacy of the environmental analyses in the DAEIS, because many of the
2105 aforementioned significant issues and risks have not been properly assessed, and therefore have the potential to
2106 negatively affect water quantity and quality for a very large region of west-central Florida, as well as adjacent
2107 "downstream" counties, thereby endangering reliable sustainability of human society and the environment.
2108 Conspicuously absent from the DAEIS are data and analyses which demonstrate that the phosphate industry
2109 possesses the resources, ability, planning, and will to respond to natural, man-made, and accidental disasters, or
2110 engineering miscalculations. Also obvious is that many data and analyses avoid addressing "worst case"
2111 scenarios. The Alafia River spill, Peace River at Homeland spill, Archie Creek spill, White Springs spill, and
2112 many other incidents would indicate otherwise.

2113 * Recommendation:

2114 Significantly more definitive and comprehensive analyses are needed in order to quantify the total
2115 water resource impacts of the proposed phosphate strip mines, including a full historical review of water use
2116 and water resource impacts already caused by mining within the CFPD. Because surface water, aquifers and
2117 ground water, and water quality are directly related, these entities should not be analyzed entirely separately,
2118 and as such cannot effectively be discussed separately. The needed area-wide studies should include a
2119 cumulative analysis of all historical water-related impacts. This is necessary in order to provide adequate
2120 understanding of the full environmental consequences of phosphate strip mining on water resources, both

2121 within the CFPD, and to external regions, including "downstream" coastal counties. Elements of the studies
2122 should include "independent" evaluations of water quality, quantity, and the distribution of water availability
2123 for human use and for the environment, including, but not limited to, analysis of: consumptive use, increased
2124 evapotranspiration rates, the effects of the removal of native soils and ecosystems, the effects of re-contouring
2125 and alteration of surface water management systems, spills and discharges, FAS impacts, IAS impacts, SAS
2126 impacts, wetland hydroperiod, flows and levels of rivers and streams, dams and impoundments including CSAs
2127 and the creation of new open water or inundated areas. These studies must be conducted with factoring for all
2128 aspects of global warming impacts, including atmospheric, hydrologic, ecologic and human
2129 cultural/social/economic. None of these issues are treated adequately in the DAEIS. The DAEIS does not
2130 provide adequate analyses to make important decisions regarding the water impacts imparted by tens-of-
2131 thousands of acres of new phosphate strip mining.

2132 The foreground in Photo 5 below represent a very small fraction (about 1/4000th) of what has already
2133 been phosphate strip mined in west-central Florida. It portrays a very bleak future indeed, and is obviously
2134 incompatible with the "real" future needs of society.

2135



2136

2137

2138 MINING'S HISTORY OF SPILLS, DISCHARGES, AND POLLUTION.

2139 * Substantive Comment:

2140 3PR questions the adequacy of the environmental analyses in the DAEIS, because it does not consider
2141 the phosphate industries history of accidental discharges and their inability to control them once they occur, as
2142 was the case with several known major spills, and an inestimable number of "unknown" spills may not have
2143 been recorded due to the lack of adequate monitoring/auditing of the vast expanses of mined land and ancillary
2144 or secondary industry. See Photos 1 and 2.

2145 Leaking, seeping, discharges of effluents from mined lands are common, and are an ongoing problem
2146 with such massively altered landscapes as are created by the phosphate strip mining industry and its ancillary (or
2147 secondary, tertiary) industries. As commented earlier, large spills also occur, often continuing for extended
2148 periods before detected or controlled. The primary problems relate to the degree to which landscapes have been
2149 altered, the disposal of large volumes of waste clays and other discarded materials (sand, overburden, etc), and
2150 the problem of monitoring and auditing such vast, often difficult to access, expanses of property. See Photos 4,
2151 5, and 6. At phosphate mines and mined land, the term "spill" is typically used in the context of pollutants or
2152 unwanted substances leaving mines or mined land. However, due to the post-mining condition of some mined
2153 properties, spills which occur internally may not be considered noteworthy. Of additional concern is the
2154 disposal of phosphogypsum and the potential for continued water quality degradation as a consequence of their
2155 closure and effective abandonment.

2156 * Recommendation:

2157 (1) A comprehensive investigation and evaluation of the phosphate industry's history and record in
2158 relation to accidental discharges of effluents and other potential pollutants into surface waters, wetlands, and
2159 aquifers is critically needed. (2) Evaluate the history and ability of enforcing agencies to satisfactorily monitor
2160 and detect such discharges. (3) Conduct research to evaluate any long-term liabilities associated with
2161 phosphogypsum disposal and "gyp stack" closure in relation to impacts to water quality. (4) Conduct a survey
2162 of current and past phosphate strip mines to locate ongoing discharges into internal ecological areas, and to
2163 offsite properties, including ditches, drains, canals, and conveyances on road right-of-ways which drain into
2164 wetlands, rivers, streams, or other offsite areas. Review Photos 1 through 6, to understand a fraction of
2165 potential problems which can in no way be expressed in words!

2166 Photo 6 below depicts a waste clay disposal site (CSA) (or other massive containment) of which there
2167 are a great many already occupying the west-central Florida landscape. Many phosphate strip mining impacts
2168 represent effectively permanent liabilities to the environment and create effectively immovable barriers to an
2169 expanding human society which has diverse needs for space, potable water, green space, safe recreation, and a
2170 clean and healthy natural environment.

Photo 6 - Clay Waste Dam (CSA)



2171

2172

2173 **PROCESSING REAGENTS ("CHEMICALS") IN THE ENVIRONMENT**

2174 * Substantive Comment:

2175 3PR questions the adequacy of the environmental analyses and the accuracy of information because
2176 the highly significant issue concerning the use of "reagents" in phosphate strip mining product processing is not
2177 adequately investigated. Also, the available research is mostly "not" independent. It is reasonable that some or
2178 all of these reagents, because of their chemical properties, would impact water quality, affect the functions of
2179 the physical environment, and negatively impact ecosystems and biota. A study involving the "fate and
2180 consequences" (FIPR 2001b, quotes below) of such reagents reported that:

2181 *"Florida phosphate operations produce roughly 20 million tons of concentrate each year.
2182 Therefore, all of the reagents listed above are used in millions of pounds annually. These
2183 reagents are generally considered harmless to the environment for three reasons: (1) many
2184 of the organic chemicals are biodegradable, (2) some portion of the reagents remain on the
2185 rock surface and ultimately end up in the solid fertilizer products, and (3) the acids and
2186 bases neutralize each other in the process of water recycling.*

2187

2188 *"Major reagents associated with phosphate beneficiation include the following: fatty acid
2189 (used as a phosphate collector in the rougher flotation step), amine (as a sand collector in
2190 the cleaner flotation step), fuel oil (as an extender), sodium silicate (as a sand depressant),
2191 soda ash or ammonia (as a pH modifier), and sulfuric acid (for washing away the collector
2192 on the rougher concentrate). Typical plant consumption of the various reagents is shown
2193 below:"*

2194

Reagent Usage	Lb/Ton Concentrate
<i>Fatty Acid</i>	<i>4 - 6</i>
<i>Fuel Oil</i>	<i>4 - 10</i>
<i>Amine</i>	<i>1.5 - 2</i>
<i>Soda Ash</i>	<i>4 - 6</i>
<i>Sulfuric Acid</i>	<i>6 - 8</i>
<i>Sodium Silicate</i>	<i>1 - 1.5</i>

2195

2196 Using the table above and the "20 million tons of concentrate each year" estimate provided in the
 2197 research, the annual use of the reagents would be projected as follows:
 2198

Reagent Used	Min Lbs/ Yr	Max Lbs/ Yr	Min Tons/ Yr	Max Tons/ Yr
Fatty Acid	80,000,000	120,000,000	40,000	60,000
Fuel Oil	80,000,000	200,000,000	40,000	100,000
Amine	30,000,000	40,000,000	15,000	20,000
Soda Ash	80,000,000	120,000,000	40,000	60,000
Sulfuric Acid	120,000,000	160,000,000	60,000	80,000
Sodium Silicate	20,000,000	30,000,000	10,000	15,000

2199
 2200

2201 In the case of Fuel Oil, this estimate appears incredibly conservative, because in a later paper,
 2202 published 2008, it was stated that "*The Florida phosphate industry consumes about 150 million tons a year of*
 2203 *fuel oil in the forms of No.5 oil or kerosene*" (FIPR 2008b). That's 150,000,000 "Tons" not "Pounds (Lbs)" !
 2204 Possibly this is an error of some sort, because the magnitude of the latter value seems inconceivable? Several
 2205 FIPR papers focus on the need to reduce consumption of reagents in order to reduce concentrate production
 2206 costs. However, the use of such reagents appears to be increasing.

2207 * Recommendation:

2208 The phosphate strip mining industry uses various reagents which are employed to separate "matrix"
 2209 components and more efficiently refine and obtain "concentrated" products. What substances are currently
 2210 being used? Where have they been used? When and in what amounts they are used? Where do they end up?
 2211 These questions have not been fully answered, especially not in ecological terms. Overall, the full range of
 2212 potential negative impacts from the large-scale use of reagents has not been satisfactorily established. It is not
 2213 rational to consider that 150-million tons of fuel oil placed into the environment is "harmless" (FIPR 2001b).

2214 *Number 5 fuel oil is a residual-type industrial heating oil requiring preheating to 170 –*
 2215 *220 °F (77 – 104 °C) for proper atomization at the burners. This fuel is sometimes known*
 2216 *as Bunker B. It may be obtained from the heavy gas oil cut, or it may be a blend of residual*
 2217 *oil with enough number 2 oil to adjust viscosity until it can be pumped without preheating*
 2218 *(http://en.wikipedia.org/wiki/Fuel_oil).*

2219
 2220 *Kerosene, a thin, clear liquid formed from hydrocarbons, with a density of 0.78–0.81*
 2221 *g/cm³, is obtained from the fractional distillation of petroleum between 150 °C and 275 °C,*
 2222 *resulting in a mixture of carbon chains that typically contain between six and 16 carbon*
 2223 *atoms per molecule. Major constituents of Kerosene include n-dodecane, alkyl benzenes,*
 2224 *and naphthalene and its derivatives (<http://en.wikipedia.org/wiki/Kerosene>).*
 2225

2226 Comprehensive "independent" studies are immediately needed in order to determine the direct and
 2227 cumulative impacts of releasing vast quantities of "reagents" into the environment, and potentially into products
 2228 as indicated in FIPR (2001b). It may be logical to assume that the "reagents" are not highly purified individual
 2229 chemicals and are actually composed of multiple chemical substances. The main classes of "reagents" may, in
 2230 fact, vary in their chemical composition, and vary in consistency from time to time? Possibly some or all of
 2231 these reagents represent the wastes of other industries? In order to provide the proper assurances which NEPA
 2232 guarantees, including "*Protection of the Environment*" and to ensure that federal EIS actions are not

2233 "unsatisfactory from the standpoint of public health or welfare or environmental quality", the important issue of
2234 reagent use should be much more comprehensively investigated, scientifically scrutinized, and reported upon.
2235



2236
2237

2238 PLANT AND ANIMAL RELOCATION AND MITIGATION IN GENERAL

2239 * Substantive Comment:

2240 3PR questions the merits and the validity of relocating plants and animals as a conservation or
2241 mitigation strategy and disagrees that mitigation or relocating is a reasonable alternative for native ecosystem
2242 protection, or that it provides any significant conservation benefits. This is a significant issue. Vast amounts of
2243 Florida's native ecosystem have been destroyed in exchange for various forms of mitigation which often fail.

2244 The "reclamation" merely implies the "taking back of land". The term does not include "ecological
2245 restoration", individual "habitat restoration", or even "vegetative community restoration". Herein lies the
2246 problem with the concept of "mitigation", which is merely a "lessening of impacts" ... as interpreted for a
2247 particular need or point of view. 3PR cites many important scientific facts as to why replicating or even
2248 simulating native vegetative communities or even ecosystems is impractical and usually doomed to a rapid
2249 failure. 3PR also cites instances and arguments as to why such attempts may even be detrimental to wildlife.
2250 All debate set aside, the essences of the problem is that mined land is mostly unsuitable to support native
2251 ecosystems and biota, especially where upland vegetative communities and ecosystems are involved. Even
2252 where some minor facades of native vegetation are created, and do persist. The do so at great expense and
2253 usually with on-going maintenance. In the short-term, and in the long-term, biodiversity is lacking in
2254 "reclaimed" area and mined lands, even after long periods of time. Genetic diversity is lacking (although if the
2255 original gene pool were present it would not be relevant to the unnatural environment of mined lands), and
2256 ecosystem interaction and context are lacking because of large-scale ecosystem destruction, and because
2257 creating vast ecological gaps and fragmentations of the remaining areas. Essentially, the best results of

2258 "reclamation", "restoration", and on-site or off-site "mitigation" may be considered "**managed ecosystems**".
2259 "Best results" meaning created systems which establish and support a self-sustaining, self-maintaining,
2260 reasonable dominance of desirable native plant and animal species.

2261 *"Unprecedented changes are taking place in the ecosystems of the world, including species*
2262 *losses through local extinctions, species additions through biological invasions, and*
2263 *wholesale changes in ecosystems that follow transformation of wildlands into managed*
2264 *ecosystems. These changes have a number of important effects on ecosystem processes.*
2265 *Recent evidence demonstrates that both the magnitude and stability of ecosystem*
2266 *functioning are likely to be significantly altered by declines in local diversity, especially*
2267 *when diversity reaches the low levels typical of managed ecosystems. Although a number*
2268 *of uncertainties remain, the importance of ecosystem services to human welfare requires*
2269 *that we adopt the prudent strategy of preserving biodiversity in order to safeguard*
2270 *ecosystem processes vital to society."* (Naeem 1999)
2271

2272 Essentially, "reclamation", much of which involves and is considered to be "mitigation", in best case
2273 scenario, results in systems which would require high levels of maintenance to maintain their facsimile
2274 appearance. As for other large areas, cogongrass, weeds, non-native species, and other undesirable biota or
2275 biological/ecological characteristics become serious problems.

2276 It is well documented that most listed plant species, because they are usually also "endemic" plant
2277 species, have very precise environmental requirements, and are found only in specialized native vegetative
2278 communities or associations within certain ecosystems (Orzell & Bridges 2006) (Cole et al 1994) (Huck 1987).
2279 The habitats are often supported by highly specific soils, and located in unique geomorphologic regions. The
2280 reason most plant species are listed as "endangered" or "threatened" is because of their very high degree of
2281 environmental specificity and narrow geographic ranges, that is, because of their endemism.

2282 3PR questions the adequacy of the environmental analyses regarding listed (endemic) plant species, as
2283 well as the merits of the relocation alternative, or mitigation alternative, because no studies are presented in the
2284 DAEIS indicating which, if any, relocated listed plant species have been successfully established as viable, self-
2285 sustaining (an important criteria) populations, which continue without human intervention and maintenance into
2286 the long term. Much has been published regarding the failures of such relocation ventures (CDFW 1991),
2287 especially failures involving mitigation projects. Many relocation projects involving listed or endemic plant
2288 species which yield living plants for some period of time, later fail for a variety of known and unknown
2289 reasons, even with considerable artificial cultivation "life support" efforts. This failure is due to complex
2290 ecological factors that govern such reintroduction attempts (Menges 2008). No published research supporting
2291 the viability or success of listed plant relocation is cited in the DAEIS. The concept of native plant relocation is
2292 flawed because, as previously stated, such rare native plants are very critically integrated with their native
2293 environments. That's why the term "critical habitat" is used in relation to their ecological needs.

2294

2295 **ENDANGERED PLANT SPECIES**

2296 * Substantive Comment:

2297 3PR further questions the accuracy of information in the DAEIS, because the table of listed plants
2298 which purportedly are found in the CFPD is in gross error due to omissions. And, because NEPA directs that
2299 EIS process coordinate and be consistent with state and local agencies. The Florida Department of Agriculture

2300 (FDA) lists additional endangered species not listed by the U.S. Fish and Wildlife Service, and the State
2301 Comprehensive Plan of Florida requires that mining and mineral extraction protect natural resources.

2302

2303 RELOCATION OF PLANTS

2304 * Substantive Comment:

2305 The DAEIS states that "*In recent years, listed plant species and slow-moving listed animal species,*
2306 *such as the state-listed gopher tortoise, that are identified during pre-clearing surveys have been relocated*
2307 *before land disturbance to suitable onsite preservation or reclamation areas, or to suitable offsite areas.*" The
2308 anonymous author(s) of this statement are assumed to be the Applicants. The DAEIS does not specify the
2309 percentages of the total populations of such species which were relocated, and no long-term success data are
2310 provided.

2311 As for animals, it is true that the gopher tortoise inhabits a wide range of habits, and can sometimes
2312 utilize non-native, or partially native sites, but plants and animals are products of their environments, that is,
2313 products of, and specific to, their particular ecological communities or vegetation associations, and functional
2314 populations normally do not establish and endure for long periods. It is crucial that ecosystems be preserved in
2315 order to protect listed plant and animal species. (This is discussed further in other of 3PR's comments).

2316 * Recommendation:

2317 Based on the current state of scientific literature, there is no evidence that many of the listed plant
2318 species which might occur within the CFPD can be successfully established, in the long term, on reclaimed
2319 lands. In any case, the DAEIS offers no data and analyses which would support the feasibility of such
2320 experiments. Many species cannot be relocated successfully even back into their own habitats, or into sites
2321 identical to the donor sites (Menges 2008).

2322 It is important that the long-term status of these token introduction attempts be analyzed as part of any
2323 relocation or reintroduction attempts, and that a cumulative analysis be conducted to quantify the
2324 amount/numbers and diversity of important Florida native plants species which have been, and which will be
2325 eliminated as a result of past, present, and proposed future phosphate strip mining, and unmined, but potentially
2326 mineable area within the CFPD. Paramount in these studies is the need to evaluate genetic erosion, that is, gene
2327 pool destruction of locally adapted species and ecotypes.

2328

2329 INACCURATE WILDLIFE SURVEYS

2330 * Substantive Comment:

2331 3PR questions the accuracy of the information and the adequacy of the environmental analyses in the
2332 DAEIS, because of obvious errors and omissions in describing wildlife, and because in-depth site-specific
2333 ecosystem and wildlife analyses should have been conducted by "independent", unbiased third parties.

2334 In 2003, the Hardee County Mining Department staff and a several other professional biologists
2335 (consultants) conducted field surveys in to order verify wildlife surveys provided by the Applicant. The
2336 Applicant's data was found to be highly inaccurate in each case, and for each site surveyed/verified. In areas
2337 where the Applicant had not reported listed wildlife, hundreds of gopher tortoise, several gopher frogs, and

2338 several listed or rare plant species were found. Additionally, a primary recipient site used by one phosphate
2339 strip mining company for the relocation of gopher tortoise was carefully surveyed by county staff, and no
2340 tortoise were found. The site consisted of "rocky" reclaimed land, was infested with weedy species, and was
2341 observed to completely unsuitable as habitat for tortoise (although apparently authorized as a recipient site). It
2342 appears that applicants for mining permits have misrepresented or mischaracterized ecosystem resource and
2343 biota, grossly understating the actual species richness and habitat quality.

2344 * Recommendation:

2345 The significance of the above example is to illustrate the strong need for environmental data and
2346 analysis, including ecosystem evaluations and species surveys, which has not to been provided by applicants.
2347 Important environmental data and analyses must be objective and independently verifiable, that is, developed
2348 by qualified third party scientists.

2349

2350 "COGONGRASS" INFESTATIONS ON MINED LANDS

2351 * Substantive Comment:

2352 3PR questions the accuracy of information and adequacy of the environmental analyses in the DAEIS
2353 because the very substantially significant issue of the negative effects of cogongrass infestations on reclaimed
2354 phosphate strip mined land is not addressed, nor is the species mentioned in the report. This section states that
2355 "*The National Invasive Species Council (NISC) was established by EO 13112 to ensure that federal programs
2356 and activities to prevent and control invasive species are coordinated, effective, and efficient.*"

2357 The rapid and dense colonization of "reclaimed" mine land by the federally listed noxious weed known
2358 as "cogongrass" (*Imperata cylindrica*) (USDA 2010) represents an exceedingly serious and highly significant
2359 environmental issue. There are extensive and often contiguous infestations of this highly invasive,
2360 environmentally destructive and difficult to control weed dominating the herbaceous layers of many existing
2361 "reclaimed" and abandoned mine lands. The species succeeds vigorously in disturbed substrates such as those
2362 generated by the phosphate strip mining industry as a result of mining, "reclamation" activities, ancillary
2363 operations and activities, and site maintenance. This invasive plant thrives and succeeds in nutrient laden
2364 substrates, and substrates which will not support native ecosystems, such as the rocky ancient excavated
2365 materials distributed at the surface in the post-mine scenario.

2366 *"One of the more recent invaders to plague central Florida is the Asian weed, cogongrass.
2367 Cogongrass is not a serious problem on intensively managed agricultural lands where the
2368 normal operations include repeated tillage and herbicide applications. However, it has
2369 become a serious problem on less intensively managed lands such as rangelands, pastures,
2370 roadsides, reclaimed phosphate mines ..." (FIPR 1997).*

2371

2372 Cogongrass alters fire ecology because it usually grows very densely and burns hot (B. Nelson /
2373 SWFWMD, Land Management, pers. comm.). These attributes have the effect of preventing or excluding
2374 native herbaceous species due to shading, crowding, and radical modification of essential fire regimes. The
2375 species is virtually impossible to effectively eradicate on a large scale due to physical land constraints and high
2376 economic costs, and because of the fact that the species simply recolonizes immediately, often with even
2377 greater vigor and aggressiveness. Based on observed aerial extents (cover) it is logical that the mined and/or

2378 restored areas of the CFPD represent primary sources of cogongrass seed generation and dispersal for much of
2379 the region. "*Cogongrass spikelets are wind dispersed and have the potential to travel great distances*" (FIPR
2380 1997). The species is also very difficult to eradicate on a small scale without irreparably damaging the fragile,
2381 specialized soils and unique herbaceous layers of natural ecosystems such as flatwoods, live oak hammocks,
2382 xeric uplands, including transitional areas.

2383 Because the native plants and animals of the precious, and now rare or uncommon native vegetation
2384 communities and ecosystems of Florida require specific, undisturbed native soils, and also require interaction
2385 with the hundreds of other species within their respective "communities", the effects of phosphate strip mining
2386 together with the attraction of cogongrass to mined, disturbed, and reclaimed lands, has been devastating to the
2387 natural environment.

2388 The purpose of NEPA is "*Protection of the Environment*". Further phosphate strip mining will provide
2389 even more disturbed, non-native substrates which, as with past mined lands, will be destined to be dominated
2390 by the exceedingly difficult or impossible to eradicate, noxious cogongrass weed.

2391 There has been considerable research, throughout several states, and countries, relating to the negative
2392 impacts of cogongrass. A large amount of resources has been spent specifically studying the problem as it
2393 exists on mined and "reclaimed" phosphate lands.

2394 However, the DAEIS does not mention this immensely significant environmental problem which is
2395 directly relevant to phosphate strip mining. Inexplicably, the terms "cogongrass" and "*Imperata cylindrica*" do
2396 not appear in the document, even though this species may be the dominant, or sub-dominant biological upland
2397 feature associated with mined land. The DAEIS is therefore inadequate and inaccurate in that it did not
2398 consider the devastating effect of cogon grass on the environment, and the continuing massive problem it
2399 presents to the natural environment.

2400 The problem of extensive, nearly ubiquitous infestations of cogongrass which occur on "reclaimed"
2401 phosphate mined lands should be solved before additional phosphate mine permits are issued. The plant is an
2402 extremely serious invasive noxious weed. It is economically infeasible to eradicate the plant on a large scale,
2403 and management attempts can damage native vegetative communities.

2404

2405 DAEIS REFERENCES INAPPROPRIATE

2406 * Substantive Comment:

2407 The references upon which the DAEIS was presumably based are not annotated. It is therefore not
2408 possible to know how they are believed relevant or how their contents might have been interpreted and/or
2409 applied in formulating the various sections of the document. In many instance citations are made, but there is
2410 no means of determining how, why, or what information may have been considered or included.

2411 Larger concerns relate to the fact that accessibility to copies of many of the papers is difficult and
2412 expensive, and in some cases, not feasible because the document or resource is not publicly or conveniently
2413 available. If there is a consolidated source of these references and sources of information of which 3PR, due to
2414 some oversight, is not aware, then please disregard this portion of the comment.

2415 Many of the referenced sources in the DAEIS originate from government agencies, the phosphate
2416 industry, the Phosphate Council, phosphate consultants, or phosphate industry proponents. These include
2417 permit applications, industrial-engineering-hydrology-mining studies, survey results, various data, website
2418 access links, and undocumented personal communications.

2419 Not included in the DAEIS references are the many important studies and research relating to (See
2420 enumerated issues starting on Page 7).

2421 3PR's comments, objections, and recommendations are based on the scientific knowledge and
2422 observations of regional experts, published scientific literature developed by regional environmental experts,
2423 and data and analyses developed by, and freely available from, public sources. 3PR has provided facts which
2424 unequivocally demonstrate that the DAEIS is insufficient and inadequate for its legally required purpose of
2425 "Protection of the Environment".

2426 *40 CFR. 1502.9 Draft, final, and supplemental statements.*

2427

2428 *Except for proposals for legislation as provided in Sec. 1506.8 environmental impact*
2429 *statements shall be prepared in two stages and may be supplemented.*

2430

2431 *(a) Draft environmental impact statements shall be prepared in accordance with the scope*
2432 *decided upon in the scoping process. The lead agency shall work with the cooperating*
2433 *agencies and shall obtain comments as required in Part 1503 of this chapter. The draft*
2434 *statement must fulfill and satisfy to the fullest extent possible the requirements established for*
2435 *final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to*
2436 *preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the*
2437 *appropriate portion. The agency shall make every effort to disclose and discuss at appropriate*
2438 *points in the draft statement all major points of view on the environmental impacts of the*
2439 *alternatives including the proposed action.*

2440

2441 Based on the current levels of data, analyses, and other information which, although not included or
2442 considered in the DAEIS, were readily and easily obtainable, should have been included as standard
2443 professional practice. Resources should have been obtained independently by soliciting them from regional
2444 experts and consulting the commonly available scientific literature, libraries, biological research institutions,
2445 and public agencies conducting research. It is clearly evident that for the remaining (unmined) portions of the
2446 CFPD, that the scientifically, economically, and morally supported alternative, essential for the protection of
2447 the human society, human health and well-being, and the irreplaceable biological, ecological, and hydrologic
2448 resources of west-central Florida, is Alternative-1 ("No Action" / "no permit"), that is "no additional phosphate
2449 mining" alternative. It is apparent to any scientists who have expert knowledge concerning the biological,
2450 ecological, and hydrologic (water resources) of the CFPD, that obtaining and analyzing more environmental
2451 information, which is actually specific to the unmined regions of the CFPD, will result in an even stronger
2452 evidence supporting Alternative-1 ("No Action", or "no additional phosphate mining") alternative.

2453 Numerous on-site, independent environmental studies need to be conducted throughout the CFPD, and
2454 well beyond, especially "downstream", that is, down the rivers and streams to Charlotte Harbor and coastal
2455 zones of the gulf coast of Florida where the pollution and frequent toxic spills of the phosphate industry will
2456 ultimately find there way.

2457 It is unconscionable to entertain the concept of destroying an entire region of subtropical Florida,
2458 involving nearly 60,000 acres, supporting billions of animals, plants, and other living organisms which
2459 comprise the natural environment, purely for the benefit of a single industry. The life-giving biotic systems
2460 which would be lost provide sustenance, water, living space, recreation, and climate moderation. These natural
2461 systems constitute the essential biological and physical base which support and sustain human existence. Their
2462 destruction places at risk public health, properties and property values, economies, and important resources
2463 extending far outside and downstream of the actual confines of the CFPD. Many of these liabilities extend well
2464 into the future, and some into perpetuity. Phosphate strip mining sacrifices the environmental heritage of
2465 mankind for the short term profits of those not sustaining these impacts. If no mining were to occur, these large
2466 tracts of land would potentially provide space, agriculture, and water for millions of people. Such disregard for
2467 the environment and humanity is in stark contrast to the stated purpose of NEPA, which is "*Protection of the*
2468 *Environment*"⁸.

2469 Phosphate mining is a non-sustainable, non-renewable activity, and its extraction has already been
2470 utterly disastrous to a region of approximately 350,000 acres. Reclaimed phosphate lands, as attempts at
2471 reestablishing native ecosystems, are well-documented failures in most every regard. With such a horrendous
2472 environmental record, issuing new approvals for additional phosphate strip mining in west-central Florida is in
2473 no way acceptable.

2474

2475 PROBLEMS WITH DAEIS REFERENCES

2476 * Substantive Comment:

2477 3PR questions the adequacy of the environmental analyses and the accuracy of the information in the
2478 DAEIS, because many references are not cited according to accepted standards or are entirely erroneous. The
2479 majority of reference (bibliographic) citations do not provide adequate source information. Also, see previous
2480 comments concerning referenced information and documents. A significant example relates to the following
2481 "reference" which appears to reference a document.

2482 DAEIS Page 7-11, lines 9-10:
2483 *SWFWMD (Southwest Florida Water Management District). 2009. Florida Land Use*
2484 *Cover Classification System (FLUCCS).*
2485

2486 However, no such document exists. The most recent version of the universally used Florida Land Use
2487 Cover Classification System was published by FDOT in 1990. The DAEIS should have referenced that as the
2488 1999 Land Use GIS data layer developed by SWFWMD contractors. Also, no download date or metadata is
2489 provided. 3PR should be entitled to all digital and other information which was used as basis for the DAEIS so
2490 that it may verify the representations which the Applicants have made.

2491 3PR has very significant concerns relating to the methodologies and results of the 2009 SWFWMD
2492 GIS mapping of District land uses purportedly using FLUCCS (1990) as found in 3PR's references below: 3PR
2493 finds that this mapping is in error in important ways, in that non-mining cover type designations have been used
2494 for areas of mining and areas of reclamation. FDOT FLUCCS 1990 requires that once an area has been mined,

⁸ NEPA - 40 CFR 1500.1 Purpose

2495 it remains a "160 Extractive" mining category, the best and highest category of which is "165 Reclaimed Land".
2496 3PR has unanswered questions concerning the application of FLUCCS categories in the mapping of existing
2497 land uses and cover types, and the way in which the system was applied in mapping post-mining cover.
2498

2499 3PR COMMENTS BASED ON SCIENTIFIC LITERATURE

2500 The DAEIS is not adequate or accurate because it does not broadly consider readily available,
2501 independent, regionally qualified, third-party research, which is crucially relevant to the understanding and
2502 protection of the vast repositories of natural resources proposed for destruction as a result of phosphate strip
2503 mining. The DAEIS is further inadequate, incomplete, and generally deficient because the following important,
2504 relevant, or regionally applicable data, research, and analyses were omitted and therefore not considered in the
2505 decision-making processes during the development the document. In addition, it appears that a significant
2506 percentage of the resources cited in the DAEIS were obtained from the phosphate industry, phosphate industry
2507 contractors, or established phosphate mining proponents with vested interest in phosphate mining. In addition
2508 to the many other problems relating to the DAEIS source materials, which 3PR cited previously, the references
2509 cited infer that the base of information used for the DAEIS is not sufficiently impartial, neutral, or qualified.

2510 3PR presents the following comments which are based on the cited publications. Each substantive
2511 comment may include several issues which are interrelated with the issues, information, and concepts in other
2512 3PR comments and narratives:
2513

2514 **Brewer, J. S. 2008. Declines in plant species richness and endemic plant species in longleaf pine savannas**
2515 **invaded by *Imperata cylindrica***. Biol Invasions 10:1257-1264.
2516

2517 * Summary:

2518 Examines the invasiveness of cogongrass (*Imperata cylindrica*) into native longleaf pine flatwoods
2519 and its impacts on species composition. The research determined that the species excluded many herbaceous
2520 species, mainly by shading them out, or through aggressive colonization and expansion. Cogongrass patch
2521 expansion results in dramatic declines in species richness. Invasion of longleaf pine communities will likely
2522 cause significant losses of short habitat-specialists and reduce the distinctiveness of the native flora.

2523 * Substantive Comment:

2524 3PR questions the adequacy of the environmental analyses and accuracy of the information in the
2525 DAEIS, because it fails even to mention cogongrass, and the economic and environmental consequences of
2526 such unbridled comprehensive infestations as occur on previously mined lands, including "reclaimed" lands.
2527 Mined and reclaimed phosphate lands arguably host the greatest aerial extent of cogongrass infestations in west
2528 central Florida. This is a serious and for all practical purposes an insolvable problem caused by large-scale
2529 mining disturbances and conversions of native soils to clays, silica, overburden, and other discarded mining
2530 wastes, that is, "reclamation" materials. This and other research indicates that cogongrass infestations are
2531 highly damaging to native ecosystems and effectively preclude or prevent the success of many types of
2532 restoration and reclamation. Also, the vast infestations of cogongrass in the phosphate district act as a seed

2533 source for the entire regions and, as a result of storms, no doubt infest many distant properties. Cogongrass has
2534 proven very difficult and expensive to control, and even much more difficult to eradicate.

2535 * Recommendation:

2536 Additional phosphate strip mining should not be permitted to proceed until the cogongrass disaster and
2537 its many serious environmental and economic concerns are resolved.

2538
2539 **CDFW. 1991. Mitigation-related transplantation, relocation and reintroduction project involving endangered**
2540 **and threatened, and rare plant species in California.** California Department of Fish & Game, June 14, 1991.

2541
2542 * Summary:

2543 This research investigated and evaluated the status of many listed and rare plant projects including the
2544 efficacy and overall success of transplantation, relocation, and reintroduction of California State-listed
2545 endangered, threatened, and rare species. The primary results indicated that only 15% of 53 attempts were
2546 deemed successful. And, only 8% of relocations for mitigation were successful.

2547 * Substantive Comment:

2548 3PR questions the accuracy of information and the adequacy of the environmental analyses, because
2549 such are entirely lacking in the DAEIS ! 3PR therefore also questions the merits of the relocation alternative. In
2550 general, the vast majority of endemic/listed plant relocation attempts fail, for many reasons, either in the short
2551 or long-term. Many such plants cannot even tolerate minor environmental/ecological changes or disturbances.
2552 An action other than the no-action (deny permit) alternative will result in the destruction of vast amounts of
2553 irreplaceable endemic/listed plant habitat, because ecosystems are destroyed on a massive scale by phosphate
2554 strip mining, its related activities, and its short and long term environmental effects.

2555 * Recommendation:

2556 Preserve and manage large enough on-site tracts of listed plant habitat to protect the local ecosystems which are
2557 essential for the long-term survival of Florida's precious endemic flora. Seek direction from the primary and
2558 only preeminent restoration ecology center in central Florida, Archbold Biology Station.

2559
2560 **CFRPC (Central Florida Regional Planning Council). 2002. Land Use Suitability Index for Use in Hardee**
2561 **County.** Adopted November 12, 2002, Hardee County Board of County Commissioners.

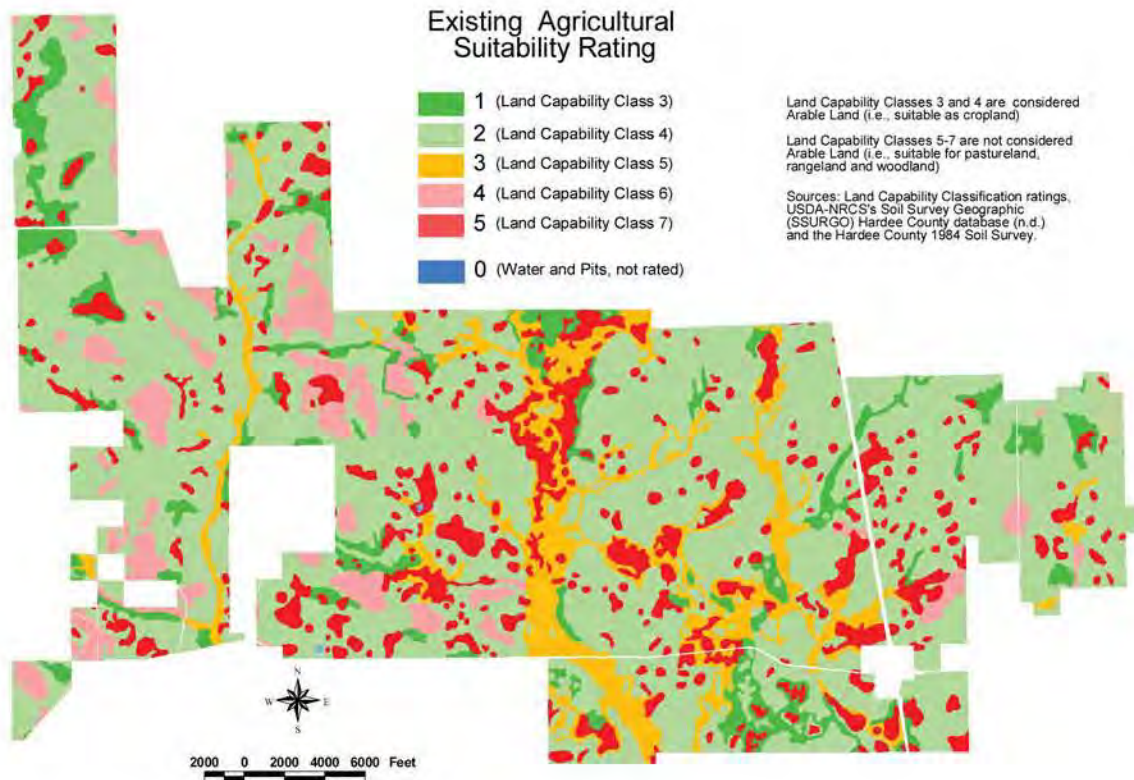
2562
2563 * Summary:

2564 This site-specific study examines the Ona Mine, concludes that: "The results of this study indicate that
2565 future land use patterns, in particular the ability to support various types of commercial agriculture and urban
2566 development, may be substantially altered as a result of large-scale phosphate mining in Hardee County."

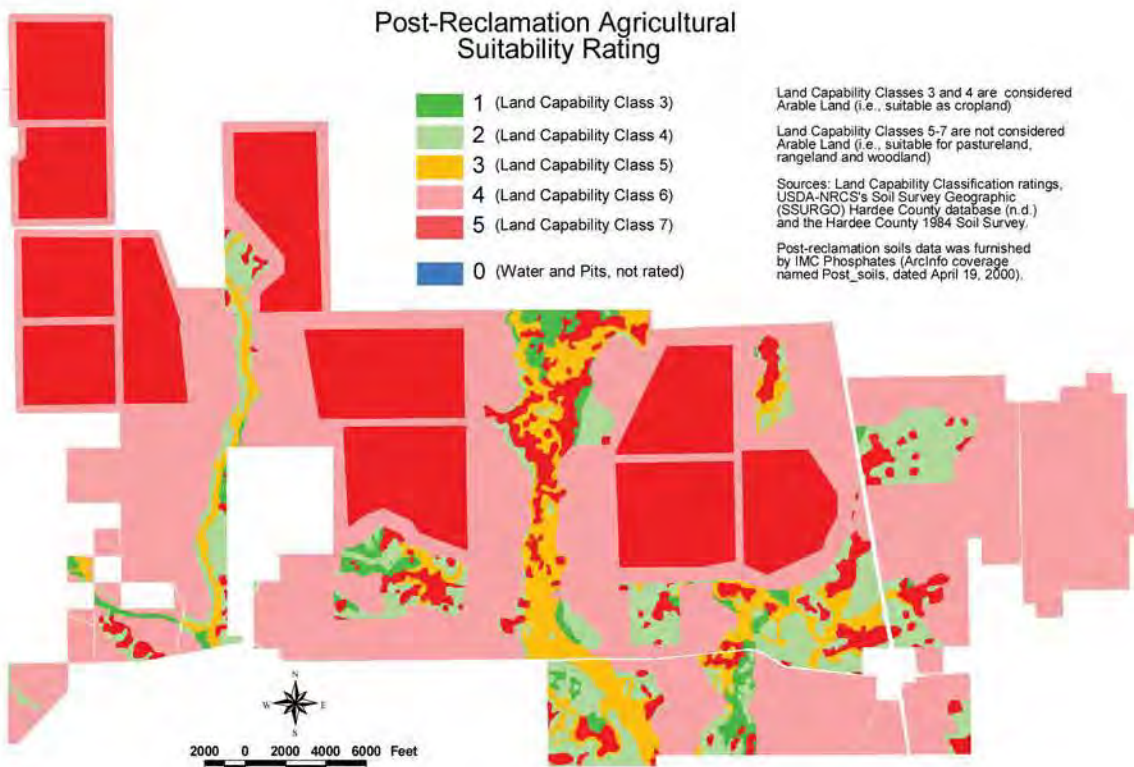
2567 * Substantive Comment:

2568 This study indicates that phosphate strip mining results in regional-wide degradation and reduction in
2569 the ability of land to support viable agriculture and certain other uses. The scientific findings and the fact that
2570 very few "reclaimed" phosphate strip mines have been used for residential or public retail uses, objectively
2571 refutes many of the statements of the DAEIS. The following two graphics are very informative in providing a
2572 visual representation of the negative impacts of phosphate strip mining on the suitability of land for future use
2573 and on the environment.

2574
2575



2576
2577
2578



2579
2580

2581 **CHNEP. 2010. Charlotte Harbor Regional Climate Change Vulnerability Assessment.** Charlotte Harbor
2582 National Estuary Program. Port Charlotte, Fla.

2583
2584 * Summary:

2585 Summarizes "Climate Change" as it may affect areas monitored by the CHNEP, and provides a
2586 general vulnerability discussion.

2587 * Substantive Comment:

2588 3PR questions the adequacy of environmental analyses and the accuracy of the information contained
2589 in the DAEIS, because the projected effects of the phenomenon of climate change have not been thoroughly
2590 examined in regard to its impacts to ecosystems and the environment, including, but not limited to, forced
2591 migration of animals and the potential inability of plant and vegetative communities to adapt. 3PR also
2592 questions the merits of alternatives other than Alternative-1 ("No Action" / "no permit") which are presented in
2593 the DAEIS, in part because of the excessively long permit terms. Rises in sea levels have recently been
2594 projected to reach as high as 2 meters by the year 2100 (Pfeffer 2008). Such changes will have profound
2595 effects on coastal communities, potentially requiring a slow evacuation of the majority of Florida's population
2596 (which is concentrated within a few miles of the coast), and the complete restructuring of business and society
2597 inland. Not planning for these changes by permitting inland barriers, and large-scale loss of farmland to
2598 phosphate strip mining, may not be in the interest of good land-use planning. Changes in climate patterns
2599 related to global warming are significant concerns for long-range environmental planning, and even short-range
2600 planning. Climate change and ozone depletion will affect humans and the natural environment and, in fact,
2601 have already had profound negative impacts in Antarctica, where "krill" (the main source of food for larger
2602 animals, including seals) has declined as much as 80% during the last 30 years (Reid et al 2010). Increased
2603 atmospheric temperatures and concomitant elevated sea levels are causing, among other serious problems,
2604 ocean encroachment of coastal lands which will drive coastal communities inland, and which will reduce inland
2605 areas as watercourses become wider and deeper. Wetlands and lowlands also will become submerged or
2606 inundated for longer periods. Because much of the geographic area and many environmental concerns of the
2607 CHNEP study area overlap with the CFPD, the CHNEP Technical Advisory Committee may be considered one
2608 of the most important scientific government organizations for the USCOE to publicly cooperate with.

2609
2610 **Cole, S., T. Hingten, and K. Alvarez. 1994. Vegetative characteristics of contiguous dry prairie on two soil**
2611 **types in Hardee County.** Resource Management Notes 7(3):15-16.

2612
2613 * Summary:

2614 Species diversity and density were significantly different between soil types, with some species
2615 considered "indicators" for specific soil types. There were significant differences in characteristics of less
2616 dominant plants species across soil types in dry prairie. Fire regime is very important in maintaining and
2617 controlling vegetative characteristics.

2618 * Substantive Comment:

2619 (Same comments as under Orzell & Bridges 2006, Huck 1987, and as elsewhere in 3PR's comments).

2620

2621 **Daily, Gretchen C. et al. 1997.** Ecosystem Services: Benefits Supplied to Human Societies by Natural
2622 Ecosystems. Issues in Ecology. No. 2, Spring 1997.

2623
2624 * Summary:

2625 Provides information and research results concerning "Ecosystem Services" and the essential need to
2626 protect ecosystems in order to human existence to continue.

2627

2628 * Substantive Comment:

2629 3PR objects and questions the adequacy of the environmental analysis and accuracy of the information
2630 in the DAEIS, because it does not consider the tremendous negative impacts which phosphate strip mining
2631 inflicts on biotic ecosystems and "ecosystem services". Because the purpose of NEPA is "Protection of the
2632 Environment", the protection of ecosystems, ecosystem services, and biodiversity must be the primary focus of
2633 the USCOE in evaluating the past, new, and cumulative environmental impacts of phosphate strip mining.

2634

2635 **Diaz, S., et al. 2006.** Biodiversity loss threatens human well-being. PLoS Biology 4(8):e277.

2636

2637 * Summary:

2638 This important research summarizes contemporary science involving ecosystem services, and provides
2639 a synthesis from the latest scientific literature of the role of biodiversity in ecosystem services and human well-
2640 being. The findings indicate that the most dramatic changes in ecosystem services likely come from altered
2641 compositions of ecological communities and from the loss of locally abundant species rather than from the loss
2642 of already rare species.

2643 * Substantive Comment:

2644 3PR questions the adequacy of the DAEIS, because there is no discussion of ecosystem services, nor
2645 are there any similar considerations consisting of rational dialogs and analyses relating to the need for
2646 environmental/ecosystem.

2647

2648 **FDOT. 1990.** Florida Land Use, Cover and Forms Classification System (Handbook), 3rd ed. Dept. of Trans.
2649 Surveying and Mapping, Geo. Mapping Sect., Tallahassee.

2650

2651 * Summary:

2652 The standard land use and cover classification and mapping system used by government agencies,
2653 professionals, and scientists.

2654 * Substantive Comment:

2655 The FLUCCS system has been inaccurately and improperly applied in developing land use maps for
2656 the SWFWMD which includes the CFPD. FLUCCS requires that once land has been mined that it must be
2657 assigned a "mining" cover type and classification. The DAEIS is not accurate and is inadequate because it
2658 purports to have been based on SWFWMD land use mapping data which 3PR contends is in error and does not
2659 conform to the primary and universally used standard, which is FDOT 1990 FLUCCS.

2660 **FFWCC. 2003. The 2001 Economic Benefits of Watchable Wildlife Recreation in Florida.** Florida Fish and
2661 Wildlife Conservation Commission. Southwick Associates, Fernandina Beach, Fla.

2662
2663 * Summary:

2664 This report examines the contributions of watchable wildlife recreation to the Florida economy.
2665 Tables detail the positive economic impact and other revenues from three forms of retail sales and economic
2666 impact, earnings, employment, and tax revenues.

2667 * Substantive Comment:

2668 3PR questions the accuracy of the information in the DAEIS, because it relies on questionable sources
2669 for its economic analysis, mostly ignores the highly specific Hazen and Sawyer economic analysis, and
2670 completely evades considering the self-sustaining self-renewing and very economically significant
2671 contributions of "Watchable" wildlife. Phosphate strip mining is a "here-then-gone" industry which provide
2672 only a few local, full-time jobs, is massively destructive to all aspects of the environment, and leaves a legacy
2673 which includes a myriad of completely untenable liabilities, such as many square miles of waste clay disposal
2674 enclosed by high dams, elevated radiation levels, toxic spills, noxious weed infestations, a vast ecological
2675 wasteland, and many other potential negative impacts and hazards to humans and wildlife alike. Managing
2676 natural, self-sustaining ecosystems to aid the economy in the near and long-term, is not only essential to human
2677 kind, but is infinitely more reasonable than the self-destructive course of action of permitting area-wide
2678 phosphate strip mining, potentially over 100,000 acres in Hardee County alone, and eventually, most of the
2679 county. Sources of jobs and revenues involving watchable wildlife, outdoor recreation, and eco-tourism are
2680 also much more compatible with the rural and agriculture traditions of Hardee County.

2681
2682 **FIPR. 1983. Polonium-210 and Lead-210 in Food and Tobacco Products: A Review of the Parameters and an**
2683 **Estimate of Potential Exposure and Dose.** Institute for Phosphate Research, No. 05-DFP-015.

2684
2685 * Summary:

2686 This research addresses some aspects of the accumulation of Polonium and Lead in foods and tobacco.
2687 It indicates that these contaminants are mobile through various transport mechanisms, such as food chain
2688 transport, including inhalation exposure involving tobacco. It also provides an enlightening description of the
2689 process of aerial deposition.

2690 * Substantive Comment:

2691 An important and relevant finding of this research is that "For most food items and tobacco, aerosol
2692 deposition seems to be the principal mode of Pb-210 and Po-210 entry. This feature is **of particular concern**
2693 **for leafy vegetables. As a result, only fruit-bearing crops such as citrus, berries, and cane fruits should**
2694 **be grown on phosphate-reclaimed land."** 3PR questions with reasonable basis the adequacy of
2695 environmental analyses in the DAEIS in regard to elevated low-level radiation associated with phosphate
2696 mining. The DAEIS does not fully examine and address potential risks to humans and the environment of low-
2697 level radiation exposure, particular cumulative exposure and impacts.

2698 * Recommendation:

2699 The following change/revisions are necessary in order to address the inadequacies of the DAEIS:
2700 Comprehensive studies are needed which include, but are not limited to, epidemiological investigations

2701 assessing the potential affects of elevated values of low-level radiation relating to phosphate strip mining and
2702 related operations. Such studies must be comprehensive, employ the highest and best state of current
2703 technology, and be conducted in a peer review environment. The studies should not only measure individual
2704 source, but all cumulative effects.

2705
2706 **FIPR. 1986a.** Environmental Contaminants in Birds: Phosphate-Mine and Natural Wetlands. FIPR No. 05-
2707 003-045. Bartow, Fla.

2708
2709 * Summary:

2710 This paper provides basic investigation of the accumulation of Radium in humans, birds, fish, and
2711 certain vegetation via food chains. It reports, among other results of considerable concern, that "*the average*
2712 *bone concentration (of Radium-226) in waterfowl from settling ponds in central Florida was about 4 times the*
2713 *recommended maximum for humans.*"

2714 * Substantive Comment:

2715 3PR questions the adequacy of the environmental analyses in the DAEIS, because the results of this
2716 research inspire great concern for the birdlife, and the general environment, in and near phosphate strip mines,
2717 or more specifically waste clay disposal sites (CSAs). The DAEIS mostly avoids sincere discussion of the
2718 elevated low-level radiation risks as it relates to phosphate strip mining and other phosphate related industry.
2719 Human health and the health of the environment may be at risk from phosphate strip mining activities.

2720
2721 **FIPR. 1986b.** Radiation and Your Environment. Florida Institute for Phosphate Research, No. 05-000-036.
2722 Bartow, Fla.

2723
2724 * Summary:

2725 Provides general information, mainly about low-level radiation, ionizing radiation, radon, units of
2726 measurement and dose measurement, and well as some household tips. Provides a "Radon Risk Evaluation
2727 Chart".

2728 * Substantive Comment:

2729 The following statement made in this publication re-enforces the need for current, updated,
2730 epidemiological studies of low-level radiation risks, especially where cumulative effects may be involved: "We
2731 do know that large doses of radiation given at high dose rates can cause cancers and genetic disorders, but we
2732 do not know for sure that low doses and dose rates cause these effects. For protective reasons (radiation
2733 regulations and standards), *we assume that low doses also cause human health effects to a directly*
2734 *proportional, but smaller degree*".

2735
2736 **FIPR. 1987.** Radioelement Migration in Natural and Mined Phosphate Terrains. Florida Institute for
2737 Phosphate Research, No. 05-002-027. Bartow, Fla.

2738
2739 * Summary:

2740 As a result of mining and processing operations, most of the radioelements accumulate in the waste
2741 clays. Radium and thorium also are present in the gypsum stacks and uranium is present in the acid products
2742 and fertilizer.

2743 * Substantive Comment:

2744 3PR questions the accuracy of the information and adequacy of the environmental analyses in the
2745 DAEIS, because a body of research exists which suggests that low-level radiation is a potential threat to
2746 humans and the environment, and also to the FAS, as indicated below. Two of the primary transport
2747 mechanisms through which the FAS may become contaminated is along well casings and via "induced
2748 recharge". The research further validates the radiation problem, and also raises cause for concern due increased
2749 vulnerability of the FAS from consumptive use / withdrawals. (Also, see several previous 3PR comments).
2750 The following findings are notable:

2751 *"The regional distribution of uranium and radium in groundwaters and surface*
2752 *waters appears not to have been disturbed. The one possible exception is in the Floridian*
2753 *Aquifer in the immediate areas of mining.' Higher than normal, though not exceptionally*
2754 *unusual, uranium concentration values are observed. We speculate that this may be related*
2755 *in some way to enhanced industrial water useage".*

2756 *"A large proportion of the radioelements in phosphate ore ends up in the clay even*
2757 *before the adsorption process hypothesized above. We calculate that approximately 45% of*
2758 *the uranium and radium, and 55% of the thorium in the original matrix is in the clays that*
2759 *are removed by the washing process. In the gypsum residue resulting from further*
2760 *treatment stages are found 3% of the uranium, 30% of the radium, and 35% of the thorium*
2761 *of the original matrix. Less than 10% of the radium and thorium end up in fertilizer and*
2762 *chemical products, but as much as 30% of the uranium does".*

2763
2764 **FIPR. 1997.** Ecology, Physiology, and Management of Cogongrass (*Imperata cylindrica*). Institute for
2765 Phosphate Research, No. 03-107-140. Bartow, Fla.

2766
2767 * Summary:

2768 An in depth examination of the biology of cogongrass, its properties as a noxious weed, and various
2769 concepts of management.

2770 * Substantive Comment:

2771 (See other comments).

2772
2773 **FIPR. 2001.** Reclaimed phosphate clay settling area investigation: hydrologic model calibration and ultimate
2774 clay elevation prediction – final report. Florida Institute of Phosphate Research, No. 03-109-176. Bartow, Fla.

2775
2776 * Summary:

2777 This research included monitoring hydrologic and meteorological conditions, mapping soils and
2778 vegetation, and developing topographic maps using photogrammetry. Field and laboratory data were used in
2779 models to estimate the effects of clay consolidation on post-reclamation topography and to calibrate hydrologic
2780 simulation programs. This report presents the research objectives, work plan, and study results of a research
2781 project designed to monitor and evaluate the hydrology and clay consolidation behavior of phosphate CSAs.

2782 The author's research published in 2001 reported that "*There are more than 100,000 acres of clay*
2783 *settling areas (CSAs) in Florida. Presently operating phosphate mines in Florida have over 60,000 acres of*
2784 *above ground clay settling areas (CSAs), with an additional 20,000 acres designated for future CSAs."* Also
2785 stated determined was that "*The present guidelines used in CSA design relative to hydrology will probably*
2786 *prevent downstream flooding during large rain events. Though, these guidelines also result in post-*
2787 *reclamation conditions that fail to restore the low flow characteristics of the pre-mined land form"*.

2788 * Substantive Comment:

2789 3PR questions the adequacy of the environmental analysis and the accuracy of the information in the
2790 DAEIS, because the findings of this research both differ directly from the assertions of the DAEIS in that
2791 indicate that the designs of CSAs fail to restore the low-flow characteristics of the pre-mined land, and also
2792 indicate difficulty in the predictability of some aspects of CSA hydrology. The incredible amounts of clays and
2793 unused mining materials which the phosphate strip mining industry disposes of in "CSAs" and over other post-
2794 mining areas, together with the fantastic tonnage of reagent chemicals returned with these wastes, and
2795 generalized elevated radiation as well, are ample reason to discontinue all phosphate strip mining in Florida.

2796 In addition, the report states that CSA design relative to hydrology will "probably" prevent
2797 downstream flooding "during large rain events". The term "probably" is not very reassuring, especially because
2798 it is merely used in the context of a large rain storm, and does not address the larger concern of tropical
2799 hurricanes. The additional highly distressing findings, which would be no surprise to any reasonable person
2800 even without study, is that the low-flows of native soils and geology cannot be engineered into one CSA, much
2801 less 180,000 acres of waste clay containments. That's approximately 34 sq miles. 3PR suspects even this
2802 figure is inaccurate, because it likely only involves designated CSAs, and not all other areas of clay deposited
2803 by the phosphate strip mining industry, and of course does not include the vast areas of "sand clay mix" which
2804 have also been dumped back into the environment and called "reclaimed" land.

2805
2806 **FIPR. 2001b.** Fate and consequences to the environment of reagents associated with rock phosphate
2807 processing. Florida Institute for Phosphate Research, No. 02-104-172. Bartow, Fla..
2808

2809 * Summary:

2810 Examines some basic aspects of reagent migration, and presents other information about rock
2811 phosphate processing.

2812 * Substantive Comment:

2813 (See previously provided comment and discussion relating to reagents).

2814
2815 **FIPR. 2008b.** An investigation of floating reagents, final report. Florida Institute for Phosphate Research, No.
2816 02-158-227. Bartow, Fla.
2817

2818 * Summary:

2819 Describes "floating" reagents and various processes. Provides various data and information on a
2820 number of reagents and their utility in phosphate refinement/recovery.

2821 * Substantive Comment: (See previously provided comment and discussion relating to reagents).

2822
2823 **Gofman, John W. 1990.** Radiation-induced cancer from low-dose exposure: an independent analysis.
2824 Committee for Nuclear Responsibility.
2825

2826 * Summary:

2827 This research, and others, conclude that there is no safe dose or dose rate of ionizing radiation and that
2828 even the lowest conceivable doses present cancer risks. Gofman was an established authority on nuclear
2829 physics. Dr. John W. Gofman, M.D., Ph.D.

2830 Considered by some as one of the foremost independent authorities, John William Gofman was
2831 Professor Emeritus of Molecular and Cell Biology in the University of California at Berkeley, and Lecturer at
2832 the Department of Medicine, University of California School of Medicine at San Francisco. He is the author of
2833 several books and more than a hundred scientific papers in peer-review journals in the fields of nuclear /
2834 physical chemistry, coronary heart disease, ultra-centrifugal analysis of the serum lipoproteins, the relationship
2835 of human chromosomes to cancer, and the biological effects of radiation, with especial reference to causation of
2836 cancer and hereditary injury.

2837 * Substantive Comment:

2838 The DAEIS does not consider the potentially negative, cumulative, and harmful effects of exposure to
2839 increased low-level radiation resulting from the geologic impacts of phosphate strip mining, the distribution of
2840 mining products, and the contamination of foods and products (such as tobacco) from phosphate fertilizers.

2841
2842 **Hazen and Sawyer. 2003.** Hardee County, Florida: Economic Impact of the Ona mine to Hardee County.
2843 Final Report, July 28, 2003. Hardee County Board of County Commissioners, by Grace Johns, Hazen and
2844 Sawyer, Environmental Engineers and Scientists.

2845
2846 * Summary:

2847 Evaluates the potential economic effects to Hardee County from the proposed Ona Mine located in
2848 western Hardee County. This analysis estimates the change in employment and income to Hardee County
2849 residents that would be generated from the Ona mine relative to land uses on the Ona Property that would take
2850 place under baseline conditions. Presents a reasonable scenario of the potential land use given the best
2851 available information. Land use of the Ona Property under the baseline or “no-mining” scenario was based on
2852 reasonable assumptions of how western Hardee County would likely develop if no additional land was mined.
2853 All baseline land uses are consistent with Hardee County housing projections from the University of Florida
2854 Bureau of Economic and Business Research and historic agricultural acreage trends in Hardee County and in
2855 Florida from the Florida Agricultural Statistics Service.

2856 * Substantive Comment:

2857 (Refer to other comments where cited, including, but not limited to "Environmental Justice"
2858 comments).

2859
2860 **HCBOCC. 2010.** Hardee County, Sustainable Hardee Visioning for the Future. Hardee County Board of
2861 County Commissioners, Wauchula, Florida.

2862
2863 * Summary:

2864 "The Visioning is aimed at identifying community goals and a means to achieve those goals, both
2865 short and long-term. Hardee County is faced with difficult choices in the current economic times. Realizing
2866 that growth and development have the ability to either support or hamper the community' desired, county
2867 officials began to develop a Community Vision for the community that could properly guide future
2868 development and identify solutions to challenges. The Visioning process is intended to utilize a broad range of
2869 community comments, issues and opportunities in developing community recommended strategies. The
2870 Visioning process is also intended to develop a framework within which to proactively plan, develop milestones

2871 and identify potential community champions for the recommendations. With each successive meeting, the
2872 community refined the broader comments into more focused, action oriented recommendations that will be
2873 used to develop the overall final Vision. The strategies identified are not necessarily government directed
2874 and/or supported, and in numerous cases involve local community and civic organizations with specific interest
2875 or association with related programs. This method creates broad based community support and responsibility
2876 for the implementation of the strategy. The County identified five areas of review and analysis that were
2877 discussed through a series of "Focus Groups" and community meetings to prepare the Visioning Report and to
2878 provide guidance for future projects and decisions. These groups included: Economic Development, Land
2879 Use/ Recreation/ Open Space/ Environment, Quality of Life/Housing, Education/ Workforce, Infrastructure."

2880 * Substantive Comment:

2881 3PR questions the adequacy of the DAEIS because it does not contain references to Hardee Count's
2882 "Visioning" process, or an adequate analysis of how the DAEIS is consistent with the goals, objectives, and
2883 policies of the Hardee County Comprehensive Land Use Plan. NEPA requires coordination with state and local
2884 agencies in order to help avoid inconsistencies with local regulations and planning.

2885 * Recommendation:

2886 3PR suggests that interested persons take aerial and surface tours of previously mined and reclaimed
2887 lands in northwestern Hardee County (and of the "four corners" and northwards), then tour areas of unmined
2888 lands. Such tours would no doubt help guide public opinion and Hardee County's visioning processes.

2889
2890 **HCP&D. 2003.** Draft - Staff Report for IMC -Phosphates Company Ona Mine (CFRPC: DRI 203-82).
2891 Hardee County, Board of County Commissioners, Hardee County Planning and Development. Wauchula,
2892 Florida.

2893
2894 * Summary:

2895 This draft staff report characterizes the Ona Mine site and details many of the issues which were
2896 considered relevant to local, state, and federal law at the time. The document provides summaries and
2897 discussions, and detailed treatments and analyses of each individual significant issue relating to phosphate strip
2898 mining at the project site. The data and analyses were developed by regional experts in the biological sciences,
2899 and in the fields of hydrology, economics, and land use planning.

2900 * Substantive Comment:

2901 Although directly relevant research and analysis, authored by Hardee County Local Government is
2902 readily available as a public record, it was not incorporated into the DAEIS or used as a source of information.
2903 The following sections of NEPA, in order to accomplish its purpose of "protection of the environment", require
2904 coordination and cooperation with local governments during the development of the EIS. The only references
2905 in the DAEIS to the Hardee County Comprehensive plan, which contains numerous goals, objectives, and
2906 policies relating to mining, economy, and protection of the environment, are misleading references to the
2907 Mining Overlay Map as an indication of mining suitability, which it most definitely is not, but merely a map
2908 based on mining company ownership, and not promulgated based on any actual data and analysis which would
2909 suggest that the mapped regions is/are appropriate for phosphate strip mining, other than for being located
2910 within the CFPD. However, NEPA requires that the DAEIS must include discussions of "possible conflicts

2911 between the proposed action and the objectives of local land use plans. The DAEIS is clearly inadequate and
2912 inaccurate, in that none of these NEPA requirements for "protection of the environment" are satisfied, that is,
2913 Hardee County Comprehensive Plan land use plan goals, objectives, and polices were not discussed.

2914 *40 CFR 1502.5 Timing*

2915 *(b) For applications to the agency appropriate environmental assessments or statements*
2916 *shall be commenced no later than immediately after the application is received. Federal*
2917 *agencies are encouraged to begin preparation of such assessments or statements earlier,*
2918 *preferably jointly with applicable State or local agencies.*

2919
2920 *40 CFR 1502.16 Environmental consequences*

2921 *This section forms the scientific and analytic basis for the comparisons under Sec. 1502.14.*

2922 *... It shall include discussion of:*

2923 *(c) Possible conflicts between the proposed action and the objectives of Federal, regional,*
2924 *State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and*
2925 *controls for the area concerned.*

2926
2927 **Huck, Robin B. 1987.** Plant Communities along an edaphic continuum in a central Florida watershed. Florida
2928 Sci. 50(2):88-110.

2929
2930 * Summary:

2931 Vegetative gradient analysis in central Florida flatwoods region. Vegetation changed with topography,
2932 moisture regimes and soils. A correlation between soil types and vegetation was shown evident. The
2933 vegetative communities analyzed included palmetto prairie, savannah, palmetto zone, cypress slough, pine
2934 flatwoods, oak-palm woodland, maple swamp forest, ash swamp forest, maple-ash swamp forest, oak
2935 woodland, saw palmetto zone, cypress dome, palmetto prairie, and cypress pond.

2936 * Substantive Comment:

2937 This paper is in support of other comments explaining the correlation between native soils types,
2938 natural geology, natural hydrology and specific native vegetative communities and plant species, particular the
2939 substantive comment under the Orzell & Bridges (2006) reference.

2940
2941 **Kremen, C. 2005.** Managing ecosystem services: what do we need to know about their ecology? Ecology
2942 Letters 8:468-479.

2943
2944 * Summary:

2945 Human domination of the biosphere greatly alters ecosystems, yet ecological understanding of
2946 ecosystem services is limited. The author discusses methods to incorporate vital ecological information into the
2947 environmental policy and management process.

2948 * Substantive Comment:

2949 3PR questions the adequacy of the environmental analyses of the DAEIS, because significant issues
2950 relating to the future of humanity were not discussed. The author stresses that proper understanding of
2951 ecosystem services is critical for our human future. There is no discussion of ecosystem services, nor are there
2952 any similar considerations of for protection of the environment found in the DAEIS.

2953 **Lyman, Gary H. (MD, MPH) et al. 1985. Association of Leukemia with Radium Groundwater**
2954 **Contamination.** JAMA, 254(5):621-626.

2955

2956 * Summary:

2957 Radiation exposure, including the ingestion of radium, has been causally associated with leukemia in
2958 man. Groundwater samples from 27 counties on or near Florida phosphate lands were found to exceed 5 pCi/L
2959 total radium in 12.4% of measurements. The incidence of leukemia was greater in those counties with high
2960 levels of radium contamination (>10% of the samples contaminated) than in those with low levels of
2961 contamination. Rank correlation coefficients of 0.56 and 0.45 were observed between the radium
2962 contamination level and the incidence of total leukemia and acute myeloid leukemia, respectively. The
2963 standardized incidence density ratio for those in high-contamination counties was 1.5 for total leukemia and 2.0
2964 for acute myeloid leukemia. Further investigation is necessary, however, before a causal relationship between
2965 groundwater radium content and human leukemia can be established.

2966 * Substantive Comment:

2967 3PR questions the adequacy of the environmental analyses in the DAEIS, because this paper, and
2968 several others, specifically report statistically elevated cancer risks from human exposure to Radium-226
2969 contaminated groundwater. Numerous other published research report elevated low-level radiation associated
2970 with various sources within the CFPD, particularly on mined land and at waste clay disposal sites. The Lyman
2971 studies were published in the prestigious, peer-reviewed Journal of the American Medical Association (JAMA).

2972 * Recommendation:

2973 The body of research reporting radiation concerns relating to the phosphate strip mining and
2974 processing industry speaks for itself in terms of raising concern. Authors have indicated that elevated radiation
2975 means elevated risks, and warn about consuming food items from phosphate lands. As suggested elsewhere in
2976 3PR's comments, comprehensive, multi-team, "independent" "peer reviewed" studies are indicated in order to
2977 determine the level of potential threat to humans and the environment. Studies funded by the phosphate
2978 industry should be discarded, in favor of more objective, and more credible research conducted by leading
2979 medical researchers, institutions, and epidemiologists, such as Lyman, Stockwell, and Gofman.

2980

2981 **MASS_2012. Public Health Fact Sheet on Radon. Commonwealth of Massachusetts.** Accessed 10-Jul-2012:
2982 www.mass.gov

2983

2984 * Summary:

2985 Provides basic facts concerning Radon, and described health risks. "*Radon is a naturally occurring*
2986 *radioactive gas. It is produced in the ground through the normal decay of uranium and radium. As it decays,*
2987 *radon produces new radioactive elements called radon daughters or decay products. Radon and radon*
2988 *daughters cannot be detected by human senses because they are colorless, odorless, and tasteless.*" "*When*
2989 *radon undergoes radioactive breakdown, it decays into other radioactive elements called radon daughters.*
2990 *Radon daughters are solids, not gases, and stick to surfaces such as dust particles in the air. If contaminated*
2991 *dust is inhaled, these particles can adhere to the airways of the lung. As these radioactive dust particles break*
2992 *down further, they release small bursts of energy which can damage lung tissue and therefore increase the risk*

2993 of developing lung cancer. In general, the risk increases as the level of radon and the length of exposure
2994 increases."

2995 * Substantive Comment:

2996 Because the DAEIS is required to consider all significant environmental issues, it should fully evaluate
2997 the direct and cumulative risks associated with elevated Radon levels. The DAEIS is inadequate because,
2998 although elevated low-level radiation from Radium-226 and Radon-222 and its daughters are discussed, the
2999 document does not thoroughly evaluate the present and future risks potentially presented by increased low-level
3000 as a cumulative factor. This is inconsistent with the requirement "*The NEPA process is intended to help
3001 public officials make decisions that are based on understanding of environmental consequences, and take
3002 actions that protect, restore, and enhance the environment*" A point of some note which is provided in the
3003 "Fact Sheet" is that radon "daughters" adhere to dust particles in the air. Mining and construction sites are often
3004 very dusty, with potentially elevated concentrations of particulates, and particles from large areas of
3005 unconsolidated or sparsely vegetated land. It appears that more current studies may be necessary in order to
3006 objectively quantify any potential for elevated low-level radiation, including any associated risks to humans and
3007 the environment, including any cumulative effects which involve the various documented sources of increased
3008 low-level radiation associated with the phosphate industry.

3009
3010 **Menges, E. S. 2007. Integrating demography and fire management: An example from Florida scrub. Australian
3011 Journal of Botany 55:261-272.**

3012
3013 * Summary:

3014 Author reviews the ecology of fire in the scrub and analyzes life history and demographic data (most
3015 species studied for 10-15 years) of 16 rare and endangered plants of the scrub, and discusses the varied life
3016 history patterns of these plants. Some species balance two opposite strategies of survival in a fire-dominated
3017 system, seeding and sprouting, and others are more dependent on only one strategy.

3018 * Substantive Comment:

3019 3PR questions the adequacy of the environmental analyses in the DAEIS, because it does not
3020 acknowledge the necessity of proper upland ecosystem management through the use of prescribed fire. Fire is
3021 essential to the life histories of most plants in the Florida scrub, and as shown elsewhere in 3PR's comments, in
3022 the expansive dry prairie/flatwoods/pine-palmetto vegetative communities found throughout the southern half
3023 of the CFPD. "Pyrodiversity", the variation of fire regimes in time and space, is essential to the continued
3024 natural functioning of Florida's upland ecosystems. The role of fire in maintaining native upland ecosystems is
3025 nowhere discussed in the DAEIS. The only mention of fire or fire ecology is vaguely in regard to scrub jay
3026 mitigation. 3PR also questions the accuracy of the information in DAEIS, because it is stated that "*The
3027 phosphate industry uses chemical, mechanical, fire, hydrologic, and manual techniques to control nuisance and
3028 exotic plant species in mitigation areas.*" Although this statement is not in the context of fire ecology, it should
3029 be pointed out that burning the vast infestations of cogongrass which occur on mined and "reclaimed" lands is
3030 not compatible with what few native plant species may remain there, and also may not be compatible with some
3031 wildlife species. Also, using fire in an attempt to improve the appearance of land, without any real hope of

3032 eradication (as is the case with cogongrass growing in post-mining substrates) creates smoke and other air
3033 pollution concerns.

3034
3035 **Menges, E. S. 2008.** Restoration demography and genetics of plants: When is a translocation successful?
3036 Australian Journal of Botany 56:187-196.

3037
3038 * Summary:

3039 This review paper stresses the many complex ecological factors that govern a reintroduction and the
3040 many complex ecological relationships that must be re-established for a species reintroduction to be considered
3041 a success. Chief among them is the generation time of a species. For long-lived plants, it may take decades for
3042 the translocated plants to become reproductive.

3043 * Substantive Comment:

3044 Long-term monitoring of reintroductions is necessary to evaluate the success of a project, and funding
3045 for such monitoring should accommodate this long-term component of reintroduction projects.

3046
3047 **Menges, E.S. and Gordon, D.R. 2010.** Should mechanical treatments and herbicides be used as fire
3048 surrogates to manage Florida's uplands? A review. Florida Scientist 73:147-174.

3049
3050 * Summary:

3051 Mechanical treatments and herbicide often accelerated vegetation structure changes, but ecological
3052 benefits were generally greatest when they were combined with fire. Soil disturbances, weedy species
3053 increases, and rapid hardwood resprouting were sometimes problems with mechanical treatments. Fire itself
3054 was crucial for maintenance of individual species and species diversity. When feasible, mechanical and
3055 herbicide treatments should be used as pretreatments for fire rather than as fire surrogates. Managers should
3056 segue to fire-only approaches as soon as possible.

3057 * Substantive Comment:

3058 (Used in support of other comments). One of many papers indicating that natural fire, or in this case
3059 prescribed fire, is the ecologically correct and natural method for the management of xeric upland habitats. The
3060 DAEIS is completely inadequate in sufficiently characterizing ecosystems and managing natural areas within
3061 the CFPD.

3062
3063 **Meyerson, Laura A., et al. 2005.** Aggregate measures of ecosystem services, can we take the pulse of nature.
3064 Front Ecol Environ 2005; 3(1): 56-59.

3065
3066 * Summary:

3067 Stresses the imperativeness of "ecosystem services" as essential to human well-being and that such
3068 services provide life support for the human population. Concludes that "quantifying and monitoring the flows
3069 of ecosystem services is critical", and that "quantification of ecosystem services and communication of the
3070 information to decision makers and the public is critical to the responsible and sustainable management of
3071 natural resources."

3072 * Substantive Comment:

3073 3PR questions the adequacy of the environmental analyses in the DAEIS, because it fails to consider
3074 the "essential life support" value of the extensive natural ecosystems which large-scale phosphate strip mining
3075 destroys. It has not quantified, nor does it provide any direction for the adequate protection and monitoring of
3076 "ecosystem services" within the CFPD which are essential to both humans and the environment.

3077

3078 **Naeem, Shahid et al. 1999.** Biodiversity of Ecosystem Functioning: Maintaining Natural Life Support
3079 Processes. Issues in Ecology. No. 4, Fall 1999.

3080

3081 * Summary:

3082 On of the most conspicuous aspects of contemporary global change is the rapid decline of the diversity
3083 of the Earth's essential ecosystems.

3084 * Substantive Comment:

3085 3PR objects and questions the adequacy of the environmental analyses and adequacy of the
3086 information in the DAEIS, because it does no consider the ALL IMPORTANT subject of "biodiversity". the
3087 fact that humans need healthy ecosystems for their continued existence, and the phosphate strip mining may be
3088 the largest single contributor to the destruction of genetic diversity and the environment in central Florida.
3089 NEPA's charter of "*Protection of the Environment*" is all but ignored in the DAIES.

3090

3091 **Orzell, Steve L., and Bridges, Edwin L. 2006.** Species Composition and Environmental Characteristics of
3092 Florida Dry Prairies from the Kissimmee River Region of South-Central Florida. Avon Park Air Force Range,
3093 Environmental Flight. Proc. Fla. Dry Prairie conf.

3094

3095 * Summary:

3096 Species composition and environmental characteristics of prairies (dry prairie / palmetto / pineland)
3097 within the Kissimmee River region. Six community types were recognized and characterized: dry-mesic,
3098 mesic, wet-mesic spodic, wet-mesic, acidic wet, wet-mesic alfic and calcareous wet prairies. The latter two
3099 represent previously unrecognized community types in south-central Florida. Overall, 269 vascular plant taxa
3100 were recognized. Species richness was measured, and soils and soils horizons were identified and name using
3101 hydrologic modifiers, then measured, and characterized for each community type. Quantitative vegetation
3102 sampling and multivariate statistical analysis was conducted for vegetation classification and ordination.
3103 Community analysis involved Canonical Correspondence Analysis (CCA). Soils were analyzed using 38
3104 variables, including 33 environmental/physical/chemical attributes.

3105 * Substantive Comment:

3106 3PR questions the adequacy of the environmental analyses in the DAEIS, because it fails to include
3107 this landmark central Florida research, examines the highly precise relationship between individual species and
3108 their specific soils and vegetative community type, in evaluation of the environmental impacts of phosphate
3109 strip mining, and in it decision-making for "*Protection of the Environment*", which is the NEPA purpose.
3110 Orzell and Bridges clearly established the existence of a high degree of soil and hydrologic specificity for
3111 native dry prairie plant species. Although the study was conducted east of the Lake Wales Ridge in the Osceola
3112 Plain and Okeechobee Plain, the ecosystems and environmental conditions which were examined in the study

3113 area are very similar to those in the southern half of the CFPD. The study is widely known and adopted by
3114 Florida plant ecologists and used by federal land managers in the conservation of important, often very large
3115 federal reserves and properties.

3116 3PR further questions the adequacy of the environmental analyses in the DAEIS, because the results of
3117 other highly important, very relevant landmark ecological studies were not considered in its development, and
3118 because expert regional restoration and conservation scientists such as those at nearby federal institutions such
3119 as the Natural Resources Flight of the Avon Park Air Force Range and Archbold Biological Station (the
3120 premier research biological research institution in Florida), were not "solicited" and engaged for consultation,
3121 asked to provide relevant research, or retained to conduct much-needed site-specific ecosystem analyses in the
3122 CFPD, particularly in those regions planned for destruction by the phosphate strip mining industry.
3123 Additionally, the analyses provided in the document insufficiently characterizes the cumulative impacts to these
3124 rapidly dwindling communities, which are all but extinct in some cases, and does not, with particularity and
3125 specificity, address their ecological sensitivity, as required in order to fulfill the stated purpose of NEPA which
3126 is "*Protection of the Environment*". 3PR contends that the DAEIS is particularly insufficient and inaccurate
3127 because it does specifically include analyses of the dry prairie (flatwoods, pine/palmetto flatwoods) vegetative
3128 communities that will be lost to phosphate strip mining mainly in the southern half of the CFPD. It is further
3129 insufficient because scientific research indicates a strong correlation to native plant species and highly specific
3130 natural soil types, which indicates that the destruction of these communities, and the ecosystems of which they
3131 are an integral part, will be permanent. Also see Cole et al 1994.

3132
3133 **Palmer, Margaret A., et al. 2005.** Ecological science and sustainability for the 21st century. Front Ecol
3134 Environ 2005; 3(1): 4–11.

3135
3136 * Summary:

3137 Ecological science has contributed greatly to our understanding of the natural world and the impact of
3138 humans on that world. Now, we need to refocus the discipline towards research that ensures a future in which
3139 natural systems and the humans they include coexist on a more sustainable planet. Acknowledging that
3140 managed ecosystems and intensive exploitation of resources define our future, ecologists must play a greatly
3141 expanded role in communicating their research and influencing policy and decisions that affect the
3142 environment. To accomplish this, they will have to forge partnerships at scales and in forms they have not
3143 traditionally used. These alliances must act within three visionary areas: enhancing the extent to which
3144 decisions are ecologically informed; advancing innovative ecological research directed at the sustainability of
3145 the planet; and stimulating cultural changes within the science itself, thereby building a forward-looking and
3146 international ecology. We recommend: (1) a research initiative to enhance research project development,
3147 facilitate large-scale experiments and data collection, and link science to solutions; (2) procedures that will
3148 improve interactions among researchers, managers, and decision makers; and (3) efforts to build public
3149 understanding of the links between ecosystem services and humans.

3150 * Substantive Comment:

3151 3PR questions the adequacy of the environmental analyses and the accuracy of information in the
3152 DAEIS, because the document represents a failure in the scientific process. This research clearly establishes

3153 the need for better research initiatives, and improvement between the interactions of researchers and decision
3154 makers. For many sections of the DAEIS it is difficult to determine which information or position to evaluate
3155 and comment upon. Clarity is lacking, objectivity is lacking, scientific qualification is lacking, and there are
3156 many opposing statements.

3157 * Recommendation:

3158 The DAEIS should be rejected and completely rewritten, this time employing "independent" scientific
3159 authorities and credible research institutions to provide scientific information, analyses, and required research.
3160 "Objective" public involvement needs be much greater, and information and research need to be solicited from
3161 qualified sources. Many highly important cumulative analyses are needed in order to resolve the plethora of
3162 important, unresolved concerns relating to the extensive negative impacts of large-scale phosphate strip mining
3163 and its associated industries.

3164
3165 **Pfeffer, W.T., Harper, J.T., O'Neel, S. 2008.** "Kinematic Constraints on Glacier Contributions to 21st-
3166 Century Sea-Level Rise". Science 321 (5894): 1340-3.

3167
3168 * Summary:

3169 Analyzes global warming and sea level rise (SLR).

3170 * Substantive Comment:

3171 (See CHNEP. 2010, above).

3172
3173 **Rau, John G. and Wooten, David C. 1980.** Environmental Impact Analysis Handbook. McGraw-Hill, New
3174 York. 737pp.

3175
3176 * Summary:

3177 This publication has long been a "standard" for applying the NEPA EIS environmental assessment
3178 process, and is designed to "provide environmental planners, analysts, and decision-makers with specific
3179 techniques and tools that can be used to assess and predict the environmental impact of projects." It provides a
3180 very thorough and cohesive framework for evaluating the environmental impacts of large projects, and also
3181 clearly explains sound principals of ecological evaluation and decision making. It is cited and used by the
3182 Bureau of Land Management (BLM) and other federal agencies. The methodologies, procedures, and scientific
3183 determination presented in this handbook were specifically developed for NEPA environmental analyses.

3184 * Substantive Comment:

3185 The DAEIS is inadequate and inaccurate because it did not consider the important scientific literature
3186 and guide to the NEPA process. The "Environmental Impact Analysis Handbook" specifically identifies and
3187 discusses significant environmental issues directly relevant to the type of impacts caused by phosphate strip
3188 mining. It should have been relied upon and referenced extensively in the development and decision-making of
3189 the DAEIS. Instead of following the standard procedures and analyses contained in this handbook, which is
3190 used throughout the U.S., its territories, and possessions, the DAEIS disproportionately favors the
3191 representations and proposed methodologies of the Applicants.

3192
3193 **Reid, K. et al. 2010.** Krill population dynamics at South Georgia: implications for ecosystem-based fisheries
3194 management. Marine Ecology-progress Series - MAR ECOL-PROGR SER, vol. 399, pp. 243-252.

3195
3196 * Summary:
3197 Analysis of Krill-based food web in Antarctica. Krill populations down by more than 80% due to
3198 global warming effect on sea ice plankton.
3199 * Substantive Comment:
3200 (See CHENP 2010 reference, and comment).
3201
3202 **Ross et al. 1997/9.** FIPR Hydrologic Model, Parts III & IV: SWFWMD. For, the Florida Institute of
3203 Phosphate Research. By, Dept. of Geology, Univ. of S. Fla.
3204
3205 * Summary:
3206 Describes the application of FHM to the SWFWMD data base. Provides various tables, including
3207 Land Use Attributes for a Generalized GIS Coverage of Land Use which correlates FLUCCS codes and
3208 descriptions to several hydrologic factors, such as "Plant ET Coeff".
3209 *"The plant ET coefficient is used in the integration to modify the remaining potential ET*
3210 *after all surface water ET fluxes are determined. The plant ET coefficient limits the plant*
3211 *ET in the ground water based on the vegetative land cover. Plants that transpire very little*
3212 *will require a plant ET coefficient much less than one. Plants that readily transpire at the*
3213 *potential given the proximity of the water table within the root zone water will have a plant*
3214 *ET coefficient close to one. Urban areas may obviously use plant coefficients near zero.*
3215 *The limits of the plant ET coefficient are between 0.0 and 1.0."*
3216 * Substantive Comment:
3217 (None) [Used as data source: See Table 3].
3218
3219 **Smith et al. 2006.** Eutrophication of freshwater and marine ecosystems. Limnol. Oceanogr., 51(1, part 2),
3220 2006, 351-355.
3221
3222 * Summary:
3223 Nutrient enrichment of aquatic ecosystems typically results in significant alterations in
3224 biogeochemical cycling over both space and time. Concludes that it has been clearly established that two
3225 primary nutrients (P and N) can regulate aquatic primary productivity in most lakes and coastal marine
3226 ecosystems, although the actual response of primary producers to N and P enrichment can be modified by
3227 factors such as light limitation, hydrology, and grazing. The management of nutrient loading thus can be
3228 expected to remain a keystone to maintaining desirable quality in our surface waters. Echoes the conclusion of
3229 Schindler (2006) that despite these very significant advances, eutrophication remains one of the foremost
3230 problems in protecting freshwater and coastal marine ecosystems.
3231 * Substantive Comment:
3232 3PR questions the adequacy of the environmental analyses and accuracy of the information in the
3233 DAEIS, because the eutrophication of aquatic systems is a very serious issue and concern which has been
3234 correlated to increases in phosphorus (P) and nitrogen (N). Some of the substrates with which the phosphate
3235 strip mining industry replace the native soils and landscapes are high in phosphorous. This issue is a potential
3236 concern which relates to the on-site environment of phosphate lands after mining, but most significantly to
3237 offsite destinations via drainage, regular discharges, spills, and other transport mechanisms. Elevated

3238 phosphorous in the Peace River, as compared to historic values, has been a serious problem in the past. The
3239 downstream destinations of Charlotte, Lee, and Sarasota counties are of particular concern due to their large
3240 coastal populations and high property values.

3241
3242 **Stockwell, Heather G., Lyman, Gary H., Waltz, Julie and Peters, John T. 1988. Lung Cancer in Florida,**
3243 **Risks Associated with Residence in the Central Florida Phosphate Mining Region.** Am. J. Epidemiol. (1988)
3244 128 (1): 78-84.

3245
3246 * Summary:

3247 This research was a case-control study that included 25,398 cases of lung cancer among Florida
3248 residents. It was conducted to determine if residence in the central Florida phosphate mining region was
3249 associated with an increased risk of lung cancer. A twofold increase in lung cancer risk was observed among
3250 male nonsmokers who lived in the study area. Risks were elevated for all major lung cancer cell types.

3251 * Substantive Comment:

3252 3PR questions the adequacy of the environmental analyses of the DAEIS because the document fails
3253 to appropriately evaluate low-level radiation levels which may be increased as a result of phosphate mining and
3254 other related processes and activities. The DAEIS fails to ensure that this phenomenon does not present risks
3255 and threats to public health, wildlife, and the environment. Other research also establishes that elevated low-
3256 level radiation exists within the CFPD, and potentially in association with some phosphate products, such as
3257 fertilizers, as well.

3258 * Recommendation:

3259 The public and environmental health issue must be completely evaluated. Comprehensive analyses
3260 and epidemiological studies are needed before additional phosphate strip mining permits are considered. (See
3261 other comments involving the issue of elevated radiation risks).

3262
3263 **USCCR (U.S. Commission on Civil Rights). 2003. Not in My Backyard: Executive Order 12898 and Title**
3264 **VI as Tools for Achieving Environmental Justice.** Washington, DC.

3265
3266 * Summary:

3267 Details the problems of discrimination and government negligence where protecting the people of
3268 minority and low-income communities (populations), and explains the duties and requirements of federal
3269 agencies to comply with all laws and mandates (such Executive Order 12898) in protecting such disadvantaged
3270 classes.

3271 * Substantive Comment:

3272 When protection of the environment is concerned, federal agencies are required to conduct studies to
3273 determine the needs of minority communities and low-income communities, and to provide consideration
3274 through NEPA in federal actions. There is no mention of this publication, or of the "Commission on Civil
3275 Rights" in the DAEIS. The scant discussion of "Environmental Justice" in Chapter 1.7 of the DAEIS is
3276 inappropriate, inaccurate, and completely inadequate to address the concerns of the disadvantaged classes of
3277 Hardee and DeSoto counties (as detailed in previous 3PR comments).

3278

3279 **USDA. 1990. Soil Survey of Polk County, Florida.** U.S. Dept. of Agriculture. Natural Resources
3280 Conservation Service (NRCS).
3281
3282 * Summary:
3283 Soil Survey of Polk County, Florida. Hard Copy.
3284 * Substantive Comment:
3285 (Use as general reference only).
3286
3287 **USDA. 2012. Federal Noxious Weed List.** U.S. Department of Agriculture (USDA/APHIS), effective
3288 December 10, 2010, updated February 1, 2012.
3289
3290 * Summary:
3291 Contains the current (as of Feb. 1, 2012) list of federally listed noxious plant species. The National
3292 Invasive Species Council was created by: "Executive Order 13112 On Feb 3, 1999, Executive Order 13112
3293 was signed establishing the National Invasive Species Council. The Executive Order requires that a Council of
3294 Departments dealing with invasive species be created."
3295 * Substantive Comment:
3296 In addition to several other noxious species which colonize "reclaimed" land, this list contains
3297 "cogongrass" (*Imperata cylindrica*).
3298
3299 **USDA. 2012a. National Soil Survey Handbook (NSSH),** title 430-VI. U.S. Department of Agriculture, Natural
3300 Resources Conservation Service (NRCS): <http://soils.usda.gov/technical/handbook/>. Accessed 24-July-2012.
3301
3302 * Summary:
3303 Provides new information about soils properties and qualities including the implementation of new
3304 engineering criteria which has resulted in extensive changes in hydrologic group designations within the CFPD,
3305 specifically involving the "splitting out" of many A/D hydrologic group soils polygons from B/D polygons.
3306 * Substantive Comment:
3307 (no comment is necessary, the information in the handbook is simply needed for discussions).
3308
3309 **USDA. 2012b. Detailed Soil Survey for Hardee County - GIS Shapefile Data.** U.S. Department of
3310 Agriculture, Natural Resources Conservation Service (NRCS). Soil Data Mart Database. Accessed: 24-July-
3311 2012.
3312
3313 **USEPA. 1997. Interim Final Guidance For Incorporating Environmental Justice Concerns In EPA's NEPA**
3314 **Compliance Analyses.** USEPA.
3315
3316 * Summary:
3317 EISs are required to be broad in scope, addressing the full range of potential effects of the proposed
3318 action on human health and the environment. Regulations established by both the Council on Environmental
3319 Quality (CEQ) and EPA require that socioeconomic impacts associated with significant physical environmental
3320 impacts be addressed in the EIS. This guidance highlights important ways in which EPA-prepared NEPA
3321 documentation may help to identify and address ENVIRONMENTAL JUSTICE concerns.
3322 * Substantive Comment:

3323 3PR questions the validity of the DAEIS, because it is evident that the rights of citizens of the low-
3324 income and minority communities in DeSoto and Hardee counties have not been properly protected, and they
3325 have not been appropriately informed as to the impacts that area-wide phosphate strip mining will have on their
3326 lives and communities. Clearly indicates that Environmental Justice is to be administered at the "Community"
3327 level. Also, see 3PR's previous, primary Environmental Justice comments.

3328
3329 **USEPA. 2010. EPA's Action Development Process, Interim Guidance on Considering Environmental Justice**
3330 **During the Development of an Action.** USEPA.
3331

3332 * Summary:

3333 Provides list of steps, definitions, and explanations for considering "Environmental Justice" during the
3334 development of an action. Explicitly integrates Environmental Justice considerations into the fabric of EPA's
3335 ADP from rule inception through all the stages leading to promulgation and implementation. Provides
3336 additional information and decision-making processes relating to Environmental Justice concerns during the
3337 development of an action.

3338 * Substantive Comment:

3339 3PR questions the validity of the DAEIS, because it is evident that the rights of citizens of the low-
3340 income and minority communities in DeSoto and Hardee counties have not been properly protected, and they
3341 have not been appropriately informed as to the impacts of area-wide phosphate strip mining will have on their
3342 lives and communities. Clearly indicates that Environmental Justice is to be administered at the "Community"
3343 level. Also, see 3PR's previous, primary Environmental Justice comments.

3344
3345 **White, W. A. 1970. The geomorphology of the Florida peninsula.** Fla. Dept. Nat. Resour., Bur. Geol. Bull.
3346 51:1-164.

3347
3348 * Summary:

3349 General mapping of the physiographic features and regions of peninsula Florida. Universally used as a
3350 standard.

3351 * Substantive Comment:

3352 Indicated the physiographic complexity of west-central Florida. It has been extremely well established
3353 that endemism and ecological uniqueness is strongly related to geomorphologic complexity.

3PR FINAL RECOMMENDATION

3354

3355 3PR finds with strong and reasonable basis that the DAEIS is not consistent with the NEPA purpose of
3356 "*Protection of the Environment*". The many deficiencies identified through 3PR's foregoing comments, the
3357 gross inadequacies in the environmental analyses, and problems with the accuracy of information, make the
3358 DAEIS unfit for public review and comment.

3359 The DAEIS should be rejected in its entirety and replaced by a much more concise and complete
3360 document which is based entirely on objective, rational, and complete scientific analyses. A review and
3361 comment period of at least 12 months should be provided. It is imperative that notifications and public
3362 involvement be greatly expanded and improved in terms of informing and educating the public concerning the
3363 varied impacts of phosphate strip mining. In order for "fair" review to take place, it is also essential that
3364 interested parties and potential reviewers be provided: (1) access to the four proposed phosphate strip mine
3365 properties so that the information and assertions of the Applicants may be verified; (2) all referenced and
3366 related documents, communications, and resources consulted or relied upon (in digital formats); that
3367 interactions between the USCOE and the Applicants take place only in a public forum, or that complete records
3368 of such communications be recorded and immediately made available for public viewing.

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Appendix A: Comment and Response Tables

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Comment Source	Comments/Comment Summaries	Comment Responses
Dennis Mader, 3PR	The AEIS does not comply with the requirements of NEPA.	As noted in Section 1.4 of the Draft and Final AEIS, the objectives of the AEIS are to analyze the direct, indirect and cumulative effects associated with the mine permit applications and alternatives to the requested permit actions. Section 1.4 also notes that "the over-arching goal of this AEIS is to support regulatory decision to be made by the USACE and other agencies..." Those regulatory decisions include requests to discharge dredge or fill material in Waters of the U.S. regulated under the Clean Water Act. In considering the permit applications, the USACE seeks to protect the Nation's aquatic resources, balance the reasonably foreseeable benefits and detriments of the project projects, and make permit decisions that recognize the values of the Nation's aquatic ecosystems to the general public. Chapter 1 has been revised to more clearly link the USACE's purpose and need in preparing the AEIS to its goals and objectives.
	In general, 3PR contends that the environmental analysis is so highly inadequate, inaccurate, and in many instances misleading that the DAEIS should be completely rejected in favor of the development of a new, more objective, complete, reasonable, clear and concise document which provides the meaningful and measurable directives needed to protect west-central Florida from the diverse negative impacts associated with phosphate strip mining.	Included in summary above.
	3PR's comments, objections, and recommendations are based on the scientific knowledge and observations of regional experts, published scientific literature developed by regional environmental experts, and data and analyses developed by, and freely available from, public sources. 3PR has provided facts which unequivocally demonstrate that the DAEIS is insufficient and inadequate for its legally required purpose of "Protection of the Environment". 40 CFR. 1502.9 Draft, final, and supplemental statements. Except for proposals for legislation as provided in Sec. 1506.8 environmental impact statements shall be prepared in two stages and may be supplemented. (a) Draft environmental impact statements shall be prepared in accordance with the scope decided upon in the scoping process. The lead agency shall work with the cooperating agencies and shall obtain comments as required in Part 1503 of this chapter. The draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. The agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action.	Included in summary above.

	<p>The purpose and need statement for the AEIS is incorrect.</p>	<p>In accordance with the National Environmental Policy Act (NEPA), an Environmental Impact Statement (EIS) “shall briefly specify the underlying purpose and need to which the agency is responding” (40 Code of Federal Regulations 1502.13). The purpose and need statement is required to be a description of the purpose and need for the proposed project, which has been clarified in Section 1.2 and includes a description of the USACE'S basic and overall project purpose, the public need, and the Applicants' purpose and need.</p>
	<p>3PR objects to the "purpose and need" as stated in the DAEIS. "The Applicants' purpose and need forms the basis for the alternatives analysis. The purpose and need for an Environmental Impact Statement is "Protection of the Environment" in federal actions. Nowhere is this NEPA directive found in the DAEIS. The position taken by the USCOE is inconsistent with federal law, and has the effect not only of promoting phosphate strip mining, but to virtually assure and predetermine that alternatives proposed by the Applicants are approved (permitted). This position taken by the USCOE effectively excludes Alternative-1 ("No Action" / "no permit"). It is clear that all of the other alternatives are merely additional scenarios acceptable to the Applicants. In actuality, NEPA requires that "the agency" propose the "alternatives, including the proposed action", not the Applicants.</p>	<p>Included in summary above.</p>
	<p>The "Purpose and Need" for the AEIS should be changed to: "The purpose of the proposed action is "Protection of the Environment" via comprehensive analysis of the direct and cumulative environmental impacts of phosphate strip mining in the CFPD, and assuring the protection the natural environmental, public health safety, and the conservation of water and air resources in considering federal permit applications."</p>	<p>Included in summary above.</p>
	<p>The DAEIS is inappropriate in that it mostly avoids the "Purpose" for issuing an Environmental Impact Statement under NEPA, which is "Protection of the Environment". 3PR perceives that the DAEIS disproportionately favors the desires and positions of the Applicants throughout: which is to strip mine nearly every available acre!</p>	<p>Included in summary above.</p>
	<p>The AEIS is too long, the time to comment was too short, and the information in the document is incorrect or inadequate.</p>	<p>The lengths of the Draft and Final AEISs are based on the potential environmental problems and the project size, in accordance with CEQ regulations. The comment period for the Draft AEIS was extended by the Corps to allow additional time for review and comment. The comments about the information in the document are acknowledged. The Corps considered such comments in its preparation of the Final AEIS, including updating and making corrections as necessary.</p>

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	<p>The DAEIS is not adequate or accurate because it does not broadly consider readily available, independent, regionally qualified, third-party research, which is crucially relevant to the understanding and protection of the vast repositories of natural resources proposed for destruction as a result of phosphate strip mining. The DAEIS is further inadequate, incomplete, and generally deficient because the following important, relevant, or regionally applicable data, research, and analyses were omitted and therefore not considered in the decision-making processes during the development the document. In addition, it appears that a significant percentage of the resources cited in the DAEIS were obtained from the phosphate industry, phosphate industry contractors, or established phosphate mining proponents with vested interest in phosphate mining. In addition to the many other problems relating to the DAEIS source materials, which 3PR cited previously, the references cited infer that the base of information used for the DAEIS is not sufficiently impartial, neutral, or qualified.</p>	<p>Included in summary above.</p>
	<p>FDOT. 1990. Florida Land Use, Cover and Forms Classification System (Handbook), 3rd ed. Dept. of Trans. Surveying and Mapping, Geo. Mapping Sect., Tallahassee.</p> <p>* Summary: The standard land use and cover classification and mapping system used by government agencies, professionals, and scientists.</p> <p>* Substantive Comment: The FLUCCS system has been inaccurately and improperly applied in developing land use maps for the SWFWMD which includes the CFPD. FLUCCS requires that once land has been mined that it must be assigned a "mining" cover type and classification. The DAEIS is not accurate and is inadequate because it purports to have been based on SWFWMD land use mapping data which 3PR contends is in error and does not conform to the primary and universally used standard, which is FDOT 1990 FLUCCS.</p>	<p>Included in summary above.</p>
	<p>3PR has very significant concerns relating to the methodologies and results of the 2009 SWFWMD GIS mapping of District land uses purportedly using FLUCCS (1990) as found in 3PR's references below: 3PR finds that this mapping is in error in important ways, in that non-mining cover type designations have been used for areas of mining and areas of reclamation. FDOT FLUCCS 1990 requires that once an area has been mined, it remains a "160 Extractive" mining category, the best and highest category of which is "165 Reclaimed Land".</p> <p>3PR has unanswered questions concerning the application of FLUCCS categories in the mapping of existing land uses and cover types, and the way in which the system was applied in mapping post-mining cover.</p>	<p>Included in summary above.</p>

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	<p>Many of the referenced sources in the DAEIS originate from government agencies, the phosphate industry, the Phosphate Council, phosphate consultants, or phosphate industry proponents. These include permit applications, industrial-engineering-hydrology-mining studies, survey results, various data, website access links, and undocumented personal communications.</p> <p>Not included in the DAEIS references are the many important studies and research relating to (See enumerated issues starting on Page 7).</p>	<p>Included in summary above.</p>
	<p>The objectiveness, credibility and appropriateness of the comments and references which are included in an EIS, should be more carefully considered. One of the main problems with the DAEIS is that documentation/information is presented from government or scientific sources in one paragraph or on one page and then opposite statements are presented in/on the next which apparently emanate from industry-related sources. This is a recurring theme throughout the DAEIS. The USCOE should only include data, information, and analyses to which it is willing to attest as being the best possible scientific evidence, and the most honest and objective (untainted) available! An Environmental Impact Statement is a very important instrument designed to guide the permitting of large projects ensuring "Protection of the Environment". The document should not be used as a platform for presenting debate or opposing arguments. Often, 3PR could not identify the position of the agency in relation to important issues. Usually, only discussion, data, and results are presented, but without an affirmative conclusion and agency accepted determination.</p>	<p>Included in summary above.</p>
	<p>3PR questions the validity and intent of the DAEIS as a tool which furthers the interests of mankind. The document presents voluminous amounts of generic data, including many excerpts from public documents, some of which is appropriate, most of which is either inappropriate or unnecessary.</p>	<p>Included in summary above.</p>
	<p>3PR finds with strong and reasonable basis that the DAEIS is not consistent with the NEPA purpose of "Protection of the Environment". The many deficiencies identified through 3PR's foregoing comments, the gross inadequacies in the environmental analyses, and problems with the accuracy of information, make the DAEIS unfit for public review and comment.</p>	<p>Included in summary above.</p>
	<p>In the sections which follow, 3PR supports with sound and legal and scientific basis that the information provided in the DAEIS is generally inadequate and inaccurate for its intended purposes of "Protection of the Environment". 3PR considers that many statements and portions of the DAEIS consists merely of large volumes of pro forma data and cookie-cutter analyses which do not further the "understanding of environmental consequences, and take actions that protect, restore, and enhance the environment" as required by NEPA.</p>	<p>Included in summary above.</p>

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	<p>The DAEIS is insufficient and/or unsupported by independently developed, regionally relevant data and proper site-specific evaluations and research. Most sections are highly deficient and preclude meaningful review and comment. The content of the DAEIS appears to rely disproportionately on representations, data, and analyses obtained from the Applicants and/or other sources directly or indirectly related to the phosphate strip mining industry, such as The Phosphate Council. These interactions may be procedurally "technically" permissible? However, they greatly tarnish transparency in the NEPA process, and serve to erode the credibility of the DAEIS. Voluminous information, data, and analysis are provided in the DAEIS. However, in large part, the quality, appropriateness, and relevancy of the information are perceived by 3PR as grossly unacceptable. It appears that the DAEIS includes precisely the types and bulk of content that NEPA specifically warns not to include or indulge in: "Agencies shall focus on significant environmental issues and alternatives and shall reduce paperwork and the accumulation of extraneous background data. Statements shall be concise, clear, and to the point, and shall be supported by evidence that the agency has made the necessary environmental analyses". These points are more particularly described in later sections below.</p>	<p>Included in summary above.</p>
	<p>3PR questions and contends that the DAEIS promotes many positions for which there is intense and adamant disagreement among scientists and researchers who are "independent" of the phosphate industry, and its related agencies, consultants, attorneys and public relations personnel. Many of these disagreements have to do with the tremendous extent of wetlands, upland native ecosystems, and native biota historically destroyed by phosphate strip mining, and the fact that many of these systems can never, and have not, been replicated, replaced, or effectively restored to any reasonably viable or functional ecological systems, and that the native assets involved are essential to protect in trust for the future of humanity.</p> <p>The DAEIS almost completely omits and avoids the tremendous body of scientific literature and research data and analyses which show the negative impacts which phosphate strip mining and its related industries have imparted to native upland and wetlands ecosystems and biota, rivers, streams, estuaries and other aquatic resources, groundwater resources, surface water resources, aquifers, water quality, availability, and distribution, climate, community planning, and public health and safety, and many other areas of concern to the environment and the human population which depends upon it.</p>	<p>Included in summary above.</p>
	<p>Unfortunately, because of the completely inadequate amount of time provided by the USCOE/USEPA to obtain and comment on the contents of a 1,063 page report, 3PR can only respond on a few issues.</p>	<p>Included in summary above.</p>

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	<p>3PR objects and questions the excessive length of the DAEIS, and to the completely insufficient 60- day time period allotted for review and comment. This restriction is both unreasonable and untenable for any person, any group, or any agency. The length, unnecessary complexity, and lack of clear succinctness, is inconsistent with NEPA, which requires that an EIS not just "generate paperwork", but that it should "reduce paperwork and the accumulation of extraneous background data". NEPA recommends that such documents be less than 150 pages long, or normally less than 300 pages for more complex proposals. The 1,063 page length of the DAEIS is highly excessive, and exceeds the maximum of these recommended standards by well over three fold. In effect, its extreme length and complexity precludes review and comment on all but a few of the important issues and, in so doing, violates the public trust, greatly diminishes public participation, and suppresses public scrutiny.</p>	<p>Included in summary above.</p>
	<p>Concerned citizens, and interested parties and organizations, have therefore been completely overwhelmed by the amount of documentation contained in these documents, and by the scope of the ancillary documents, research publications, regulations, and website materials which must also be collectively digested and considered in responding to the DAEIS.</p> <p>Because of the immense, once-in-history importance of the DAEIS, and consideration of the four expansive phosphate strip mining projects, 3PR is compelled to continue and thoroughly articulate this significant issue, and further object to the unnecessary length and complexity of the DAEIS (included its related documents and sources). The public is entitled to a fair and liberal opportunity to thoroughly evaluate the DAEIS, because "public scrutiny is essential to implementing NEPA", and because the resulting Area-wide EIS will in large part determine the destiny of an entire region and ultimately affect the lives of millions of people. As phosphate strip mining has done historically, it will most certainly leave a legacy of environmental and economic liability, in perpetuity, resulting from its diverse and comprehensive negative environmental impacts. This is true because phosphate strip mining is non-renewable, non-sustainable. It is a here-then-gone, purely exploitive industry, which leaves an extensively altered and often abandoned, or forgotten, alien landscape in its wake.</p>	<p>Included in summary above.</p>

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	<p>A thorough review of the DAEIS document alone, not including the time and resources needed to verify any of the data or analyses, would require many months. Advertising for and contracting professional consultants capable of performing a thorough review of such a vast and diverse region, involving such a huge number of severe cumulative impacts and other issues, requires considerable time in itself. A 60-day comment timeframe may be acceptable for a very small, single project, which does not involve native ecosystems and water resources impacts, but is completely inadequate for an action involving a geographic area as great as that of the CFPD, which considers such a large range of extreme environmental impacts, and a report of such magnitude, complexity, and length as the DAEIS.</p>	<p>Included in summary above.</p>
	<p>The DAEIS is a technical document involving terminology, data and analyses from many specialized, even unique fields of industry and science. Its development has taken the USCOE, its cooperating agencies, CH2M-Hill (one of largest industry-support consulting firms of its kind), other consultants and advisors, phosphate representatives and employees, and personnel from various agencies, many months to develop. Even if the resources of private sector organizations and government commenters were unlimited, it would be impossible for even a minimal review of the DAEIS in a just 60 days. In order to perform a review and comment on such a voluminous and technical document, and to actually verify some of the data and analyses provided, a much greater span of time would be required, including time for the field verifications, essential investigations, and other analyses necessary to generally evaluate and objectively verify the thousands of statements of the DAEIS, and the actual extent, attributes, and status of ecological/biological resources within the CFPD.</p>	<p>Included in summary above.</p>
	<p>In addition, the USCOE, almost simultaneously issued notice four individual and distinct mine permit applications which include impact areas totaling approximately 60,000 acres. These documents and related materials are individually voluminous and include many separate exhibits and appendices, and they are repeatedly referred to in the DAEIS. The effect of overlapping the DAEIS review with such vast libraries is that only the most minimal comments are possible</p>	<p>Included in summary above.</p>

	<p>The "Assessing Environmental Impact" section of The Environmental Impact Analysis Handbook (Rau & Wooten 1980) identifies several deficiencies in biotic impact assessment reporting which should be avoided:</p> <ol style="list-style-type: none"> (1) "Evasion of possible impacts and lack of their assessment." (2) "Omission of pertinent information necessary for unbiased evaluation of impacts." (3) "Inadequate descriptions of adverse impacts." (4) "A plethora of biotic data or information without interpretation or correlation with possible impacts." <p>The DAEIS is inadequate and inaccurate because it clearly contains and furthers the above listed deficiencies. 3PR specifically addresses these deficiencies and provides evidence and documentation of their existence and deleterious effects on the DAEIS throughout its comments.</p>	<p>Included in summary above.</p>
	<p>Rau, John G. and Wooten, David C. 1980. Environmental Impact Analysis Handbook. McGraw-Hill, New York. 737pp. * Summary: This publication has long been a "standard" for applying the NEPA EIS environmental assessment process, and is designed to "provide environmental planners, analysts, and decision-makers with specific techniques and tools that can be used to assess and predict the environmental impact of projects." It provides a very thorough and cohesive framework for evaluating the environmental impacts of large projects, and also clearly explains sound principals of ecological evaluation and decision making. It is cited and used by the Bureau of Land Management (BLM) and other federal agencies. The methodologies, procedures, and scientific determination presented in this handbook were specifically developed for NEPA environmental analyses.</p>	<p>Included in summary above.</p>
	<p>* Substantive Comment: The DAEIS is inadequate and inaccurate because it did not consider the important scientific literature and guide to the NEPA process. The "Environmental Impact Analysis Handbook" specifically identifies and discusses significant environmental issues directly relevant to the type of impacts caused by phosphate strip mining. It should have been relied upon and referenced extensively in the development and decision-making of the DAEIS. Instead of following the standard procedures and analyses contained in this handbook, which is used throughout the U.S., its territories, and possessions, the DAEIS disproportionately favors the representations and proposed methodologies of the Applicants.</p>	<p>part of above comment</p>

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	<p>3PR objects and questions the excessive length of the DAEIS, and to the completely insufficient 60- day time period allotted for review and comment. This restriction is both unreasonable and untenable for any person, any group, or any agency. The length, unnecessary complexity, and lack of clear succinctness, is inconsistent with NEPA, which requires that an EIS not just "generate paperwork", but that it should "reduce paperwork and the accumulation of extraneous background data". NEPA recommends that such documents be less than 150 pages long, or normally less than 300 pages for more complex proposals. The 1,063 page length of the DAEIS is highly excessive, and exceeds the maximum of these recommended standards by well over three fold. In effect, its extreme length and complexity precludes review and comment on all but a few of the important issues and, in so doing, violates the public trust, greatly diminishes public participation, and suppresses public scrutiny.</p>	<p>Included in summary above.</p>
	<p>3PR questions the adequacy of the environmental analyses in the DAEIS, because Chapter 3.0 "Affected Environment" is entirely inconsistent with the requirements of NEPA. 40 CFR 1502.15 Affected environment. "The environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues. Verbose descriptions of the affected environment are themselves no measure of the adequacy of an environmental impact statement."</p>	<p>Included in summary above.</p>
	<p>Nowhere is the "environment" of the CFPD or the four proposed phosphate strip mine projects "succinctly" described in ways which would allow a reviewer to "understand the effects of the alternatives". And, as detailed in the other comments of 3PR, the data and analyses are definitely not "commensurate with the importance of the impact".</p>	<p>Included in summary above.</p>

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	<p>As with all Chapters of the DAEIS, this section is difficult to follow and evaluate because of such erroneous statements as "The CFPD study area is characterized by prevailing flat terrain. Minimal aesthetic impact concerns are anticipated for any proposed new phosphate mines so long as adequate berms and setbacks or buffers are maintained." The CFPD contains most of the Polk Upland, which is largest upland physiographic province in central Florida, and is characterized as "uplands", "ridges" and "slopes". Positioned within this vast upland region, which has many broadly rolling hills, and riverine/palustrine valleys and ravines, are the even higher hills of the topographically contrasting Lakeland Ridge and Lake Henry Ridge, as well as several unnamed ridges and extensive, intermittent xeric upland areas, such as is found throughout western Manatee County, and along the banks of the Peace River and major creeks. A more appropriate statement for the DAEIS, which is "succinctly" accurate, would be "Phosphate strip mining destroys the historic aesthetic character of each community and region it mines by excavating the hills and valleys, and replacing them with new contours surrounding massively tall, geographically extensive, rectangular dams and impoundments containing inestimable volumes of waste clays."</p>	<p>Included in summary above.</p>
	<p>Much of DAEIS is composed mainly of "useless bulk" and its statements are generally inadequate and inappropriate in properly responding to NEPA requirement, because they do not responsibly characterize and evaluate the "Affected Environment" in a "succinct" manner. Also, they are very frequently contradictory.</p>	<p>Included in summary above.</p>
	<p>NEPA requires that the information in the DAEIS be clear and succinct, and with the most credible scientific foundations. Very few sections of the DAEIS meet any of these criteria, or other NEPA requirements.</p>	<p>Included in summary above.</p>
	<p>The DAEIS fails to communicate in every regard, through its exceedingly poor organization and lack of clarity and measurability, through inestimable numbers of errors, omissions, internal inconsistencies and improper content [incorporated here by reference: the DAEIS additional comments submitted collectively on behalf of Manasota-88, People for Protecting Peace River (3PR), Protect Our Watersheds (POW), Sierra Club Florida Phosphate Committee. The comments of which speak to many technical deficiencies of the document], and because it does not attempt to accommodate the general public through adhering to the NEPA requirements of concise and meaningful succinctness.</p>	<p>Included in summary above.</p>
	<p>The DAEIS is insufficient and inappropriate in its range of content. It includes many sections of irrelevant, superfluous, and unnecessary content. Federal law required the DAEIS be clear, concise, and condensed.</p>	<p>Included in summary above.</p>

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	<p>The DAEIS "omits" discussion of elevated radiation levels relating to phosphate strip mining, including potential threats to human health and safety, plants, animals (particularly birds), and to the general environment. It "omits" discussion of the extensive infestations of the noxious species known commonly as "Cogongrass" which is and will continue to have profound and wide-spread impacts on the environment and economy of west-central Florida, particularly in and around areas of the phosphate industry's "reclaimed" lands. It "omits" important research relevant to "Protection of the Environment" within the CFPD, and also proper evaluations and characterization of ecosystems and biota (see quotes in next paragraph) which are important to examine in order to assure public health and safety. It is "inadequate" in that through its omissions, and generally throughout its narratives, it does not clearly and completely describe the potential adverse impacts to the environment. In fact, these impacts should be clearly and prominently tabulated for the lay person to fully comprehend, because such is a primary purpose of NEPA through public involvement, public scrutiny, and Environmental Justice. Further, the DAEIS clearly consists of a "plethora" of data and information much if not most of which is not accompanied by clear correlations to the possible or probable negative impacts of phosphate strip mining. The DAEIS is therefore unacceptable and inappropriate in these regards.</p>	<p>Included in summary above.</p>
	<p>The DAEIS focuses almost exclusively on fulfilling the primary economic strategy of the phosphate industry, which has been, and continues to be, to mine every available acre, without adequately protecting the irreplaceable subtropical ecosystems and extensive water resources which is destroys, and without assuming responsibility for the long-term liabilities which fall on local communities. Phosphate strip mining provides the potential for far-reaching and pervasive impacts such as contamination of surface waters and groundwater, and generally elevated radiation levels. Avoided in the DAEIS are competent evaluations of ecological resources and forthright discussions and proposals for "Protection of the Environment" within the CFPD, which is the sole purpose of NEPA as set forth in 40 CFR 1500.1.</p>	<p>Included in summary above.</p>
	<p>The DAEIS should be rewritten to contain only data and scientifically supported descriptions of environmental resources and potential impacts. Some representations made in the document, such as inferring that mining will actually improve the site, are erroneous and greatly erode the credibility of DAEIS. Additionally, a very significant body of valuable "independent" scientific research exists which is not utilized or appropriately cited in the DAEIS.</p>	<p>Included in summary above.</p>

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	<p>At a minimum, the DAEIS should include a comprehensive literature search, reviews, and independent biological evaluations and characterizations of ecosystems, vegetative communities, and other biota which occur within the CFPD (Palmer et al 2005). Without comprehensive and competent information there can be no analysis, and therefore no cumulative impact study.</p>	<p>Included in summary above.</p>
	<p>Instead of independent evaluations, the DAEIS relies very heavily on representations and analysis which appear to have been provided by the Applicants, phosphate industry agents, or other phosphate strip mining proponents such as The Phosphate Council. This is a conflict of interests.</p>	<p>Included in summary above.</p>
	<p>The DAEIS lacks specificity and measurability throughout, and is general unqualified because of inadequate, non-regionally-specific data and analyses, and "preparers" who lack adequate experience with the ecosystem and biota of west-central Florida. It does not provide adequate evaluations, conducted by objective, politically neutral third-party researchers, of the vast and irreplaceable natural resources proposed to be destroyed by mining.</p>	<p>Included in summary above.</p>
	<p>The process of preparing the DAEIS should have involved the development of high-quality, site- specific, independently developed and objectively verifiable data, which should have been immediately made available for public scrutiny and certification.</p>	<p>Included in summary above.</p>
	<p>3PR questions the adequacy of the environmental analyses and accuracy of the information in the DAEIS, because it does not provide "accurate scientific analysis", "expert agency comments", but relies disproportionately on representations made by the Applicants. Representations made by the Applicants intrinsically further their needs, and consequently do not fulfill the NEPA purpose of "Protection of the Environment".</p>	<p>Included in summary above.</p>
	<p>3PR questions the adequacy of the scoping process for the DAEIS, because important relevant ecosystem research and analyses, as discussed and cited elsewhere herein, were not independently formulated and conducted specific to the ecosystems, environs, and biota found within the CFPD, particularly within the southern half of this area. Because of the immense size of the CFPD, and the intensity and indelibility of phosphate strip mining impacts, independent, objectively verifiable studies should have been conducted so that the immediate impacts, as well as the cumulative impacts of mining could be properly evaluated. However, this was not the case, as much of the important information which should have been "objective", and subjected to the "public scrutiny" as NEPA requires, appears merely to have been provided by the Applicants, their agents, or phosphate strip mining proponents.</p>	<p>Included in summary above.</p>
	<p>The scoping process was not conducted correctly.</p>	<p>Scoping for the AEIS was conducted in accordance with the appropriate regulations, including for noticing and for soliciting public comments. Details of the scoping process were provided in Chapter 1 of the Draft AEIS.</p>

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	<p>3PR questions the adequacy of environmental analyses and accuracy of the information upon which the DAEIS was based, because seemingly little effort was expended in locating and utilizing regional environmental experts and regionally relevant biological and ecological research published by prominent institutions conducting research in conservation biology in central Florida, such as the Archbold Biological Station, the University of Central Florida, the Natural Resources Flight of the Avon Park Bombing Range, and Tall Timbers Research Station. NEPA requires that appropriate information be solicited from the public. 40 CFR 1506.6 Public Involvement Agencies shall: (d) Solicit appropriate information from the public.</p>	<p>Included in summary above.</p>
	<p>3PR further questions the adequacy of the environmental analyses in the DAEIS, because the results of other highly important, very relevant landmark ecological studies were not considered in its development, and because expert regional restoration and conservation scientists such as those at nearby federal institutions such as the Natural Resources Flight of the Avon Park Air Force Range and Archbold Biological Station (the premier research biological research institution in Florida), were not "solicited" and engaged for consultation, asked to provide relevant research, or retained to conduct much-needed site-specific ecosystem analyses in the CFPD, particularly in those regions planned for destruction by the phosphate strip mining industry.</p>	<p>Included in summary above.</p>
	<p>3PR questions the adequacy of the scoping process for the DAEIS, because it did not sufficiently include involvement of well-known research institutions, regional ecologists, and sources of credible research, especially Archbold Biological Station (preeminent research center for conservation biology, plant ecology and restoration biology in central Florida), the Natural Resources Flight of the Avon Park Air Force Range (conducting federal research for large-scale ecosystem conservation land management involving many listed plants and animals native to central Florida), Center for Plant Conservation Network at Bok Tower Gardens (conducting extensive research relating to listed/endemic native plant relocations, reintroduction strategies, and endemic plant ecology), Tall Timbers (ecological, botanical, management, and forests research) and other central Florida biologists who have conducted independent ecosystems studies. Neither has their relevant published research been cited or considered.</p>	<p>Included in summary above.</p>

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	<p>The DAEIS scoping meeting with the largest turnout reportedly had a significant number of attendees, most of whom were representatives of the phosphate industry or government personnel. Those with the greatest vested interests will always ensure that they are overrepresented. Meetings merely involving small developments, public parks, and local issues often generate much more involvement solely by newspaper advertising. Although the DAEIS and proposed mining operations will result in impacts to tens-of-thousands of acres, involving 6 counties, and 2 watersheds (which include an additional 2 counties), only very limited advertising was provided to the public, and with virtually no "real" characterization of the extreme scale of the proposed projects and magnitude of impacts to the environment and human society.</p>	<p>Included in summary above.</p>
	<p>Except for the select few who have visited active/inactive phosphate strip mines, or have per chance flown over such devastated regions in a plane or helicopter, the general public has no conception as to the degree and magnitude of the impacts, permanency, or associated long-term liabilities and human health risks. The extensive alterations to the Florida landscape which have already occurred within the CFPD are among the most prominent collection of land disturbance features visible from space. 3PR has no doubt that the advertising conducted for the scoping meetings and the narratives, figures, and exhibits of the DAEIS, were/are inadequate to educate the general public concerning the magnitude and impacts of strip mining in west-central Florida. A very large effort, much broader in scope and intensity, should have been made to educate and engage the general public on the very profound issue of regional-scale phosphate strip mining. Involvement in the initial scoping meetings for the DAEIS was therefore unnecessarily selective and restrictive, and constitutes a general public injustice.</p>	<p>Included in summary above.</p>
	<p>Although at least one scoping meeting reportedly hosted over 100 attendees, a large percentage of those present were, intrinsically, representatives of the phosphate industry and various assortments of government officials, agency personnel and assistants. The public has not been adequately noticed and appropriately educated as to the extent, value, complexity, and irreplaceably of the natural resources which may be destroyed by continued phosphate mining. Neither have they been appropriately informed in clear terms, which are meaningful to laypersons, as to the vast array of regional and global consequences of destroying a large percentage of west-central Florida merely for the short-term economic gain of external interests.</p>	<p>Included in summary above.</p>

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	<p>3PR vehemently objects to the scoping process as providing any legitimate bases for the development of the AEIS under NEPA, because the data and analyses, recommendations, and opinions of independent scientists and environmental professionals were not properly considered or incorporated.</p> <p>3PR provided the results of qualified site specific environmental studies, which were summarily rejected without comment or explanation. 3PR provided these environmental analyses through its professional consultants, Winchester Environmental Associates, Inc. Several important primary concerns relating to phosphate strip mining were evaluated through on-site and offsite environmental analyses, including wetlands mitigation, wetland reclamation, endangered species, cumulative impacts, and downstream estuarine concerns. The lead scientist for this exercise is one the most experienced professional consultants in the region, and has qualified as an expert witness and testified in legal proceedings many times.</p>	<p>Included in summary above.</p>
	<p>Resistance to independent scientific information appears to be endemic to phosphate strip mine permitting procedures. However, such rejection of public involvement is diametrically inconsistent with the spirit and intent of NEPA and the public participation and involvement requirements guaranteed under the Act. Moreover, NEPA stresses that public scrutiny is essential to its fair implementation and sole mission of "Protection of the Environment". NEPA requires that agencies encourage participation at all levels and requests involvement and comments from the public, affirmatively soliciting comments from those persons or organizations which may be interested or affected.</p>	<p>Included in summary above.</p>
	<p>If important site-specific relevant research and information provided directly by the highly experienced and reputable representative of a prominent local professional consulting firm is not welcomed by the USCOE, then it is clear that no independent voices were to be considered in the scoping process.</p> <p>This single example is emblematic of the dreadful deficiencies of the scoping process and insincere efforts to claim public involvement and objectivity. This incident solidifies the appearance evident throughout the scoping process of near total reliance on information and representations provided by the Applicants and pro-mining interests.</p>	<p>Included in summary above.</p>

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	<p>The severe time limit restriction for the DAEIS review and comment has the effect of censuring and effectively precluding public involvement. The USCOE should have mailed every resident a succinct description of the proposed action, including simple summaries which explain the project and describe prior phosphate strip mining, in terms the layperson can understand, including a wide range of photos showing the impacts of phosphate mining from the air and ground, and listing and showing all environmental impacts and concerns. The public must be much more broadly and fully informed about phosphate strip mining so that communities will possess "real" information upon which to base their public involvement and their actions.</p>	<p>Included in summary above.</p>
	<p>Note: It seems important that these issues be addressed at public forums where regional experts have been invited to participate. NEPA requires that contributions to the EIS process be "solicited".</p>	<p>Included in summary above.</p>
	<p>3PR questions the adequacy of the environmental analyses contained in the DAEIS, because the NEPA "Public Involvement" requirements were not fulfilled. This may represent a special concern because, as detailed in previous sections of 3PR's comments, significant areas within the CFPD fall into low-income and/or minority dominated categories, suggesting the need for special public involvement considerations. The areas of compliance in question include: 40 CFR 1506.6 Public involvement. Agencies shall: (b) ...In the case of an action with effects primarily of local concern the notice may include: (v) Notice through other local media. (vi) Notice to potentially interested community organizations including small business associations. (vii) Publication in newsletters that may be expected to reach potentially interested persons. (viii) Direct mailing to owners and occupants of nearby or affected property. (d) Solicit appropriate information from the public.</p>	<p>Included in summary above.</p>
	<p>3PR is not aware of the utilization of: the predominant television channels which are viewed locally within the CFPD, notices to churches within the CFPD, minority businesses and business associations within the CFPD, direct mailings to owners and occupants "nearby", but external to, the CFPD, or "affected" properties within or external to the CFPD.</p>	<p>Included in summary above.</p>
	<p>The effects of area-wide phosphate strip mining extend far beyond the boundaries of the individual mine project, or the CFPD, and the public involvement process should have been much more greatly expanded and comprehensive. Again, low-income and minority populations, including non-English speaking, should be entitled to an especially strong effort to educate them as to the potential impacts of area-wide phosphate strip mining on the future of their communities, livelihoods, and futures.</p>	<p>Included in summary above.</p>

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	<p>3PR considers that the AEIS process has been inadequate in effectively soliciting, advertising, and recruiting the independent expert assistance and judgments which are necessary in order to ensure adequate "public scrutiny". NEPA requires that "Agencies shall: Solicit appropriate information from the public". The DAEIS is therefore not founded on "decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." NEPA required that "Environmental impact statements shall be concise, clear, and to the point, and shall be supported by evidence that agencies have made the necessary environmental analyses." Many sections of the DAEIS present no clear point, and are not measurable, or supported by data and analyses.</p>	<p>Included in summary above.</p>
	<p>It is imperative that notifications and public involvement be greatly expanded and improved in terms of informing and educating the public concerning the varied impacts of phosphate strip mining.</p>	<p>Included in summary above.</p>
	<p>3PR questions the adequacy of the DAEIS development processes, because it did not adequately solicit for public input and participation. Regionally recognized, "independent" biological and conservation research institutions and wildlife experts were not sought out for assistance or consulted. Its meetings were not widely advertised in ways that would adequately, accurately, and appropriately characterize and stress the tremendous scope and importance of the proposal, and its potential for long-term negative impacts to human society and the environment. Public notices and advertising did not adequately or appropriately characterize phosphate strip mining and its demonstrated potential for diverse negative impacts to the environment and human society. Additionally, the DAEIS development efforts did not adequately inform the public, with concise descriptions, photos, and through multimedia, TV, and broad Internet advertising, which are the "media of today", as to the condition of previously mined properties. There was no reasonable effort made to inform the general public concerning phosphate strip mining, to depict or characterize their operations and activities, or make them aware of the condition, or uses, or other important issues relating to previously mined lands. An effective and comprehensive educational process is therefore essential in order for the general public is to gain a reasonable level of understanding, and conceptualize the magnitude and potential for negative impacts which phosphate strip mining will have on their communities. Tours of the landscape surrounding Mulberry and Ft. Meade, and the phosphate industrial processing district along SR-60 between Bartow and Mulberry would be very educational.</p>	<p>Included in summary above.</p>

	<p>The Corps did not adequately coordinate with state and local agencies in the development of the Draft AEIS, including consideration of state and local requirements.</p>	<p>As described in the Draft AEIS, the Florida Department of Environmental Protection was a cooperating agency for the AEIS. In addition, most of the state and local governments and agencies with an interest in the four proposed actions were considered to be 'participating agencies' for the AEIS. The Corps met with state and local agency staff on several occasions, including for update meetings. The Corps considered comments received from state and local governments and agencies concerning inconsistencies with state and local regulations in preparing the Final AEIS. Sec. 152.25(b), of the CEQ regulations for implementing NEPA, states that a draft environmental impact statement will list all federal permits, licenses, and other entitlements that must be obtained in implementing a proposed project and . These requirements, as well as other federal regulations where compliance is required are identified in Chapter 6.</p>
	<p>Additionally, 3PR questions the adequacy of the environmental analyses and accuracy of the information in the DAEIS, because NEPA requires coordination and consistency with the laws and future planning strategies of state and local governments. The State of Florida Comprehensive Plan requires that. Florida Statutes: 187.201(13)(b) Policy 5: Prohibit resource extraction which will result in an adverse effect on environmentally sensitive areas of the state which cannot be restored. As detailed elsewhere in 3PR's comments, throughout the DAEIS insufficient evidence of efforts to significantly coordinate with state and local agencies in terms of assuring consistency with their laws, regulations, and adopted land use or agency policy plans. In comparing the policies of the State Comprehensive Plan, Central Florida Regional Policy Plan, and Local Comprehensive Plans of the counties being impacted by phosphate strip mining, many inconsistencies and direct conflicts may be found.</p>	<p>Included in summary above.</p>
	<p>There are very large numbers of state, regional, and local laws and regulations with which the provisions of the DAEIS are not consistent.</p>	<p>Included in summary above.</p>
	<p>3PR also questions the degree to which the USCOE specially cooperated with local governments as required by NEPA.</p>	<p>Included in summary above.</p>

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	<p>The Peace River Manasota Regional Water Supply Authority (PRMRWSA) possesses a high level of regional scientific expertise in managing water resources. They are also the single most important agency providing water to several large populations in southwest central Florida. Although the PRMRWSA was referenced in several sections of the DAEIS, it does not appear as though adequate involvement has not been solicited from this agency. NEPA requires appropriate information be solicited from the public. Certainly the PRMRWSA possess relevant information, data, and analyses which should have been more thoroughly considered in formulating the DAEIS where potential impacts to the water resources of south-central Florida (Charlotte, DeSoto, Lee and Sarasota counties) are concerned.</p>	<p>Included in summary above.</p>
	<p>HCP&D. 2003. Draft - Staff Report for IMC -Phosphates Company Ona Mine (CFRPC: DRI 203-82). Hardee County, Board of County Commissioners, Hardee County Planning and Development. Wauchula, Florida. * Summary: This draft staff report characterizes the Ona Mine site and details many of the issues which were considered relevant to local, state, and federal law at the time. The document provides summaries and discussions, and detailed treatments and analyses of each individual significant issue relating to phosphate strip mining at the project site. The data and analyses were developed by regional experts in the biological sciences, and in the fields of hydrology, economics, and land use planning.</p>	<p>Included in summary above.</p>
	<p>Substantive Comment: Although directly relevant research and analysis, authored by Hardee County Local Government is readily available as a public record, it was not incorporated into the DAEIS or used as a source of information. The following sections of NEPA, in order to accomplish its purpose of "protection of the environment", require coordination and cooperation with local governments during the development of the EIS. The only references in the DAEIS to the Hardee County Comprehensive plan, which contains numerous goals, objectives, and policies relating to mining, economy, and protection of the environment, are misleading references to the Mining Overlay Map as an indication of mining suitability, which it most definitely is not, but merely a map based on mining company ownership, and not promulgated based on any actual data and analysis which would suggest that the mapped regions is/are appropriate for phosphate strip mining, other than for being located within the CFPD. However, NEPA requires that the DAEIS must include discussions of "possible conflicts between the proposed action and the objectives of local land use plans.</p>	<p>part of comment above</p>

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	<p>The DAEIS is clearly inadequate and inaccurate, in that none of these NEPA requirements for "protection of the environment" are satisfied, that is, Hardee County Comprehensive Plan land use plan goals, objectives, and polices were not discussed.</p> <p>40 CFR 1502.5 Timing (b) For applications to the agency appropriate environmental assessments or statements shall be commenced no later than immediately after the application is received. Federal agencies are encouraged to begin preparation of such assessments or statements earlier, preferably jointly with applicable State or local agencies.</p> <p>40 CFR 1502.16 Environmental consequences This section forms the scientific and analytic basis for the comparisons under Sec. 1502.14. ... It shall include discussion of: (c) Possible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned.</p>	<p>Included in summary above.</p>
	<p>The public does not have access to the references and other information used.</p>	<p>Copies of the references and other data used for the Draft and Final AEISs were and are available by request from the Corps.</p>
	<p>Larger concerns relate to the fact that accessibility to copies of many of the papers is difficult and expensive, and in some cases, not feasible because the document or resource is not publicly or conveniently available. If there is a consolidated source of these references and sources of information of which 3PR, due to some oversight, is not aware, then please disregard this portion of the comment.</p>	<p>Included in summary above.</p>
	<p>Also, copies of the publications cited in Chapter 7 "References" are not included in the DAEIS. Many of these can only be obtained in physical form from distant repositories, or from paid digital document services, or may not be publicly or conveniently available at all. This problem adds significantly to the time and resources needed for review and comment and, in many instances, precludes objective verification where information from these references may have been cited or incorporated into the DAEIS.</p>	<p>Included in summary above.</p>

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	<p>A related issue is that private research and possibly other documents have been submitted to the USCOE by the Applicants, some of which are in-house reports or letters, or unpublished studies conducted by private concerns which have been presented in legal arguments relating to the interpretation of provisions for the development of the DAEIS, or the process through which it was to be developed, although not cited in the DAEIS. There is no reasonable means, other than continuous Freedom of Information Act requests for "any new documents", through which 3PR could officially become aware of these reports, or gain insight into the degree to which they may have been considered in the review and/or development of the DAEIS.</p>	<p>Included in summary above.</p>
	<p>3PR therefore questions the adequacy of the DAEIS, and the accuracy of its information, in that it does not cite these documents, and therefore circumvents or diminishes the NEPA "public scrutiny" requirement. These include, but are probably not limited to, the following documents cited in a 25-Apr-2010 "hand-delivered" letter from Deedra Allen (Mosaic): Potential Future Mining Areas in the Central Florida Phosphate District, Environmental Consulting, Technologies, Inc. Water Quantity Issues Associated with Phosphate Mining, Dr. John E. Garlinger, Ardaman Associates, Inc. Stream Condition Assessments and Stream Reclamation in the Central Florida Phosphate Mining District, Environmental Consulting & Technology, Inc. Characterization of Forested Seepage Swamps on Mosaic Lands in the Bone Valley of West- Central Florida, Dr. Shirley Denton, Cardno ENTRIX. Why we need to mine Phosphate Rock in the United States, Ken Nyiri, CRU. Surface Water Quality Associated with Central Florida Phosphate Mining, Dr. Douglas Durbin, Cardno ENTRIX. Comments and Corrections of the Peace River Cumulative Impact Study, Joshua W. House, Mosaic Fertilizer LLC.</p>	<p>Included in summary above.</p>
	<p>When 3PR asked for a copy of one the documents from its author, the request was politely refused by stating "I'll have to get permission from our (phosphate mine) client".</p>	<p>Included in summary above.</p>
	<p>Also, no download date or metadata is provided. 3PR should be entitled to all digital and other information which was used as basis for the DAEIS so that it may verify the representations which the Applicants have made.</p>	<p>Included in summary above.</p>

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	<p>In addition to the excessive length and complexity of the DAEIS, the document states that information has been taken from a number of other voluminous publications, either by incorporating them by reference, or by vaguely alluding to them, as in Chapter 1.7, "These documents have helped to inform the USACE as it developed this AEIS on phosphate mining in the CFPD". Precisely 9 major documents were referred to in Sections 1.7.1 thru 1.7.9. There is no mention of precisely what information, or conclusions were adapted from these documents. Although the USCOE may incorporate by reference, the inclusion of entire encyclopedic documents without references to the specific information or sections used, is both unreasonable and untenable.</p>	<p>Section 1.7 of the Draft AEIS provides the names and brief summaries of nine prior environmental documents related to the AEIS in general or to specific subjects such as the Peace River. This information was provided for informational purposes only. The Draft AEIS does not state that these prior documents are incorporated by reference in general. If specifically referenced in the Draft AEIS, those references have a specific citation to the applicable document.</p>
	<p>Further, the four phosphate strip mine permit applications simultaneous noticed for review and comment, are referred to repeatedly throughout the DAEIS (e.g. ES.5.2). To 3PR's knowledge, these documents were not previously and formally made available to the public, or either their availability was not widely advertised or known.</p>	<p>Copies of all four applications were made available on the AEIS website in July 2012. Copies were available by request from the Corps prior to their being available on the website.</p>
	<p>3PR further questions the reasonableness and fairness of the abbreviated DAEIS review and comment timeframe, because of the importance of the resources at risks. The CFPD includes a large portion of the diverse physical and hydrologic features, and extensive environmental and biotic assets of west-central Florida. As a single example, the CFPD includes vast areas in the headwaters of 7 major watersheds, and 269 drainage basins (Figure 1). Of the 269 basins, 195 are entirely included, approximately 30 are about "90%" included, and only about 44 are less than 90% included.</p>	<p>Comment acknowledged.</p>
	<p>Although not all of this region has been mined, or is planned to be mined, it is reasonable to assume that it will be mined at some time in the future.</p>	<p>As discussed in the Draft AEIS, there are a number of reasons why it is not reasonable to assume that all of the unmined land in the CFPD would be mined. The Final AEIS has been updated to include consideration of phosphate prospecting data as an additional factor.</p>
	<p>The four proposed phosphate strip mining permits will impart extremely large impacts within the CFPD.</p>	<p>Comment acknowledged.</p>
	<p>3PR asserts that the DAEIS is inadequate and inaccurate in accomplishing the legal NEPA purpose, because numerous highly significant environmental issues relating to the negative environmental impacts of phosphate strip mining, are either entirely omitted, or not adequately or accurately addressed in the DAEIS. Nowhere are these important concerns sufficiently considered, either individually, collectively, or cumulatively in full consideration of known negative impacts of historic and current phosphate strip mining. A considerable body of scientific literature exists which is omitted and ignored through the DAEIS. These highly significant and relevant issues include, but are not limited to (in no particular order of ranking):</p>	<p>Where appropriate, each of the listed concerns were correctly characterized and addressed in the Final AEIS. The exceptions are the concerns about mining safety and the use of fertilizers containing phosphate leading to water pollution, both of which are beyond the scope of the AEIS.</p>

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	<ul style="list-style-type: none"> • Increased radiation exposure as short-term and long-term public health risks, and threats to plant and animal life. • Region-wide destruction of native ecosystems and vegetative communities through direct destruction or disturbance of their specific native soils and geology [of particular concern is the dependence of the native vegetative communities of the Southwestern Florida Flatwoods Ecoregion on highly specialized soils and geology]. • Large-scale destruction of critical habitat for endangered and threatened plants and animals, including those federally listed, and those listed by local, state, and regional agencies. • Extensive regional habitat fragmentation involving tremendously broad gaps between intact ecosystems. • Vast infestations of cogongrass and other invasive, noxious, or weedy plants which dominate the disturbed, non-native, unnatural substrate left after mining. • Large-scale, permanent loss of genetic diversity through direct destruction of large tracts of native ecosystems, and their cumulative impacts. • Complete eventual destruction of 195 entire natural drainage basins in the CFPD. • Area-wide deforestation and its regional and state-wide impacts. 	<p>part of comment above</p>
	<ul style="list-style-type: none"> • Lack of consideration for newly iscovered/described taxa. • Creation of extensive above-ground clay waste disposal facilities (misnomered as "clay settling areas", CSAs, by the phosphate industry"), including their existence as permanent barriers to terrestrial wildlife, and their perpetual management requirements, and other economic and environmental liabilities. • Injuries and deaths associated with mining-related activities, or ancillary to the industry. • Extensive loss of economically viable agricultural lands, and destruction of Hardee County's rural and agricultural heritage. • Large-scale impairment and physical obstacles to west-central Florida transportation and future urban planning. • Extensive secondary pollution via wide-scale contamination of surface waters and aquifers with phosphate chemical fertilizers, such as the well-documented contamination of groundwater along the Lake Wales Ridge which, in concert with other chemical contaminants, continues to be a growing economic and environmental liability. • Degradation of regional aesthetics. • Large-scale reduction of essential wilderness lands needed for non-game wildlife and ecologically-related recreational activities. 	<p>part of comment above</p>

	<ul style="list-style-type: none"> • The inappropriateness of allowing large-scale mitigation in exchange for the destruction of natural ecosystems. • The inappropriateness of offsite mitigation in exchange for the destruction of natural on-site ecosystems, which represents a 100% net loss of habitat at the project sites. • Loss of living space, water resources, and agricultural products which could provide for the support of hundreds of thousands of people, and probably more, as a result of future population growth. • Loss of future jobs and tax bases due to loss of living space and water resource degradation. • Historic loss of the potential for jobs, growth and development, and tax base due to phosphate land industry land ownership. • The phosphate industries long history of effluent spills, chemical spills and releases, both large-scale and small-scale, into wetlands, waterways, soils, groundwater, air, and into the general environment, both locally and into other regions. These include, but are not limited to, discharges which travel down the Peace River, Myakka River, and Horse Creek towards Charlotte, Lee, and Sarasota counties on the Gulf Coast of Florida (as an example, see pictorial of the 2002 Homeland Spill beginning with Photo 1). 	<p>part of comment above</p>
	<p>3PR questions the adequacy of the environmental analyses and the accuracy of the information in the DAEIS, because many references are not cited according to accepted standards or are entirely erroneous. The majority of reference (bibliographic) citations do not provide adequate source information. Also, see previous comments concerning referenced information and documents. A significant example relates to the following "reference" which appears to reference a document.</p> <p>DAEIS Page 7-11, lines 9-10: SWFWMD (Southwest Florida Water Management District). 2009. Florida Land Use Cover Classification System (FLUCCS).</p> <p>However, no such document exists. The most recent version of the universally used Florida Land Use Cover Classification System was published by FDOT in 1990. The DAEIS should have referenced that as the 1999 Land Use GIS data layer developed by SWFWMD contractors.</p>	<p>Citation and references, including the one noted in the comment, have been updated and corrected in the Final AEIS.</p>

	<p>Palmer, Margaret A., et al. 2005. Ecological science and sustainability for the 21st century. <i>Front Ecol Environ</i> 2005; 3(1): 4–11.</p> <p>* Summary: Ecological science has contributed greatly to our understanding of the natural world and the impact of humans on that world. Now, we need to refocus the discipline towards research that ensures a future in which natural systems and the humans they include coexist on a more sustainable planet. Acknowledging that managed ecosystems and intensive exploitation of resources define our future, ecologists must play a greatly expanded role in communicating their research and influencing policy and decisions that affect the environment. To accomplish this, they will have to forge partnerships at scales and in forms they have not traditionally used. These alliances must act within three visionary areas: enhancing the extent to which decisions are ecologically informed; advancing innovative ecological research directed at the sustainability of the planet; and stimulating cultural changes within the science itself, thereby building a forward-looking and international ecology. We recommend: (1) a research initiative to enhance research project development, facilitate large-scale experiments and data collection, and link science to solutions; (2) procedures that will improve interactions among researchers, managers, and decision makers; and (3) efforts to build public understanding of the links between ecosystem services and humans.</p>	<p>The Draft and Final AEISs were prepared by a third-party contractor selected in accordance with CEQ and Corps regulations and guidance. The Corps regularly participated in the preparation of the document, independently evaluated the information in the document to ensure that it was technically adequate and not biased, had the final determination whether the data provided is adequate and accurate.</p>
	<p>Substantive Comment: 3PR questions the adequacy of the environmental analyses and the accuracy of information in the DAEIS, because the document represents a failure in the scientific process. This research clearly establishes the need for better research initiatives, and improvement between the interactions of researchers and decision makers. For many sections of the DAEIS it is difficult to determine which information or position to evaluate and comment upon. Clarity is lacking, objectivity is lacking, scientific qualification is lacking, and there are many opposing statements.</p> <p>* Recommendation: The DAEIS should be rejected and completely rewritten, this time employing "independent" scientific authorities and credible research institutions to provide scientific information, analyses, and required research. "Objective" public involvement needs be much greater, and information and research need to be solicited from qualified sources. Many highly important cumulative analyses are needed in order to resolve the plethora of important, unresolved concerns relating to the extensive negative impacts of large-scale phosphate strip mining and it associated industries.</p>	<p>part of comment above</p>

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	<p>In order for "fair" review to take place, it is also essential that interested parties and potential reviewers be provided: (1) access to the four proposed phosphate strip mine properties so that the information and assertions of the Applicants may be verified; (2) all referenced and related documents, communications, and resources consulted or relied upon (in digital formats); that interactions between the USCOE and the Applicants take place only in a public forum, or that complete records of such communications be recorded and immediately made available for public viewing.</p>	<p>The Corps does not have the authority to allow public access to private property. All references and other information used to develop the Draft and Final AEISs, and all communications between the Corps and the applicants is available to the public, subject to FOIA requirements.</p>
	<p>3PR questions the accuracy of information and the adequacy of the environmental analyses in the DAEIS, because it does not include adequate assessments of these native systems, or include competent site- specific (on-site) evaluations and ecosystem analyses of these irreplaceable biosphere assets as is required by NEPA. West-central Florida, and in particular the xeric uplands and certain other vegetative communities and ecosystems which occur within the CFPD, are known to support unique floras and other ecologically specialized biota. Because the vegetative communities have not been adequately classified, and their ecological requirements are unknown, it is not possible consider their values and provide the proper protection required by NEPA.</p>	<p>The Final AEIS describes the biological resources associated with each alternative using the best available information. In the case of the four Applicants' Preferred Alternatives, this information includes the results of site surveys performed by environmental consultants during the preparation of the projects' applications and of site visits made by Corps staff.</p>
	<p>The scope of the AEIS is inappropriate.</p>	<p>Chapter 1 of the Final AEIS provides clarifications on the scope of the AEIS and USACE regulatory authority. Chapter 4 of the Final AEIS provides clarifications on the geographic and temporal scope used to evaluate alternatives' effects on the various resource categories. At its largest extent, the geographic scope does extend out beyond the limits of the CFPD, including downstream to Charlotte Harbor.</p>
	<p>3PR objects to the narrow and short-sighted view of the DAEIS, because its narratives nowhere express proper concern for the scale and intensity of mining impacts, the diversity of impacts, or especially the inestimable cumulative impacts and legacy of environmental disaster which phosphate strip mining has bequeathed west-central Florida.</p>	<p>Included in summary above.</p>
	<p>The DAEIS purports to include an "affected area" or "study area" designated as the Central Florida Phosphate District (CFPD)[which is actually the FDEP 'Conceptual Mineable Limit'] (Figure 1) which encompasses approximately 1.32 million acres of land (actually closer to 1.35 million acres), and which physically extends through parts of six counties. It is obvious that phosphate strip mining within the CFPD will not only profoundly affect the landscape of west-central Florida, but that the negative effects of mining will extend far outside of this artificial boundary, especially impacting "downstream" jurisdictions including Charlotte, Lee and Sarasota counties.</p>	<p>Included in summary above.</p>

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	<p>The boundary of the CFPD represents merely the mineable limit, that is, the extent to which the phosphate industry eventually will mine, or the currently economically feasible phosphate strip mining limit. However, an Environmental Impact Statement must include all regions and all types of potential "impact", including environmental impacts, economic impacts, and impacts to human society. For this reason, a much broader study area is needed. The study area should include the mineable limit plus a broad buffer extending downstream along the four affected major rivers (and Horse Creek) to, and including, the receiving bays and estuaries. Such a study area would then "truly" represent the "affected area" which will most certainly be negatively impacted by phosphate strip mining.</p>	<p>Included in summary above.</p>
	<p>The four phosphate strip mining approvals would, if permitted to do so, result in mining which would extend over decades, transcending politics, political terms, and changes in socioeconomic patterns. Post- mining scenarios will require the perpetual maintenance and management of inestimable liabilities such as CSAs, pollution spills, and various forms of other contamination. The negative economic of environmentally damaging industries "are generally hidden from traditional economic accounting" (Daily 1997). Eventually future generations which had no role in the permitting process, and which did not share in any of the short-term economic benefits, such as the very slight increases in jobs for local residents, will inherit the sad environmental and economic legacy left by phosphate strip mining. That is, the counties actually being sacrificed for mining will not share significantly in its huge profits.</p>	<p>Included in summary above.</p>
	<p>3PR considers that the DAEIS is substantially incomplete because it appears to center its attentions on Section 404 (CWA) Dredge and Fill permitting as though the vast and controversial phosphate strip mining proposals were merely small, necessary, business or residential projects with no significant environmental impacts, and as though wetland permitting were the only "real" issue. Nowhere does the DAEIS provide sufficient data, analysis, and direction commensurate and consistent with fulfilling NEPA's purpose of "Protection of the Environment" in preparing and administering "Environmental Impact Statements". Incredibly, Alternative-1 ("No-Action") does not appear to restrict or prohibit continued mining in uplands and upland ecosystems, which is where the most profound and irreparable impacts of phosphate strip mining take place. Such mining "strips" away the landscape, then "mines" the earth (matrix) below it. It appears that the DAEIS allows, even with "no permit", that the most significant and devastating of all aspects of phosphate strip mining will still be allowed to take place. The direct impacts include, but are not limited to: near total topographic alteration of the landscapes of entire regions, regional wide destruction of aquifers, vast and extensive alteration of recharge systems, area-wide reconfiguration of the surface-water runoff patterns of rivers, creeks, and seepage regimes, and area-wide changes to the average evapotranspiration rate.</p>	<p>Included in summary above.</p>

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	<p>As detailed in 3PR's other comments herein, the DAEIS is highly insufficient in scope: (1) in terms of evaluations of ecosystems and biota including the cumulative effects of ecosystem destruction, in terms of Environmental Justice, in terms of omission of data, analyses, documentation, and consideration of potentially important public and environmental health concerns relating to increased radiation, omission of analyses, documentation, and consideration of wide-spread negative impacts of noxious and weedy, or non-native vegetation.</p>	<p>Included in summary above.</p>
	<p>The DAEIS states "The USACE's decision will be to either issue, issue with modifications, or deny Department of the Army permits for the proposed actions. The Draft AEIS (DAEIS) is intended to be sufficient in scope to address federal, state, and local requirements and environmental issues concerning the Proposed Action and permit reviews."</p> <p>3PR demonstrates throughout its comments that the DAEIS is inadequate and not sufficient in scope, in terms of its site-specific data and analyses, and in consideration of the fact that state and local requirements and environmental issues are omitted or all but ignored.</p>	<p>Included in summary above.</p>
	<p>The Draft AEIS did not correctly consider phosphate mining's effects on surface and ground water hydrology and quality.</p>	<p>Chapter 4 and Appendices D, F, G, and J of the Final AEIS include information about the direct, indirect, and cumulative effects of phosphate mining on surface and ground water hydrology and quality. In response to comments received, analyses were updated and additional clarification was provided in the Final AEIS.</p>
	<p>The totality of upland transfiguration and ecosystem destruction will also have profound negative impacts to water quality and quantity. In fact, the DAEIS cites that phosphate strip mining in uplands will result in excavation of pits and pumping, potential reductions in water table elevations of "20 feet", and direct impacts to the surficial aquifer system (SAS), hydrology and sensitive habitats, groundwater dewatering, impacts to shallow wells, lowering of local water tables, and further extensive alterations to surface water management systems by ditching and construction of clay waste disposal (CSAs) sites including dams and berms.</p>	<p>Included in summary above.</p>

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	<p>NEPA requires coordination with state and local agencies and consistency with their laws, regulations, and planning. "The AEIS study area is located within a water supply planning area that SWFWMD has defined as the Southern Water Use Caution Area (SWUCA) on the basis of concerns that cumulative reliance on withdrawals from the upper FAS through well systems to meet potable, agricultural, and industrial water supply demands has resulted in an unsustainable lowering of the potentiometric surface of the Floridan aquifer." The DAEIS acknowledges SWUCA, discusses SWUCA, then fails to appropriately consider the tremendous magnitude of the negative water resource impacts potentially threatening the "Water Use Caution Area" by area-wide phosphate strip mining, most of which takes place in uplands, yet the impacts of which absolutely and profoundly affect river flows, aquifers, and wetlands.</p>	<p>Included in summary above.</p>
	<p>3PR questions the adequacy of the environmental analyses in the DAEIS, because it fails to address the tremendous negative hydrologic impacts from phosphate strip mining, past, present, and predictable for the future, even though a very considerable body of very broad-ranging, multi-disciplinary scientific research has determined these problems.</p>	<p>Included in summary above.</p>
	<p>The primary land-altering and re-contouring activities of phosphate strip mining comprehensively destroys watersheds and hydrology, greatly altering and compromising patterns of runoff, and regionally altering aquifer recharge, especially the inducing or increasing of recharge to the IAS and FAS. The vast historic areas of dry prairie (flatwoods / pine-palmetto flatwoods) are removed along with their native soils, many of which included spodic horizons which restrict recharge near the soil surface and maintaining the seasonally high ground water levels needed to support the ecosystem. These native soils, which are essential to the self-sustaining existence of native plants and wildlife are removed by the phosphate strip mining process and are replaced by unnatural Arents-Hydraquents-Neilhurst substrates. This results in profound impacts to local and regional hydrology by altering low-flow and patterns of low-flow, changes in recharge (inducing or reducing recharge, depending on various factors), increasing or reducing runoff (depending on various factors), and eliminating or substantially altering seepage regimes, and other hydrology.</p>	<p>Included in summary above.</p>

	<p>One of the hydrologically significant aspects of removing and/or disrupting vast regions of native soils and replacing them with materials which exhibit vastly different properties, constructing many large CSAs, re- contouring much of the landscape, and also creating many open bodies of water where virtually none existed before, is that evapotranspiration (ET) rates and coefficients are altered over large areas. Open bodies of water often have the highest ET rates.</p> <p>A reevaluation of ET rates is needed which better establishes the moisture lost from the many open water bodies and inundated areas created by the phosphate strip mining industry, whether temporary, or permanent. A cumulative analysis of ET especially needed so that water lost may be determined for all past, present and future phosphate strip mining.</p>	<p>Included in summary above.</p>
	<p>Throughout the DAEIS scientific data developed by the federal government, SWFWMD, and published in scientific journals is cited. Immediately afterwards erroneous or arbitrary statements are then presented by the Applicants (or from the industry perspective), presumably in refutation or rebuttal. However, either the statements made by the Applicants are unreferenced, or cite a letter or document from the phosphate industry, such as The Phosphate Council. The USCOE should not entertain conjecture and unqualified statements or information, or information from those with obvious or suspected conflicts of interests. For example:</p> <p>Page 3-63 states: "The case of Kissengen Springs is well documented. Kissengen Spring was a major spring which once contributed an average of 20 million gallons per day (mgd) of flow to the Peace River Basin in Polk County (Metz and Cimitile, 2010). USGS indicated that phosphate mining use of FAS wells for water supply was a contributing factor to the regional FAS drawdown that resulted in the cessation of flow from this spring (Metz and Lewelling, 2009)."</p> <p>Page 3-65 states: "Garlanger (2002) estimated that groundwater pumping supporting phosphate mining contributed less than 10 percent of the drawdown that occurred at a particular affected spring (Kissengen Springs) and that other man-made withdrawals contributed to the rest of the effect."</p>	<p>Included in summary above.</p>

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	<p>The fact that Kissengen Springs was destroyed by the phosphate strip mining industry is extremely well documented. At that time in history very few people lived at Bartow, and there were very few agricultural water users because irrigated agriculture was rare. Irrefutable evidence of this disaster remains to this day in the form of a legacy of utter environmental destruction along both banks of the Peace River from well above Bartow, through the defunct Kissengen Springs, south to Hardee County. USGS and SWFWMD publications indicate that the consumptive use of water from FAS greatly lowered the potentiometric surface and contributed to the formation of collapse sink holes along the Peace River which drain away much of the river's flow. Also, it was not only massive consumptive use which ruined Kissengen Springs, but the complete alteration of the surrounding surface water management system, SAS. It is also well documented that these impacts caused Kissengen Springs to fill in with clay.</p>	<p>Included in summary above.</p>
	<p>3PR questions the accuracy of the information and adequacy of the environmental analyses of the DAEIS, because significant issues relating to the SAS were not evaluated. All aquifers are impacted by phosphate strip mining, but the SAS is usually completely removed. Phosphate strip mining utterly disrupts natural geology and hydrology, removes native soils including their ecologically essential "unique" physical, chemical, and hydrologic properties, and replaces them with Arents-Hydraquents-Neilhurst substrates. These are unnatural wastes, overburden, or other unused substrates discarded as a result of phosphate strip mining and processing, and are documented to exhibit entirely different, and often environmentally extreme properties as compared to native soils (USDA. 1990; 2012a; 2012b). Other 3PR comments also address these issues.</p>	<p>Included in summary above.</p>
	<p>An integrated hydrologic model is needed in order to better determine the cumulative effects of phosphate strip mining on the flows of streams, runoff and surface flows, low-flow/base flows, and hydroperiods.</p>	<p>Included in summary above.</p>
	<p>The phosphate industry's track record of restoring the environment is dismal. In most phosphate strip mining operations the natural SAS is completely or mostly removed. The surficial aquifer system is the unconsolidated zone or strata, important in formation of seepage slopes and seep springs in Florida, generally of little or limited interest to most hydrologists due to small discharge or diffuse nature of seepage, but valuable to the residents of rural areas such as Hardee, DeSoto, and western Manatee counties, because they use the SAS as their primary source of drinking water, household water, and often irrigation water. There are many unanswered public health questions, both chemically and radiological, having to do with drinking and using water from shallow wells located on or near land formerly strip mined. There are also unanswered questions regarding the economic impact of mitigating these concerns, especially in low-income and minority communities which are present in these regions.</p>	<p>Included in summary above.</p>

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	<p>An independent scientific committee should be established to comprehensively and exhaustively evaluate the impacts which phosphate strip mining causes, and has caused, to native soils, natural aquifers, wetlands, and native ecosystems. Nowhere in the DAEIS are these impacts or natural resources properly evaluated, cumulatively evaluated, or their values genuinely considered as is required by NEPA in its single legally authorized mission and "Basic National Charter" of "Protection of the Environment". The protection of ecosystems is essential for the protection of all aspects of Florida's precious water resources, and for the protection public health and society.</p>	<p>Included in summary above.</p>
	<p>3PR questions the accuracy of the information and the adequacy of environmental analyses in the DAEIS, because there is insufficient discussion of wells on and near phosphate strip mines. A highly significant issue is that existing wells are not analyzed, discussed, or even identified in the DAEIS. Local residents near phosphate strip mining areas sometimes complain of "dry" wells.</p>	<p>Included in summary above.</p>
	<p>The DAEIS should very comprehensively analyze all aspects of the existing and potential negative impacts which wells and well water withdrawals have on local and regional water resources. Data and analyses are for the question of: (1) the effects of excessive consumptive use (2) the enhanced potential for aquifer contamination (particularly the surficial and intermediate aquifers) via well transport and induced recharge fro major geologic alterations; (3) the physical and hydrologic alteration of aquifers which impedes or alters their natural functions and negatively impacts dependent biotic systems; (4) the economic impacts associated with mitigating aquifer damage, and; (5) the contamination or other alteration of aquifers which contribute to public health concerns.</p>	<p>Included in summary above.</p>

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	<p>3PR questions the validity of certain combinations of alternatives presented in the DAEIS, because some combinations of alternatives appear to allow 50 to 80 or more miles of stream alteration (difficult to precisely determine), which would be potentially devastating to the regional environment and water resources, including external impacts to the "downstream" jurisdictions of Charlotte, Lee and Sarasota counties. The vast majority of Florida's population lives near the coasts. Coastal areas rely to great extent on inland sources of water. As sea levels rapidly rise for the next 50 years due to global warming, brackish invasion and saltwater intrusion will increase, and coastal populations will simultaneously be retreating inland and increasing in density. The spring of 2012 reported record high temperatures. Winters are getting much warmer, and evapotranspiration rates are increasing concomitantly, disproportionately so because considerable herbaceous vegetation does not die back and continues transpiration as central Florida winters, on average, become warmer and warmer. The natural water resources of the CFPD are thus needed in order to support future increases in human occupation, and therefore must not be destroyed or degraded by phosphate strip mining.</p>	<p>Included in summary above.</p>
	<p>Mining requires the use of vast volumes of water. Mined lands greatly alter surface water management systems, and create many large open bodies of water which lose moisture much more quickly than native ecosystems and other pre-mine land covers. Such open water typically exhibits the highest evaporation rate of all land covers (Table 3), and especially large areas of water pigmented with fines. These and other hydrologic impacts of phosphate strip mining are hugely important concerns to human occupation in west- central Florida and southwest Florida. The concerns are not appropriately considered in the DAEIS.</p>	<p>Included in summary above.</p>
	<p>The DAEIS does not provide analysis of dry-season and wet-season meteorological/hydrologic cycles and influences which are all-important factors in modeling and predicting hydrologic systems, nor does it thoroughly evaluate La niña - El niña cycles, or factor in the projected effects and impacts of global warming on weather patterns, severity of storms including increased potential for floods and high winds, increased evapotranspiration rates, particularly in the winter, and other predicted impacts.</p>	<p>Included in summary above.</p>

	<p>3PR questions the adequacy of the environmental analyses in the DAEIS, because nowhere are the total water uses and water availability impacts of phosphate strip mining analyzed for the purposes ensuring that the need for new public water sources will not be created. Photos 4, 5, and 6 communicate a genuine level of concern where phosphate strip mining has the ability to interfere with runoff, recharge, storage, evapotranspiration, low flow, and climate. Of great concern is that the Applicants are proposing to use models and massive-scale engineering to control the flows of rivers, creeks, and tributaries. The implementation of these elaborate artificial systems will require continuous maintenance and, as a consequence, the natural ability of watersheds to deliver water to man and the environment will be greatly altered. Whereas, before mining, these systems were self-sustaining and auto-regulating, they were much more predictable and not subject to human error, miscalculation or abandonment. Most affected by these region-wide hydrologic, geologic, and ecological modifications, will be the "downstream" counties of Charlotte, Lee, and Sarasota counties. The water supplies of these downstream users will become "artificially" controlled by upstream interests.</p>	<p>Included in summary above.</p>
	<p>Not only is there a great environmental cost to disrupting the water resources of an entire region, but an ongoing and tremendous economic cost, much of which falls on the taxpayers, or those who inherit unforeseen or miscalculated problems. Intrinsically, based on the existing approved mine permits, the current four proposals, and future proposals, which will no doubt involve more extensive mining further south, these problems will be inherited by the same "downstream" jurisdictions. Any problems or interruptions in water supply or decreases in water quality will inherently affect these counties disproportionately because they support the greatest human populations. That is, Charlotte, Lee and Sarasota counties have the greatest need for water now, and will have an ever-increasing need for stable water supplies in the future. Further, man-made systems, especially those involving thousands of potentially large-scale risks, as in for spills and discharges, or interruptions of water flows, or excessive increases in flows, are much more subject to failure from natural and man-made disasters.</p>	<p>Included in summary above.</p>

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	<p>3PR questions the adequacy of the environmental analyses in the DAEIS, because many of the aforementioned significant issues and risks have not been properly assessed, and therefore have the potential to negatively affect water quantity and quality for a very large region of west-central Florida, as well as adjacent "downstream" counties, thereby endangering reliable sustainability of human society and the environment. Conspicuously absent from the DAEIS are data and analyses which demonstrate that the phosphate industry possesses the resources, ability, planning, and will to respond to natural, man-made, and accidental disasters, or engineering miscalculations. Also obvious is that many data and analyses avoid addressing "worst case" scenarios. The Alafia River spill, Peace River at Homeland spill, Archie Creek spill, White Springs spill, and many other incidents would indicate otherwise.</p>	<p>Included in summary above.</p>
	<p>Significantly more definitive and comprehensive analyses are needed in order to quantify the total water resource impacts of the proposed phosphate strip mines, including a full historical review of water use and water resource impacts already caused by mining within the CFPD. Because surface water, aquifers and ground water, and water quality are directly related, these entities should not be analyzed entirely separately, and as such cannot effectively be discussed separately. The needed area-wide studies should include a cumulative analysis of all historical water-related impacts. This is necessary in order to provide adequate understanding of the full environmental consequences of phosphate strip mining on water resources, both within the CFPD, and to external regions, including "downstream" coastal counties.</p>	<p>Included in summary above.</p>
	<p>Elements of the studies should include "independent" evaluations of water quality, quantity, and the distribution of water availability for human use and for the environment, including, but not limited to, analysis of: consumptive use, increased evapotranspiration rates, the effects of the removal of native soils and ecosystems, the effects of re-contouring and alteration of surface water management systems, spills and discharges, FAS impacts, IAS impacts, SAS impacts, wetland hydroperiod, flows and levels of rivers and streams, dams and impoundments including CSAs and the creation of new open water or inundated areas. These studies must be conducted with factoring for all aspects of global warming impacts, including atmospheric, hydrologic, ecologic and human cultural/social/economic. None of these issues are treated adequately in the DAEIS. The DAEIS does not provide adequate analyses to make important decisions regarding the water impacts imparted by tens-of- thousands of acres of new phosphate strip mining.</p>	<p>Part of above comment</p>

	<p>FIPR. 2001. Reclaimed phosphate clay settling area investigation: hydrologic model calibration and ultimate clay elevation prediction – final report. Florida Institute of Phosphate Research, No. 03-109-176. Bartow, Fla.</p> <p>* Summary: This research included monitoring hydrologic and meteorological conditions, mapping soils and vegetation, and developing topographic maps using photogrammetry. Field and laboratory data were used in models to estimate the effects of clay consolidation on post-reclamation topography and to calibrate hydrologic simulation programs. This report presents the research objectives, work plan, and study results of a research project designed to monitor and evaluate the hydrology and clay consolidation behavior of phosphate CSAs.</p> <p>The author's research published in 2001 reported that "There are more than 100,000 acres of clay settling areas (CSAs) in Florida. Presently operating phosphate mines in Florida have over 60,000 acres of above ground clay settling areas (CSAs), with an additional 20,000 acres designated for future CSAs." Also stated determined was that "The present guidelines used in CSA design relative to hydrology will probably prevent downstream flooding during large rain events. Though, these guidelines also result in post- reclamation conditions that fail to restore the low flow characteristics of the pre-mined land form".</p>	<p>Included in summary above.</p>
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	<p>Substantive Comment: 3PR questions the adequacy of the environmental analysis and the accuracy of the information in the DAEIS, because the findings of this research both differ directly from the assertions of the DAEIS in that indicate that the designs of CSAs fail to restore the low-flow characteristics of the pre-mined land, and also indicate difficulty in the predictability of some aspects of CSA hydrology. The incredible amounts of clays and unused mining materials which the phosphate strip mining industry disposes of in "CSAs" and over other post- mining areas, together with the fantastic tonnage of reagent chemicals returned with these wastes, and generalized elevated radiation as well, are ample reason to discontinue all phosphate strip mining in Florida.</p> <p>In addition, the report states that CSA design relative to hydrology will "probably" prevent downstream flooding "during large rain events". The term "probably" is not very reassuring, especially because it is merely used in the context of a large rain storm, and does not address the larger concern of tropical hurricanes. The additional highly distressing findings, which would be no surprise to any reasonable person even without study, is that the low-flows of native soils and geology cannot be engineered into one CSA, much less 180,000 acres of waste clay containments. That's approximately 34 sq miles. 3PR suspects even this figure is inaccurate, because it likely only involves designated CSAs, and not all other areas of clay deposited by the phosphate strip mining industry, and of course does not include the vast areas of "sand clay mix" which have also been dumped back into the environment and called "reclaimed" land.</p>	Included in summary above.
	<p>3PR questions the accuracy of the information and adequacy of the environmental analyses in the DAEIS, because it does not recognize the significance of the degree and extent of pollution generated by the phosphate strip mining, including, but not limited to, nonpoint pollution involving elevated phosphorous from runoff and spills, and from the use of chemical phosphate fertilizers for lawns, agriculture, golf courses, etc. Nonpoint pollution is considered to "the major source of water pollution in the U.S. today". (Carpenter 1998). Eutrophication is currently the most widespread water quality problem in the country. Restoration of eutrophic water requires reduction in the contaminants. The most important barriers to the control of nonpoint nutrient pollution are social, political, and institutional.</p>	Included in summary above.

	<p>Smith et al. 2006. Eutrophication of freshwater and marine ecosystems. <i>Limnol. Oceanogr.</i>, 51(1, part 2), 2006, 351-355.</p> <p>* Summary: Nutrient enrichment of aquatic ecosystems typically results in significant alterations in biogeochemical cycling over both space and time. Concludes that it has been clearly established that two primary nutrients (P and N) can regulate aquatic primary productivity in most lakes and coastal marine ecosystems, although the actual response of primary producers to N and P enrichment can be modified by factors such as light limitation, hydrology, and grazing. The management of nutrient loading thus can be expected to remain a keystone to maintaining desirable quality in our surface waters. Echoes the conclusion of Schindler (2006) that despite these very significant advances, eutrophication remains one of the foremost problems in protecting freshwater and coastal marine ecosystems.</p> <p>Substantive Comment: 3PR questions the adequacy of the environmental analyses and accuracy of the information in the DAEIS, because the eutrophication of aquatic systems is a very serious issue and concern which has been correlated to increases in phosphorus (P) and nitrogen (N). Some of the substrates with which the phosphate strip mining industry replace the native soils and landscapes are high in phosphorous. This issue is a potential concern which relates to the on-site environment of phosphate lands after mining, but most significantly to offsite destinations via drainage, regular discharges, spills, and other transport mechanisms. Elevated phosphorous in the Peace River, as compared to historic values, has been a serious problem in the past. The downstream destinations of Charlotte, Lee, and Sarasota counties are of particular concern due to their large coastal populations and high property values.</p>	<p>Included in summary above.</p>
	<p>Eutrophication is a serious problem. The Draft AEIS did not adequately address the potential impacts of phosphate mining and fertilizer usage on water quality, including in areas downstream.</p>	<p>The comments about eutrophication are acknowledged. The direct, indirect, and cumulative effects of past, present, and reasonably foreseeable future actions, including the four proposed actions and their alternatives, on water quality are discussed in Chapter 4 and Appendix D of the Final AEIS. The effects of fertilizer usage on water quality are beyond the scope of the AEIS.</p>

	<p>3PR questions the accuracy of the information and adequacy of the environmental analyses in the DAEIS, because it does not recognize the significance of the degree and extent of pollution generated by the phosphate strip mining, including, but not limited to, nonpoint pollution involving elevated phosphorous from runoff and spills, and from the use of chemical phosphate fertilizers for lawns, agriculture, golf courses, etc.</p> <p>Nonpoint pollution is considered to "the major source of water pollution in the U.S. today". (Carpenter 1998). Eutrophication is currently the most widespread water quality problem in the country. Restoration of eutrophic water requires reduction in the contaminants. The most important barriers to the control of nonpoint nutrient pollution are social, political, and institutional.</p>	<p>Included in summary above</p>
	<p>Smith et al. 2006. Eutrophication of freshwater and marine ecosystems. <i>Limnol. Oceanogr.</i>, 51(1, part 2), 2006, 351-355.</p> <p>* Summary: Nutrient enrichment of aquatic ecosystems typically results in significant alterations in biogeochemical cycling over both space and time. Concludes that it has been clearly established that two primary nutrients (P and N) can regulate aquatic primary productivity in most lakes and coastal marine ecosystems, although the actual response of primary producers to N and P enrichment can be modified by factors such as light limitation, hydrology, and grazing. The management of nutrient loading thus can be expected to remain a keystone to maintaining desirable quality in our surface waters. Echoes the conclusion of Schindler (2006) that despite these very significant advances, eutrophication remains one of the foremost problems in protecting freshwater and coastal marine ecosystems.</p> <p>Substantive Comment: 3PR questions the adequacy of the environmental analyses and accuracy of the information in the DAEIS, because the eutrophication of aquatic systems is a very serious issue and concern which has been correlated to increases in phosphorus (P) and nitrogen (N). Some of the substrates with which the phosphate strip mining industry replace the native soils and landscapes are high in phosphorous. This issue is a potential concern which relates to the on-site environment of phosphate lands after mining, but most significantly to offsite destinations via drainage, regular discharges, spills, and other transport mechanisms. Elevated phosphorous in the Peace River, as compared to historic values, has been a serious problem in the past. The downstream destinations of Charlotte, Lee, and Sarasota counties are of particular concern due to their large coastal populations and high property values.</p>	<p>Included in summary above</p>
	<p>The Draft AEIS does not adequately address the impacts of the reagents used in beneficiation on water quality.</p>	<p>Chapter 4 and Appendix D of the Final AEIS describe the potential surface water and groundwater water quality impacts associated with phosphate mining.</p>

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	<p>3PR questions the adequacy of the environmental analyses and the accuracy of information because the highly significant issue concerning the use of "reagents" in phosphate strip mining product processing is not adequately investigated. Also, the available research is mostly "not" independent. It is reasonable that some or all of these reagents, because of their chemical properties, would impact water quality, affect the functions of the physical environment, and negatively impact ecosystems and biota. A study involving the "fate and consequences" (FIPR 2001b, quotes below) of such reagents reported that:</p> <p>"Florida phosphate operations produce roughly 20 million tons of concentrate each year. Therefore, all of the reagents listed above are used in millions of pounds annually. These reagents are generally considered harmless to the environment for three reasons: (1) many of the organic chemicals are biodegradable, (2) some portion of the reagents remain on the rock surface and ultimately end up in the solid fertilizer products, and (3) the acids and bases neutralize each other in the process of water recycling.</p> <p>"Major reagents associated with phosphate beneficiation include the following: fatty acid (used as a phosphate collector in the rougher flotation step), amine (as a sand collector in the cleaner flotation step), fuel oil (as an extender), sodium silicate (as a sand depressant), soda ash or ammonia (as a pH modifier), and sulfuric acid (for washing away the collector on the rougher concentrate). Typical plant consumption of the various reagents is shown below:"</p>	<p>Included in summary above</p>
	<p>Reagent Usage Lb/Ton Concentrate</p> <p>Fatty Acid 4 - 6</p> <p>Fuel Oil 4 - 10</p> <p>Amine 1.5 - 2</p> <p>Soda Ash 4 - 6</p> <p>Sulfuric Acid 6 - 8</p> <p>Sodium Silicate 1 - 1.5</p> <p>Fatty Acid 4 - 6</p> <p>Fuel Oil 4 - 10</p> <p>Amine 1.5 - 2</p> <p>Soda Ash 4 - 6</p> <p>Sulfuric Acid 6 - 8</p> <p>Sodium Silicate 1 - 1.5</p>	<p>Part of above comment</p>

	<p>In the case of Fuel Oil, this estimate appears incredibly conservative, because in a later paper, published 2008, it was stated that "The Florida phosphate industry consumes about 150 million tons a year of fuel oil in the forms of No.5 oil or kerosene" (FIPR 2008b). That's 150,000,000 "Tons" not "Pounds (Lbs)" ! Possibly this is an error of some sort, because the magnitude of the latter value seems inconceivable? Several FIPR papers focus on the need to reduce consumption of reagents in order to reduce concentrate production costs. However, the use of such reagents appears to be increasing.</p>	<p>Part of above comment</p>
	<p>Recommendation: The phosphate strip mining industry uses various reagents which are employed to separate "matrix" components and more efficiently refine and obtain "concentrated" products. What substances are currently being used? Where have they been used? When and in what amounts they are used? Where do they end up? These questions have not been fully answered, especially not in ecological terms. Overall, the full range of potential negative impacts from the large-scale use of reagents has not been satisfactorily established. It is not rational to consider that 150-million tons of fuel oil placed into the environment is "harmless" (FIPR 2001b).</p>	<p>Part of above comment</p>
	<p>Comprehensive "independent" studies are immediately needed in order to determine the direct and cumulative impacts of releasing vast quantities of "reagents" into the environment, and potentially into products as indicated in FIPR (2001b). It may be logical to assume that the "reagents" are not highly purified individual chemicals and are actually composed of multiple chemical substances. The main classes of "reagents" may, in fact, vary in their chemical composition, and vary in consistency from time to time? Possibly some or all of these reagents represent the wastes of other industries? In order to provide the proper assurances which NEPA guarantees, including "Protection of the Environment" and to ensure that federal EIS actions are not "unsatisfactory from the standpoint of public health or welfare or environmental quality", the important issue of reagent use should be much more comprehensively investigated, scientifically scrutinized, and reported upon.</p>	<p>Part of above comment</p>

	<p>FIPR. 2001b. Fate and consequences to the environment of reagents associated with rock phosphate processing. Florida Institute for Phosphate Research, No. 02-104-172. Bartow, Fla..</p> <p>* Summary: Examines some basic aspects of reagent migration, and presents other information about rock phosphate processing.</p> <p>* Substantive Comment: (See previously provided comment and discussion relating to reagents).</p> <p>FIPR. 2008b. An investigation of floating reagents, final report. Florida Institute for Phosphate Research, No. 02-158-227. Bartow, Fla.</p> <p>* Summary: Describes "floating" reagents and various processes. Provides various data and information on a number of reagents and their utility in phosphate refinement/recovery.</p> <p>* Substantive Comment: (See previously provided comment and discussion relating to reagents).</p>	<p>Included in summary above</p>
	<p>The Draft AEIS did not adequately address reclamation or mitigation, including consideration of the role of specific environmental conditions in shaping ecological communities, and the lack of success of reclamation and mitigation efforts.</p>	<p>Chapter 5 of the Final AEIS includes expanded discussion of reclamation, including the process of reclamation and the requirements for revegetation and success, which include consideration of target ecosystem types. Chapter 5 also includes similar information about federal mitigation requirements. Appendix I of the Final AEIS provides examples of federal mitigation conditions.</p>
	<p>Orzell, Steve L., and Bridges, Edwin L. 2006. Species Composition and Environmental Characteristics of Florida Dry Prairies from the Kissimmee River Region of South-Central Florida. Avon Park Air Force Range, Environmental Flight. Proc. Fla. Dry Prairie conf.</p> <p>* Summary: Species composition and environmental characteristics of prairies (dry prairie / palmetto / pineland) within the Kissimmee River region. Six community types were recognized and characterized: dry-mesic, mesic, wet-mesic spodic, wet-mesic, acidic wet, wet-mesic alfic and calcareous wet prairies. The latter two represent previously unrecognized community types in south-central Florida. Overall, 269 vascular plant taxa were recognized. Species richness was measured, and soils and soils horizons were identified and name using hydrologic modifiers, then measured, and characterized for each community type. Quantitative vegetation sampling and multivariate statistical analysis was conducted for vegetation classification and ordination. Community analysis involved Canonical Correspondence Analysis (CCA). Soils were analyzed using 38 variables, including 33 environmental/physical/chemical attributes.</p>	<p>Included in summary above</p>

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	<p>Substantive Comment: 3PR questions the adequacy of the environmental analyses in the DAEIS, because it fails to include this landmark central Florida research, examines the highly precise relationship between individual species and their specific soils and vegetative community type, in evaluation of the environmental impacts of phosphate strip mining, and in its decision-making for "Protection of the Environment", which is the NEPA purpose. Orzell and Bridges clearly established the existence of a high degree of soil and hydrologic specificity for native dry prairie plant species. Although the study was conducted east of the Lake Wales Ridge in the Osceola Plain and Okeechobee Plain, the ecosystems and environmental conditions which were examined in the study area are very similar to those in the southern half of the CFPD. The study is widely known and adopted by Florida plant ecologists and used by federal land managers in the conservation of important, often very large federal reserves and properties.</p>	<p>Part of comment above</p>
	<p>It is further insufficient because scientific research indicates a strong correlation to native plant species and highly specific natural soil types, which indicates that the destruction of these communities, and the ecosystems of which they are an integral part, will be permanent. Also see Cole et al 1994.</p>	<p>Included in summary above</p>
	<p>As for animals, it is true that the gopher tortoise inhabits a wide range of habits, and can sometimes utilize non-native, or partially native sites, but plants and animals are products of their environments, that is, products of, and specific to, their particular ecological communities or vegetation associations, and functional populations normally do not establish and endure for long periods. It is crucial that ecosystems be preserved in order to protect listed plant and animal species. (This is discussed further in other of 3PR's comments).</p>	<p>Included in summary above</p>
	<p>Essentially, "reclamation", much of which involves and is considered to be "mitigation", in best case scenario, results in systems which would require high levels of maintenance to maintain their facsimile appearance. As for other large areas, cogongrass, weeds, non-native species, and other undesirable biota or biological/ecological characteristics become serious problems.</p>	<p>Included in summary above</p>
	<p>It is well documented that most listed plant species, because they are usually also "endemic" plant species, have very precise environmental requirements, and are found only in specialized native vegetative communities or associations within certain ecosystems (Orzell & Bridges 2006) (Cole et al 1994) (Huck 1987). The habitats are often supported by highly specific soils, and located in unique geomorphologic regions. The reason most plant species are listed as "endangered" or "threatened" is because of their very high degree of environmental specificity and narrow geographic ranges, that is, because of their endemism.</p>	<p>Included in summary above</p>

	<p>The health and potential for long-term stability of the native environment is not measured based on mobile animal species, but on the diversity and stability of plant communities upon which they depend. Ecosystems are self-contained and self-maintaining. "Natural ecosystems are invariably richer in species and more stable than those artificially developed, due to their many interdependencies and interrelationships" (Rau & Wooten 1980). Such natural systems draw in life-supporting materials from great distances. However, in non-natural areas, which are artificial, the interdependencies are missing, and they are therefore not self-sustaining. Energy and materials are not recycled efficiently, and constant maintenance is required. Phosphate strip mining sites, including upland "reclamation" areas, represent more severe examples of being "artificial" because of extreme alterations to soils and geology.</p>	<p>Included in summary above</p>
	<p>In addition to creating landscape dominated by substrates which cannot support natural or diverse natural upland ecosystems, the removal or alteration of the SAS will also cause hydrologic changes, including above and below ground alterations in flows and levels, that negatively impact all types of wetlands, including herbaceous marshes, bay heads and swamps, hardwood swamps, cypress swamps, seeps, etc. Man-made "reclaimed" wetlands seldom provide the same hydrologic functions as natural wetlands, exhibit altered hydroperiods, do not support equivalent species richness, often require continuous maintenance due to noxious or nuisance vegetation, are "out of context" with natural ecosystems, and are therefore of little ecological value. Such artificial systems may also present unusual environmental and physical risks to birds and other biota (as discussed elsewhere).</p>	<p>Included in summary above</p>

	<p>3PR questions the adequacy of the environmental analyses in the DAEIS, because it does not consider the irreplaceable values of natural wetlands systems, or the essential role of native soils relative to ecosystem function and hydrology. Evaluations of the important dynamics of surface water, groundwater and soil interaction are completely omitted. And, the DAEIS does not appropriately recognize and consider: (1) the regional (CFPD) and statewide cumulative impacts of area-wide destruction of entire classes of native wetlands, such as isolated wetlands; (2) the fact that wetlands systems are complex and have often taken hundred of years to develop, and that the phosphate industry does not have the technology (presuming it could exist), the resources, or the will to properly construct and manage, in perpetuity (or until stable and self- sustaining) many hundreds of isolated wetlands, miles of creeks, streams and tributaries; and, (3) that the processes required for wetlands to establish, stabilize, and begin to efficiently remove nutrients requires time — a long time in the case of forested wetlands.</p>	<p>Included in summary above</p>
	<p>It is a widely known ecological principal, and an exceedingly common phenomenon, that disturbed areas, and newly inundated areas, promote the colonization and rapid reproduction of various wildlife due to the presences of artificially and temporarily expanded resources. These short-term increases include space, water, nutrients (some native uplands in central Florida are actually low-nutrient systems which are precisely adapted to very specific acidic soils), soil de-compaction and aeration, increased light, greatly reduced or entirely eliminated competition, and the concomitant explosion of insects, larva, sprouting seeds, and small and thalloid plants which provide additional plentiful food sources for larger species. Almost any flooded area will quickly acquire and produce large amounts of wildlife for a limited amount of time.</p>	<p>Included in summary above</p>

	<p>Because the phosphate industry and related uses are almost continuously destroying ecosystems and creating pits, dams, vast enclosures of inundated waste clays, other wet areas, and creating the disturbed and somewhat alien substrates of open mine land, including "reclaimed land", which are often laden with nutrients and greatly differ in chemical and physical properties as compared to the soils required to support native ecosystems, ecological imbalances are continuously and dynamically taking place. These extreme impacts temporarily provide abnormal levels of "freed" resources. Because animals are forced into these areas from other regions of ecosystems being destroyed, and because animals flying over and moving through will seek out any available sustenance, active and recent phosphate mining continuously sponsors numerous examples of the unnatural, and environmentally unhealthy "population boom" phenomenon. A sudden or temporary abundance of certain types of wildlife, more than in natural systems, is invariably an indication of an ecological imbalance from a natural disaster, atypical event, or artificially induced problem. Therefore, the short-term bird and wildlife studies such as those cited here by the Applicants are irrelevant, and completely out of context from studies of mature systems, whether native or non-native. Ecosystems out of balance represent a concern. They are not an indication of ecological health.</p>	<p>Included in summary above</p>
	<p>Many mined lands eventually become overgrown with weedy and noxious plant species (such as cogongrass) and do not succeed to vegetative communities which experience natural or naturally compatible ecological succession. Such infested regions represent ecological and agricultural deserts. It would be very enlightening for the USCOE authors of the DAEIS to take broad and unrestrained tour of recently reclaimed and formerly reclaimed or abandoned phosphate lands.</p>	<p>Included in summary above</p>

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	<p>3PR questions the adequacy of the environmental analyses and the accuracy of the information in the DAEIS, because certain statements such as under 3.3.62 are not reasonable, irrelevant, and inappropriate. It is not reasonable or rational for the USCOE to compare "reclaimed" phosphate strip mines to the qualities of native Florida ecosystems. Improperly using excerpts from short-term, narrow studies to suggest that "reclaimed" phosphate strip mines are in any way comparable, or even partly mitigate for impacts to native ecosystems, is in no way defensible. Isolated artificial facades, demonstration projects which required great expense to create and/or maintain, and concentrations of wildlife which are temporarily (and unnaturally) attracted to water resources, where none existed before, are in no way indicative of a functioning or stable ecosystem, nor do they provide significant value. Such areas may actually represent hazards and risks to wildlife. Further, the area-wide destruction of native upland and wetland ecosystems by the phosphate strip mining industry results mainly in vast, seemingly endless regions of noxious weed infestations which also promote imbalances in animal life. 3PR objects to the out-of-context excerpts, and conjecture of paid industry consultants or contractors, which are all too often encountered in the DAEIS.</p>	<p>Included in summary above</p>
	<p>Plant and animal species are products of their respective natural environments and range of environments. Except for certain generalist species, most native (indigenous) plants and animals are utterly dependent on specific native ecosystems, or similar classes of native ecosystems. Some mammals and reptiles, and (naturally) many birds, are mobile, to varying degrees. Some generalists may utilize man-altered sites from time to time, especially when they are forced to do, or are abnormally attracted to do so, or when they happen through a vast region of destruction and have no other alternative. Some species may occasionally breed in non-native areas, even though this is not a natural behavior of their biology or ecology.</p> <p>"By altering the character of the environment, human beings bring about changes in the behavior patterns of within and between species so that most species are unsuccessful. However, the few that are successful reproduce quickly sometimes in explosive fashion" (Rau & Wooten 1980). The animals which remain are pioneer-type animals that tolerate changes in food types, shelter, and have only limited relationships with other organisms.</p>	<p>Included in summary above</p>
	<p>Because their natural native habitat is being destroyed on a massive scale in neighboring areas by phosphate strip mining, and by other types of development, many species will be forced to move into any available land, natural or unnatural, which is not actively being mined.</p>	<p>Included in summary above</p>

	<p>Several important issues and concerns exist in relation to mined/reclaimed land. The natural ecosystems which are completely destroyed by mining, along with their highly specific and essential soils and geology, are replaced by rocky/marl/sand/clay/etc substrates (Arents-Hydraquents-Neilhurst). Because no indigenous plant species are adapted to these soils, there are no native ecosystems which can support the establishment of self-sustaining populations of animals, except for certain generalists, pest species such as rodents, and temporary or guest species. This unnatural situation introduces primary succession. "Primary succession occurs in an area where life has not existed before, such as on bare rocks, tallus slopes (which are unconsolidated slopes, land slides, embankments, etc.), sand bars, and sand dunes" (Rau & Wooten 1980). Lands impacted by phosphate strip mining and reclamation represent such "bare" lands and are therefore in a mode of primary succession. "Secondary succession occurs on bare sites previously vegetated" (Rau & Wooten 1980), but this assumes that unnatural changes to soils and geology have not occurred, and that such areas can be recolonized from intact external floral and faunal sources. Therefore, few, if any, native plant species naturally colonize these mined and reclaimed upland areas. Normally, native "pioneer species" would first colonize such areas. However, and quite the contrary in the case of phosphate lands, many such unnatural areas are immediately colonized by noxious plant species, weedy species, foreign species, and other undesirable plants which play little, if any normal ecological role in native ecosystems, or in ecosystem services, and typically provide few "real" resources to native wildlife. Some species, such as cogongrass, completely preclude the reintroduction of native plants, and the establishment of vegetative communities, and also present serious ongoing management and eradication liabilities.</p>	<p>Included in summary above</p>
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	<p>The Environmental Impact Analysis Handbook (Rau & Wooten 1980), which is widely used by federal agencies as a guide for developing environmental impact statements (e.g., by the Bureau of Land Management), concludes that "Unfortunately, we are finding that some of our most complex environmental problems are the result of environmental and ecological backlash. As a general rule we find that artificial projects and technological additions lead to the simplification of natural systems. This reductionism results in losses in biological efficiency, diversity, balance, and self-sufficiency of the biological community, and concomitant increase in pest species of plants and animals as escapees and weeds (Rau & Wooten 1980). Much of phosphate strip mine reclamation fits this dismal characterization precisely, especially after a few years, or after a few years without maintenance, that is, "life support". "Managed" biological systems, including "reclaimed" lands, and systems infested with noxious or non-native species, represent the lowest level of biodiversity, genetic diversity, and ecosystem services. For all intents and purposes these areas are effectively extinct. (Naem 1997)</p>	<p>Included in summary above</p>
	<p>The region within the CFPD provides the primary sources and flows of clean, life-giving water to the numerous bays, estuaries, and inlets, both large and small, along the west Florida coast. Comprehensively destroying the vast native wildlife ecosystems in this area, and disrupting native soils and geology, will adversely impact the fisheries, marine ecosystems, essential estuary systems, wildlife sanctuaries, property values, including waterfront properties, businesses, and other coastal and "downstream" physical and environmental assets, as well as the quality of life in the most densely populated regions of west-central Florida, which are located near the coast and along rivers and waterways, mainly in Lee, Charlotte and Sarasota counties.</p>	<p>Included in summary above</p>
	<p>Natural systems are composed of the interrelated and inseparable factors of physical/geologic, hydrologic, atmospheric/climatic, and biotic. Damage to one creates damage to the others. Phosphate strip mining has a long history of obliterating these life-giving assets and precluding their natural recovery.</p>	<p>Included in summary above</p>
	<p>Mined land, whether in the process of being mined, whether reclaimed or not, is an impediment to wildlife and ecosystem function through habitat fragmentation, the creation of physical barriers, altered hydrology, soil changes, and many other problems. Mined land fragments habitats and prohibits wildlife from moving within their home ranges and thus restricts them from the resources needed for their survival and reproduction. In addition, the disturbed, physically altered, often chemically different soils, promotes the spread of nuisance and/or exotic opportunistic plant species that, under these conditions, invade, exclude, and/or preclude native species and habitats on-site and, through dispersal mechanisms, jeopardize the integrity of adjacent native habitats, and well beyond.</p>	<p>Included in summary above</p>

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	<p>The Draft AEIS did not adequately identify existing conditions within the study area, including within the boundaries of the alternatives.</p>	<p>Existing conditions within the AEIS study area, including within the boundaries of the four proposed mines and the four offsite alternatives, were described in Chapter 3 of the Final AEIS. The best available information was used to prepare Chapter 3, including the site-specific information about the four proposed mines as found in the applications for those four projects. That site-specific information will be verified by staff from the USACE and other agencies during the review of the individual projects.</p>
	<p>3PR contends that the DAEIS is particularly insufficient and inaccurate because it does specifically include analyses of the dry prairie (flatwoods, pine/palmetto flatwoods) vegetative communities that will be lost to phosphate strip mining mainly in the southern half of the CFPD.</p>	<p>Included in summary above</p>
	<p>3PR questions the accuracy of the information and the adequacy of the environmental analyses in the DAEIS, because it does not properly characterize the invaluable, irreplaceable, and virtually (in scientific terms) "unknown" natural resources within the CFPD, including the project sites of the four proposed phosphate strip mines, including the various alternatives. If the remaining fractions of natural ecosystems and vegetative and wildlife communities are not protected through the final AEIS, a monumental ecological and environmental catastrophe will result for west-central Florida.</p>	<p>Included in summary above</p>
	<p>Recommendation: The USCOE should consult with Archbold Biological Station for the purposes of developing plans for conducting comprehensive ecosystem analyses in the regions containing the four proposed mine permits (including the various alternatives) and throughout the remaining natural areas of the CFPD. These base studies are essential for competent and objective review of phosphate strip mining applications, including the cumulative impacts which they would potentially contribute. The studies fully analyze and provide a classification system for regional vegetative communities within regional ecosystems by correlating native flora components to their essential ecological, edaphic, geologic, topographic, hydrologic, and climatic requirements. At a minimum, ecosystem classification base studies, necessary for further analyses, should be of similar design and include the same level of analysis as those conducted by the Natural Resources Flight of the US Air Force Range at Avon Park (Orzell & Bridges 2006). The cumulative effects of multiple stressors should also be analyzed for the extant ecosystem and biota of the CFPD.</p>	<p>Included in summary above</p>

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	<p>In terms of ecosystems and biota it is necessary that the DAEIS provide "an evaluation of the key plant and animal species, to give an ecological perspective of important species present, and to evaluate the biota in a regional context. This observation comes from direct observation and study on the site" (Rau & Wooten 1980). As explained in this section of 3PR's comments, and as detailed in others, the DAEIS does not provide an adequate "evaluation of the key plant (species)" because it is not based on current site-specific data and direct observation of the study area (the CFPD, including all permit alternatives), it does not competently list and provide relevant discussions as to the conservation of specialized, rare, or protected flora. It does not discuss the important and relevant aspects of plant endemism, and does not consider the protection of biodiversity and genetic diversity. The DAEIS is therefore inadequate and incomplete in this regard.</p>	<p>Included in summary above</p>
	<p>An obvious deficiency in the DAEIS is a lack of knowledge and understanding concerning the environs (mainly the Flora of the southern half of the CFPD).</p>	<p>Included in summary above</p>
	<p>Conspicuously omitted or absent from the DAEIS are investigations and discussions of plant and animal endemism. Objectively verifiable, site-specific, comprehensive ecological surveys should have been prepared specifically for the DAEIS by third parties, or recognized regional experts.</p>	<p>Included in summary above</p>
	<p>Many important wildlife areas have been completely eliminated by phosphate strip mining and other land uses. No trace remains of entire biotic systems which once existed before phosphate mining. The DAEIS is inadequate and inaccurate in that, in the context of unique ecosystems and endemism, there is no discussion of, or consideration for, the unique geomorphology within the CFPD impact area, nor is there a discussion of the "biogeography" of the endemic and/or listed plant and animal species in these distinct, unique regions.</p>	<p>Included in summary above</p>
	<p>3PR questions the adequacy of the environmental analyses and the accuracy of the information provided in the DAEIS, because it does not adequately or accurately evaluate or consider the fact that phosphate strip mining has destroyed much of the central Polk Upland, and is currently destroying some of the last vestiges of the Lake Henry Ridge, a unique geomorphologic feature with only small fragments of it original native ecosystem remaining. Also not adequately addressed in the DAEIS, are the xeric uplands and xeric upland systems of western Hardee and eastern Manatee counties. These environs are essentially unknown in the scientific literature, are of great interest to science, and of great importance to environmental conservation.</p>	<p>Included in summary above</p>

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	<p>Because open public access to most of the lands within the CFPD has not been available, many of its great tracts of native land in Manatee, Hardee, Desoto, and Sarasota counties have not been adequately explored zoologically and floristically! No comprehensive searches have been conducted for species which may be "unknown to science". Even so, private scientists have made major discoveries including the discovery of several new plant species as well as several species formerly believed to be extinct in the region. It is clear that the DAEIS does not address the astounding diversity and concentrations of wildlife which exists in this region. Although not reported, or not accurately reported by the phosphate industry, limited local government surveys and observations have revealed ecosystems supporting a remarkable abundance of animal life as well as diverse and pristine natural plant communities. In addition to endangered flora and fauna occurring in the native ecosystems, very large populations of deer, gopher tortoise, snakes, other reptiles, turkeys, and numerous birds and other animals are abundant. Some of the native vegetative communities found within the CFPD may represent the last of their kind in west-central Florida. That is, no site-specific, current, relevant studies were conducted by independent scientists and used as a basis for development of the DAEIS in fulfilling its NEPA mandate of "Protection of the Environment".</p>	<p>Included in summary above</p>
	<p>3PR questions the adequacy of the environmental analysis and the accuracy of information in the DAEIS, because it fails to consider the extremely important role of native ecosystems, especially native upland ecosystems as repositories of ecological diversity, in maintaining climate, in sequestering carbon, in providing for native wildlife, including plants and animals, providing aesthetics and a healthy human environment, and many other benefits essential to humans and the environment. Also ignored are the irreplaceable values of native soils in maintaining water quality, regulating hydrology, ameliorating the climate, and supporting regionally adapted vegetation associations and unique gene pools.</p>	<p>Included in summary above</p>
	<p>Acknowledgement or analysis of the relationship of the specialized vegetative communities which occur in the Southwestern Florida Flatwoods Ecoregion (Figure 4) and their high degree of correlation to regionally specific and unique soils is conspicuously absent throughout the DAEIS. Possibly it is inconvenient to discuss the destruction of ecological resources which can never be restored or replaced.</p>	<p>Included in summary above</p>

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	<p>The expansive and diverse landscape of the CFPD, and the included regions involved in the proposed permits or alternatives fall with the Southwestern Florida Flatwoods Ecoregion, and as such, are characterized by highly complex, regionally unique, combinations of topography and hydrology, and very extensive globally unique ecosystems and regional wildlife food webs. Because the southern half of this region supports extensive xeric upland areas that are distinctly separated from other major ridges and uplands systems (particularly in Manatee County), its vegetative communities have recently been found to include additional unique endangered species. Several species thought to have been extinct in the region have also been found, and additional unknown taxa are under scientific review. These discoveries indicate a highly unique floristic region; one that is being rapidly pushed towards extinction mainly by the phosphate strip mining industry.</p>	<p>Included in summary above</p>
	<p>3PR questions the accuracy of the information and adequacy of the analyses in the DAEIS, because values and attributes associated with unique physiography / geomorphology were not properly evaluated and considered. The important assets found in the biological, physical/geomorphologic, aesthetic, and geological uniqueness of the various physiographic regions found within the CFPD, and within the geographic extents of the four proposed phosphate strip mining projects (including the various alternatives), were all but ignored in the DAEIS. Especially lacking in the document was any thorough evaluation of impacts and measurable guidance for protecting the important resources and attributes which relate to physiography/geomorphology.</p>	<p>Included in summary above</p>
	<p>Most of the various physiographic / geomorphologic features of central Florida, including west-central Florida, are known as regions of high biotic endemism and ecosystem specialization. Because, in 3PR's opinion, the preparers of the DAEIS are not qualified to evaluate these specialized features, regions, and areas of potentially high endemism, and because there is no evidence of their personnel having sufficient experience or expertise in west-central Florida ecosystems and regionally-specialized areas of biological sciences, the document is intrinsically flawed, inadequate, and inaccurate, or simply unqualified in this context. Additionally, its statements and conclusions in regard to ecosystem resources are unqualified in that no appropriate, adequate site-specific ecosystem evaluations were conducted by qualified regional biological research institutions, or qualified regional experts, using modern biological and ecological techniques and resources. NEPA requires that environmental components be properly evaluated so that the best possible decisions may be made. The data and analyses which are needed for the protection of ecosystems, specialized vegetative associations and biota are highly site specific. Species lists and general descriptions do not provide the levels of ecological understanding necessary to evaluate important NEPA conservation decisions.</p>	<p>Included in summary above</p>

	<p>The Draft AEIS did not adequately consider ecosystem services.</p>	<p>The Final AEIS provides sufficient quantitative information to allow the USACE to make a reasoned choice amongst alternatives. Also, pursuant to the USACE Regulatory NEPA implementing regulations at 33 CFR Part 325 Appendix B; the USACE does not prepare cost-benefit analyses for projects requiring a USACE permit. Chapter 4 addresses the impacts associated with mining, and potential mitigation for those impacts. Chapter 5 has additional information about mitigation, including of impacts to waters of the U.S. and how functional analyses of impacts and mitigation will be performed.</p>
	<p>Meyerson, Laura A., et al. 2005. Aggregate measures of ecosystem services, can we take the pulse of nature. <i>Front Ecol Environ</i> 2005; 3(1): 56–59. * Summary: Stresses the imperativeness of "ecosystem services" as essential to human well-being and that such services provide life support for the human population. Concludes that "quantifying and monitoring the flows of ecosystem services is critical", and that "quantification of ecosystem services and communication of the information to decision makers and the public is critical to the responsible and sustainable management of natural resources." Substantive Comment: 3PR questions the adequacy of the environmental analyses in the DAEIS, because it fails to consider the "essential life support" value of the extensive natural ecosystems which large-scale phosphate strip mining destroys. It has not quantified, nor does it provide any direction for the adequate protection and monitoring of "ecosystem services" within the CFPD which are essential to both humans and the environment.</p>	<p>Included in summary above</p>
	<p>Kremen, C. 2005. Managing ecosystem services: what do we need to know about their ecology? <i>Ecology Letters</i> 8:468-479. * Summary: Human domination of the biosphere greatly alters ecosystems, yet ecological understanding of ecosystem services is limited. The author discusses methods to incorporate vital ecological information into the environmental policy and management process. * Substantive Comment: 3PR questions the adequacy of the environmental analyses of the DAEIS, because significant issues relating to the future of humanity were not discussed. The author stresses that proper understanding of ecosystem services is critical for our human future. There is no discussion of ecosystem services, nor are there any similar considerations of for protection of the environment found in the DAEIS.</p>	<p>Included in summary above</p>

	<p>Diaz, S., et al. 2006. Biodiversity loss threatens human well-being. PLoS Biology 4(8):e277.</p> <p>* Summary: This important research summarizes contemporary science involving ecosystem services, and provides a synthesis from the latest scientific literature of the role of biodiversity in ecosystem services and human well-being. The findings indicate that the most dramatic changes in ecosystem services likely come from altered compositions of ecological communities and from the loss of locally abundant species rather than from the loss of already rare species.</p> <p>* Substantive Comment: 3PR questions the adequacy of the DAEIS, because there is no discussion of ecosystem services, nor are there any similar considerations consisting of rational dialogs and analyses relating to the need for environmental/ecosystem.</p>	<p>Included in summary above</p>
	<p>Daily, Gretchen C. et al. 1997. Ecosystem Services: Benefits Supplied to Human Societies by Natural Ecosystems. Issues in Ecology. No. 2, Spring 1997.</p> <p>* Summary: Provides information and research results concerning "Ecosystem Services" and the essential need to protect ecosystems in order to human existence to continue.</p> <p>* Substantive Comment: 3PR objects and questions the adequacy of the environmental analysis and accuracy of the information in the DAEIS, because it does not consider the tremendous negative impacts which phosphate strip mining inflicts on biotic ecosystems and "ecosystem services". Because the purpose of NEPA is "Protection of the Environment", the protection of ecosystems, ecosystem services, and biodiversity must be the primary focus of the USCOE in evaluating the past, new, and cumulative environmental impacts of phosphate strip mining.</p>	<p>Included in summary above</p>

	<p>Recommendation: Many questions concerning the cumulative impacts of phosphate strip mining on ecosystem services must be answered before any further consideration of mining is entertained:</p> <ul style="list-style-type: none"> • What is the relative impact of the various mining-related activities upon supply of ecosystem services. • To what extent have various ecosystem services already been impaired by mining, and how are impairment and risk of future impairment distributed as a result of mining. • To what extent are the different ecosystem services in the study area interrelated. • How does damaging one ecosystem service influence the functioning of others. • What proportion and spatial extent pattern of land (ecosystems and restorable areas) must remain undisturbed with the study area in order to sustain the delivery of essential ecosystem services. 	<p>Included in summary above</p>
	<p>The Draft AEIS did not adequately address the issue of the loss of biodiversity and genetic information caused by phosphate mining.</p>	<p>The potential impacts of the four proposed actions and their alternatives on wildlife and wildlife habitat are described in Chapter 4 of the Final AEIS. As stated there, it is expected that with success mitigation (including avoidance and minimization of impacts) and reclamation, there will be at most a moderate, non-significant impact on wetland and upland habitat, which should ultimately lead to similar levels of impact to biodiversity and genetic resources. Coordination with the USFWS will be performed as part of the USACE review of the four proposed actions.</p>

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	<p>Naeem, Shahid et al. 1999. Biodiversity of Ecosystem Functioning: Maintaining Natural Life Support Processes. Issues in Ecology. No. 4, Fall 1999.</p> <p>* Summary: On of the most conspicuous aspects of contemporary global change is the rapid decline of the diversity of the Earth's essential ecosystems.</p> <p>* Substantive Comment:</p> <p>3PR objects and questions the adequacy of the environmental analyses and adequacy of the information in the DAEIS, because it does no consider the ALL IMPORTANT subject of "biodiversity". the fact that humans need healthy ecosystems for their continued existence, and the phosphate strip mining may be the largest single contributor to the destruction of genetic diversity and the environment in central Florida. NEPA's charter of "Protection of the Environment" is all but ignored in the DAIES.</p>	<p>Included in summary above</p>
	<p>3PR questions the adequacy of environmental analyses and accuracy of information in the DAEIS, because it neglects to consider the negative impacts and effects of phosphate strip mining on bio-diversity and the essential and necessary protection of genetic diversity within west-central Florida, and beyond (as these impacts affect surrounding regions and the biosphere).</p>	<p>Included in summary above</p>
	<p>Also, because phosphate lands have been held in ownership for such long time periods, much (or the majority) of the surrounding ecosystems have already been eliminated by other types of development, such as, necessary agriculture, residential, and business/commercial uses. Therefore, as a result of phosphate strip mining, many of the last remaining locally adapted gene pools of important plant and animal populations, and even the genetics of entire metapopulations, will be greatly reduced, or possibly entirely lost. This represents a very serious, once in history, issue of regional concern, which has the potential to affect entire bioregions of west-central Florida, and even the biosphere. The dire consequences of this situation are that there will be no ecologically appropriate, regionally-adapted, adequately diverse, genetic sources which could be used for re-colonization or secondary succession, if such were even possible. "If the Earth has lost its savor, from where forth shall it be salted?" Even in this scenario, which is in no case attainable because phosphate strip mining eliminates or completely destroys the structures of most upland native soils and geology, especially the environmental unique, sensitive and complex flatwoods soils, the results are fatal to the continued existence of our very diverse and irreplaceable native flora and uniquely Florida ecosystems.</p>	<p>Included in summary above</p>

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	<p>Even if the soils and geology of the natural ecosystems which phosphate mining destroys were preserved, local gene pools would have been destroyed by clearing away natural vegetative communities, thus creating severe regional genetic erosion, which causes essential adaptations (genes/genetics), which may have taken millennia to develop, to be permanently lost! Genetic erosion occurs because each individual organism has many unique genes which get lost when it dies without getting a chance to breed and reproduce. Genetic erosion is compounded and accelerated by habitat fragmentation. In Florida, even with considering the hundreds of thousands of acres of mined lands, the habitats of many plants and animals, including but not limited to listed species, live in smaller and smaller chunks of fragmented habitat, interspersed with human settlements and farmland, making it much more difficult to naturally interact with others of their kind for the purpose of reproduction, so many die off without getting a chance to reproduce at all, and thus are unable to pass on their unique, often regionally adapted genes to the living populations. Phosphate strip mining thus destroys genetic diversity and creates genetic erosion on a regional scale, possibly completely eliminating entire locally adapted plant genomes (landraces, locally adapted varieties, or ecotypes). It has been well established, that the only effective and self-sustaining species protection, which is actually gene pool protection, involves the protection and management of sufficiently large tracts of native ecosystems.</p>	<p>Included in summary above</p>
	<p>3PR vehemently objects to the accuracy of the information and adequacy of the environmental analyses in the DAEIS, because the USCOE has not considered the extremely important issue of "loss of biodiversity. Agency action(s) may therefore contribute greatly to the decline of biodiversity in the Southwest Florida Flatwoods Ecoregion, and contribute to losses globally. Biodiversity declines are not limited to increased rates of species extinction, but include losses of genetic and functional diversity across populations, communities, and ecosystems (Chart 1). "The wide-ranging decline in biodiversity results largely from habitat modifications and destruction, increased rates of invasions by deliberately or accidentally introducing non-native species (such as "cogongrass", and the many weeds and non-native species encourage by the effects of phosphate strip mining) or over-exploitation (like phosphate strip mining) and human-caused impacts. (Naeem 1999).</p>	<p>Included in summary above</p>

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	<p>"At a global scale, even at the lowest estimated current extinction rate, about half of all species could be extinct within 100 years. Such an event would be similar in magnitude to the five mass extinction events in the 3.5 billion year history of life on earth." (Naeem 1999). In view of the chart below it must be considered that "genetic" extinctions occur when a significant portion of a local gene pool is lost/depleted, or when essential genetic traits necessary for reproduction and survival are lost or weakened. Phosphate strip mining has already mostly deleted the gene pools of many species, over wide regions, many of which were mostly locally developed and adapted. A cumulative analysis of genetic erosion caused by the industry is needed.</p>	<p>Included in summary above</p>
	<p>The DAEIS, as written will encourage an onslaught unbridled phosphate strip mining, which will result in permanent large-scale gene pool loss and genetic erosion through irreplaceable destruction of many plant and animal populations, and in the elimination of much of the few remaining large tracts of native ecosystem in the region. The secondary and tertiary impacts of this ecological disaster will extend into the surrounding counties and regions, and far beyond because, due to its vast scale and severity phosphate strip mining is one of the largest single offenders of the environment in Southeastern United States.</p>	<p>Included in summary above</p>
	<p>Additionally, research in molecular phylogenetics is regularly revealing new genetically distinct species, many of which are monophyletic. Areas of native ecosystems involving the four proposed phosphate strip mining proposals (including all alternatives), as well as potentially restorable lands which have reasonably intact native soils and geology, must be protected until genetic studies can be conducted in these regions. There is considerable potential that genetically unique taxa will be discovered in this region when such studies are conducted.</p>	<p>Included in summary above</p>
	<p>3PR vehemently objects to the accuracy of the information and adequacy of the environmental analyses in the DAEIS, because the USCOE has not considered the extremely important issue of "loss of biodiversity. Agency action(s) may therefore contribute greatly to the decline of biodiversity in the Southwest Florida Flatwoods Ecoregion, and contribute to losses globally. Biodiversity declines are not limited to increased rates of species extinction, but include losses of genetic and functional diversity across populations, communities, and ecosystems (Chart 1).</p>	<p>Included in summary above</p>
	<p>Phosphate strip mining has already mostly deleted the gene pools of many species, over wide regions, many of which were mostly locally developed and adapted. A cumulative analysis of genetic erosion caused by the industry is needed.</p>	<p>Included in summary above</p>

	<p>The DAEIS, as written will encourage an onslaught unbridled phosphate strip mining, which will result in permanent large-scale gene pool loss and genetic erosion through irreplaceable destruction of many plant and animal populations, and in the elimination of much of the few remaining large tracts of native ecosystem in the region. The secondary and tertiary impacts of this ecological disaster will extend into the surrounding counties and regions, and far beyond because, due to its vast scale and severity phosphate strip mining is one of the largest single offenders of the environment in Southeastern United States.</p>	<p>Included in summary above</p>
	<p>The relocation of plants and animals as described in the Draft AEIS does not work.</p>	<p>As described in Chapter 5 of the Final AEIS, relocation of certain species is only one conservation practice currently implemented by the Applicants. The USACE will coordinate any proposals to relocate federally-listed species with the USFWS.</p>
	<p>Menges, E. S. 2008. Restoration demography and genetics of plants: When is a translocation successful? Australian Journal of Botany 56:187-196. * Summary: This review paper stresses the many complex ecological factors that govern a reintroduction and the many complex ecological relationships that must be re-established for a species reintroduction to be considered a success. Chief among them is the generation time of a species. For long-lived plants, it may take decades for the translocated plants to become reproductive. * Substantive Comment: Long-term monitoring of reintroductions is necessary to evaluate the success of a project, and funding for such monitoring should accommodate this long-term component of reintroduction projects.</p>	<p>Included in summary above</p>

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	<p>CDFW. 1991. Mitigation-related transplantaion, relocation and reintroduction project involving endangered and threatened, and rare plant species in California. California Department of Fish & Game, June 14, 1991.</p> <p>* Summary: This research investigated and evaluated the status of many listed and rare plant projects including the efficacy and overall success of transplantaion, relocation, and reintroduction of California State-listed endangered, threatened, and rare species. The primary results indicated that only 15% of 53 attempts were deemed successful. And, only 8% of relocations for mitigation were successful.</p> <p>* Substantive Comment: 3PR questions the accuracy of information and the adequacy of the environmental analyses, because such are entirely lacking in the DAEIS ! 3PR therefore also questions the merits of the relocation alternative. In general, the vast majority of endemic/listed plant relocation attempts fail, for many reasons, either in the short or long-term. Many such plants cannot even tolerate minor environmental/ecological changes or disturbances. An action other than the no-action (deny permit) alternative will result in the destruction of vast amounts of irreplaceable endemic/listed plant habitat, because ecosystems are destroyed on a massive scale by phosphate strip mining, its related activities, and its short and long term environmental effects.</p> <p>* Recommendation: Preserve and manage large enough on-site tracts of listed plant habitat to protect the local ecosystems which are essential for the long-term survival of Florida's precious endemic flora. Seek direction from the primary and only preeminent restoration ecology center in central Florida, Archbold Biology Station.</p>	<p>Included in summary above</p>
	<p>Recommendation: Based on the current state of scientific literature, there is no evidence that many of the listed plant species which might occur within the CFPD can be successfully established, in the long term, on reclaimed lands. In any case, the DAEIS offers no data and analyses which would support the feasibility of such experiments. Many species cannot be relocated successfully even back into their own habitats, or into sites identical to the donor sites (Menges 2008).</p>	<p>Included in summary above</p>
	<p>3PR questions the merits and the validity of relocating plants and animals as a conservation or mitigation strategy and disagrees that mitigation or relocating is a reasonable alternative for native ecosystem protection, or that it provides any significant conservation benefits. This is a significant issue. Vast amounts of Florida's native ecosystem have been destroyed in exchange for various forms of mitigation which often fail.</p>	<p>Included in summary above</p>

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	<p>3PR questions the adequacy of the environmental analyses regarding listed (endemic) plant species, as well as the merits of the relocation alternative, or mitigation alternative, because no studies are presented in the DAEIS indicating which, if any, relocated listed plant species have been successfully established as viable, self- sustaining (an important criteria) populations, which continue without human intervention and maintenance into the long term. Much has been published regarding the failures of such relocation ventures (CDFW 1991), especially failures involving mitigation projects. Many relocation projects involving listed or endemic plant species which yield living plants for some period of time, later fail for a variety of known and unknown reasons, even with considerable artificial cultivation "life support" efforts. This failure is due to complex ecological factors that govern such reintroduction attempts (Menges 2008). No published research supporting the viability or success of listed plant relocation is cited in the DAEIS. The concept of native plant relocation is flawed because, as previously stated, such rare native plants are very critically integrated with their native environments. That's why the term "critical habitat" is used in relation to their ecological needs.</p>	<p>Included in summary above</p>
	<p>It is important that the long-term status of these token introduction attempts be analyzed as part of any relocation or reintroduction attempts, and that a cumulative analysis be conducted to quantify the amount/numbers and diversity of important Florida native plants species which have been, and which will be eliminated as a result of past, present, and proposed future phosphate strip mining, and unmined, but potentially mineable area within the CFPD. Paramount in these studies is the need to evaluate genetic erosion, that is, gene pool destruction of locally adapted species and ecotypes.</p>	<p>Included in summary above</p>
	<p>The DAEIS states that "In recent years, listed plant species and slow-moving listed animal species, such as the state-listed gopher tortoise, that are identified during pre-clearing surveys have been relocated before land disturbance to suitable onsite preservation or reclamation areas, or to suitable offsite areas." The anonymous author(s) of this statement are assumed to be the Applicants. The DAEIS does not specify the percentages of the total populations of such species which were relocated, and no long-term success data are provided.</p>	<p>Included in summary above</p>
	<p>The Draft AEIS did not adequately consider cogongrass.</p>	<p>The Final AEIS discusses how exotic plant species issues are addressed in USACE-required wetland mitigation areas in Chapter 5 and Appendix I. Exotic plant species management in upland areas is outside of the USACE's regulatory authority, however it is addressed by the FDEP in its ERPs and reclamation plans.</p>

	<p>USDA. 2012. Federal Noxious Weed List. U.S. Department of Agriculture (USDA/APHIS), effective December 10, 2010, updated February 1, 2012.</p> <p>* Summary: Contains the current (as of Feb. 1, 2012) list of federally listed noxious plant species. The National Invasive Species Council was created by: "Executive Order 13112 On Feb 3, 1999, Executive Order 13112 was signed establishing the National Invasive Species Council. The Executive Order requires that a Council of Departments dealing with invasive species be created."</p> <p>* Substantive Comment: In addition to several other noxious species which colonize "reclaimed" land, this list contains "cogongrass" (<i>Imperata cylindrica</i>).</p>	Included in summary above
	<p>Additionally, the primary vegetative cover of a very large number of acres of "reclaimed" phosphate strip mines is dominated by the invasive species cogongrass (<i>Imperata cylindrica</i>), which forms irrevocable monocultures over these vast ruderal landscapes. More thorough comments regarding cogongrass are presented in a separate comment.</p>	Included in summary above
	<p>Because the native plants and animals of the precious, and now rare or uncommon native vegetation communities and ecosystems of Florida require specific, undisturbed native soils, and also require interaction with the hundreds of other species within their respective "communities", the effects of phosphate strip mining together with the attraction of cogongrass to mined, disturbed, and reclaimed lands, has been devastating to the natural environment.</p> <p>The purpose of NEPA is "Protection of the Environment". Further phosphate strip mining will provide even more disturbed, non-native substrates which, as with past mined lands, will be destined to be dominated by the exceedingly difficult or impossible to eradicate, noxious cogongrass weed.</p>	Included in summary above

	<p>There has been considerable research, throughout several states, and countries, relating to the negative impacts of cogongrass. A large amount of resources has been spent specifically studying the problem as it exists on mined and "reclaimed" phosphate lands.</p> <p>However, the DAEIS does not mention this immensely significant environmental problem which is directly relevant to phosphate strip mining. Inexplicably, the terms "cogongrass" and "Imperata cylindrica" do not appear in the document, even though this species may be the dominant, or sub-dominant biological upland feature associated with mined land. The DAEIS is therefore inadequate and inaccurate in that it did not consider the devastating effect of cogon grass on the environment, and the continuing massive problem it presents to the natural environment.</p> <p>The problem of extensive, nearly ubiquitous infestations of cogongrass which occur on "reclaimed" phosphate mined lands should be solved before additional phosphate mine permits are issued. The plant is an extremely serious invasive noxious weed. It is economically infeasible to eradicate the plant on a large scale, and management attempts can damage native vegetative communities.</p>	Included in summary above
	<p>Brewer, J. S. 2008. Declines in plant species richness and endemic plant species in longleaf pine savannas invaded by <i>Imperata cylindrica</i>. <i>Biol Invasions</i> 10:1257-1264.</p> <p>* Summary: Examines the invasiveness of cogongrass (<i>Imperata cylindrica</i>) into native longleaf pine flatwoods and its impacts on species composition. The research determined that the species excluded many herbaceous species, mainly by shading them out, or through aggressive colonization and expansion. Cogongrass patch expansion results in dramatic declines in species richness. Invasion of longleaf pine communities will likely cause significant losses of short habitat-specialists and reduce the distinctiveness of the native flora.</p>	Included in summary above
	<p>3PR questions the accuracy of information and adequacy of the environmental analyses in the DAEIS because the very substantially significant issue of the negative effects of cogongrass infestations on reclaimed phosphate strip mined land is not addressed, nor is the species mentioned in the report. This section states that "The National Invasive Species Council (NISC) was established by EO 13112 to ensure that federal programs and activities to prevent and control invasive species are coordinated, effective, and efficient."</p>	Included in summary above

	<p>The rapid and dense colonization of "reclaimed" mine land by the federally listed noxious weed known as "cogongrass" (<i>Imperata cylindrica</i>) (USDA 2010) represents an exceedingly serious and highly significant environmental issue. There are extensive and often contiguous infestations of this highly invasive, environmentally destructive and difficult to control weed dominating the herbaceous layers of many existing "reclaimed" and abandoned mine lands. The species succeeds vigorously in disturbed substrates such as those generated by the phosphate strip mining industry as a result of mining, "reclamation" activities, ancillary operations and activities, and site maintenance. This invasive plant thrives and succeeds in nutrient laden substrates, and substrates which will not support native ecosystems, such as the rocky ancient excavated materials distributed at the surface in the post-mine scenario.</p>	<p>Included in summary above</p>
	<p>3PR questions the adequacy of the environmental analyses and accuracy of the information in the DAEIS, because it fails even to mention cogongrass, and the economic and environmental consequences of such unbridled comprehensive infestations as occur on previously mined lands, including "reclaimed" lands. Mined and reclaimed phosphate lands arguably host the greatest aerial extent of cogongrass infestations in west central Florida. This is a serious and for all practical purposes an insolvable problem caused by large-scale mining disturbances and conversions of native soils to clays, silica, overburden, and other discarded mining wastes, that is, "reclamation" materials. This and other research indicates that cogongrass infestations are highly damaging to native ecosystems and effectively preclude or prevent the success of many types of restoration and reclamation. Also, the vast infestations of cogongrass in the phosphate district act as a seed source for the entire regions and, as a result of storms, no doubt infest many distant properties. Cogongrass has proven very difficult and expensive to control, and even much more difficult to eradicate.</p> <p>* Recommendation: Additional phosphate strip mining should not be permitted to proceed until the cogongrass disaster and its many serious environmental and economic concerns are resolved.</p>	<p>Included in summary above</p>

	<p>Cogongrass alters fire ecology because it usually grows very densely and burns hot (B. Nelson / SWFWMD, Land Management, pers. comm.). These attributes have the effect of preventing or excluding native herbaceous species due to shading, crowding, and radical modification of essential fire regimes. The species is virtually impossible to effectively eradicate on a large scale due to physical land constraints and high economic costs, and because of the fact that the species simply recolonizes immediately, often with even greater vigor and aggressiveness. Based on observed aerial extents (cover) it is logical that the mined and/or restored areas of the CFPD represent primary sources of cogongrass seed generation and dispersal for much of the region. "Cogongrass spikelets are wind dispersed and have the potential to travel great distances" (FIPR 1997). The species is also very difficult to eradicate on a small scale without irreparably damaging the fragile, specialized soils and unique herbaceous layers of natural ecosystems such as flatwoods, live oak hammocks, xeric uplands, including transitional areas.</p>	<p>Included in summary above</p>
	<p>The Draft AEIS did not adequately consider fire management of upland ecosystems.</p>	<p>Fire management of upland ecosystems is outside the authority of the USACE.</p>
	<p>Menges, E. S. 2007. Integrating demography and fire management: An example from Florida scrub. <i>Australian Journal of Botany</i> 55:261-272. * Summary: Author reviews the ecology of fire in the scrub and analyzes life history and demographic data (most species studied for 10-15 years) of 16 rare and endangered plants of the scrub, and discusses the varied life history patterns of these plants. Some species balance two opposite strategies of survival in a fire-dominated system, seeding and sprouting, and others are more dependent on only one strategy.</p>	<p>Included in summary above</p>

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	<p>Substantive Comment: 3PR questions the adequacy of the environmental analyses in the DAEIS, because it does not acknowledge the necessity of proper upland ecosystem management through the use of prescribed fire. Fire is essential to the life histories of most plants in the Florida scrub, and as shown elsewhere in 3PR's comments, in the expansive dry prairie/flatwoods/pine-palmetto vegetative communities found throughout the southern half of the CFPD. "Pyrodiversity", the variation of fire regimes in time and space, is essential to the continued natural functioning of Florida's upland ecosystems. The role of fire in maintaining native upland ecosystems is nowhere discussed in the DAEIS. The only mention of fire or fire ecology is vaguely in regard to scrub jay mitigation. 3PR also questions the accuracy of the information in DAEIS, because it is stated that "The phosphate industry uses chemical, mechanical, fire, hydrologic, and manual techniques to control nuisance and exotic plant species in mitigation areas." Although this statement is not in the context of fire ecology, it should be pointed out that burning the vast infestations of cogongrass which occur on mined and "reclaimed" lands is not compatible with what few native plant species may remain there, and also may not be compatible with some wildlife species. Also, using fire in an attempt to improve the appearance of land, without any real hope of eradication (as is the case with cogongrass growing in post-mining substrates) creates smoke and other air pollution concerns.</p>	<p>Included in summary above</p>
	<p>Menges, E.S. and Gordon, D.R. 2010. Should mechanical treatments and herbicides be used as fire surrogates to manage Florida's uplands? A review. Florida Scientist 73:147-174. * Summary: Mechanical treatments and herbicide often accelerated vegetation structure changes, but ecological benefits were generally greatest when they were combined with fire. Soil disturbances, weedy species increases, and rapid hardwood resprouting were sometimes problems with mechanical treatments. Fire itself was crucial for maintenance of individual species and species diversity. When feasible, mechanical and herbicide treatments should be used as pretreatments for fire rather than as fire surrogates. Managers should segue to fire-only approaches as soon as possible. * Substantive Comment: (Used in support of other comments). One of many papers indicating that natural fire, or in this case prescribed fire, is the ecologically correct and natural method for the management of xeric upland habitats. The DAEIS is completely inadequate in sufficiently characterizing ecosystems and managing natural areas within the CFPD.</p>	<p>Included in summary above</p>

	<p>The Draft AEIS does not adequately address the topic of impacts to soils.</p>	<p>Soils and surficial geology are considered in depth as significant issues in Chapter 4 of the Final AEIS. The use of soils in wetland mitigation is discussed in Chapter 5 of the Final AEIS.</p>
	<p>Although a great body of science exists which provides technologies which enable efficient, profitable, and safe farming in areas supported by native soils, much less is known concerning the unnatural rocky/marl/sand/clay/etc (Arents-Hydraquents-Neilhurst) substrates resulting from phosphate strip mining. Table 1 suggests that 7,241 acres of dam-enclosed waste clay facilities (CSAs) would result from a previously proposed mine at Ona as analyzed by Hazen & Sawyer (2003), and that the vast majority of native soils would be transformed to post-mine substrates.</p>	<p>Included in summary above</p>
	<p>3PR questions the accuracy of information and adequacy of the environmental analyses in the DAEIS, because it does not consider that phosphate strip mining utterly destroys sensitive native soils, especially dry prairie soils, and replaces them with non-native substrates to which native vegetation and thus ecosystems are not adapted. This is a highly significant environmental issue not addressed in the DAEIS. The most important, and by far the most predominant natural (native) soils found on unmined phosphate-company-owned lands in Hardee County belong to the "poorly drained" drainage class, "B/D" hydrologic group (USDA 2012b). Because of very recent changes in the engineering criteria for hydrologic groups, extensive areas of B/D soils have been re-designated or redefined, as A/D hydrologic group. Both B/D and many A/D soils in Hardee County include the following types: Basinger fine sand, Bradenton loamy fine sand, Farmton fine sand, Felda fine sand - frequently flooded, Felda fine sand, Immokalee fine sand, Myakka fine sand, Pomona fine sand, Wauchula fine sand mapped by the NRCS. The crucial importance of protecting the integrity of these unique native soils, which are essential to mesic and seasonally wet native upland ecosystems, is discussed further in several other 3PR comments.</p>	<p>Included in summary above</p>
	<p>Phosphate strip mining extensively alters the physical, chemical, and hydrologic properties of surficial aquifers and water tables. It is well documented that native upland ecosystems and vegetative communities are precisely adapted and require these special natural attributes (Orzell & Bridges 2006) (Cole et al 1994) (Huck 1987). Natural native ecosystems and their specific vegetative communities are therefore precluded from re- establishment after and as a result of the soil impacts caused by phosphate strip mining.</p>	<p>Included in summary above</p>

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	<p>Recommendation: The effects of converting vast areas of native soils to unnatural post-mining Arents-Hydraquents- Neilhurst substrates, which cannot support native upland ecosystems, including "dry prairie, pine/palmetto flatwoods" vegetative communities, are devastating to the natural environment. These essential ecological assets must be thoroughly analyzed and assessed, providing special attention to the cumulative negative impacts which area-wide phosphate strip mining has imparted, and will impart, to the regional ecology, native biota, genetic diversity (genetic erosion), natural hydrology, and critical bio-hydrologic regimes of the Southwestern Florida Flatwoods Ecoregion. The aerial extent of each native soil type must be correlated to the amount of each native vegetative community lost. Each native vegetative community must be fully characterized as in Orzell & Bridges (2006), because little is known of ecosystem structure in the regions west of the Lake Wales Ridge, and because numerous plant species have been recently discovered in that region which were formerly unknown to science, and which are planned to be proposed for federal listing. Evaluations must be conducted for each alternative, and for lands which have already been mined, so that negative environmental impacts may be evaluated separately, and then cumulatively.</p>	<p>Included in summary above</p>
	<p>It does not consider the specific soil and geologic requirements of natural upland ecosystems.</p>	<p>Included in summary above</p>
	<p>Arents are moderately well drained to excessively well drained discarded overburden from the strip mining process, which exhibit a consistently alkaline pH. Hydraquents, called "slickens", are up to 85% clay and exhibit a high (alkaline) pH, and Neilhurst, which is excessively drained and usually composed mostly of sand with other inclusions. These unnatural substrates are intrinsically physically and chemically variable, and can be randomly homogeneous or heterogeneous in formulation. All are incompatible with the soils, hydrology, and ecology of native ecosystems, vegetation associations, and other natural systems.</p>	<p>Included in summary above</p>

	<p>"Alteration or removal of natural vegetation has been the primary cause of habitat destruction, reduction in native plants and animals, and species extinctions. Any proposed project that will alter or remove the native vegetation must consider the impacts ... " (Rau & Wooten 1980). The following represent some, but not all, of the significant adverse impacts and important issues identified by Rau & Wooten in relation to land clearing, draining and filling, changing watercourses, construction of dams and reservoirs, roads, and industrial use:</p> <ul style="list-style-type: none"> • Habitat destruction - ADVERSE • Loss of shelter and food - ADVERSE • Loss of native plants and animals - ADVERSE • Reduced species diversity - ADVERSE • Enhances site for invasion of noxious and weed plants and animals - ADVERSE • Creates conditions suitable for rodent outbreaks - ADVERSE • Increased edge effect - ADVERSE • Loss of climax species (in the case of forested habitats) - ADVERSE • Changes in migratory patterns of birds and wildlife - ADVERSE • Interference with migratory routes or normal movement of animals (in the case of roads) - ADVERSE 	<p>Comment acknowledged</p>
	<p>3PR further questions the accuracy of information in the DAEIS, because the table of listed plants which purportedly are found in the CFPD is in gross error due to omissions. And, because NEPA directs that EIS process coordinate and be consistent with state and local agencies. The Florida Department of Agriculture (FDA) lists additional endangered species not listed by the U.S. Fish and Wildlife Service, and the State Comprehensive Plan of Florida requires that mining and mineral extraction protect natural resources.</p>	<p>Table 3-20 in Chapter 3 of the Final AEIS lists federally-listed species in the AEIS study area, including Manatee, Hardee, and Desoto Counties. The Florida Department of Agriculture and Consumer Services reviewed the Draft AEIS and did not provide comments on state-listed plant species. Compliance with state requirements, including about listed plant species and the state comprehensive plan, is beyond the scope of the AEIS.</p>

	<p>3PR questions the accuracy of the information and the adequacy of the environmental analyses in the DAEIS, because of obvious errors and omissions in describing wildlife, and because in-depth site-specific ecosystem and wildlife analyses should have been conducted by "independent", unbiased third parties. In 2003, the Hardee County Mining Department staff and a several other professional biologists (consultants) conducted field surveys in to order verify wildlife surveys provided by the Applicant. The Applicant's data was found to be highly inaccurate in each case, and for each site surveyed/verified. In areas where the Applicant had not reported listed wildlife, hundreds of gopher tortoise, several gopher frogs, and several listed or rare plant species were found. Additionally, a primary recipient site used by one phosphate strip mining company for the relocation of gopher tortoise was carefully surveyed by county staff, and no tortoise were found. The site consisted of "rocky" reclaimed land, was infested with weedy species, and was observed to completely unsuitable as habitat for tortoise (although apparently authorized as a recipient site). It appears that applicants for mining permits have misrepresented or mischaracterized ecosystem resource and biota, grossly understating the actual species richness and habitat quality.</p> <p>Recommendation: The significance of the above example is to illustrate the strong need for environmental data and analysis, including ecosystem evaluations and species surveys, which has not to been provided by applicants. Important environmental data and analyses must be objective and independently verifiable, that is, developed by qualified third party scientists.</p>	<p>The USAACE will be responsible for verifying the information provided by the applicants in support of their applications. Wildlife and listed species information will be coordinated with the USFWS.</p>
	<p>Cole, S., T. Hingten, and K. Alvarez. 1994. Vegetative characteristics of contiguous dry prairie on two soil types in Hardee County. Resource Management Notes 7(3):15-16.</p> <p>* Summary: Species diversity and density were significantly different between soil types, with some species considered "indicators" for specific soil types. There were significant differences in characteristics of less dominant plants species across soil types in dry prairie. Fire regime is very important in maintaining and controlling vegetative characteristics.</p> <p>* Substantive Comment: (Same comments as under Orzell & Bridges 2006, Huck 1987, and as elsewhere in 3PR's comments).</p>	<p>Comment acknowledged</p>

	<p>Huck, Robin B. 1987. Plant Communities along an edaphic continuum in a central Florida watershed. Florida Sci. 50(2):88-110.</p> <p>* Summary: Vegetative gradient analysis in central Florida flatwoods region. Vegetation changed with topography, moisture regimes and soils. A correlation between soil types and vegetation was shown evident. The vegetative communities analyzed included palmetto prairie, savannah, palmetto zone, cypress slough, pine flatwoods, oak-palm woodland, maple swamp forest, ash swamp forest, maple-ash swamp forest, oak woodland, saw palmetto zone, cypress dome, palmetto prairie, and cypress pond.</p> <p>* Substantive Comment: This paper is in support of other comments explaining the correlation between native soils types, natural geology, natural hydrology and specific native vegetative communities and plant species, particular the substantive comment under the Orzell & Bridges (2006) reference.</p>	<p>Comment acknowledged</p>
	<p>Additionally, the analyses provided in the document insufficiently characterizes the cumulative impacts to these rapidly dwindling communities, which are all but extinct in some cases, and does not, with particularity and specificity, address their ecological sensitivity, as required in order to fulfill the stated purpose of NEPA which is "Protection of the Environment".</p>	<p>The cumulative impacts to wetlands/surface waters and upland habitat are discussed in Chapter 4 of the Final AEIS.</p>
	<p>White, W. A. 1970. The geomorphology of the Florida peninsula. Fla. Dept. Nat. Resour., Bur. Geol. Bull. 51:1-164.</p> <p>* Summary: General mapping of the physiographic features and regions of peninsula Florida. Universally used as a standard.</p> <p>* Substantive Comment: Indicated the physiographic complexity of west-central Florida. It has been extremely well established that endemism and ecological uniqueness is strongly related to geomorphologic complexity.</p>	<p>Comment acknowledged</p>
	<p>Additionally, the study did not fully investigate all aspects of the potential for increased residential and commercial development which include ranges of land uses infinitely less damaging than phosphate strip mining.</p>	<p>The evaluation of direct and indirect effects in Chapter 4 of the Final AEIS includes a No-Action Alternative - No Mining Scenario, which may consider alternative future land uses. In general, however, NEPA does not require consideration of other, more speculative predictions of future land uses, in place of or after mining.</p>

	<p>CFRPC (Central Florida Regional Planning Council). 2002. Land Use Suitability Index for Use in Hardee County. Adopted November 12, 2002, Hardee County Board of County Commissioners.</p> <p>* Summary: This site-specific study examines the Ona Mine, concludes that: "The results of this study indicate that future land use patterns, in particular the ability to support various types of commercial agriculture and urban development, may be substantially altered as a result of large-scale phosphate mining in Hardee County."</p> <p>* Substantive Comment: This study indicates that phosphate strip mining results in regional-wide degradation and reduction in the ability of land to support viable agriculture and certain other uses. The scientific findings and the fact that very few "reclaimed" phosphate strip mines have been used for residential or public retail uses, objectively refutes many of the statements of the DAEIS. The following two graphics are very informative in providing a visual representation of the negative impacts of phosphate strip mining on the suitability of land for future use and on the environment.</p>	<p>Chapter 4 of the Final AEIS considers the direct and indirect effects of the proposed actions and their alternatives on land use. Chapter 5 of the Final AEIS includes discussion of the FDEP reclamation requirements, including the requirement that reclaimed uplands be returned to beneficial use. Decisions on how potential changes in land use comply with local regulations are beyond the scope of the AEIS.</p>
	<p>HCOCC. 2010. Hardee County, Sustainable Hardee Visioning for the Future. Hardee County Board of County Commissioners, Wauchula, Florida.</p> <p>* Summary: "The Visioning is aimed at identifying community goals and a means to achieve those goals, both short and long-term. Hardee County is faced with difficult choices in the current economic times. Realizing that growth and development have the ability to either support or hamper the community' desired, county officials began to develop a Community Vision for the community that could properly guide future development and identify solutions to challenges. The Visioning process is intended to utilize a broad range of community comments, issues and opportunities in developing community recommended strategies. The Visioning process is also intended to develop a framework within which to proactively plan, develop milestones and identify potential community champions for the recommendations. With each successive meeting, the community refined the broader comments into more focused, action oriented recommendations that will be used to develop the overall final Vision. The strategies identified are not necessarily government directed and/or supported, and in numerous cases involve local community and civic organizations with specific interest or association with related programs. This method creates broad based community support and responsibility for the implementation of the strategy. The County identified five areas of review and analysis that were discussed through a series of "Focus Groups" and community meetings to prepare the Visioning Report and to provide guidance for future projects and decisions. These groups included: Economic Development, Land Use/ Recreation/ Open Space/ Environment, Quality of Life/Housing, Education/ Workforce, Infrastructure."</p>	<p>Decisions on how potential changes in land use comply with local regulations are beyond the scope of the AEIS.</p>

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	<p>Substantive Comment: 3PR questions the adequacy of the DAEIS because it does not contain references to Hardee Count's "Visioning" process, or an adequate analysis of how the DAEIS is consistent with the goals, objectives, and policies of the Hardee County Comprehensive Land Use Plan. NEPA requires coordination with state and local agencies in order to help avoid inconsistencies with local regulations and planning.</p> <p>* Recommendation: 3PR suggests that interested persons take aerial and surface tours of previously mined and reclaimed lands in northwestern Hardee County (and of the "four corners" and northwards), then tour areas of unmined lands. Such tours would no doubt help guide public opinion and Hardee County's visioning processes.</p>	<p>Part of above comment</p>
	<p>3PR questions the need for much of the pro forma information and bulk contained within the DAEIS, because, as previously established, it is not consistent with NEPA. Many sections, such as this one, do not further the understanding of the impacts of phosphate strip mining. Even so, improvements in phosphate strip mining technologies have merely increased the destructiveness of mining by more completely obliterating native ecosystems, and by producing vastly more waste clays and other environmentally unfriendly results, as the industry has become more "efficient" in extracting its products. Before "Technological Developments", the remaining, often parallel mine cuts, with overburden between, left some land which could be utilized for residential/commercial. Many homes have been built on such properties just south of Lakeland. However, the massive waste clay containment facilities now so prevalent in the core of the CFPD, which have resulted from so-called "Technological Developments" in phosphate processing, have precluded residential and commercial land uses over large areas of west-central Florida, and the many thousands of acres of new (planned) CSAs will continue to preclude valuable growth and economic development far into the future.</p>	<p>The evaluation of direct and indirect effects in Chapter 4 of the Final AEIS includes a No-Action Alternative - No Mining Scenario, which may consider alternative future land uses. In general, however, NEPA does not require consideration of other, more speculative predictions of future land uses, in place of or after mining.</p>
	<p>Recommendation: Comprehensive studies need to be conducted in order to determine the amount of residential and commercial development which has occurred on phosphate lands (including on CSA's) which have been mined during the last 20 years. The results of such studies will quickly reveal "true" economic and social potentials of properties in the post-mine post-reclamation scenario. Mine ownership precluded large areas of land from being developed during the recent economic boom. Likewise, future phosphate strip mining will continue to physically and environmentally obstruct residential and commercial growth in central Florida. See Hazen & Sawyer (2004).</p>	<p>Part of above comment</p>

	<p>The Draft AEIS does not adequately address the issue of environmental justice</p>	<p>Chapter 1 describes the outreach efforts for scoping and for the Draft AEIS. Section 3.3.7 describes the approach used to identify populations at risk that warranted environmental justice consideration. Potential EJ populations were examined at a county and census block level. Section 4.7 describes how potential environmental justice concerns were addressed by the AEIS review. In general, the results of the environmental justice analysis, and other analyses, indicates that none of proposed actions or their alternatives have a disproportionately high and adverse human health or environmental effects on minority populations and low-income populations</p>
	<p>3PR questions the adequacy of the scoping process for the DAEIS in terms of "Environmental Justice", because low-income and minorities may not have been well represented and accorded fair treatment and meaningful involvement, and because the Applicants appear to have been overrepresented throughout the process, including interactions relating to the development of the DAEIS. As previously indicated, the latter may be permissible under the Act, but tremendously and untenably biases the DAEIS.</p>	<p>Included in summary above</p>
	<p>3PR questions the adequacy of the measures taken in the DAEIS to assure appropriate levels of public involvement and participation, especially fair treatment and meaningful involvement of low-income and minority (non-English speaking) segments of local communities, which are prevalent in many areas of the CFPD, especially in rural jurisdictions such as Hardee County, an impoverished area, and DeSoto County, the poorest county in Florida.. Such socially and economically disadvantaged residents represent special cases of concern. They are deserving of the additional efforts needed to effectively involve and educate them concerning AEIS process, and concerning the myriad of potential negative impacts phosphate strip mining will ultimately have on their lives, livelihoods, and futures. They are also entitled to other supplementary and ancillary considerations which are necessary in order achieve "Environmental Justice".</p>	<p>Included in summary above</p>

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	<p>3PR questions the adequacy of the environmental analyses and accuracy of the information in the DAEIS, because the "Environmental Justice Review" is inappropriate and not without bias, and because the processes involved in the review were not open and transparent to low-income and minority communities. 3PR also contends that low-income and minority communities may not have been appropriately informed, in accordance to their special needs, and as to the potential negative impacts which continued phosphate strip mining may have on their communities.</p> <p>Definition of "Environmental Justice" (EPA's Office of Environmental Justice): "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies."</p>	<p>Included in summary above</p>
	<p>It is stated in the DAEIS that "Consistent with EO 12898, this Draft AEIS incorporates by reference the studies conducted by the Applicants on socioeconomic conditions in the CFPD". Firstly 3PR cannot determine the meaning of "incorporate by reference" in this context because none document(s) of the "Applicants" was/were referenced in this section or elsewhere in the DAEIS (as far as 3PR can determine).</p>	<p>Included in summary above</p>
	<p>Clearly, it is not appropriate, or in the best interests of minority and low-income populations for phosphate strip mining Applicants to determine their special needs or purport to administer environmental justice. The previously cited statement shows a clear conflict of interests in that the Applicants were allowed to provide data and analyses, and draw conclusions which have the potential to profoundly and negatively affect public welfare in regard to "Protection of the Environment" which is the purpose of NEPA. Executive Order 12898 is a presidential order directing the federal government, and all federal agencies, to investigate the environmental impacts of federal action on the lives, communities, and economies of "minority populations and low-income populations". Also, there is no mention in the Executive Order of addressing these concerns at the census block level as the DAEIS suggests. Quite to the contrary, the Presidential Memorandum that accompanied the Executive Order speaks only about communities and specifically cautions that minority and low-income "communities" may be missed and that "distortion" may occur by using census data (USEPA 1997).</p>	<p>Included in summary above</p>

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	<p>Executive Order 12898 requires federal actions to address environmental justice in minority populations and low-income populations. The DAEIS does not consider the mandates of Environmental Justice in its deliberation, analyses, conclusions, and recommendations.</p>	<p>Included in summary above</p>
	<p>Of the six counties intersecting the CFPD, and the three "downstream" counties which are also greatly affected (Charlotte, Lee and Sarasota counties), Hardee and DeSoto are the most impoverished, and support the highest percentages of minorities. 2011 US Census Bureau estimates that 44.5% of the population of DeSoto County belongs to minority classes, and that the per capita income in (2010 dollars) is only \$15,989. 26.9% of persons (nearly double the national average of 13.9%) are below the poverty level³. 52.4% of the population of Hardee County is estimated to belong to a minority. The per capita income is a mere \$14,668, with about 26.1% of persons (nearly double the national average of 13.9%) existing below the poverty level⁴. These two counties are entitled to additional protection under the following federal action to address Environmental Justice in Minority Populations and Low-Income Populations. In addition, it has been demonstrated, and documented, that immigrant minorities often intentionally avoid being counted by the Census, or by government. It is therefore very likely that the "actual" minority and low-income statistics for Hardee and DeSoto counties may be even more dismal than officially reported.</p>	<p>Included in summary above</p>
	<p>In any case, it is certain that wide-spread destruction of native agriculture soils and potential farmlands, some of which have been in production for decades, and extensive alterations of topography and water resources, will negatively impact these rural communities whose residents traditionally derive their livelihoods from local agriculture, historically the dominant industry of the region. Hardee and DeSoto counties rely almost totally on natural resources, in the form of agriculture, as an economic base. Many decades are required to build the infrastructure necessary to sustain such agriculture as citrus farming, truck (vegetable) farming, berry farming, cattle ranching, and others. Area-wide phosphate strip mining is an exploitive, short-sighted industry, out for huge profits at the expense of lands, traditions, and communities. Mining erodes agricultural infrastructure and the rural way of life by temporarily moving part of the economy to an industry which merely passes through, destroying agricultural land as it goes, and leaving perpetual community liabilities in its wake. Some agricultural lands recently mined have been in continuous agricultural production for nearly 100 years. The traditional way of life and futures of Hardee and DeSoto counties are thus threatened by mining.</p>	<p>Included in summary above</p>

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	<p>When communities become reliant on a polluting and environmentally destructive industry for jobs and tax revenues, local governments become reluctant to take actions which would avoid risks to health and the environment that cost the industry money. In this scenario, minority and low-income communities usually do not enjoy other benefits in proportion to the health risks and economic impacts they bear.</p>	<p>Included in summary above</p>
	<p>The impacts of this single project (Ona) has the potential to negatively affect local communities and the environment on a large scale, and especially to reduce job opportunities for members of low-income and minority communities which traditionally rely on viable agriculture for the livelihoods in this region of Florida, and which, unfortunately, generally have much lower educational attainment than whites and certain other segments of society.</p>	<p>Included in summary above</p>
	<p>Minorities and low-income residents are invested in their communities the same as other classes. No matter where they live in a jurisdiction (county) their lives will be negatively affected by phosphate strip mining.</p>	<p>Included in summary above</p>
	<p>To allow phosphate strip mining to move through a county, or in this case an entire region, leaving a wasteland in its wake, is not Environmental Justice. In the case of Hardee County, and as explained previously, such far-reaching and diverse impacts as associated with phosphate strip mining will disproportionately affect minorities and those of low-income.</p>	<p>Included in summary above</p>
	<p>The majority of residents living within the southern half of the CFPD, mostly Hardee and DeSoto counties, either do not have a computer with Internet service, or do not have adequate Internet performance to effectively acquire and manage the documents involved. Not that they would actually be in a position to evaluate them. Disproportionately, the residents of these impoverished, less educated, mainly agricultural- based, strikingly lower socioeconomic jurisdictions, are much less able to become aware or acquire notice of federal actions, to analyze and understand the consequences of such actions, or effectively respond or comment. In many cases these residents do not possess an adequate level of education to comprehend the significance of the proposed action. This neglect is compounded by the fact that little or no effort has been made to specifically ensure that these special classes have been made aware of the scope, level of impacts, and long- term implications and consequences of the proposed, extensive, phosphate strip mining. In addition large percentages of these populations are minority classes, mainly Hispanic. Significant portions of the populations of Hardee and DeSoto counties do not read or speak English, or only marginally understand, read, or speak English as a second language.</p>	<p>Included in summary above</p>

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	<p>An exclusion of minorities, poorer classes of people, and less educated people has occurred through lack of consideration of their special circumstances in the development of the DAEIS, and in phosphate strip mining matters in general. This is evidenced by their lack of participation proportionate to their population shares in DeSoto and Hardee counties. The minority classes in particular are not represented, or are poorly represented in local politics and government. Many do not hold jobs with industries that will pay them to attend public meetings, such as the phosphate industry. Such matters represent class discrimination based on national origin, race/color, and education, and are important "Environmental Justice" concerns not considered in the development of the DAEIS, or in the large permit applications currently being considered for approval which are intrinsically the subject and current focus of this federal action.</p>	<p>Included in summary above</p>
	<p>Because the minority and low-income classes, particularly those of Hispanic origin, represent the fastest growing segment of the populations of Hardee and DeSoto counties. Hispanic people will soon become heir to these counties, both socially and politically. Sadly, they are also destined to inherit the extreme liabilities and other negative legacies of area-wide phosphate strip mining. These generally include, but are not limited to, extensive clay waste facilities, wholesale ecosystem and wildlife habitat destruction, degradation and alteration of wetlands, creeks, streams, and water resources, elevated radiation levels, and pollution and spills of various types from various sources. The DAEIS is inadequate and inaccurate in that it does not specifically provide planning considerations for this social change, or social phenomenon, in consideration of the community impacts and economic shifts associated with phosphate strip mining.</p> <p>As previously indicated, many extreme environmental impacts, and many crucial environmental issues are directly involved in large-scale phosphate strip mining and its related industries. Much has been reported and published concerning the negative effects of such mining on minorities and low-income residents, and on their impoverished communities.</p>	<p>Included in summary above</p>
	<p>Because an insufficient amount of time was allotted for review and comment, this too is inconsistent with ensuring "Environmental Justice". It is not merely a deficiency in providing for the special rights of the low-income residents, impoverished communities, and minorities, which are guaranteed through special consideration, but communication of important issues and concerns, which in such communities requires a significant special effort because such citizens have less education, financial means, time, and lack access to the technical resources needed to read, verify, and comment on such a voluminous and technically specialized document as the DAEIS.</p>	<p>Included in summary above</p>

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	<p>The DAEIS is therefore inadequate and requires reconsideration of all environmental issues, and introduction and of additional/new environmental data, analyses, and issues relevant to the well-known negative impacts of phosphate strip mining on low-income poverty stricken and high-minority communities and jurisdictions. In addition, the DAEIS is inaccurate because environmental analyses did not consider the particular and unique needs of minority populations and low-income populations as required by executive order. Changes and revisions are required throughout the DAEIS in order to correct this legal and moral deficiency.</p>	<p>Included in summary above</p>
	<p>Recommendation: A comprehensive Environmental Justice analysis should be performed for Hardee and DeSoto counties. The development of data and analyses should include a broad effort to extensively involve and objectively educate the residents of these communities as to how their lives, jobs, properties, and other interests may be impacted by area-wide phosphate strip mining.</p>	<p>Included in summary above</p>
	<p>USCCR (U.S. Commission on Civil Rights). 2003. Not in My Backyard: Executive Order 12898 and Title VI as Tools for Achieving Environmental Justice. Washington, DC. * Summary: Details the problems of discrimination and government negligence where protecting the people of minority and low-income communities (populations), and explains the duties and requirements of federal agencies to comply with all laws and mandates (such Executive Order 12898) in protecting such disadvantages classes. * Substantive Comment: When protection of the environment is concerned, federal agencies are required to conduct studies to determine the needs of minority communities and low-income communities, and to provide consideration through NEPA in federal actions. There is no mention of this publication, or of the "Commission on Civil Rights" in the DAEIS. The scant discussion of "Environmental Justice" in Chapter 1.7 of the DAEIS is inappropriate, inaccurate, and completely inadequate to address the concerns of the disadvantaged classes of Hardee and DeSoto counties (as detailed in previous 3PR comments).</p>	<p>Included in summary above</p>

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	<p>USEPA. 1997. Interim Final Guidance For Incorporating Environmental Justice Concerns In EPA's NEPA Compliance Analyses. USEPA.</p> <p>* Summary: EISs are required to be broad in scope, addressing the full range of potential effects of the proposed action on human health and the environment. Regulations established by both the Council on Environmental Quality (CEQ) and EPA require that socioeconomic impacts associated with significant physical environmental impacts be addressed in the EIS. This guidance highlights important ways in which EPA-prepared NEPA documentation may help to identify and address ENVIRONMENTAL JUSTICE concerns.</p> <p>* Substantive Comment: 3PR questions the validity of the DAEIS, because it is evident that the rights of citizens of the low- income and minority communities in DeSoto and Hardee counties have not been properly protected, and they have not been appropriately informed as to the impacts that area-wide phosphate strip mining will have on their lives and communities. Clearly indicates that Environmental Justice is to be administered at the "Community" level. Also, see 3PR's previous, primary Environmental Justice comments.</p>	<p>Included in summary above</p>
	<p>USEPA. 2010. EPA's Action Development Process, Interim Guidance on Considering Environmental Justice During the Development of an Action. USEPA.</p> <p>* Summary: Provides list of steps, definitions, and explanations for considering "Environmental Justice" during the development of an action. Explicitly integrates Environmental Justice considerations into the fabric of EPA's ADP from rule inception through all the stages leading to promulgation and implementation. Provides additional information and decision-making processes relating to Environmental Justice concerns during the development of an action.</p> <p>* Substantive Comment: 3PR questions the validity of the DAEIS, because it is evident that the rights of citizens of the low- income and minority communities in DeSoto and Hardee counties have not been properly protected, and they have not been appropriately informed as to the impacts of area-wide phosphate strip mining will have on their lives and communities. Clearly indicates that Environmental Justice is to be administered at the "Community" level. Also, see 3PR's previous, primary Environmental Justice comments.</p>	<p>Included in summary above</p>
	<p>3PR additionally questions the adequacy of the environmental analyses in the DAEIS, because independent, site-specific research (Hazen & Sawyer 2003) indicates that mining will be at the expense of viable agriculture, long-term economic growth, future development, and protection of the environment, water resources, and public health.</p>	<p>The findings of the AEIS analysis are not directly comparable to the referenced study performed by Hazen & Sawyer (H&S), due to the differences in assumptions and what was being measured.</p>

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	<p>The economic profits of mining can never compensate for ecosystem destruction, or repair the damage to soils, aquifers, and geology. Only a small fraction of the residents of Hardee and DeSoto are employed by mining, the vast majority of profits of which benefit external destinations and entities.</p>	<p>Chapter 4 describes the effects of phosphate mining on ecological resources, soils, groundwater, and surficial geology.</p>
	<p>Proportionate to the amount of land utilized and impacted, phosphate strip mining creates very few fulltime jobs for Hardee County residents. Many of such jobs are merely temporary, as mining moves southward through the county. Because phosphate strip mining eliminates farmland, an important and much discussed concern recently debated in the Hardee County "Sustainable Hardee, Visioning for the Future" process (HCBOCC 2010), the large low-income and minority populations of Hardee County may be very significantly impacted by loss of employment.</p>	<p>The economic effects of the No Action Alternative, the proposed Ona and South Pasture Extension Mines, and the Pioneer Tract Alternative on Hardee County are described in Chapter 4 of the Final AEIS.</p>
	<p>FFWCC. 2003. The 2001 Economic Benefits of Watchable Wildlife Recreation in Florida. Florida Fish and Wildlife Conservation Commission. Southwick Associates, Fernandina Beach, Fla. * Summary: This report examines the contributions of watchable wildlife recreation to the Florida economy. Tables detail the positive economic impact and other revenues from three forms of retail sales and economic impact, earnings, employment, and tax revenues. * Substantive Comment: 3PR questions the accuracy of the information in the DAEIS, because it relies on questionable sources for its economic analysis, mostly ignores the highly specific Hazen and Sawyer economic analysis, and completely evades considering the self-sustaining self-renewing and very economically significant contributions of "Watchable" wildlife. Phosphate strip mining is a "here-then-gone" industry which provide only a few local, full-time jobs, is massively destructive to all aspects of the environment, and leaves a legacy which includes a myriad of completely untenable liabilities, such as many square miles of waste clay disposal enclosed by high dams, elevated radiation levels, toxic spills, noxious weed infestations, a vast ecological wasteland, and many other potential negative impacts and hazards to humans and wildlife alike. Managing natural, self-sustaining ecosystems to aid the economy in the near and long-term, is not only essential to human kind, but is infinitely more reasonable than the self-destructive course of action of permitting area-wide phosphate strip mining, potentially over 100,000 acres in Hardee County alone, and eventually, most of the county. Sources of jobs and revenues involving watchable wildlife, outdoor recreation, and ecotourism are also much more compatible with the rural and agriculture traditions of Hardee County.</p>	<p>The findings of the AEIS analysis are not directly comparable to the referenced study performed by Hazen & Sawyer (H&S), due to the differences in assumptions and what was being measured. The No Action Alternative in the AEIS analysis considers that existing activities on the four proposed actions' parcels and the four offsite alternatives would continue as they are now. Consideration of other activities on those parcels such as ecotourism is speculative. The Final AEIS was updated to better reflect the areas considered as potential mine alternatives, including the Ona Mine (22,320 acres), the South Pasture Extension Mine (7513 acres), the Pioneer Tract alternative (25,321 acres), and Alternative A-2 (8189 acres) in Hardee County.</p>

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	<p>The CH2M-Hill economic analysis in the DAEIS and the BOCC Ona Mine economic study (Hazen & Sawyer 2003) prepared by the Hardee County Board of County Commissioners, indicate that only a small number of temporary jobs will be created as the phosphate industry mines its way through the southern counties (mainly Hardee, DeSoto, and Manatee). "On average, there will be about 73 more jobs in the county each year than would exist without mining on the Ona Property"</p>	<p>Comment acknowledged. The findings of the AEIS analysis are not directly comparable to the referenced study performed by Hazen & Sawyer (H&S), due to the differences in assumptions and what was being measured.</p>
	<p>Additionally, the Hazen & Sawyer study did not consider the positive economic impacts and social values provided by non-game wildlife, safe commercial outdoor recreation, and environmental/wilderness aesthetics which benefit Hardee County , and which if further developed, could very greatly benefit the county and quality of life in the county, in perpetuity, as self-sustaining assets (FFWCC 2003).</p>	<p>Comment acknowledged.</p>
	<p>Aesthetic value is also a highly important value associated with geomorphology. Ridges, valleys, plain, and unique regional feature are important to the identities of people, communities, and regions. The DAEIS ignores or omits consideration of the fact that phosphate strip mining complete transforms regional character and regional and community identity. With most people, there is tremendous pride and sentiment associated with the physical and environmental character of the areas they live in.</p>	<p>Chapter 4 discusses the potential direct and indirect effects of the four proposed actions and the four offsite alternatives on aesthetics.</p>
	<p>Of additional significance and concern with the abbreviated comment period allotted the DAEIS, is that the document contains a large number of very complex and technical alternatives, each of which would independently require substantial time and resources to evaluate. Even to verify and comment on a single significant issue, such as hydrologic impacts, may require months. The DAEIS is thus further inadequate and deficient in that it contains a highly excessive amount of technical information. This is discussed further later, but in essence, the DAEIS does not only treat the geographic area involved as a single area-wide project, but includes many renditions of multiple subprojects, which must each be analyzed separately.</p>	<p>In response to public comments received on the Draft AEIS, the screening process of offsite alternatives was updated as described in Chapter 2 and Appendix B of the Final AEIS. The potential effects of the four Offsite Alternatives that were identified by that screening process and the four Applicants' Preferred Alternatives are described in Chapter 4.</p>
	<p>3PR questions the adequacy of the environmental analyses in the DAEIS, because the presentation and discussion of alternatives is internally inconsistent and avoids certain considerations relating to cumulative impacts, and cumulative impact analysis. The analyses of the alternatives would be more logically conducted according to each class of alternative, as in: "No Action", proposed, foreseeable, and potential.</p>	<p>Comment acknowledged.</p>

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	<p>3PR primarily questions this section because, except for Alternative-1 ("No Action" / "no permit"), none of the alternatives significantly protect ecosystems, wetlands, water resources, soils, climate, geology, human environment, the rights of the majority of citizens, or the rights of future residents. The purpose of NEPA, which is "Protection of the Environment", the "Congressional Declaration of Purpose", which in part is to "encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere", and "Environmental Justice", which is necessary to protect those who are most certainly not able to well represent themselves, are nowhere adequately furthered in the DAEIS.</p>	<p>The alternatives considered were identified and considered as required by CEQ regulations and the USACE NEPA implementing regulations. The AEIS was prepared in compliance with the requirements of NEPA and other federal regulations, including for consideration of environmental justice.</p>
	<p>3PR questions Alternative-1 ("No Action" / "no permit") because, as discussed in a previous comment, this alternative potentially allows many of the most severe impacts of phosphate mining to continue with approval. This is inconsistent with the NEPA purpose of "Protection of the Environment".</p>	<p>The No Action Alternative - Upland Only scenario involves mining in uplands where there is no discharge of fill material into waters of the United States that would require authorization under Section 404 of the Clean Water Act. Such activity would be beyond the regulatory authority of the USACE, even if there were associated environmental impacts.</p>
	<p>Based on the current levels of data, analyses, and other information which, although not included or considered in the DAEIS, were readily and easily obtainable, should have been included as standard professional practice. Resources should have been obtained independently by soliciting them from regional experts and consulting the commonly available scientific literature, libraries, biological research institutions, and public agencies conducting research. It is clearly evident that for the remaining (unmined) portions of the CFPD, that the scientifically, economically, and morally supported alternative, essential for the protection of the human society, human health and well-being, and the irreplaceable biological, ecological, and hydrologic resources of west-central Florida, is Alternative-1 ("No Action" / "no permit"), that is "no additional phosphate mining" alternative. It is apparent to any scientists who have expert knowledge concerning the biological, ecological, and hydrologic (water resources) of the CFPD, that obtaining and analyzing more environmental information, which is actually specific to the unmined regions of the CFPD, will result in an even stronger evidence supporting Alternative-1 ("No Action", or "no additional phosphate mining") alternative.</p>	<p>Comment acknowledged.</p>
	<p>3PR questions the validity of all alternatives presented in the DAEIS because they very obviously were not developed objectively and openly in the public interest. The alternatives are not reasonable in terms of their total direct negative impacts on the environment and society, especially their potential impacts to low- income and minority communities.</p>	<p>The alternatives considered were identified and considered as required by CEQ regulations and the USACE NEPA implementing regulations.</p>

	<p>The Draft AEIS does not adequately address cumulative impacts.</p>	<p>The cumulative impact analysis is explained in Chapter 4. The analysis considers all past, present, and reasonably foreseeable actions, including past (previous and ongoing activities, including the existing mines), present (the four current actions - Desoto, Ona, Wingate East, and South Pasture Extension), and reasonably foreseeable (Pine Level/Keys Tract and Pioneer) actions related to phosphate mining. The temporal scope of the cumulative impact analysis is from 1975 until 2060. Actions prior to 1975 are taken into account as part of the characterization of the current conditions, in accordance with CEQ guidance.</p>
	<p>3PR questions the accuracy of information and adequacy of environmental analyses contained throughout the DAEIS, and contends that it is deficient in describing and characterizing the "actual" current, historic, and projected negative effects of regional phosphate strip mining, both individually for the four proposed mines, and cumulatively for all mining, and the CFPD. 3PR asserts that the following mission statement and stated purpose of the AEIS is not accomplished through the current draft (DAEIS). "Based on the continued applications for expanded mining in the CFPD, the size of the project area, the CFPD characteristics, and the potential environmental impacts, both individually and cumulatively, of the proposed actions, the Corps will prepare an Areawide Environmental Impact Statement (AEIS) in compliance with the National Environmental Policy Act (NEPA) to render a final decision on the permit applications."</p>	<p>Included in summary above</p>
	<p>Many important issues and negative impacts resulting from individual and cumulative effects of large- scale phosphate strip mining are not identified or discussed in the DAEIS and essential "current" and "independent" data and analyses are omitted or not referenced. The DAEIS does not include or consider important basic issues relating to large-scale destruction of ecosystems, the irreparable area-wide impacts to native soils and geology, the destruction of irreplaceable flora and fauna, the elimination of gene pools, or the reduction of biodiversity. Neither have the resources at risk been adequately or competently characterized or quantified, but only generally or vaguely, mainly through data supplied by the Applicants, and from generic sources.</p> <p>3PR therefore contends that the DAEIS is insufficient for the purposes of evaluating the discrete, direct, or cumulative and ongoing impacts of phosphate strip mining in west-central Florida, and in providing for the stated NEPA purpose of "Protection of the Environment". These significant issues and others are presented in more detail in the substantive comments in the following sections.</p>	<p>Included in summary above</p>

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	<p>3PR questions the adequacy of the environmental analyses and accuracy of the information in the DAEIS, because it does not evaluate the ALL-IMPORTANT "cumulative" impacts which the phosphate strip mining and certain associated industries have inflicted on west-central Florida. In general, the DAEIS effectively avoids and obfuscates meaningful discussions and analyses relating to cumulative impacts.</p>	<p>Included in summary above</p>
	<p>A comprehensive cumulative analysis of all significant potential impacts must be a primary requirement and prerequisite before issuing new phosphate strip mining permits. The DAEIS states "The temporal scope of the cumulative impact analysis is based on the overall operational periods of the four proposed actions, plus any overlap with the operational period of the two reasonably foreseeable actions." This concept does not include the historic impacts of phosphate strip mining, which have been extremely extensive, and therefore does not constitute a cumulative impact analysis. NEPA is explicit that cumulative impacts include "past", "present", and "future" actions regardless of their sources, scale, or scope</p>	<p>Included in summary above</p>
	<p>The DAEIS does not accurately identify or quantify, as required by NEPA, all of the direct and indirect impacts resulting from past and on-going actions (prior to 1978). No maps, illustrations, analyses, or narratives adequately or sincerely consider the incredibly massive environmental disaster of historic and ongoing phosphate strip mining. Comprehensive analyses are needed in order to accurately determine the existing status of significant aquatic/hydrologic/biologic resources, which in turn, are necessary to determine the "real" impacts of the proposed projects on significant resources within the CFPD and in the other "downstream" regions which will obviously be affected. Further, because surface and ground waters are very vulnerable to incremental impacts, and because their cumulative historical impacts are overwhelmingly significant, it is absolutely essential that the USCOE expand the temporal scope of the AEIS to also identify and analyze all direct and indirect past major actions needed to accurately describe the direct, indirect and cumulative impacts the four proposed phosphate strip mining projects on existing and projected human resources and needs. That is, comprehensively evaluate all of the known and potential environmental and social impacts of phosphate strip mining in west-central Florida, past, present, and future.</p>	<p>Included in summary above</p>

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	<p>An essential element of cumulative analysis involves the phosphate strip mining industry's tremendous generation of waste clays. Because waste clay disposal areas (CSAs) permanently reduce recharge of the surficial aquifer and lateral base-flows to adjacent streams in the regions they occupy, the DAEIS should be revised to identify, map and calculate the total acreage of clay settling areas to be constructed. Further, the total of post mining pits/ponds/lakes, which also significantly reduces stream and river flows to the estuaries, need to be identified and their impacts quantified. To this, add the millions of gallons per day in stream flows lost to the many sinkholes created, in part, by the consumptive use and withdrawals associated with phosphate strip mining. Very comprehensive and intensive analyses of the historic hydrology of the relating to the phosphate mining district are needed.</p>	<p>Included in summary above</p>
	<p>The information and analyses provided in the DAEIS does not fully identify or quantify the many adverse, permanent impacts caused by 350,000 acres of past mining (which occurred before the State's Mandatory Reclamation Rule). This serious omission invalidates any conclusions assigned to cumulative impacts. Ironically, the DAEIS maintains that the analysis of cumulative impacts is one of the most important elements of an EIS, although the information in the document does not reflect this value.</p>	<p>Included in summary above</p>
	<p>Recommendation: Before any new phosphate strip mining applications are considered, it is scientifically essential and morally imperative that all mining, past, present, and proposed, be comprehensively evaluated in terms of its cumulative impacts to the environment and human society. The analyses should include evaluations extending as far back in time as records or evidence exists. See the 3PR "Significant Environmental Issues" section, and other comments relating to the essential need of fully evaluating the cumulative impacts of phosphate strip mining.</p>	<p>Included in summary above</p>
	<p>A comprehensive cumulative impact assessment must be based on high levels of data and analyses, developed from research conducted within the project area (CFPD) by independent, regionally-experienced, well-known, third-part scientists, plus a comprehensive and independent treatment of each important biological, wildlife, and ecosystem concern.</p>	<p>Included in summary above</p>

	<p>The DAEIS and cumulative impact assessment should specifically include, but not be limited to, comprehensive evaluations and analyses conducted by scientists independent of the phosphate strip mining industry, which are based on site-specific data of:</p> <ul style="list-style-type: none"> • The cumulative and compound negative effects of permanently destroying tens-of- thousands of acres of native soils crucial for the production of traditional types of local crops and foods, which are indispensable for the continuance of economically viable and flexible traditional agriculture, and which are also essential for the existence of native regional ecosystems including native vegetation associations. • The increased vulnerability to contamination of the IAS and FAS potentially caused by removal of the overlying SAS, and removal of the vital, irreparable, inscrutably complex and ecologically delicate upper soil layers and horizons, including, but not limited to, the spodic horizons of many dry prairie (flatwoods, pine-palmetto flatwoods) soils. • The destruction of thousands of acres of native wildlife habitat. • Increased Radium-226 and other radiological contamination in birds and other biota. • Destruction of thousands of acres of diverse, complex natural wetlands and waterfowl habitat, and attempting to replace such with biologically and hydrologically inferior reclaimed (artificial) wetlands which are "out of ecological context", and therefore lack natural ecological connections and interaction with elements of upland/wetland ecosystems. • Regionally altering surface and groundwater flows. 	<p>Included in summary above</p>
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	<ul style="list-style-type: none"> • Creating tens of thousands of acres of surface disturbance and altering soils, resulting in large-scale ruderal conditions that promote endless and permanent infestations of noxious weeds and/or undesirable species, or disproportionate concentrations thereof, such as cogongrass, which are very difficult and massively expensive to eradicate. • Greatly increased evaporation loss potentially relating to the extensive areas of open water associated with clay waste disposal and settling/storage areas (CSAs), dewatering processes, water management, and exposed surface waters in mine pits. • Potentially excessive use and degradation of groundwater during the mining process. • The effects of ore processing reagents contained in sand tailing and waste clays which are disposed of, or used in, reclamation. • Climatic change which may result from regional deforestation and re-contoured, hydrologically altered, essentially treeless landscapes of many reclaimed lands. • Potential health and environmental risks associated with increased radiation, dust from unconsolidated, de-vegetated ground, and other environmental contaminants associated with the intensive operations of heavy industry. • Long-term aesthetic degradation. 	<p>Part of above comment</p>
	<p>The proposed permit durations are too long.</p>	<p>The USACE and USEPA have had discussions means to review possible changes in permit conditions, including permit duration. However, the development of new federal or state policies or regulations for phosphate mining is beyond the scope of the AEIS review or the reviews of the four individual projects.</p>
	<p>3PR objects to the issuing of phosphate strip mine permits (such as 404 CWA and other permits and approvals), which are valid for periods greater than 5 years. (1) Phosphate strip mining and its related activities are very intensive industries which create large-scale and far-reaching impacts within short periods of time. Granting long-term approvals of up to 30 years or more, and planning mining nearly 80 years into the future is absurd. These massive projects disturb very extensive tracts of land, destroy large tracts of native ecosystem and wildlife habitat, and induce rapid changes in local communities and economies in profound, significant, and often irreversible ways. It is highly important that permits expire within reasonable periods of time so that federal, state, regional, and local governments, and especially local communities, may reevaluate such projects in accordance with society's constantly changing needs.</p>	<p>Included in summary above</p>

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	<p>The durations of the permits of currently approved phosphate strip mines are unacceptable, especially when the extensive negative impacts are considered collectively, that is cumulatively. To approve four new mines with such extremely excessive durations is unconscionable. Considering the 300,000 plus acres of past phosphate mining impacts, with the existing mine permits considered collectively, and adding the four projects described in the DAEIS, the cumulative impact will be the utter destruction of much of eastern west-central Florida, plus potentially massive impacts to "downstream" jurisdictions and coastal communities such as Charlotte, Lee, and Sarasota counties.</p> <p>Issuing permits and approvals for phosphate strip mining for such extended durations represents an injustice to society. Such long-term approvals preclude affected communities from being able to respond to changes in societal needs including, but not limited to, protection of public health and safety, changes in the economy, natural disasters and disaster response, increases in the need for local natural resources including food from traditional local agriculture. It is therefore essential that only the shortest possible permit durations be granted.</p>	<p>Included in summary above</p>
	<p>Recommendation: In no case should any phosphate strip mining permits be issued or granted for time periods extending five years. Within this 5-year span, permit compliance and local community must be reviewed at least annually. Also, because phosphate strip mine "extensions" are actually "new" mining, all extensions must be permitted as individual phosphate strip mines. No projects which do not currently have permits should be granted until the historic cumulative impacts of phosphate strip mining in the CFPD have been completely evaluated, and until phosphate strip mining technologies can be developed which may allow some limited mining to take place in an environmentally acceptable manner. Also, the cumulative analysis is needed in order to determine the additive impacts and contribution of other factors by the currently permitted or operating mines.</p>	<p>Included in summary above</p>
	<p>The Draft AEIS does not adequately address radiation impacts.</p>	<p>Chapters 3 and 4 of the Final AEIS have expanded discussions of radiation impacts as related to phosphate mining.</p>
	<p>3PR strongly objects and questions the accuracy of the information, the adequacy of the environmental analysis, and indeed the validity of the DAEIS, because of the fact that the well-known problem of generally elevated low-level radiation and the assimilation of Radium-226 in wildlife and plants is not treated with great concern. The scientific studies and publications of government, prestigious research institutions, universities, and others warn of this potential health and safety issue which faces the environment and human population alike. Even conservative authors caution that "we assume that low doses also cause human health effects to a directly proportional, but smaller degree" (FIPR 1986b).</p>	<p>Included in summary above</p>

	<p>Of great potential concern, and one of the largest potential problems with phosphate strip mining, is that birds are attracted to clay waste ponds, mine cuts, and wetlands created, either intentionally or unintentionally, on or near mined lands, or where discharges have taken place. Research suggests that these areas may act as a kind of radiation poisoning stations for wildlife, because the radioactive isotope Radium-226 (which reportedly has a half-life of 1601 years and decays into Radon-222, a radioactive gas) has been commonly shown to accumulate in the bones of fish and birds feeding in these areas, particular in the clay waste ponds referred to by the Applicants in this section. It was reported that "the average bone concentration in waterfowl from settling ponds in central Florida was about 4 times the recommended maximum for humans" (FIPR 1986a & 1986b). This issue is reinforced by additional research which concluded that "As a result of mining and processing operations, most of the radioelements accumulate in the waste clays. Radium and thorium also are present in the gypsum stacks and uranium is present in the acid products and fertilizer" (FIPR 1985). Runoff and leachate from phosphate processing sources into ditches, wetlands, and other areas which may be utilized by plants, animals, or humans, may also be a concern as indicated by the conclusion that the EPA "... does not allow the use of central Florida gypsum. Material from central Florida generally contains about twenty-five pCi/g" (FIPR 1987).</p>	<p>Included in summary above</p>
	<p>3PR questions the accuracy of information and the adequacy of environmental analyses in the DAEIS where elevated levels of low-level radiation are concerned, because nowhere is the mining-induced phenomenon low-level radiation treated with the proper concern, especially so considering the potential for such radiation to negatively impact human health, nor does it analyze these documented concerns in regard to overall "Protection of the Environment", which is the stated purpose of NEPA.</p>	<p>Included in summary above</p>
	<p>As for Radon-222, "When radon undergoes radioactive breakdown, it decays into other radioactive elements called radon daughters. Radon daughters are solids, not gases, and stick to surfaces such as dust particles in the air. If contaminated dust is inhaled, these particles can adhere to the airways of the lung. As these radioactive dust particles break down further, they release small bursts of energy which can damage lung tissue and therefore increase the risk of developing lung cancer. In general, the risk increases as the level of radon and the length of exposure increases." (MASS 2012).</p>	<p>Included in summary above</p>

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	<p>Additionally, there was not much permanent water at many of the sites prior to mining. This may greatly compound the issue of radium in birds, fish, aquatic plants, and other wildlife. It is also reported that radioactive isotopes travel with phosphate fertilizers and are taken up by tobacco and other agricultural plants (FIPR 1983). This may present a particular problem for other animals, including animals from distant regions, which consume such radioactive phosphate mine wildlife because they are attracted to the many wet and submerged areas resulting from the extensive excavations associated with mining. The apparent foundation of this problem is the accumulation of radiation in aquatic plants, especially small, thalloid, floating species eaten by water fowl, which grow quickly in the higher nutrient waters associated with mined lands.</p>	<p>Included in summary above</p>
	<p>The presence of such elevated concentrations of Radium-226 in wildlife, particularly in mobile wildlife such as birds, is potentially of great concern. Elevated radiation in the phosphate strip mining district in general, represents a very large and highly significant issue of contention which is not adequately addressed in the DAEIS. 3PR therefore questions the accuracy of information and adequacy of the environmental analysis in the DAEIS, because it does not consider this important health and safety issue which may have the potential to affect the human population and the precious and irreplaceable plants and animals of Florida. Additionally, this readily available research, as well as considerable other published research, is not cited in the Chapter 7 references of the DAEIS.</p>	<p>Included in summary above</p>
	<p>FIPR. 1983. Polonium-210 and Lead-210 in Food and Tobacco Products: A Review of the Parameters and an Estimate of Potential Exposure and Dose. Institute for Phosphate Research, No. 05-DFP-015.</p> <p>* Summary: This research addresses some aspects of the accumulation of Polonium and Lead in foods and tobacco. It indicates that these contaminants are mobile through various transport mechanisms, such as food chain transport, including inhalation exposure involving tobacco. It also provides an enlightening description of the process of aerial deposition.</p> <p>* Substantive Comment: An important and relevant finding of this research is that "For most food items and tobacco, aerosol deposition seems to be the principal mode of Pb-210 and Po-210 entry. This feature is of particular concern for leafy vegetables. As a result, only fruit-bearing crops such as citrus, berries, and cane fruits should be grown on phosphate-reclaimed land." 3PR questions with reasonable basis the adequacy of environmental analyses in the DAEIS in regard to elevated low-level radiation associated with phosphate mining. The DAEIS does not fully examine and address potential risks to humans and the environment of low-level radiation exposure, particular cumulative exposure and impacts.</p>	<p>Included in summary above</p>

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	<p>Recommendation: The following change/revisions are necessary in order to address the inadequacies of the DAEIS: Comprehensive studies are needed which include, but are not limited to, epidemiological investigations assessing the potential affects of elevated values of low-level radiation relating to phosphate strip mining and related operations. Such studies must be comprehensive, employ the highest and best state of current technology, and be conducted in a peer review environment. The studies should not only measure individual source, but all cumulative effects.</p>	<p>Included in summary above</p>
	<p>FIPR. 1986a. Environmental Contaminants in Birds: Phosphate-Mine and Natural Wetlands. FIPR No. 05-003-045. Bartow, Fla.</p> <p>* Summary: This paper provides basic investigation of the accumulation of Radium in humans, birds, fish, and certain vegetation via food chains. It reports, among other results of considerable concern, that "the average bone concentration (of Radium-226) in waterfowl from settling ponds in central Florida was about 4 times the recommended maximum for humans."</p> <p>* Substantive Comment: 3PR questions the adequacy of the environmental analyses in the DAEIS, because the results of this research inspire great concern for the birdlife, and the general environment, in and near phosphate strip mines, or more specifically waste clay disposal sites (CSAs). The DAEIS mostly avoids sincere discussion of the elevated low-level radiation risks as it relates to phosphate strip mining and other phosphate related industry. Human health and the health of the environment may be at risk from phosphate strip mining activities.</p>	<p>Included in summary above</p>
	<p>FIPR. 1986b. Radiation and Your Environment. Florida Institute for Phosphate Research, No. 05-000-036. Bartow, Fla.</p> <p>* Summary: Provides general information, mainly about low-level radiation, ionizing radiation, radon, units of measurement and dose measurement, and well as some household tips. Provides a "Radon Risk Evaluation Chart".</p> <p>* Substantive Comment: The following statement made in this publication re-enforces the need for current, updated, epidemiological studies of low-level radiation risks, especially where cumulative effects may be involved: "We do know that large doses of radiation given at high dose rates can cause cancers and genetic disorders, but we do not know for sure that low doses and dose rates cause these effects. For protective reasons (radiation regulations and standards), we assume that low doses also cause human health effects to a directly proportional, but smaller degree".</p>	<p>Included in summary above</p>

	<p>FIPR. 1987. Radioelement Migration in Natural and Mined Phosphate Terrains. Florida Institute for Phosphate Research, No. 05-002-027. Bartow, Fla.</p> <p>* Summary: As a result of mining and processing operations, most of the radioelements accumulate in the waste clays. Radium and thorium also are present in the gypsum stacks and uranium is present in the acid products and fertilizer.</p> <p>Substantive Comment: 3PR questions the accuracy of the information and adequacy of the environmental analyses in the DAEIS, because a body of research exists which suggests that low-level radiation is a potential threat to humans and the environment, and also to the FAS, as indicated below. Two of the primary transport mechanisms through which the FAS may become contaminated is along well casings and via "induced recharge". The research further validates the radiation problem, and also raises cause for concern due increased vulnerability of the FAS from consumptive use / withdrawals. (Also, see several previous 3PR comments).</p>	<p>Included in summary above</p>
	<p>The following findings are notable:</p> <p>"The regional distribution of uranium and radium in groundwaters and surface waters appears not to have been disturbed. The one possible exception is in the Floridian Aquifer in the immediate areas of mining.' Higher than normal, though not exceptionally unusual, uranium concentration values are observed. We speculate that this may be related in some way to enhanced industrial water useage".</p> <p>"A large proportion of the radioelements in phosphate ore ends up in the clay even before the adsorption process hypothesized above. We calculate that approximately 45% of the uranium and radium, and 55% of the thorium in the original matrix is in the clays that are removed by the washing process. In the gypsum residue resulting from further treatment stages are found 3% of the uranium, 30% of the radium, and 35% of the thorium of the original matrix. Less than 10% of the radium and thorium end up in fertilizer and chemical products, but as much as 30% of the uranium does".</p>	<p>Included in summary above</p>

	<p>Lyman, Gary H. (MD, MPH) et al. 1985. Association of Leukemia with Radium Groundwater Contamination. JAMA, 254(5):621-626.</p> <p>* Summary: Radiation exposure, including the ingestion of radium, has been causally associated with leukemia in man. Groundwater samples from 27 counties on or near Florida phosphate lands were found to exceed 5 pCi/L total radium in 12.4% of measurements. The incidence of leukemia was greater in those counties with high levels of radium contamination (>10% of the samples contaminated) than in those with low levels of contamination. Rank correlation coefficients of 0.56 and 0.45 were observed between the radium contamination level and the incidence of total leukemia and acute myeloid leukemia, respectively. The standardized incidence density ratio for those in high-contamination counties was 1.5 for total leukemia and 2.0 for acute myeloid leukemia. Further investigation is necessary, however, before a causal relationship between groundwater radium content and human leukemia can be established.</p> <p>* Substantive Comment: 3PR questions the adequacy of the environmental analyses in the DAEIS, because this paper, and several others, specifically report statistically elevated cancer risks from human exposure to Radium-226 contaminated groundwater. Numerous other published research report elevated low-level radiation associated with various sources within the CFPD, particularly on mined land and at waste clay disposal sites. The Lyman studies were published in the prestigious, peer-reviewed Journal of the American Medical Association (JAMA).</p>	<p>Included in summary above</p>
	<p>Recommendation: The body of research reporting radiation concerns relating to the phosphate strip mining and processing industry speaks for itself in terms of raising concern. Authors have indicated that elevated radiation means elevated risks, and warn about consuming food items from phosphate lands. As suggested elsewhere in 3PR's comments, comprehensive, multi-team, "independent" "peer reviewed" studies are indicated in order to determine the level of potential threat to humans and the environment. Studies funded by the phosphate industry should be discarded, in favor of more objective, and more credible research conducted by leading medical researchers, institutions, and epidemiologists, such as Lyman, Stockwell, and Gofman.</p>	<p>Included in summary above</p>

	<p>MASS_2012. Public Health Fact Sheet on Radon. Commonwealth of Massachusetts. Accessed 10-Jul-2012: www.mass.gov</p> <p>* Summary: Provides basic facts concerning Radon, and described health risks. "Radon is a naturally occurring radioactive gas. It is produced in the ground through the normal decay of uranium and radium. As it decays, radon produces new radioactive elements called radon daughters or decay products. Radon and radon daughters cannot be detected by human senses because they are colorless, odorless, and tasteless." "When radon undergoes radioactive breakdown, it decays into other radioactive elements called radon daughters. Radon daughters are solids, not gases, and stick to surfaces such as dust particles in the air. If contaminated dust is inhaled, these particles can adhere to the airways of the lung. As these radioactive dust particles break down further, they release small bursts of energy which can damage lung tissue and therefore increase the risk of developing lung cancer. In general, the risk increases as the level of radon and the length of exposure increases."</p>	<p>Included in summary above</p>
	<p>Substantive Comment: Because the DAEIS is required to consider all significant environmental issues, it should fully evaluate the direct and cumulative risks associated with elevated Radon levels. The DAEIS is inadequate because, although elevated low-level radiation from Radium-226 and Radon-222 and its daughters are discussed, the document does not thoroughly evaluate the present and future risks potentially presented by increased low-level as a cumulative factor. This is inconsistent with the requirement "The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment" A point of some note which is provided in the "Fact Sheet" is that radon "daughters" adhere to dust particles in the air. Mining and construction sites are often very dusty, with potentially elevated concentrations of particulates, and particles from large areas of unconsolidated or sparsely vegetated land. It appears that more current studies may be necessary in order to objectively quantify any potential for elevated low-level radiation, including any associated risks to humans and the environment, including any cumulative effects which involve the various documented sources of increased low-level radiation associated with the phosphate industry.</p>	<p>Included in summary above</p>

	<p>Stockwell, Heather G., Lyman, Gary H., Waltz, Julie and Peters, John T. 1988. Lung Cancer in Florida, Risks Associated with Residence in the Central Florida Phosphate Mining Region. Am. J. Epidemiol. (1988) 128 (1): 78-84.</p> <p>* Summary: This research was a case-control study that included 25,398 cases of lung cancer among Florida residents. It was conducted to determine if residence in the central Florida phosphate mining region was associated with an increased risk of lung cancer. A twofold increase in lung cancer risk was observed among male nonsmokers who lived in the study area. Risks were elevated for all major lung cancer cell types.</p> <p>* Substantive Comment: 3PR questions the adequacy of the environmental analyses of the DAEIS because the document fails to appropriately evaluate low-level radiation levels which may be increased as a result of phosphate mining and other related processes and activities. The DAEIS fails to ensure that this phenomenon does not present risks and threats to public health, wildlife, and the environment. Other research also establishes that elevated low-level radiation exists within the CFPD, and potentially in association with some phosphate products, such as fertilizers, as well.</p> <p>* Recommendation: The public and environmental health issue must be completely evaluated. Comprehensive analyses and epidemiological studies are needed before additional phosphate strip mining permits are considered. (See other comments involving the issue of elevated radiation risks).</p>	<p>Included in summary above</p>
	<p>Gofman, John W. 1990. Radiation-induced cancer from low-dose exposure: an independent analysis. Committee for Nuclear Responsibility.</p> <p>* Summary: This research, and others, conclude that there is no safe dose or dose rate of ionizing radiation and that even the lowest conceivable doses present cancer risks. Gofman was an established authority on nuclear physics. Dr. John W. Gofman, M.D., Ph.D. Considered by some as one of the foremost independent authorities, John William Gofman was Professor Emeritus of Molecular and Cell Biology in the University of California at Berkeley, and Lecturer at the Department of Medicine, University of California School of Medicine at San Francisco. He is the author of several books and more than a hundred scientific papers in peer-review journals in the fields of nuclear / physical chemistry, coronary heart disease, ultra-centrifugal analysis of the serum lipoproteins, the relationship of human chromosomes to cancer, and the biological effects of radiation, with especial reference to causation of cancer and hereditary injury.</p> <p>* Substantive Comment: The DAEIS does not consider the potentially negative, cumulative, and harmful effects of exposure to increased low-level radiation resulting from the geologic impacts of phosphate strip mining, the distribution of mining products, and the contamination of foods and products (such as tobacco) from phosphate fertilizers.</p>	<p>Included in summary above</p>

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	The Draft AEIS does not adequately address the issue of spills.	Additional discussion of the issues related to CSA spills has been included in Chapters 3 and 4 and Appendix D of the Final AEIS.
	It is not possible to estimate the number of spills which have occurred within the CFPD, or the impacts they have had both internally on mine lands, and externally. Monitoring is lacking, and spills are seldom reported, even less often are they documented, or well-documented, as is the example in the previous three photos.	Included in summary above
	Recommendation: Comprehensive full time monitoring and auditing of phosphate strip mines (past and present) and its related industries is critically needed in order identify and evaluate spills and other discharges in a timely fashion. An analysis of the required staff, resources, and "independent" funding sources is needed.	Included in summary above
	3PR questions the adequacy of the environmental analyses in the DAEIS, because it does not consider the phosphate industries history of accidental discharges and their inability to control them once they occur, as was the case with several known major spills, and an inestimable number of "unknown" spills may not have been recorded due to the lack of adequate monitoring/auditing of the vast expanses of mined land and ancillary or secondary industry. See Photos 1 and 2.	Included in summary above
	Leaking, seeping, discharges of effluents from mined lands are common, and are an ongoing problem with such massively altered landscapes as are created by the phosphate strip mining industry and its ancillary (or secondary, tertiary) industries. As commented earlier, large spills also occur, often continuing for extended periods before detected or controlled. The primary problems relate to the degree to which landscapes have been altered, the disposal of large volumes of waste clays and other discarded materials (sand, overburden, etc), and the problem of monitoring and auditing such vast, often difficult to access, expanses of property. See Photos 4, 5, and 6. At phosphate mines and mined land, the term "spill" is typically used in the context of pollutants or unwanted substances leaving mines or mined land. However, due to the post-mining condition of some mined properties, spills which occur internally may not be considered noteworthy. Of additional concern is the disposal of phosphogypsum and the potential for continued water quality degradation as a consequence of their closure and effective abandonment.	Included in summary above

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	<p>(1) A comprehensive investigation and evaluation of the phosphate industry's history and record in relation to accidental discharges of effluents and other potential pollutants into surface waters, wetlands, and aquifers is critically needed. (2) Evaluate the history and ability of enforcing agencies to satisfactorily monitor and detect such discharges. (3) Conduct research to evaluate any long-term liabilities associated with phosphogypsum disposal and "gyp stack" closure in relation to impacts to water quality. (4) Conduct a survey of current and past phosphate strip mines to locate ongoing discharges into internal ecological areas, and to offsite properties, including ditches, drains, canals, and conveyances on road right-of-ways which drain into wetlands, rivers, streams, or other offsite areas. Review Photos 1 through 6, to understand a fraction of potential problems which can in no way be expressed in words!</p>	<p>Included in summary above</p>
	<p>A Florida Administrative Law Judge recently found that "Modern (phosphate) mining still has a devastating impact on the local natural environment." (J. Lawrence Johnston 2003).</p>	<p>Comment acknowledged</p>
	<p>Upon examination of the DAEIS it occurs to 3PR that there are some who do not know what an "Ecosystem" represents: An ecosystem is a community of animals and plants interacting with one another and with their physical environment. Ecosystems include physical and chemical components, such as soils, water, and nutrients that support the organisms living within them. These organisms may range from large animals and plants to microscopic bacteria. Ecosystems can be thought of as the interaction among all organisms in a given habitat. People are part of ecosystems. The health and well-being of human populations depends upon intact and carefully managed ecosystems and their components - organisms, soil, water, and nutrients.</p>	<p>Comment acknowledged</p>

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	<p>Ecosystems and Biodiversity provide "services" that:</p> <ul style="list-style-type: none"> • Moderate weather extremes and their impacts. • Disperse seeds • Mitigate drought and floods. • Protect people from the sun's harmful ultraviolet rays. • Cycle and move nutrients. • Protect stream and river channels and coastal shores from erosion • Detoxify and decompose wastes. • Control the vast majority of agricultural pests. • Maintain biodiversity. • Generate and preserve soils and renew their fertility. • Partially stabilize climate. • Purify the air and water. • Partially stabilize climate. • Regulate disease carrying organisms. • Pollinate crops and natural vegetation. (Daily et al 1997). 	<p>Comment acknowledged</p>
	<p>The recognition of the value of ecosystems and the natural environment is conspicuously absent, virtually omitted from much of the DAEIS. 3PR therefore expounds on this primary issue throughout its comments. "It is the web of live which supports humanity"; a fact which is fatally ignored throughout the DAEIS.</p>	<p>Comment acknowledged</p>
	<p>Lisa F. Garcia, senior adviser to the EPA administrator for environmental justice, emphasized the importance of advancing environmental justice and the goals of Plan EJ 2014, "Far too often, and for far too long, low-income, minority and tribal communities have lived in the shadows of some of the worst pollution, holding back progress in the places where they raise their families and grow their businesses. Today's release of Plan EJ 2014 underscores Jackson's ongoing commitment to ensuring that all communities have access to clean air, water and land, and that all Americans have a voice in this environmental conversation."</p>	<p>Comment acknowledged</p>
	<p>"The human economy depends upon the services performed "for free" by ecosystems. The ecosystem services supplied annually are worth many trillions of dollars. Economic development that destroys habitats and impairs services create costs to humanity over the long term that may greatly exceed the short-term economic benefits or the development. These costs are generally hidden from traditional economic accounting, but are nonetheless real and are usually borne by society at large. Tragically, a short-term focus in land-use decisions often sets in motion potentially great costs to be borne by future generations" (Daily 1997).</p>	<p>Comment acknowledged</p>

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	<p>"Unprecedented changes are taking place in the ecosystems of the world." "Recent evidence demonstrates that both the magnitude and stability of ecosystem functioning are likely to be significantly altered by declines in local diversity, especially when genetic diversity reaches the low levels of managed ecosystems" (Naeem 1999).</p> <ul style="list-style-type: none"> • Human impacts on global biodiversity have been dramatic, resulting in unprecedented losses of global biodiversity at all levels, from genes and species to entire ecosystems. • Local declines in biodiversity are even more dramatic than global declines. • Many ecosystem processes are sensitive to declines in biodiversity. • Changes in the identity and abundance of species in an ecosystem can be as important as changes in biodiversity in influencing ecosystem process. 	<p>Comment acknowledged</p>
	<p>In addition to all other issues commented on herein, 3PR has determined that a very large number of errors, omissions and internal inconsistencies exists in the DAEIS. These include, but are not limited, inconsistencies in various wetland acreages of wetlands to be dredged, mining and reclamation time periods, incomplete and inaccurate tables, large quantities of included irrelevant, erroneous, and misleading pro- phosphate-mining content which read like phosphate company sponsored newspaper and TV ads, grammatical and organization errors, and countless omissions of important data, analyses, tables, maps and exhibits readily available from public sources. Often highly significant issues and concerns are ignored, omitted, or summarily dismissed with little or no analysis or comment. The DAEIS is obviously, for many reasons, not a product which should have been presented to the public for review and comment. The USCOE must consider the unnecessary expenditures of time and resources, and other impacts to the citizens, businesses, and other organizations which are concerned with phosphate strip mining, in releasing such an inappropriate proposal for public review and comment. The DAEIS should be concise, accurate, objective, and soundly supported by data and analysis developed and presented independent of the Applicants.</p>	<p>The Final AEIS was corrected, expanded, and updated in response to comments and information provided by the public in response to the Draft AEIS. The Draft AEIS and the Final AEIS contain information from a variety of sources, including the applicants. The USACE is responsible for the content of the Draft AEIS and the Final AEIS.</p>
	<p>Recommendation:</p> <p>The diverse, extreme, and usually permanent impacts associated with phosphate strip mining must be considered honestly. A brief tour by air and ground through the phosphate mining district will dispel any myths concerning the level of impacts and destruction created by this industry. Seeing is knowing and believing.</p>	<p>Comment acknowledged</p>

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	<p>Questions regarding whether phosphate strip mining should take place must be decided in an academic environment, while seeking out and acknowledging the difficult problems which must be overcome in order to find methods of phosphate mining which impart only acceptable impacts. Phosphate mining is an industry in business for profit. From the industry's perspective its mission is no doubt to increase efficiency and make more money. Profit must in no way be the basis of decision-making where the NEPA mission of "Protection of the Environment" is concerned.</p>	<p>Comment acknowledged</p>
	<p>Conspicuously missing from the DAEIS are photographs of the many aspects of phosphate strip mining which would be informative to the public, and which would genuinely characterize and depict phosphate strip mining activities, etc. The body of the document contains exactly 1 photograph of a dredge peacefully floating in a lake. In reviewing the DAEIS a question arises as to how much time the USCOE personnel listed in the "List of Preparers" actually spent in active and reclaimed phosphate strip mines. Most how visit the phosphate mining district return with many photographs, a few artifacts, and clay-gummy shoes.</p>	<p>Comment acknowledged</p>
	<p>The current age is a digital one. We live in a "visual" world. Literacy is at an all time low in central Florida, with graduates reading at or below 8-grade levels. Language is also a barrier (discussed elsewhere). The DAEIS is devoid of adequate visual representation and communication appropriate to inform the general public concerning phosphate mining, especially materials which would be appropriate to educate the proportionally high minority and low-income populations of Hardee and DeSoto counties some of which exhibit low levels of educational attainment.</p>	<p>Comment acknowledged</p>
	<p>In Chapter 8 "List of Preparers", the DAEIS does not list any regional experts, or any experts, qualified in the fields of systems ecology, plant ecology, or botany. Of the specialist cited as preparers of the DAEIS, Steven Gong (CH2M-Hill, Project Manager) has a zoology degree from the University of Florida, and Tunch Orsoy, (USCOE, Ecology Lead) has a marine science degree from the University of South Florida. None of the officials or scientists listed as "preparers" possessed (or possess) regionally recognized expertise with the environs of the Southwestern Florida Flatwoods Ecoregion. As commented on later, NEPA requires the agencies to be sufficiently capable of independently evaluating an EIS, including the work done by others, even though external consultants and assistance may have been retained for much of the work.</p>	<p>The preparers of the Draft AEIS and the Final AEIS had sufficient expertise and experience to produce those documents. The USACE staff responsible for the Draft AEIS and the Final AEIS, and the staff that also reviewed the documents from the cooperating agencies, EPA and FDEP, also had sufficient expertise.</p>

	<p>3PR questions the accuracy of information in the DAEIS, because the USCOE project team does not individually or collectively possess the full in-house capability of developing a document which is technically sufficient and competent, or which would be necessary in order to evaluate the work of external consultants and sources, thereby assuring NEPA compliance. The DAEIS is therefore inappropriate for ensuring the protection of important native ecosystems and other biota, including upland ecosystems and other related considerations.</p> <p>40 CFR 1507.2 Agency capability to comply Each agency shall be capable (in terms of personnel and other resources) of complying with the requirements enumerated below. Such compliance may include use of other's resources, but the using agency shall itself have sufficient capability to evaluate what others do for it.</p> <p>Ecological impacts are predicted by "professional knowledge of plant and animal life and their habitat requirements, professional judgment of the biotic community's ability to withstand or respond to disturbance, professional experience with the impending changes and impacts, and results from similar studies, and common sense (a biologist who simply lists the names of organisms observed on the site - without an interpretation of key life histories, ecological interrelationships, and habitat requirements -- misses the primary intent of the environmental impact report" (Rau & Wooten 1980).</p>	<p>The preparers of the Draft AEIS and the Final AEIS had sufficient expertise and experience to produce those documents. The USACE staff responsible for the Draft AEIS and the Final AEIS, and the staff that also reviewed the documents from the cooperating agencies, EPA and FDEP, also had sufficient expertise.</p>
	<p>The CFPD is the source of 5 major rivers and includes part of the drainage basins of 2 others (Hillsborough River and Withlacoochee River), 1 minor river (Braden River), approximately 150 named creeks and streams, and large number of unnamed tributaries and small streams or water courses (Figure 2).</p>	<p>Comment acknowledged</p>
	<p>The southern half of the CFPD in the Southwestern Florida Flatwoods Ecoregion supports one of the most dense and diverse mosaics of wildlife habitats and ecosystems extant in central and south Florida. The wildlife habitat in the CFPD represents the bulk of the little remaining high-quality wilderness in west-central Florida. This region is one of the last great repositories of Florida wilderness, and the most invaluable, self-renewing, essential and irreplaceable upstream asset upon which coastal fisheries, rookeries, and marine spawning grounds from Hillsborough County southwards to southern Lee County utterly depend. It provides primary "ecosystem services", that is, environmental sustenance for humans, animals and plant life in west-central Florida.</p>	<p>Comment acknowledged</p>

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	<p>As stated, the vast geographic footprint of the CFPD extends across many unique landscapes, ecosystems, and physiographic features. These physiographic features/regions, generally depicted in Figure 3 (based on, White 1970), are the result of distinct, and mostly independent, natural histories. Each is characterized by a unique set of soils, geology, and geomorphology. As a result of unique natural histories and other regionally specific attributes, and because of the isolating factors and pressure they apply, each region supports distinct elements of flora and fauna, and distinctly different ecosystems.</p>	<p>Comment acknowledged</p>
	<p>The terms "geomorphology", "biogeography", "endemism", "endemic", "genetic", "genetic diversity", and "critical habitat" (except in the glossary), do not appear in anywhere in the DAEIS. The DAEIS does contain some discussion of physiography (i.e., "physiographic" regions), but not in the context of plant and animal endemism, specialization of ecosystems, regional aesthetic character and value, and certainly not in terms of the NEPA EIS requirement of "Protection of the Environment".</p>	<p>Comment acknowledged</p>
	<p>"At a global scale, even at the lowest estimated current extinction rate, about half of all species could be extinct within 100 years. Such an event would be similar in magnitude to the five mass extinction events in the 3.5 billion year history of life on earth." (Naeem 1999). In view the chart below it must be considered that "genetic" extinctions occur when a significant portion of a local gene pool is lost/depleted, or when essential genetic traits necessary for reproduction and survival are lost or weakened.</p>	<p>Comment acknowledged</p>
	<p>"Unprecedented changes are taking place in the ecosystems of the world." "Recent evidence demonstrates that both the magnitude and stability of ecosystem functioning are likely to be significantly altered by declines in local diversity, especially when genetic diversity reaches the low levels of managed ecosystems" (Naeem 1999).</p> <ul style="list-style-type: none"> • Human impacts on global biodiversity have been dramatic, resulting in unprecedented losses of global biodiversity at all levels, from genes and species to entire ecosystems. • Local declines in biodiversity are even more dramatic than global declines. • Many ecosystem processes are sensitive to declines in biodiversity. <p>Changes in the identity and abundance of species in an ecosystem can be as important as changes in biodiversity in influencing ecosystem process.</p>	<p>Comment acknowledged</p>

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	<p>Of 5,000 comments, the USCOE listed 4 "primary" issues, and 11 "other" issues. Most of these issues are general. The first issue, "Ecological resources, including the loss of wetlands and mitigation of such losses", should be restated so that its meaning is clear. It should not presume "losses" or the "mitigation of such losses". 3PR questions the accuracy of the information in the DAEIS, because this important issue is inappropriately combined with the entirely separate issue of "mitigation".</p> <p>Refer to other 3PR comments in regard to the USCOE excessively relying on the Applicants, associated entities, and paid consultants for DAEIS content, and the predetermination of permit and mining approval which permeates the document.</p> <p>* Recommendation: 3PR recommends that the first issue, "Ecological resources, including the loss of wetlands and mitigation of such losses, be bifurcated into two issues: (1) "Large-scale and cumulative loss of ecological resources and wetlands"; and (2) "Potential for mitigation of environmental impacts".</p>	<p>The issue identified was discussed in the section of the Draft AEIS on scoping, and is a general summation of comments received during that process. In the Draft AEIS and the Final AEIS, impacts to ecological resources including wetlands and mitigation of wetland impacts are addressed in Chapters 4 and 5 respectively.</p>
	<p>3PR contends that "Alternative-1 ("No Mining") is the only acceptable alternative, because even this alternative will result in very extensive negative impacts through continued phosphate strip mining as the industry completes its permitted projects.</p>	<p>Comment acknowledged</p>
	<p>This is one of many prime examples illustrating how the phosphate strip mining industry has destroyed, or contributed to the destruction of resources which were hugely valuable to society. Today, Bartow is a very small town. It is the original county seat for Polk County, but because of phosphate strip mining early in its history, its growth was restricted and Lakeland became the county's major city. Mulberry, Ft. Meade, and now the City of Bowling Green has suffered an even a worse fate. Next in line will be the communities of Wauchula, Ona and Zolfo Springs.</p>	<p>Comment acknowledged</p>
	<p>Photo 6 below depicts a waste clay disposal site (CSA) (or other massive containment) of which there are a great many already occupying the west-central Florida landscape. Many phosphate strip mining impacts represent effectively permanent liabilities to the environment and create effectively immovable barriers to an expanding human society which has diverse needs for space, potable water, green space, safe recreation, and a clean and healthy natural environment.</p>	<p>Comment acknowledged</p>
	<p>The references upon which the DAEIS was presumably based are not annotated. It is therefore not possible to know how they are believed relevant or how their contents might have been interpreted and/or applied in formulating the various sections of the document. In many instance citations are made, but there is no means of determining how, why, or what information may have been considered or included.</p>	<p>Comment acknowledged</p>

	<p>Numerous on-site, independent environmental studies need to be conducted throughout the CFPD, and well beyond, especially "downstream", that is, down the rivers and streams to Charlotte Harbor and coastal zones of the gulf coast of Florida where the pollution and frequent toxic spills of the phosphate industry will ultimately find there way.</p>	<p>As described in the Draft EIS and the Final AEIS, the geographic scope of several of the resource categories considered extend down into Charlotte Harbor.</p>
	<p>It is unconscionable to entertain the concept of destroying an entire region of subtropical Florida, involving nearly 60,000 acres, supporting billions of animals, plants, and other living organisms which comprise the natural environment, purely for the benefit of a single industry. The life-giving biotic systems which would be lost provide sustenance, water, living space, recreation, and climate moderation. These natural systems constitute the essential biological and physical base which support and sustain human existence. Their destruction places at risk public health, properties and property values, economies, and important resources extending far outside and downstream of the actual confines of the CFPD. Many of these liabilities extend well into the future, and some into perpetuity. Phosphate strip mining sacrifices the environmental heritage of mankind for the short term profits of those not sustaining these impacts. If no mining were to occur, these large tracts of land would potentially provide space, agriculture, and water for millions of people. Such disregard for the environment and humanity is in stark contrast to the stated purpose of NEPA, which is "Protection of the Environment"⁸.</p>	<p>In accordance with applicable regulations and guidelines, the analyses of direct and indirect effects in Chapter 4 of the Final AEIS considers the four proposed actions (the Applicants' Preferred Alternatives) and four offsite alternatives identified through the screening process described in Chapter 2 and Appendix B. The cumulative impacts analysis in Chapter 4 considers the impact of all past, present, and reasonably foreseeable actions, including the four proposed actions and two reasonably foreseeable mines.</p>
	<p>Phosphate mining is a non-sustainable, non-renewable activity, and its extraction has already been utterly disastrous to a region of approximately 350,000 acres. Reclaimed phosphate lands, as attempts at reestablishing native ecosystems, are well-documented failures in most every regard. With such a horrendous environmental record, issuing new approvals for additional phosphate strip mining in west-central Florida is in no way acceptable.</p>	<p>In accordance with applicable regulations and guidelines, the analyses of direct and indirect effects in Chapter 4 of the Final AEIS considers the four proposed actions (the Applicants' Preferred Alternatives) and four offsite alternatives identified through the screening process described in Chapter 2 and Appendix B. The cumulative impacts analysis in Chapter 4 considers the impact of all past, present, and reasonably foreseeable actions, including the four proposed actions and two reasonably foreseeable mines.</p>

	<p>Hazen and Sawyer. 2003. Hardee County, Florida: Economic Impact of the Ona mine to Hardee County. Final Report, July 28, 2003. Hardee County Board of County Commissioners, by Grace Johns, Hazen and Sawyer, Environmental Engineers and Scientists.</p> <p>* Summary: Evaluates the potential economic effects to Hardee County from the proposed Ona Mine located in western Hardee County. This analysis estimates the change in employment and income to Hardee County residents that would be generated from the Ona mine relative to land uses on the Ona Property that would take place under baseline conditions. Presents a reasonable scenario of the potential land use given the best available information. Land use of the Ona Property under the baseline or “no-mining” scenario was based on reasonable assumptions of how western Hardee County would likely develop if no additional land was mined. All baseline land uses are consistent with Hardee County housing projections from the University of Florida Bureau of Economic and Business Research and historic agricultural acreage trends in Hardee County and in Florida from the Florida Agricultural Statistics Service.</p> <p>* Substantive Comment: (Refer to other comments where cited, including, but not limited to "Environmental Justice" comments).</p>	<p>Comment acknowledged</p>
	<p>Phosphate mining has often been presented by the mining industry as a "temporary" disturbance of land. However, it is unrealistic and inaccurate to assert that a 30-plus year mining project is a "temporary" disturbance, or that large-scale removal, disturbance, mixing of native soils, and construction of CSAs and phosphogypsum stacks, maintenance corridors, ditches, berms, pipelines, and processing facilities, will result in anything other than "major", "long-term", and complete destruction to native ecosystems, as it has with phosphate strip mining in the past.</p>	<p>In accordance with applicable regulations and guidelines, the analyses of direct and indirect effects in Chapter 4 of the Final AEIS considers the four proposed actions (the Applicants' Preferred Alternatives) and four offsite alternatives identified through the screening process described in Chapter 2 and Appendix B. The cumulative impacts analysis in Chapter 4 considers the impact of all past, present, and reasonably foreseeable actions, including the four proposed actions and two reasonably foreseeable mines. For some resource categories, the duration of impacts and time required for mitigation of those impacts is a consideration in the determination of degree or magnitude of impact, and the significance of impact.</p>
	<p>The Draft AEIS did not adequately address the issue of climate change and sea level rise.</p>	<p>The potential effects of phosphate mining on climate change and sea level rise are addressed in Chapter 4 of the Final AEIS.</p>

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	<p>CHNEP. 2010. Charlotte Harbor Regional Climate Change Vulnerability Assessment. Charlotte Harbor National Estuary Program. Port Charlotte, Fla.</p> <p>* Summary: Summarizes "Climate Change" as it may affect areas monitored by the CHNEP, and provides a general vulnerability discussion.</p> <p>* Substantive Comment: 3PR questions the adequacy of environmental analyses and the accuracy of the information contained in the DAEIS, because the projected effects of the phenomenon of climate change have not been thoroughly examined in regard to its impacts to ecosystems and the environment, including, but not limited to, forced migration of animals and the potential inability of plant and vegetative communities to adapt. 3PR also questions the merits of alternatives other than Alternative-1 ("No Action" / "no permit") which are presented in the DAEIS, in part because of the excessively long permit terms. Rises in sea levels have recently been projected to reach as high as 2 meters by the year 2100 (Pfeffer 2008). Such changes will have profound effects on coastal communities, potentially requiring a slow evacuation of the majority of Florida's population (which is concentrated within a few miles of the coast), and the complete restructuring of business and society inland. Not planning for these changes by permitting inland barriers, and large-scale loss of farmland to phosphate strip mining, may not be in the interest of good land-use planning.</p>	<p>Included in summary above</p>
	<p>Changes in climate patterns related to global warming are significant concerns for long-range environmental planning, and even short-range planning. Climate change and ozone depletion will affect humans and the natural environment and, in fact, have already had profound negative impacts in Antarctica, where "krill" (the main source of food for larger animals, including seals) has declined as much as 80% during the last 30 years (Reid et al 2010). Increased atmospheric temperatures and concomitant elevated sea levels are causing, among other serious problems, ocean encroachment of coastal lands which will drive coastal communities inland, and which will reduce inland areas as watercourses become wider and deeper. Wetlands and lowlands also will become submerged or inundated for longer periods.</p>	<p>Included in summary above</p>
	<p>Pfeffer, W.T., Harper, J.T., O'Neel, S. 2008. "Kinematic Constraints on Glacier Contributions to 21st- Century Sea-Level Rise". Science 321 (5894): 1340–3.</p> <p>* Summary: Analyzes global warming and sea level rise (SLR).</p> <p>* Substantive Comment: (See CHNEP. 2010, above).</p>	<p>Included in summary above</p>

	<p>Reid, K. et al. 2010. Krill population dynamics at South Georgia: implications for ecosystem-based fisheries management. Marine Ecology-progress Series - MAR ECOL-PROGR SER, vol. 399, pp. 243-252. Summary: Analysis of Krill-based food web in Antarctica. Krill populations down by more than 80% due to global warming effect on sea ice plankton.</p> <p>* Substantive Comment: (See CHENP 2010 reference, and comment).</p>	<p>Included in summary above</p>
<p>Terry Worthington, United Way of Central Florida</p>	<p>I respectfully urge that the AEIS economics analysis take into account the Phosphate Industry’s impact on local non-profit agencies.</p>	<p>Comment acknowledged.</p>
<p>Les Alderman, Florida Association of Mitigation Bankers</p>	<p>Regarding the importance of hydrology, the Draft AEIS says in section 5.3.4, “The development of appropriate hydrology is of vital importance to wetland and stream mitigation. Hydrology has and continues to be one of the most challenging aspects of wetland and stream design. Hydrologic predictions for early wetland designs were simple, full of assumptions, and often proved to be inadequate in capturing the hydrologic processes of the targeted wetland systems. Today, the phosphate industry uses sophisticated integrated surface water/groundwater modeling to predict target hydrologic conditions in mitigation wetlands and streams. Today’s advanced construction technology, such as laser and global positioning system (GPS)-guided earthmoving equipment, provides the means to precisely contour the land to achieve desired elevations and hydroperiods. Grading precision is particularly important for the design of shallow wetland systems that require subtle changes in elevation.” We agree that predicting the post-reclamation hydrology has been a challenge historically, but we fail to see how advances in technology have addressed the issue, especially the ability to do more precise grading. The problems of the past have been the inability to predict the post-reclamation water table, and the tendency of some post-reclamation soils to continue to subside. Precision grading in these circumstances could just make the grading more precisely wrong. We believe the risk of unsuccessful mitigation on mined sites is understated in the Draft AEIS, and that the above discussion should reflect the issues that have plagued the industry’s post-reclamation (on-site) mitigation in the past, rather than optimistic speculation about the ability of new technology to resolve these issues.</p>	<p>The roles of risk in the functional assessments performed on proposed mitigation, upfront planning of mitigation including hydrology, and adaptive management are discussed in Chapter 5 of the Final AEIS. Examples of conditions used to address adaptive management are in Appendix I.</p>

	<p>Regarding the minimum requirement for determining mitigation success, the Draft AEIS says in section 5.3.7, “The federal Section 404 program does not have minimum establishment periods for regulatory release of mitigation wetlands. Mitigation wetlands created to compensate impacts to waters of the United States are not considered for regulatory release at any specified time, only at the point when all success criteria are demonstrated to have been met.”</p> <p>We believe a more accurate representation of the minimum establishment period is in the Compensatory Mitigation Rule, which states, “The mitigation plan must provide for a monitoring period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years. A longer monitoring period must be required for aquatic resources with slow development rates (e.g., forested wetlands, bogs).”</p> <p>We respectfully request that the Final AEIS reflect the requirements of the Compensatory Mitigation Rule.</p>	<p>Chapter 5 of the Final AEIS has been updated to clarify how proposed mitigation for the four actions will have to comply with the 2008 Compensatory Mitigation Rule.</p>
	<p>Regarding the comparison of in-lieu fee programs to mitigation banks, the Draft AEIS states in section 5.5.2.2, “In contrast [to an in-lieu fee program], an established commercial bank may have less flexibility with regard to addressing watershed needs, due to banks typically being single projects. Also, a permittee may have fewer options for selection of a location to implement a private mitigation project.”</p> <p>We only imagine one set of circumstances in which a commercial mitigation bank could not address the watershed needs as well as an in-lieu fee program. The only way the commercial mitigation banker would have fewer options for selection of locations is if the in-lieu fee sponsor was a government agency exercising powers of eminent domain. Is this the intent of the statement above? If not, we believe the quoted statement above is erroneous, not consistent with the rationale that was used to support the adoption of the Compensatory Mitigation Rule and should be removed from the Final AEIS.</p>	<p>Comment acknowledged. The statement quoted is intended to illustrate some of the differences between mitigation banks and in-lieu fee mitigation, as described in the preamble to the 2008 Mitigation Rule, in a description of in-lieu fee mitigation.</p>

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	<p>Regarding the discussion of “advance credits” in section 5.5.2.3, the Draft AEIS incorrectly characterizes mitigation banking as follows, “To address financial considerations that may be important to the development of a mitigation bank, a percentage of the total credits projected for the bank at maturity is regularly authorized for sale once adequate financial assurances are in place to guarantee completion of the mitigation bank site. These advance credits also require demonstration of a high likelihood of success (Federal Register, 1995). With a mitigation bank, most permitted impacts are mitigated in advance, with the operational bank being in place at the time of the permit application. However, this would not be the case with advance credits authorized to support initial development of a mitigation bank.” (emphasis added) The citation to the “Federal Guidance for the Establishment, Use and Operation of Mitigation Banks,” which was issued on November 28, 1995 is inappropriate because the 1995 Guidance was superseded by the Compensatory Mitigation Rule issued in 2008. Under the rule in effect today, only in-lieu fee programs receive “advance credits.” Therefore, the discussion of the risks associated with “advance credits” should be properly moved to the discussion of in-lieu fee programs in section 5.5.2.2.</p>	<p>Comment acknowledged.</p>
	<p>Regarding the Draft AEIS’s speculative forecast of the inability of commercial mitigation banks to meet the industry’s need as stated in the following passage from section 5.5.2.3, “The amount of commercial mitigation bank credits currently available for purchase by potential users within the Peace River and Myakka River watersheds would not exclusively satisfy the mitigation needs of the currently proposed phosphate mines. It is also unlikely that future commercial mitigation banks that may be developed would exclusively satisfy the mitigation needs of the currently proposed or future mines. However, the use of commercial mitigation banks in combination with other forms of mitigation (onsite and/or in-lieu fee) could be a feasible approach for the phosphate industry.” (emphasis added) Given the earliest proposed start date of 2019 (Alternative 4) and the latest proposed end date of 2050 (Alternative 3), we fail to understand why the Draft AEIS states it would be unlikely that commercial mitigation banks would be able to satisfy the needs of industry mitigation. In the 17 years since mitigation banking rules were adopted in Florida, 63 mitigation banks have been approved covering over two-thirds of the State. Our point is simple: Where there is demand for mitigation credits, it is reasonable to assume that supply will be developed to meet the demand, especially given the seven year gap before start-up and the 30-year duration of mining. We respectfully request that the speculative statement be deleted, and that a realistic appraisal of the market response to demand created by the industry be substituted in its place.</p>	<p>Comment acknowledged</p>

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	Regarding the discussion of single user mitigation banks developed by the industry in section 5.5.2.3, an important consideration is omitted. Commercial mitigation banks offer protection from the liability for mitigation performance. Establishing industry owned single user mitigation banks would, as the discussion implies, carry all the costs of a commercial mitigation bank, but without the key advantage of liability protection.	Comment acknowledged
	Regarding the conclusions to the mitigation options discussion in section 5.5.3, we strongly suggest that the conclusions address the hierarchy established in the Compensatory Mitigation Rule and in the U.S. Army Corps of Engineers' Memorandum for Record template used by Jacksonville District permit reviewers. The Draft AEIS discussion does not mention the hierarchy and treats all options equally, when in fact, by rule the options are not on equal footing. The failure to recognize the hierarchy in the Compensatory Mitigation Rule is a misleading omission of material fact that should be corrected in the Final AEIS.	Chapter 5 of the Final AEIS has been updated to clarify how proposed mitigation for the four actions will have to comply with the 2008 Compensatory Mitigation Rule, including meeting the mitigation preference hierarchy.
	Regarding the discussion of non-existent mitigation plans in section 5.6, we believe that the limitation cited for the industry having not submitted mitigation plans (i.e. not yet having approved jurisdictional determinations) must have by now been resolved, and that mitigation plans should be part of the Final AEIS. Given the extent of aquatic resource losses proposed, we believe it is fruitless to evaluate the alternatives without considering concrete plans to compensate for these losses. We respectfully request that the Final AEIS include a discussion of proposed mitigation plans, specifically addressing their consistency with the federal Compensatory Compensation Rule.	The mitigation for the four proposed actions' compliance with the 2008 Compensatory Mitigation Rule will be determined as part of the Section 404 review. As stated in the Final AEIS, the results of the 404(b)(1) and public interest reviews, including the proposed mitigation, for each project will be made available for public review and comment.
	Thank you for the hard work and thoughtful analysis that the Draft AEIS portrays. A comment letter such as this necessarily focuses on what we perceive as deficiencies or opportunities to improve the document. On the positive side, we find much to commend the Draft AEIS, but in the interest of time, we refrain from itemizing them. Know, however, that the industry appreciates the work and support of the U.S. Army Corps of Engineers and its cooperating agencies in this endeavor.	Comment acknowledged
Paul Kripli	This is a tragedy and needs to stop. The Phosphate is causing terrible environmental damage and polluting our water.	The environmental consequences of the four proposed actions and the alternatives considered are discussed in Chapter 4 of the Final AEIS.
Margaret Wuerstle, Southwest Florida Regional Planning Council	The SWFRPC has determined that the Draft Areawide Environmental Impact Statement on Phosphate Mining in the Central Florida Phosphate District (DAEIS) is Regionally Significant and Inconsistent in its current form. Specifically, Chapters 4 and 5 are inadequate and preclude meaningful analysis. The SWFRPC requests that the U.S. Army Corps of Engineers (ACOE) prepare and circulate revised drafts of Chapters 4 and 5 for review and comment.	Comment acknowledged. Chapters 4 and 5 of the Final AEIS were updated and revised in response to comments received on the Draft AEIS.

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	<p>Moreover, the SWFRPC recommends that the DAEIS include a recommended action alternative selection based upon the analysis that selects the alternative that has the least impact on the environment and provides the best health, safety and welfare for the people of Florida.</p>	<p>As part of the review of the four actions pursuant to the 404(b)(1) Guidelines, the Corps will identify a Least Environmentally Damaging Practicable Alternative for each project.</p>
	<p>We question the adequacy of the environmental analysis given that the 25 alternatives are not addressed in a consistent fashion. The alternatives are grouped by "No Action" (1 alternative), "Proposed" (4 alternatives), "Foreseeable" (3 alternatives) and "Potential" (17 alternatives). We request that each analysis be completed by group on a stepwise basis. No action, then Proposed, then Proposed plus Foreseeable and finally, all alternatives together. It appears that the document is designed for it to be referenced for future mining permitting action particularly since "Foreseeable" mine alternatives include potential mining after the "Proposed" alternatives are completed and into the year 2070. Discussing the "foreseeable" mines individually avoids discussion of cumulative impacts. In addition, a cumulative analysis could help answer the question of when cumulative impacts would overwhelm the natural resources and degrade the economy of central and southwest Florida.</p>	<p>The Final AEIS describes the potential direct and indirect effects of a No Action Alternative (as required by NEPA), the four Applicants' Preferred Alternatives (as required by NEPA and the Corps' NEPA implementing regulations), and four Offsite Alternatives. Two of the Offsite Alternatives are considered in the separate cumulative impact analysis as reasonably foreseeable future mines.</p>
	<p>An overview of soils is provided in Chapter 3 of the DAEIS but no analysis of soils beyond hydric soils for wetland assessment is provided for the alternatives. Chapter 3, page 3-17, states "In the Peace River Basin, the most predominant soil group is AID with a total cover of 49 percent. Although these are sandy type soils, they are characterized by having high groundwater levels. Soil hydrologic group A covers approximately 18 percent of the Peace River Basin." Given that the most predominant group of soils for the basin are of high and low permeability, changes as a result of phosphate mining may be expected. We request that soil changes as a result of phosphate mining be assessed for the alternatives.</p>	<p>Chapter 4 describes the potential direct and indirect effects of the proposed actions and their alternatives on soils.</p>
	<p>We are doubtful of the accuracy of the groundwater resources analysis, comparing the "No Action" to the "Proposed" alternatives. The estimated end of rock production for Wingate Creek and South Pasture Wingate is 2013 and 2025, respectively. Under a "No Action" scenario, the withdrawal for these two mines would cease within the study period (except for a small amount associated with reclamation activities). Only two "Proposed" mines are analyzed in the DAEIS because South Pasture Extension and Wingate East are expansions of Wingate Creek and South Pasture Wingate and moving the existing Water Use Permits is proposed. If "No Action" occurred, the existing Water Use Permits from Wingate Creek and South Pasture Wingate expire at the end of mining and that water would not be withdrawn. Therefore we request cumulative groundwater modeling comparing the "No Action" and "Proposed" alternatives include reduced mining withdrawals at the appropriate periods.</p>	<p>In the No Action Alternative - No Mining scenario, the groundwater usage for the existing mines, including Wingate Creek and South Pasture, ends when each of those mines closes and all activity including reclamation ends. The modeling of the cumulative impacts on groundwater considers existing mines ending their groundwater usage.</p>

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	<p>The DAEIS assesses "Foreseeable" alternatives as if they have no impact because Water Use Permits would be moved from existing and "Proposed" mines and beneficiation plants. If the "Foreseeable" alternatives were not constructed, that water use would not occur. "Foreseeable" alternatives should be compared to "Proposed" mines within the same period (2025 to 2045) and to "No Action." This would compare "Proposed" to "Foreseeable" as alternative scenarios. In addition, we request an analysis adding the "Foreseeable" mine production after "Proposed."</p>	<p>Chapter 4 of the Final AEIS describes the potential direct and indirect effects of the four proposed actions and their alternatives on groundwater resources, and the potential cumulative effects of past, present, and reasonably foreseeable actions, including phosphate mining.</p>
	<p>We question the adequacy of the analysis which models only the impacts to the deep Floridan aquifer (FAS) impacts. Groundwater monitoring well data are available for the surficial aquifer, Peace River aquifer, upper/lower Arcadia aquifer and Hawthorn group and these need to be addressed.</p>	<p>The groundwater analyses in Chapter 4 of the Final AEIS have been expanded to include potential impacts to the surficial aquifer and the two levels of the intermediate aquifer.</p>
	<p>Pages 3-59 and 3-60 lists a number of way that phosphate mining can impact the Surficial Aquifer System, including extensive earthwork, dewatering and changed surficial soils, including addition of clay. The section states that the issue is addressed in Chapter 4. However, no analysis of the alternatives relative to these issues is presented in Chapter 4. The DAEIS is internally inconsistent when analyses are promised and not provided. The DAEIS needs to address and analyze Surficial Aquifer System (SAS) impacts of the alternatives.</p>	<p>The groundwater analyses in Chapter 4 of the Final AEIS have been expanded to include potential impacts to the surficial aquifer.</p>
	<p>Analysis relative to the Intermediate Aquifer System (IAS) water levels is limited to Page 3-60 and concludes that "within the Polk County area (the IAS) provide conveyance routes between the SAS and the F AS but such features are less frequently encountered to the south within the Peace River watershed." In the proposed area of mining impact wells are permitted to use the IAS. An analysis of impacts of alternatives to the IAS needs to be conducted.</p>	<p>The groundwater analyses in Chapter 4 of the Final AEIS have been expanded to include potential impacts to the two levels of the intermediate aquifer.</p>
	<p>Tables 4-69 and 4-70 (page 4-227 through 4-230) do not cite maximum drawdown and maximum increase modeled for the alternatives. The tables should include modeled maximum drawdown or increase. In addition, the tables should be ordered so the wells that are most relevant to the analysis are listed first (Upper Peace, SWIMAL, then Ridge Lakes).</p>	<p>Chapter 4 and Appendix F of the Final AEIS describe the potential direct, indirect, and cumulative impacts to the surficial, two levels of the intermediate, and Floridan aquifers.</p>
	<p>Existing wells are not identified in the DAEIS. Water levels and cones of depression (or increase) for each alternative should be compared with the depths of existing permitted wells that intersect those cones of effect. Potentially impacted permitted well should be identified and enumerated for each alternatives.</p>	<p>The potential impacts associated with phosphate mining are described in Chapter 4 and Appendix F of the Final AEIS.</p>

	<p>Given that the capture analysis for other alternative mines demonstrates changes, reclamation of existing lands mined and not yet reclaimed (page 4-191) suggests that between 2000 and 2028, acreage of all past and present mines (25,000 acres) will be reclaimed. Given better flows after reclamation is complete within alternatives analysis (e.g. Figure 4-40 on page 4-91), it is reasonable to assume greater flows once capture areas are reclaimed in past and present mines.</p> <p>CHNEP requests that the "No Action" alternative be assessed with reclamation introduced as shown by 2028.</p>	<p>The surface water resource analysis in the Final AEIS does consider the effects of reclamation on runoff in the No Action Alternative.</p>
	<p>There are questions regarding the adequacy of projected river flows analysis for the alternatives.</p> <p>Each alternative is assessed separately. The "No Action" changes, as described in the preceding paragraph, should be introduced to the "No Mining" comparison for figures 4-37, 4-38, 4-40, 4-41, 4-43,4-45,4-46, 4-48, 4-50, and 4-51 (pages 4-88 through 4-102.) The Capture area graphs (Figures 4-36, 4-39, 4-42, 4-44, 4-47 and 4-49) that display cumulative capture areas for the alternatives should be utilized to assist in the cumulative analysis. The cumulative analysis for the alternatives within the Peace River basin should be assessed related to surface water flows at the confluence of the Peace River and Horse Creek.</p>	<p>The Final AEIS describes the potential direct and indirect effects of a No Action Alternative (as required by NEPA), the four Applicants' Preferred Alternatives (as required by NEPA and the Corps' NEPA implementing regulations), and four Offsite Alternatives, on surface water resources, individually. The Final AEIS also describes the potential cumulative effects of past, present, and reasonably foreseeable actions, including phosphate mining.</p>
	<p>It is inadequate and inaccurate to only provide an alternatives analysis using average annual rainfall conditions considering average annual flows. Average rainfall conditions and average flow conditions within the year represent a rare condition when ecological resources are under the least amount of stress. The alternatives should assess the cumulative impacts of mines on Peace River, Horse Creek and Big Slough utilizing the 2003 and 2007 hydrographs, when conditions were at more extreme within the period of record (see Figure 4-32 on page 4-83 and Figure 4-33 on page 4-84).</p>	<p>The surface water resource analyses in the Final AEIS have been updated to consider average and low rainfall conditions, and to present dry and wet season predicted flows.</p>
	<p>Discussion regarding "Cumulative Impacts to MFLs or MFL Target Water Levels" begins on page 4-220. However, this analysis is limited to Minimum Aquifer Levels (MALs) and does not address the MFLs as outlined in table 3-5 on page 3-49. The Lower Peace River MFL includes a 625 cfs maximum diversion and a low flow threshold of 90cfs. A draft rule is available for the Lower Myakka River and is expected to be submitted to the Southwest Florida Water Management District Governing Board by August. The alternatives should be assessed for the Lower Peace MFLs in a consistent fashion as was assessed for the MALs. The 2003 hydrograph, the median hydrograph, and 2007 hydrograph should be used to assess potential withdrawal impacts by block and for any change to the 90 cfs threshold period. All alternatives need to be quantitatively assessed for MFL.</p>	<p>The potential cumulative impact of phosphate mining on the MFLs for the lower Peace River are discussed in Chapter 4 of the Final AEIS.</p>

	<p>We question the adequacy of alternatives analysis related to Lower Peace River and Charlotte Harbor salinities. Page 3-45 states that "the AEIS evaluations will ... need to address the potential influence of phosphate mines on river flows in relation to whether any such influences would be of sufficient magnitude to result in ecologically meaningful changes in salinity regimes." No analyses related to effects on salinity in the Lower Peace or Charlotte Harbor are offered. On page 4-238, one paragraph is offered stating "The net effects of the four proposed new mine projects are not predicted to cause significant cumulative effects on downstream flow regimes and are not likely to impact Peace and Myakka River discharge volumes sufficiently to impact salinity regimes in the tidal portions of these rivers leading to Charlotte Harbor Estuary." This statement has no quantitative basis in fact presented in the DAEIS. The mines are assessed separately and not cumulatively.</p> <p>Peace River volume changes are shown at the Arcadia gauge, upstream of most of the "Proposed" and "Foreseeable" mine alternatives. The DAEIS assessment should include changes in salinity, especially the isohalines associated with the oligohaline (0.5 to 5 parts per thousand) and in the context of predicted sea level rise.</p>	<p>The Final AEIS describes the potential direct, indirect and cumulative effects of phosphate mining on the estuarine portions of the Myakka and Peace Rivers and on Charlotte Harbor. The analyses described in Chapter 4 and in Appendix G predict a net increase in flows to Charlotte Harbor.</p>
	<p>Chapter 3 (page 3-85) offer links to impairments lists rather than providing them as tables. The first link goes to an EPA search engine. The second link goes to a list of adopted Total Maximum Daily Loads (TMDLs) in Florida. Neither link provides information related to verified impairments in the Peace and Myakka River basins. Impairments within and downstream of the mine alternatives include: Chlorophyll a, dissolved oxygen, fecal coliform, total coliform, iron and mercury. The DEIS should acknowledge existing water quality impairments and potential (numeric nutrient) impairments in the study area and downstream.</p>	<p>Existing water quality conditions are discussed in Chapter 3 of the Final AEIS. Potential impairments associated with numeric nutrient criteria are discussed in Chapters 3 and 4, and Appendix D, as coordinated with EPA water quality staff. Potential water quality impacts are described in Chapter 4.</p>
	<p>Table 4-19 on page 4-109 does not include the Class III Chlorophyll-a criteria. In addition, the table includes only mean values. Table 4-19 should include chlorophyll-a standards and proposed numeric nutrient standards (as identified on page 3-92). The minimums, maximums, and standard deviations should be included in Table 4-19. Pollutant and hydrologic loads and estimated changes in concentrations for each alternative should be presented and analyzed.</p>	<p>Existing water quality conditions are discussed in Chapter 3 of the Final AEIS. Potential impairments associated with numeric nutrient criteria are discussed in Chapters 3 and 4, and Appendix D, as coordinated with EPA water quality staff. Potential water quality impacts are described in Chapter 4.</p>

	<p>The environmental justice (EJ) review screening techniques focus on block group populations of over 50% minority or 20% within poverty intersecting site alternative boundaries. Though that technique is suitable for infrastructure such as roadways to identify potentially affected communities, the impacts of phosphate mining can be as much from changes in employment opportunities as physical proximity. How will hiring practices change as alternative sets move from agriculture to phosphate mining, especially for the working poor? The analysis should include numbers of jobs and education requirements for agriculture versus phosphate production for the entire process including extraction, processing and transport for the mines.</p> <p>SWFRPC requests that EJ analysis be broadened to address health concerns (including air quality particulate, well water quality, noise, and night lighting) and employment of working poor.</p>	<p>Chapter 3 of the Final AEIS has been updated to explain how populations at risk were identified. Chapter 4 of the Final AEIS has been updated to explain the potential effects of the four proposed actions and their alternatives on identified populations. Additional information about public health and economic effects are also in Chapter 4.</p>
	<p>The DAEIS devotes eight lines to the climate and sea level rise. The SWFRPC and CHNEP have completed extensive review of climate change vulnerabilities for the project area that can be found at www.chnep.org/CRE.html and http://www.swfrpc.org/climate_change.html.</p> <p>The DAEIS study area of central and south Florida is currently experiencing climate change. The natural setting of southwest Florida coupled with extensive overinvestment in the areas most vulnerable to the effects of climate change have placed the region at the forefront of geographic areas that are among the first to suffer the negative effects of a changing climate. Climate change is an important social, economic, and community health issue facing our nation and Florida. It is not solely an environmental or scientific issue. The questions and answers surrounding climate change take root in economic, physical, and social structures. The SWFRPC has a two-decade history of addressing climate issues, beginning with its ground-breaking disaster and severe storm preparedness planning. Economic, social, community health, infrastructure and environmental issues have been addressed in the context of storm surge, wind speeds, and infrastructure resilience.</p>	<p>Comment acknowledged</p>

	<p>Climate change drivers include air temperature, air chemistry, water temperature and water chemistry. Climate change stressors include changes to rainfall, storm severity, humidity, drought, wildfires, hydrology, salt water intrusion, sea level rise and geomorphic changes. Changes in many of the drivers and stressors of climate change have been measured within and downstream of the CFPD. These include average air temperature, days per year over 90 degrees F, rainfall delivered in the rainy season sea level rise and evapo-transpiration. Much of the DAEIS analysis relates to these changing conditions that will be exacerbated by climate change factors. However, past conditions are applied throughout the analysis. Section 4.11.6 is the opportunity to suggest changing condition adjustments to consideration of alternatives.</p> <p>For example, over the past 100 years, 6 percent of annual rainfall has moved from the dry season to the rainy season, creating wetter rainy seasons and drier dry seasons. Drops in river flow contributions exacerbate the effects of sea level rise by increasing salinities, moving aquatic species up the system. This may put the DeSoto County bulrush marshes and Peace River/Manasota Water Supply Authority intake at risk.</p> <p>SWFRPC requests a methodical assessment of how each driver and stressor is exacerbated or ameliorated by the phosphate mining and processing alternatives.</p>	<p>Chapter 4 of the Final AEIS describes the potential effect of phosphate mining on climate change.</p>
	<p>Chapter 5: Mitigation of the DAEIS is inadequate and incomplete. Chapter 5 should include a presentation of avoidance and minimization techniques for all of the alternatives. This would include protecting existing stream riparian systems and restoring stream courses ditched for agriculture. The wide array of avoidance and minimization techniques employed through modern phosphate mining permits and through best management practices should be presented in detail, by each of the primary issues of concern identified in the executive summary, page 3.</p> <p>The mitigation for the alternatives should follow the federal sequencing of Avoidance, Minimization, Adaptation, and then Mitigation (AMMA). Going directly to mitigation short circuits principles of good project design and proper conservation stewardship.</p>	<p>Chapter 5 of the Final AEIS has been updated to better explain how the applicants will be required to avoid, minimize, and compensate for impacts in accordance with the 404(b)(1) Guidelines and the 2008 Compensatory Mitigation Rule. A mitigation framework for prioritization of certain types of waters of the United States is also discussed in Chapter 5. Examples of recent permit conditions that address mitigation success and adaptive management are provided in Chapter 5 and in Appendix I.</p>

Appendix B:
Spanish-language Translation of
Executive Summary

RESUMEN EJECUTIVO

RESUMEN EJECUTIVO

RE.1 ANTECEDENTES

En 2010 y 2011, el Cuerpo de Ingenieros del Ejército de los Estados Unidos, Distrito de Jacksonville (USACE, por sus siglas en inglés) recibió solicitudes de permisos del Departamento del Ejército bajo la Sección 404 de la Ley de Aguas Limpias (CWA, por sus siglas en inglés) de dos compañías mineras de fosfatos localizadas en el centro y suroeste de la Florida: Mosaic Fertilizer LLC (Mosaic) y CF Industries, Inc. (CF Industries), en adelante referidas como “los Solicitantes”. Las acciones propuestas incluyen la creación de nuevas minas de fosfato, expansión de minas existentes y la construcción de instalaciones de asistencia. Según propuestas, estas acciones resultarían en la descarga de relleno en aguas de los Estados Unidos.

Las autorizaciones federales para la aprobación de los permisos solicitados constituirían una Acción Federal Mayor (“Major Federal Action”). Como resultado, el USACE determinó que, vistos en conjunto, los proyectos de minería de fosfatos propuestos de forma independiente tienen similitudes que proveen una base para la evaluación de sus impactos ambientales directos, indirectos y acumulativos en una sola Declaración de Impacto Ambiental de Área Amplia (“Areawide Environmental Impact Statement” o AEIS, por sus siglas en inglés). Esta AEIS Final (y el Borrador AEIS en el cual la misma está basada) evalúa los impactos ambientales y económicos de las cuatro minas propuestas por los Solicitantes (Alternativa Preferida de los Solicitantes), así como los impactos asociados con la alternativa de No Acción y otras alternativas razonables previsibles en el Distrito Central de Fosfato de Florida (CFPD, por sus siglas en inglés).

En cumplimiento con la Ley Nacional de Política Ambiental (NEPA, por sus siglas en inglés) este AEIS Final sustentará la toma de decisión sobre las aplicaciones de permisos existentes e informará a las agencias, otras partes interesadas y el público sobre los impactos de, y alternativas para, las cuatro aplicaciones de permisos de minas de fosfatos similares de los Solicitantes. Esta AEIS Final será utilizada por el USACE para determinar si emite los permisos bajo la Sección 404 del CWA, los emite con modificaciones o condiciones o los deniega en respuesta a las cuatro aplicaciones de permisos similares. Como beneficio secundario, este AEIS Final proveerá información para sustentar la evaluación de posibles futuras aplicaciones para actividades adicionales de minería de fosfatos.

Según indicado en el proceso de alcance (“scoping”) y en el AEIS Borrador, el USACE llevará a cabo la revisiones de interés público y análisis bajo Sección 404(b)(1) para las cuatro solicitudes de permisos

similares en el acta de decisión y declaración de hallazgos (“record of decision statements of findings” [RODSOF]) para el proyecto-específico.

RE.2 PROPOSITO Y NECESIDAD DEL PROYECTO

En cumplimiento con NEPA, una Declaración de Impacto Ambiental (EIS, por sus siglas en inglés) “deberá especificar brevemente el propósito principal y la necesidad para la cual la agencia está respondiendo” (Título 40 del Código de Regulaciones Federales [CFR, por sus siglas en inglés] Parte 1502.13). Cuando se considera conjuntamente, el “propósito” y la “necesidad” de un proyecto propuesto (en este caso, la Alternativa Preferida de los Solicitantes) establecer los parámetros básicos para identificar la gama de alternativas as ser consideradas en un EIS.

De conformidad con el 33 CFR Parte 325, Apéndice B, al definir el propósito y la necesidad de un proyecto "mientras que por lo general se centra en la declaración del solicitante, el USACE en todos los casos ejercerá juicio independiente en definir el propósito y la necesidad del proyecto tanto desde la perspectiva del solicitante y del público. Como parte de definir el propósito y necesidad del proyecto, el USACE define el Propósito Básico del Proyecto (“Basic Project Purpose”) y el Propósito Total del Proyecto (“Overall Project Purpose”). El objetivo básico del proyecto según definido por el USACE es extraer o minar mineral de fosfato. En general, la extracción de mineral de fosfato no requiere el acceso o la proximidad a un sitio acuático especial (“special aquatic site”). Por lo tanto, el USACE encuentra que el objetivo básico del proyecto no es dependiente del agua.

Para llevar a cabo la evaluación de las Alternativas Preferidas por los Solicitantes, no sólo con fines de NEPA y este AEIS, sino también para la evaluación del USACE asociada con las aplicaciones de permisos correspondientes bajo la Sección 404 del CWA y en conformidad con las Guías de Sección 404 (b) (1) (40 CFR Parte 230) y la revisión de interés público, el propósito y la necesidad se expresan en términos del propósito de la totalidad del proyecto. El propósito total del proyecto, definido independientemente según requerido por el USACE, constituye la base para la evaluación del USACE de alternativas razonables bajo NEPA. Por lo tanto, para este AEIS, el propósito del proyecto es extraer el mineral de fosfato de las reservas minerales en el CFPD y construir la infraestructura necesaria para extraer y procesar el mineral de fosfato en instalaciones de separación/beneficio, reconociendo que el mineral extraído debe estar dentro una distancia factible de una nueva o ya existente planta de beneficio.

Además del propósito y necesidad del USACE, los Solicitantes desarrollaron su propósito y necesidad, las cuales sirvieron como base para el análisis de alternativas.

RE.3 ALCANCE DEL AEIS

RE.3.1 Acción Propuesta

Los proyectos específicos propuestos por CF Industries y Mosaic que están siendo revisados por el USACE y sus números de solicitud de permisos del Departamento del Ejército, son Mina de Desoto (“Desoto Mine”) de Mosaic (SAJ-2011-01968), Mina Ona (“Ona Mine”) de Mosaic (SAJ-2011-01869), “Wingate East Mine” de Mosaic (SAJ-2009-03221), y Extensión Mina de Pastos Sur (“South Pasture Extension Mine”) de CF Industries (SAJ-1993-01395). Los cuatro proyectos están propuestos en el área comúnmente conocida como el CFPD, un área de aproximadamente 1.32 millones de acres (o +/- 2,100 millas cuadradas) en los condados de Hardee, Hillsborough, Manatee, Polk, y DeSoto. Además hay cerca de 1,000 acres del CFPD en el condado de Sarasota; sin embargo, no ocurre minería, o se propone minería por los Solicitantes en el condado de Sarasota. Figura RE-1 muestra la localización del CFPD y los cuatro proyectos de minas de fosfato propuestos al igual que las zonas donde históricamente y actualmente a ocurrido minería en el CFPD.

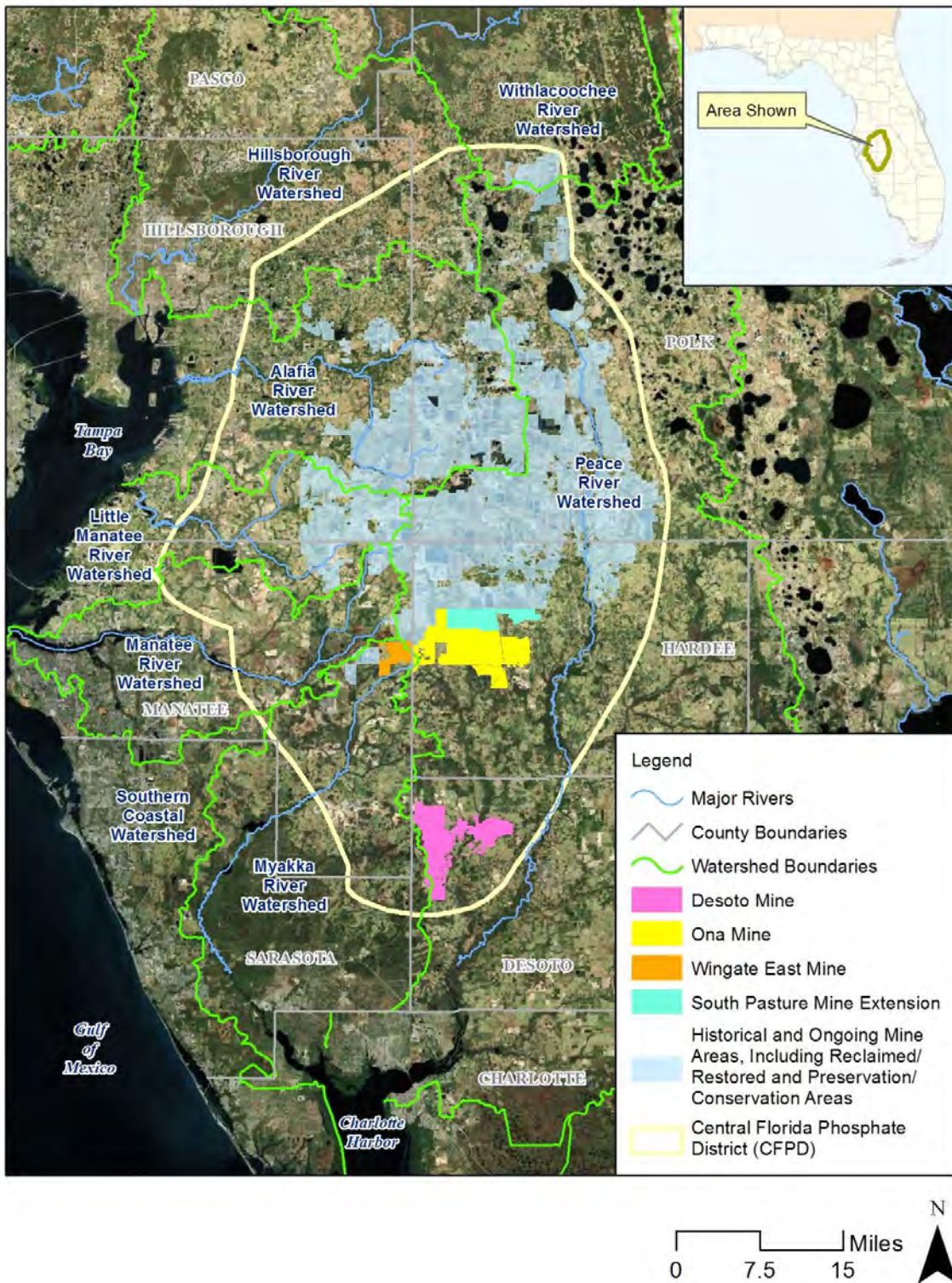


Figura RE-1. Localización de las Cuatro Nuevas Minas de Fosfato Propuestas por los Solicitantes en el Distrito Central de Fosfato de Florida

Las descripciones de la extensión jurisdiccional de humedales y riachuelos del USACE, y de los impactos propuestos a humedales y riachuelos bajo la jurisdicción del USACE, están basadas en determinaciones jurisdiccionales aprobadas y propuestas aprobadas. Los impactos propuestos reflejan las Alternativas Preferidas de los Solicitantes, así descritas en los avisos públicos del 1 de junio de 2012, para los cuatro proyectos, lo cual pudiera cambiar durante la revisión adicional del USACE para las cuatro solicitudes:

- **Desoto Mine (Mina Desoto).** Una nueva mina de fosfato de 18,287 acres basada en dragalinas (“dragline”) en el noroeste del Condado Desoto en la cuenca del Peace River. Se minaría durante aproximadamente 16 años, lo que se estima serían desde el 2021 hasta el 2037, con actividades de reclamación continuando hasta unos 6 años adicionales. El proyecto, así descrito en el aviso publico del 1 de junio de 2012, impactaría 3,253 acres de un total de 4,034 acres de humedales y aproximadamente 64,474 pies lineares de 128,639 pies de riachuelos que cumplen con el criterio de Aguas de los Estados Unidos.
- **Ona Mine (Mina Ona).** Una nueva mina de fosfato de 22,320 acres basada en dragalinas (“dragline”) en el oeste del Condado Hardee, mayormente ubicada en la cuenca del Peace River, con una pequeña porción en la cuenca del Myakka River. Se minaría durante aproximadamente 30 años, lo que se estima sería desde el 2020 hasta el 2050, con actividades de reclamación a continuar hasta unos 15 años adicionales. En general, hay 5,389 acres de humedales jurisdiccionales del USACE y 208,366 pies lineares de riachuelos jurisdiccionales del USACE en el sitio. El proyecto, según descrito en el aviso público del 1 de junio de 2012, impactaría 4,615 acres de un total de 5,389 acres de humedales y aproximadamente 136,731 pies lineares de riachuelos de 208,366 pies lineales de riachuelos que cumplen con el criterio de Aguas de los Estados Unidos.
- **Wingate East Mine (Mina Wingate del Este).** Una extensión de 3,635 acres basada en dragalinas (“dragline”) de la existente y permitida Mina Wingate Creek en el este del Condado de Manatee, mayormente en la cuenca del Myakka River, con una pequeña porción en la cuenca del Peace River. Se minaría durante aproximadamente 27 años, lo que se estima sería desde el 2019 hasta el 2046, con actividades de reclamación a continuar hasta unos 8 años adicionales. En general, hay 940 acres de humedales jurisdiccionales del USACE y 68,138 pies lineares de riachuelos jurisdiccionales del USACE en este sitio. El proyecto, según descrito en el aviso público del 1 de junio de 2012, impactaría 784 acres de pantanos y aproximadamente 27,287 pies lineares de riachuelos que cumplen con el criterio de Aguas de los Estados Unidos.

- **South Pasture Extension Mine (Extensión Mina de Pastos del Sur)**. Una extensión de 7,513 acres basada en dragalinas (“dragline”) de la existente y permitida Mina South Pasture en el Condado de Hardee en la cuenca del Peace River. Se minaría durante aproximadamente 13 años, lo que se estima sería desde el 2020 hasta el 2033, con actividades de reclamación a continuar hasta unos 10 años adicionales. En general, hay 1,699 acres de humedales jurisdiccionales del USACE y 92,809 pies lineares de riachuelos jurisdiccionales del USACE en este sitio. El proyecto, según descrito en el aviso público del 1 de junio de 2012, impactaría 1,218 acres de humedales y 32,161 pies lineares de riachuelos que cumplen con el criterio de Aguas de los Estados Unidos.

Para este AEIS, parcelas que existen entre (“infill parcels”) no son consideradas como acciones similares a las cuatro minas propuestas, ya que no comparten alternativas y periodos de tiempo similares con las minas propuestas. También, estas no llegan al nivel de significación de las acciones propuestas, y resultarían en niveles mucho más bajos de impacto. Estas parcelas son típicamente adquiridas y minadas por su proximidad a una mina existente o una mina y planta de beneficiación planificada para el futuro, y por otros factores, tal como si el dueño de la mina puede obtener el interés necesario de la propiedad. El USACE hará determinaciones proyecto-específicas bajo NEPA y otras autoridades aplicables en estas acciones separado a este AEIS Final.

El USACE más aún, ha determinado que las cuatro minas de fosfato propuestas por los Solicitantes tienen utilidad independiente de las plantas de fertilizantes existentes y que las operaciones de minería son proyectos independientes y completos. Fosfoyeso (“Phosphogypsum”, sulfato de calcio dihidratado) es un subproducto del proceso que convierte la roca de fosfato minado en compuestos usados en fertilizantes. El fosfoyeso, separado del ácido fosfórico, es en la forma de una mezcla solida/agua (acuosa), que se almacena en áreas al aire libre conocidas como pilas (“stacks”) o pilas de yeso (“gybstacks”). Las industrias de Mosaic y CF han indicado que las plantas procesadoras de minerales (facilidades de producción de fertilizantes/fosfatos de grado alimenticio) conceptualmente podrían continuar sus operaciones independientemente de las minas propuestas, porque las plantas procesadoras de minerales no son necesariamente dependientes de las minas. Por lo tanto, las plantas de fertilizantes y las pilas de fosfoyeso no están dentro del alcance de la Acción Propuesta (Alternativa Preferidas de los Solicitante) y no están consideradas como un componente de los efectos directos e indirectos de las cuatro minas propuestas. Aunque no están incluidas como parte de la Acción Propuesta, están incluidas en el alcance del análisis de impactos acumulativos.

RE.3.2 Alcance del Análisis e Impactos

Al definir el alcance de análisis para el AEIS, el USACE consideró la gama de acciones, alternativas, e impactos a ser incluidos de acuerdo con el 40 CFR 1508.25. Basado en el proceso de alcance (“scoping”) y comentarios al Borrador del AEIS, este AEIS Final describe los impactos significativos, directos e indirectos, que se esperan ocurran como resultado de implementar la Alternativa de No Acción, las Alternativas Preferidas por los Solicitantes, y Alternativas Fuera del Sitio (“Offsite”) (según descritas en la Sección RE.5), y los impactos acumulativos resultantes de acciones pasadas, presentes, y razonablemente previsibles en el futuro, incluyendo ambas acciones de minar y no-minar. El USACE ha determinado que dos de las cuatro áreas deben ser identificadas como sitios con un potencial futuro para ser minados—el Tramo “Pine Level/Keys” (Sitio KK) y el Tramo “Pioneer” (Sitio LL), los cuales en el AEIS están identificado en un sin número de ocasiones como “West Pioneer”. Mosaic ha identificado estas áreas como minas a ser propuestas en el futuro y ha solicitado una determinación jurisdiccional para una porción del Tramo “Pine Level/Keys”. Debido a que los Tramos Pine Level/Keys y Pioneer son razonablemente previsibles en el futuro, han sido incluidos en el análisis de impactos acumulativos.

Aunque las dos propuestas de parcelas que existen entre (“infill parcels”) (G&D Farms and Lambe Tract) no son evaluadas como alternativas discretas, su contribución a los impactos acumulativos potenciales está considerada como parte de los efectos del análisis acumulativo en el Capítulo 4. Finalmente, este AEIS Final tomó en cuenta los impactos de las pilas de fosfoyeso – así como también otras acciones pasadas, presentes, y razonablemente previsibles en adición a las Alternativas Preferidas por los Solicitantes – en determinar los impactos acumulativos de la Acción Propuesta y otras acciones razonablemente previsibles.

RE.4 COMENTARIOS DEL PUBLICO Y AREAS DE CONTROVERSIA

RE.4.1 Comentarios del Público

Este AEIS Final es una revisión del Borrador AEIS, publicado el 1 de junio de 2012. Las revisiones incorporadas en este AEIS Final fueron realizadas en respuesta a los comentarios recibidos por el USACE al Borrador AEIS durante el periodo de comentarios, el cual terminó el 30 de julio de 2012. Los comentarios fueron sometidos de varias formas, incluyendo por escrito, por correo electrónico, posteados en una forma web, y por transcripciones tomadas durante las reuniones públicas.

De los 1,667 comentarios individuales, el número más alto de comentarios estuvo relacionado con el cumplimiento con NEPA, agua superficial y recursos de agua, y recursos ecológicos. Preocupaciones relacionadas con el cumplimiento con NEPA primordialmente fueron dirigidos hacia el propósito y necesidad, cumplimiento con reglamentos ambientales, y alcance del Borrador AEIS. Los asuntos de recursos de agua primordialmente se dirigieron hacia los métodos de evaluación del AEIS, cantidad y

calidad del agua, la interrelación entre aguas subterráneas y aguas superficiales, impactos potenciales al suministro de aguas públicas, y los efectos río abajo. Asuntos específicos de aguas subterráneas incluyeron solicitud para ampliar los modelos para evaluar impactos al sistema superficial de acuíferos, efectos graduales y acumulativos en acuíferos regionales, y el potencial para la intrusión de agua salada. Los comentarios relacionados con los recursos ecológicos se dirigieron a los impactos potenciales, métodos de evaluación, el valor potencial económico de los recursos, efectos potenciales a especies protegidas, y necesidad de mitigación.

Otros tópicos de recursos que recibiendo 200 comentarios o más incluyeron aguas subterráneas, impactos acumulativos, y económicos. También hubo una cantidad de comentarios individuales relacionados al proceso regulatorio, el proceso de desarrollo de alternativas, mitigación, y la extracción/descarga permitidas.

Después de que los comentarios fueron revisados y las respuestas fueron desarrolladas, varias áreas fueron identificadas que requirieron análisis adicional para apoyar este AEIS Final. Estas incluyeron el análisis de Alternativas Fuera del Sitio (“Offsite”); el análisis de Alternativas en el Sitio (“Onsite”) (el cual está discutido en este AEIS Final como un cuadro conceptual de mitigación); un reanálisis extensivo de los impactos relacionados a la extracción de aguas subterráneas durante los cambios de temporadas; análisis adicionales de los impactos a las aguas superficiales durante condiciones de temporada seca; y una evaluación en el análisis económico de planteamientos adicionales para considerar los efectos de ingresos tributarios.

RE.4.2 Areas de Controversia

Basado en los comentarios del público provistos durante el proceso de alcance (“scoping”) y en el Borrador AEIS, el USACE identificó nueve categorías significativas de recursos para ser analizadas a profundidad para los efectos directos e indirectos en el AEIS Final:

- Recursos de Aguas Superficiales
- Recursos de Aguas Subterráneas
- Calidad de Agua
- Recursos Ecológicos (Comunidades Biológicas Acuáticas, Humedales, Habitáculos de Vida Silvestre, y Especies Listadas)
- Recursos Económicos
- Justicia Ambiental
- Radiación

- Recursos Culturales e Históricos
- Geología y Terrenos Superficiales

Los efectos directos e indirectos de las Alternativas de No Acción y Acción en estas categorías de recursos están resumidos en RE.6. En adición, el AEIS Final provee breves discusiones de las siguientes categorías las cuales, aunque de preocupación, fueron consideradas como no teniendo un efecto significativo y no requirieron evaluaciones detalladas.

- Calidad del Aire
- Ruido
- Clima y aumento en el nivel del mar
- Llanuras sujetas a Inundaciones
- Estética
- Transportación
- Recreación
- Manejo de Desperdicios
- Uso de Terreno

De acuerdo con las directrices del Consejo de Calidad Ambiental (CEQ, por sus siglas en inglés) (CEQ, 1997), el análisis de efectos acumulativos en el AEIS se enfocó en esas categorías de recursos que se determinaron ser significativas. Basado en la consideración de los efectos directos e indirectos de las acciones de minería actuales y razonablemente previsibles, los recursos, ecosistemas, y comunidades humanas que pudieran ser afectadas, y la importancia nacional, regional, y local de las categorías de recursos basado en comentarios recibidos durante el proceso de alcance (“scoping”) y el Borrador AEIS, el USACE determinó que las siguientes categorías de recursos tendrían un potencial efecto acumulativo significativo:

- Recursos de Agua Superficial
- Recursos de Agua Subterránea
- Calidad de Agua Superficial
- Recursos Ecológicos (Humedales/Aguas Superficiales y Habitáculos de Terreno Elevado)
- Recursos Económicos

Los efectos acumulativos de acciones pasadas, presentes, y razonablemente previsibles, incluyendo las actuales cuatro y dos acciones razonablemente previsibles de minar fosfato, en estas categorías de

recursos están resumidas en RE.6. El AEIS Final provee una breve explicación del porque otras categorías de recursos consideradas en detalle por sus efectos directos e indirectos no fueron determinadas como significativas para el análisis acumulativo de efectos.

RE.5 ALTERNATIVAS EVALUADAS

RE.5.1 Alternativa 1 – No Acción

Bajo la Alternativa de No Acción, la minería que ya ha sido autorizada en el CFPD continuaría según programada bajo los permisos actuales estatales y federales aprobados. Los permisos de CWA Sección 404 para las Alternativas Preferidas de los Solicitantes no serían emitidos por el USACE. Los Solicitantes tendrían la opción de solicitar minería en terrenos elevados o humedales que están confirmados no estar sujetos a la jurisdicción regulatoria del USACE bajo las leyes federales pertinentes. Sin embargo, para las evaluaciones bajo este AEIS, la asunción simple aplicada fue que la Alternativa de No Acción se refiere a que no mas proyectos de minería de la escala actualmente propuesta por los Solicitantes serian aprobados durante el horizonte de planificación analizado (hasta 2060).

RE.5.2 Alternativas 2 hasta 5: Alternativas Preferidas por los Solicitantes

Para este AEIS Final, el USACE definió las Alternativas Preferidas de los Solicitantes como la minería propuesta en las nuevas minas propuesta como descritas en las respectivas solicitudes de permisos y en la Sección RE-3.1:

- Alternativa 2 – Desoto Mine (o Mina Desoto)
- Alternativa 3 - Ona Mina (o Mina Ona)
- Alternativa 4 - Wingate East Mine (o Mina de Wingate Este)
- Alternativa 5 – South Pasture Extension Mine (o Extensión Mina Pastos del Sur)

RE.5.3 Alternativas 6 hasta 9: Alternativas Fuera del Sitio (“Offsite”)

Según requerido por las regulaciones del CEQ y el USACE, el USACE tiene que valorar y evaluar objetivamente todas las alternativas razonables, y para las alternativas que fueron eliminadas del estudio detallado, discutir brevemente las razones por las cuales fueron eliminadas. Estos reglamentos requieren que todas las alternativas razonables, factibles, prudentes, y prácticas que puedan cumplir con los objetivos de un proyecto propuesto sean identificadas y evaluadas.

En cumplimiento con estos requerimientos, el USACE independientemente identificó, revisó, y analizó alternativas que pudieran lograr el propósito y la necesidad del proyecto. Solo las alternativas

razonables fueron consideradas en detalle, como especificado en el 40 CFR Sección 1502.14(a), las cuales son aquellas alternativas que son viables en lograr el propósito fundamental y la necesidad que sería satisfecha por la acción federal propuesta (emitir el permiso).

El proceso para identificar las alternativas a ser consideradas en este AEIS, en adición a la Alternativa de No Acción y las Alternativas Preferidas por los Solicitantes, aplicó dos asunciones generales (“overarching”):

1. Las alternativas tienen que estar localizadas sobre formaciones geológicas donde las reservas están localizadas en áreas económicamente explotables (“mineable”), lo cual limitó la evaluación del área dentro del CFPD.
2. Las alternativas tienen que estar dentro de una distancia práctica de una planta existente de beneficiación que podría procesar los materiales excavados a la mina alterna, o una nueva planta de beneficiación sería requerida como un elemento de la alternativa.

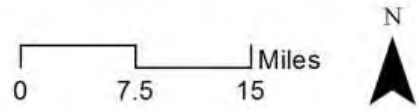
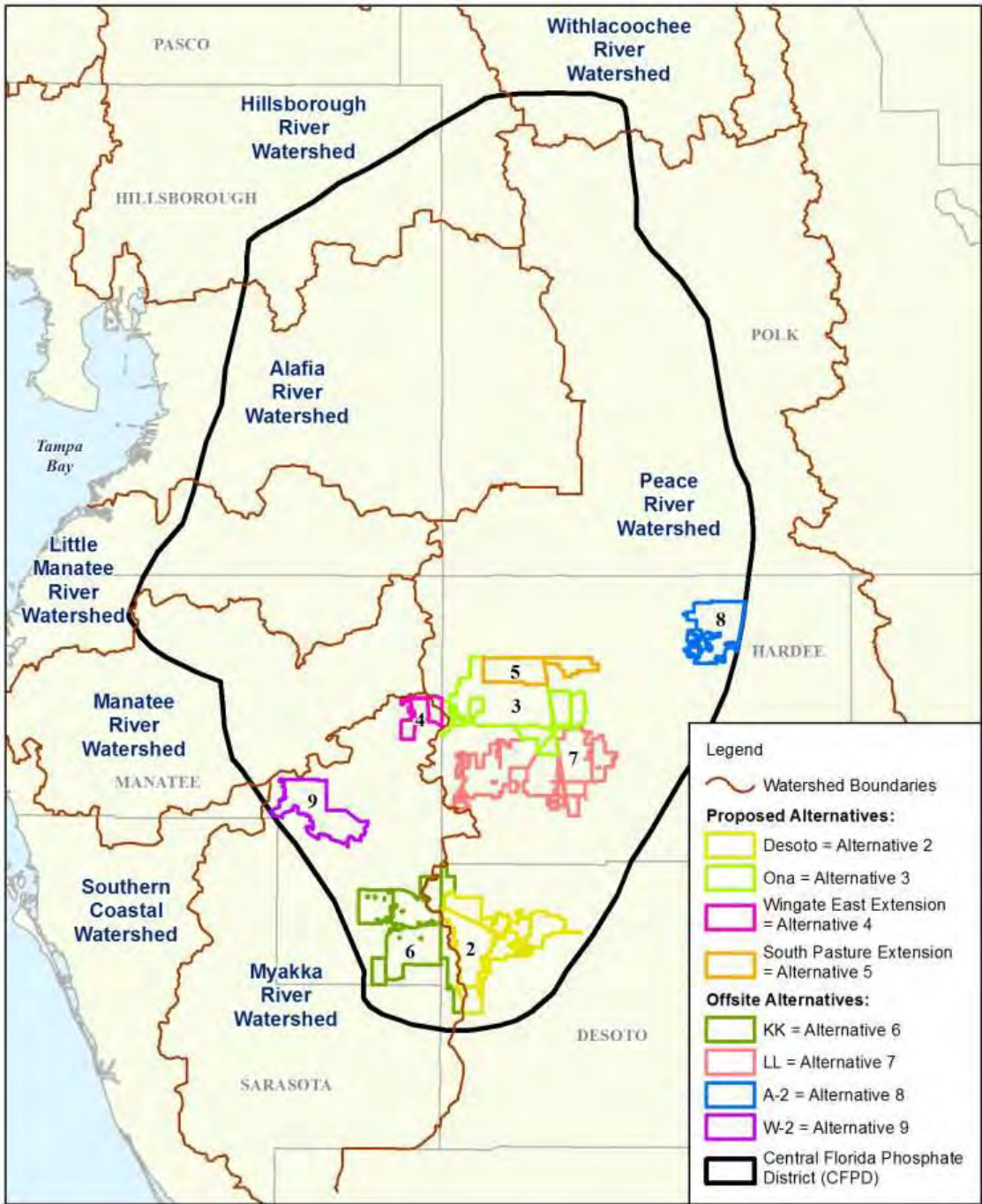
Este proceso resultó en las siguientes alternativas fuera del sitio (“offsite”):

- Alternativa 6 – Tramo “Pine Level/Keys”
 - El Tramo “Pine Level/Keys” está en los Condados de Manatee y DeSoto y primordialmente en la subcuenca de “Big Slough” y “Upper Myakka River” en la cuenca del “Myakka River” y una cantidad de acres mas pequeña en la subcuenca del Peace River. El área total de este sitio es 24,711 acres. Este sitio también ha sido considerado en el análisis de impactos acumulativos como una acción razonablemente previsible.
- Alternativa 7 – Tramo “Pioneer”
 - El Tramo “Pioneer” está en el Condado Hardee y la cuenca del Peace River. El area total del tramo es 25,259 acres. Este sitio también ha sido considerado en el análisis de impactos acumulativo como una acción razonablemente previsible.
- Alternativa 8 – Sitio A-2
 - Esta alternativa esta en el Condado de Hardee y en la cuenca del Peace River. El área total del tramo es 8,189 acres. Esta alternativa está en el tamaño mínimo considerado razonable para una mina individual; sin embargo, su proximidad a otras minas actuales o potenciales en el futuro, dado que ésta propiedad pudiese ser adquirida y la futura prospección indica

que era razonable desarrollar la mina, mejorar el potencial del sitio como una futura área satélite para otras minas.

- Alternativa 9 – Sitio W-2
 - Esta alternativa esta en el Condado de Manatee y en la cuenca del Myakka River. El área total del tramo es 9,719 acres. Esta alternativa está en el tamaño mínimo considerado razonable para una mina individual; sin embargo, su proximidad a otras minas actuales o potenciales en el futuro, dado que ésta propiedad pudiese ser adquirida y la futura prospección indicó que era razonable desarrollar la mina, lo cual mejora el potencial del sitio como una futura área satélite para otras minas.

Las Alternativas Preferidas por los Solicitantes y las Alternativas Fuera del Sitio se muestran en la Figura RE-2.



Fig

ura ES-2. Localización de las Alternativas Preferidas por los Solicitantes y Alternativas Fuera del Sitio (Offsite)

RE.5.4 Alternativas Funcionales

Otras alternativas potenciales a los métodos operacionales y de minería propuestos fueron propuestas durante el período del proceso de alcance (“scoping”) y en comentarios al Borrador del AEIS, incluyendo el uso de acercamientos que evitarían o minimizarían impactos a aguas de los Estados Unidos mediante cambios operacionales o tecnológicos o substitutos del proyecto. Estas alternativas incluyen el potencial de substituir métodos de dragado en lugar de excavación con dragalinas (“dragline”), reemplazando mineral de fosfato con otras alternativas de fertilización, o importando minerales de fosfato de afuera del CFPD. Se determinó que estas alternativas funcionales no cumplen con el propósito del proyecto, y por lo tanto no se continuó con su análisis adicional en el AEIS Final.

RE.5.5 Alternativas en el Sitio (“Onsite”)

Para este AEIS, el USACE desarrolló un marco de trabajo (“framework”) para delinear alternativas razonables para evitar, minimizar, y mitigar compensatoriamente las cuatro Alternativas Preferidas por los Solicitantes. El marco de trabajo de mitigación propuesto está basado en la secuencia de mitigación requerida bajo las Guías para Sección 404(b)(1) del CWA para mitigar impactos adversos potenciales a las aguas de los Estados Unidos, lo que primero requiere evitar el impacto, luego minimización y finalmente mitigación compensatoria para cualquier impacto inevitable (ver Sección 5.1.2). El marco de trabajo de mitigación identifica prioridades basadas en evitar impactos y alternativas de minimización identificadas como razonables bajo NEPA. El marco de trabajo de mitigación será aplicado después de la consideración de las presunciones aplicables para las descargas de relleno propuestas dentro de sitios acuáticos bajo las Guías de Sección 404(b)(1) – esto es, que un sitio alternativo que no es un sitio especial acuático existe y que tal sitio va a resultar en menos impactos ambientales adversos al ecosistema acuático a menos que el Solicitante lo demuestre claramente de otra manera. El marco de trabajo de mitigación propuesto no modifica ninguna ley o reglamento o autoridad jurisdiccional del USACE o cualquier otra agencia, y su intención es consistente con la Regla de Mitigación del 2008.

RE.6 RESUMEN DE EFECTOS

RE.6.1 Efectos Directos e Indirectos

La Tabla ES-1 resume los grados de los efectos directos e indirectos, sin o con mitigación, de la Alternativa de No Acción, las cuatro Alternativas Preferidas por los Solicitantes, y las cuatro Alternativas Fuera del Sitio (“Offsite”) en las categorías de recursos que fueron analizadas en profundidad para el AEIS Final. La Tabla ES-2 resume las determinaciones significantes, con o sin mitigación, para la Alternativa de No Acción, las cuatro Alternativas Preferidas por los Solicitantes y las cuatro Alternativas Fuera del Sitio (“Offsite”) para cada categoría de recurso analizado en profundidad.

Tabla RE-1. Grado del Efecto de las Alternativas de No Acción, Preferida por los Solicitantes y Fuera del Sitio

Categoría de Recursos	1: No Acción ^a		2: Mina Desoto		3: Mina Ona		4: Mina "Wingate" Este		5: Mina de Pastos Extensión Sur		6: Nivel de Pino/Tamo Llave		7: Tramo Pionero		8: Sitio A-2		9: Sitio W-2	
	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación
Recursos de Aguas Superficiales (Section 4.2)																		
Riachuelo Caballo	●	○	◐	○	◐	○	○	○	◐	○	◐	○	◐	○	N/A	N/A	N/A	N/A
Río Paz en Arcadia	●	○	○	○	○	○	N/A	N/A	○	○	N/A	N/A	○	○	N/A	N/A	N/A	N/A
Riachuelo Payne	●	○	N/A	N/A	N/A	N/A	N/A	N/A	○	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Río Paz en los Manantiales de Zolfo	●	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	◐	○	N/A	N/A
Río Myakka Superior	●	○	N/A	N/A	○	○	○	○	N/A	N/A	○	○	N/A	N/A	N/A	N/A	◐	○
Inferior Myakka/Grande "Slough"	●	◐	○	○	N/A	N/A	N/A	N/A	N/A	N/A	◐	○	N/A	N/A	N/A	N/A	N/A	N/A
Río Paz	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Río Myakka	◐	○	N/A	N/A	○	○	○	○	N/A	N/A	○	○	N/A	N/A	N/A	N/A	○	○

Tabla RE-1. Grado del Efecto de las Alternativas de No Acción, Preferida por los Solicitantes y Fuera del Sitio

Categoría de Recursos	1: No Acción ^a		2: Mina Desoto		3: Mina Ona		4: Mina "Wingate" Este		5: Mina de Pastos Extensión Sur		6: Nivel de Pino/Tamo Llave		7: Tramo Pionero		8: Sitio A-2		9: Sitio W-2	
	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación
Bahia de Charlotte	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Recursos de Aguas Subterráneas Incluyendo Abasto de Agua (Section 4.3)																		
Acuífero Superficial	● ^b	● ^b	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○
Acuífero Intermedio Zona 1 y 2	● ^b	● ^b	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○
Acuífero Floridiano Superior	● ^b	● ^b	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○	N/A	○
Calidad de Agua (Section 4.4)^c																		
Calidad de Agua Superficial	○	○	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●
Calidad de Agua Subterránea	○	○	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●	N/A ^e	●

Tabla RE-1. Grado del Efecto de las Alternativas de No Acción, Preferida por los Solicitantes y Fuera del Sitio

Categoría de Recursos	1: No Acción ^a		2: Mina Desoto		3: Mina Ona		4: Mina "Wingate" Este		5: Mina de Pastos Extensión Sur		6: Nivel de Pino/Tamo Llave		7: Tramo Pionero		8: Sitio A-2		9: Sitio W-2	
	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación
Recursos Ecológicos (Section 4.5)																		
Comunidades Biológicas Acuáticas	○	○	●	◐	●	◐	●	◐	●	◐	●	◐	●	◐	●	◐	●	◐
Humedales	○	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○
Habitáculos de Vida Silvestre	●	◐	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○
Especies Listadas (Amenazadas o en Peligro)	●	◐	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Recursos Económicos (Section 4.6)																		
Condado DeSoto	○	N/A ^d	● ^b	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Condado Hardee	●	N/A ^d	N/A	N/A	● ^b	N/A	N/A	N/A	◐ ^b	N/A	N/A	N/A	● ^b	N/A	● ^b	N/A	N/A	N/A
Condado Manatee	◐	N/A ^d	N/A	N/A	N/A	N/A	○ ^b	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	○ ^b	N/A
Condados DeSoto y Manatee	◐	N/A ^d	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	◐ ^b	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Tabla RE-1. Grado del Efecto de las Alternativas de No Acción, Preferida por los Solicitantes y Fuera del Sitio

Categoría de Recursos	1: No Acción ^a		2: Mina Desoto		3: Mina Ona		4: Mina "Wingate" Este		5: Mina de Pastos Extensión Sur		6: Nivel de Pino/Tamo Llave		7: Tramo Pionero		8: Sitio A-2		9: Sitio W-2		
	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	
Justicia Ambiental (Section 4.7)																			
Condado DeSoto	○	○	○	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Condado Hardee	⊙	N/A ^e	N/A	N/A	N/A ^e	○ ^b	N/A	N/A	N/A ^d	○ ^b	N/A	N/A	○	○	○	○	N/A	N/A	
Condado Manatee	○	N/A ^e	N/A	N/A	N/A	N/A	N/A ^e	○ ^b	N/A	N/A	○	○	N/A	N/A	N/A	N/A	○	○	
Radiación (Section 4.8)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Recursos Históricos y Culturales (Section 4.9)	○	●	●	○	●	○	●	○	●	○	●	○	●	○	●	⊙	●	⊙	
Suelos y Geología Superficial (Section 4.10)	○	⊙	●	⊙	●	⊙	●	⊙	●	⊙	●	⊙	●	⊙	●	⊙	●	⊙	

Tabla RE-1. Grado del Efecto de las Alternativas de No Acción, Preferida por los Solicitantes y Fuera del Sitio

Categoría de Recursos	1: No Acción ^a		2: Mina Desoto		3: Mina Ona		4: Mina "Wingate" Este		5: Mina de Pastos Extensión Sur		6: Nivel de Pino/Tamo Llave		7: Tramo Pionero		8: Sitio A-2		9: Sitio W-2	
	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación
<p>Legenda:</p> <p>+ Impacto Beneficioso</p> <p>○ Impacto menor o no impacto</p> <p>◐ Impacto moderado</p> <p>● Impacto Mayor</p> <p>N/A No Aplica</p> <p>Notas:</p> <p>Impactos asociados con la No Acción incluyen mitigación que puede haber sido incluida como parte de actividades existentes permitidas.</p> <p>^b Impactos son beneficiosos</p> <p>^c Los analysis de calidad de agua se llevaron a cabo "con mitigación"</p> <p>^d Los efectos económicos son comparados con la Alternativa de No Acción</p> <p>^e N/A significa que no aplica debido a que los datos son inadecuados para conducir análisis.</p>																		

Tabla RE-2. Significancia de la Determinación de las Alternativas de No Acción, Preferida por los Solicitantes, y Fuera del Sitio

Categoría de Recursos	1: No Acción ^a		2: Mina Desoto		3: Mina Ona		4: Mina "Wingate" Este		5: Mina de Pastos Extensión Sur		6: Nivel de Pino/Tamo Llave		7: Tramo Pionero		8: Sitio A-2		9: Sitio W-2		
	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	
Recursos de Aguas Superficiales (Section 4.2)																			
Riachuelo Caballo	S	N	S	N	S	N	N	N	S	N	S	N	S	N	N/A	N/A	N/A	N/A	
Río Paz en Arcadia	S	N	N	N	N	N	-	-	N	N	-	-	N	N	N/A	N/A	N/A	N/A	
Riachuelo Payne	-	-	-	-	-	-	-	-	N	N	-	-	-	-	-	-	-	-	
Río Paz en los Manantiales de Zolfo	S	N	-	-	-	-	-	-	-	-	-	-	-	-	S	N	-	-	
Río Myakka Superior	S	N	-	-	N	N	N	N	-	-	N	N	-	-	-	-	S	N	
Inferior Myakka/Grande "Slough"	S	N	N	N	-	-	-	-	-	-	S	N	-	-	-	-	-	-	
Río Paz	S	N	N	N	N	N	-	-	N	N	N	N	N	N	N	N	-	-	
Río Myakka	S	N	-	-	N	N	N	N	-	-	N	N	-	-	-	-	N	N	

Tabla RE-2. Significancia de la Determinación de las Alternativas de No Acción, Preferida por los Solicitantes, y Fuera del Sitio

Categoría de Recursos	1: No Acción ^a		2: Mina Desoto		3: Mina Ona		4: Mina "Wingate" Este		5: Mina de Pastos Extensión Sur		6: Nivel de Pino/Tamo Llave		7: Tramo Pionero		8: Sitio A-2		9: Sitio W-2	
	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación
Bahia de Charlotte	S	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Recursos de Aguas Subterráneas Incluyendo Abasto de Agua (Section 4.3)																		
Acuífero Superficial	N	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N
Acuífero Intermedio Zona 1 y 2	N	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N
Acuífero Floridiano Superior	N	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N
Calidad de Agua (Section 4.4) ^c																		
Calidad de Agua Superficial	N	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N
Calidad de Agua Subterránea	N	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N	-	N

Tabla RE-2. Significancia de la Determinación de las Alternativas de No Acción, Preferida por los Solicitantes, y Fuera del Sitio

Categoría de Recursos	1: No Acción ^a		2: Mina Desoto		3: Mina Ona		4: Mina "Wingate" Este		5: Mina de Pastos Extensión Sur		6: Nivel de Pino/Tamo Llave		7: Tramo Pionero		8: Sitio A-2		9: Sitio W-2	
	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación
Recursos Ecológicos (Section 4.5)																		
Comunidades Biológicas Acuáticas	N	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N
Humedales	N	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N
Habitáculos de Vida Silvestre	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N
Especies Listadas (Amenazadas o en Peligro)	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N
Recursos Económicos (Section 4.6)																		
Condado DeSoto	N	-	S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Condado Hardee	S	-	-	-	S	-	-	-	S	-	-	-	S	-	S	-	-	-
Condado Manatee	S	-	-	-	-	-	N	-	-	-	-	-	-	-	-	-	N	-
Condados DeSoto y Manatee	S	-	-	-	-	-	-	-	-	-	S	-	-	-	-	-	-	-

Tabla RE-2. Significancia de la Determinación de las Alternativas de No Acción, Preferida por los Solicitantes, y Fuera del Sitio

Categoría de Recursos	1: No Acción ^a		2: Mina Desoto		3: Mina Ona		4: Mina "Wingate" Este		5: Mina de Pastos Extensión Sur		6: Nivel de Pino/Tamo Llave		7: Tramo Pionero		8: Sitio A-2		9: Sitio W-2	
	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	No Minería	Solo Sobre terreno	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación	Con Mitigación	Sin Mitigación
Justicia Ambiental (Section 4.7)	S	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Condado DeSoto	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Condado Hardee	N	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N
Condado Manatee	N	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N
Leyenda: S = Significante N = No Significativa Note: Impactos asociados con la No Acción incluyen mitigación que puede haber sido incluida como parte de actividades existentes permitidas.																		

RE.6.2 Efectos Acumulativos

El análisis de impactos acumulativos consideró los efectos de las acciones actuales (Desoto, Ona, Wingate East, y South Pasture Extension) y razonablemente previsible (Pine Level/Keys Tract and Pioneer Tract), junto con otras acciones pasadas, presentes y razonablemente previsible, en las categorías de recursos determinadas como significativas.

Para recursos de aguas superficiales, el análisis de impactos acumulativos determinó que sin mitigación, las cuatro acciones actuales, acumulativamente con dos acciones razonablemente previsible y con otras acciones pasadas, presentes, y razonablemente previsible, tendrían un nivel de magnitud menor a moderado, lo cual no sería significativo para la mayoría de las subcuencas o cuencas afectadas. La primordial excepción es la subcuenca de "Horsecreek", la cual tendría impactos acumulativos a un nivel de magnitud moderado, y sería significativo sin mitigación. Con mitigación, la magnitud de los efectos sería menor, lo cual no sería significativo para todas las subcuencas y cuencas en la región afectada.

Para recursos de agua subterráneas, no hubo base para evaluar los efectos potenciales directos e indirectos sin mitigación. Todos los datos disponibles están dentro de los requerimientos del SFWMD, que incluyen mitigación por extracción de agua subterránea, resultando en un análisis acumulativo de impactos basado en efectos con mitigación. El análisis acumulativo de impactos determinó que con mitigación, las cuatro acciones actuales, acumulativamente con las dos acciones razonablemente previsible y con las acciones pasadas, presente, y razonablemente previsible en el futuro tendrían un nivel de magnitud menor, el cual no sería significativo.

Para calidad de agua superficial, no hubo base para evaluar los efectos potenciales directos e indirectos sin mitigación ya que los datos disponibles están todos basados en mitigación requerida para mantenerse en cumplimiento con los estándares de calidad de agua, resultando en un análisis de impacto acumulativo basado en efectos con mitigación. El análisis de impactos acumulativos determinó que con mitigación, las cuatro acciones actuales, acumulativamente con dos acciones razonablemente previsible y con otras acciones pasadas, presentes, y razonablemente previsible en el futuro, tendrían un nivel de magnitud menor, el cual no sería significativo.

Para recursos ecológicos (humedales/aguas superficiales y hábitáculos sobre el terreno), el análisis de impactos acumulativos determinó que sin mitigación, las cuatro acciones actuales, acumulativamente con dos acciones razonablemente previsible y con otras acciones pasadas, presentes, y razonablemente

previsibles en el futuro, tendrían un nivel de magnitud mayor, el cual sería significativo. Con mitigación, la magnitud de los efectos acumulativos sería menor, lo cual no sería significativo.

Para los recursos económicos, el análisis de impactos acumulativos determinó que las cuatro acciones actuales, acumulativamente con dos acciones razonablemente previsibles y con otras acciones pasadas, presentes, y razonablemente previsibles en el futuro, tendrían un nivel de magnitud de menor a mayor, el cual tendría beneficios significativos.

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**Appendix C:
Summary of Changes to Surface
Water Hydrology Analysis and
Replacement Pages for Chapter 4 and
Appendices G and J**

**Appendix C:
Summary of Changes to Surface
Water Hydrology Analysis**

SURFACE WATER ANALYSIS ERRATA

June 21, 2013

During review of the Final AEIS an error was found in the spreadsheets related to the 50 percent capture scenarios for the three applicant mines: Desoto, Ona, and South Pasture Extension. These specific mines had an extra factor in the equation that resulted in additional reductions in the calculated contribution of runoff from these mines. In addition, the runoff values from the active mining areas for average rainfall conditions were included in the low rainfall estimate files. These values were corrected and the results were reevaluated.

SECTION 4.2

The two methods (runoff coefficient and excess precipitation [see Section 2.6.1 in Appendix G]) provided very similar results for average rainfall conditions, especially for the years of peak reduction. However, there was a small difference between the two methods (about 1 cfs or less). When the flows from the three active mines were added to estimate cumulative effects in Horse Creek, these small differences added up to be about 3 to 5 cfs. This difference, while small in absolute values, affected the percent change by a larger magnitude in the dry season. In addition, this difference in methods indicated that there was an impact from the mining before active mining occurred, which was simply an artifact of using different approaches. To be consistent between baseline condition predictions and future conditions and all current actions (including the foreseeable actions), the surface runoff was recomputed using only the runoff coefficient approach. The excess precipitation method was still useful, but only to verify the general accuracy of the runoff coefficient computation method.

Changes to Section 4.2 include:

- Replaced 12 tables: 4-12, 4-14, 4-16, 4-18, 4-20, 4-22, 4-24, 4-26, 4-32, 4-34, 4-36, and 4-38. These changed values are noted below.
- In addition to the tables, references to the values in the text were edited to reflect the new values.
- The conclusions for the individual mines did not change. The percent changes were reduced by about half for the low rainfall years.
- References to using different approaches to estimate runoff were eliminated by minor rewording and deletions.

SECTION 4.12.2

The error found in the spreadsheets related to the 50 percent capture scenarios for the three applicant mines described above was carried through in the cumulative analysis as these results were summed.

Changes to Section 4.12.2 include:

- Replaced 6 tables: 4-114, 4-116, 4-118, 4-120, 4-122, and 4-124. These changed values are noted below. In addition to the tables, references to the values in the text were edited to reflect the new values. No changes to the characterization of the cumulative impacts (minor or moderate) were required. The percent changes were reduced by about half for the low rainfall years.

APPENDIX G

- All tables listed above were derived from the results provided in Appendix G. Therefore, the same changes in the tables were required in Appendix G (corresponding Appendix G table numbers are noted below each Chapter 4 table that follows this text). In addition, two more tables in Appendix G were replaced: Table 85 and 87.
- Figures that were obviously shifted were replaced: 31, 33, 39, 41, 51, 91, 93, and 99.
- Figures 108 and 109 were replaced due to format differences compared to other charts.
- Section 2.6.1 was moved to the end of Section 2.5 and renumbered to be 2.5.2. Section 2.6 subsections were renumbered.
- There was some minor rewording or deletions to clarify that only the runoff coefficient method was used.

APPENDIX J

- References to using different approaches to estimate runoff were eliminated by minor rewording and deletions.

REPLACEMENT TABLES FOLLOW:

Table 4-12. Projected Flows and Percent Change from 2009 Flows during Average Rainfall Year and 50 Percent Capture at the Horse Creek Flow Station with the Desoto Mine						
Year	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	171	0%	78	0%	404	0%
2020	173	1%	78 785	0% 0-4%	413	2%
2030	167 167468	-2%	75 7573	-3% -3%-5%	401 401403	-1% -1%0%
2035	166 166465	-3%	75 7573	-4% -4%-6%	399 399397	-1% -1%-2%
2040	169 169469	-1%	76 7674	-2% -2%-5%	407	1%
2050	175 175475	3% 3%2%	79 7975	2% 2%-3%	422 422420	4%
2060	177 177476	3%	79 7976	2%	424 424423	5%

ERRATA NOTE: Same changes to values in Table 17 and replaced Figure 31 in Appendix G.

Table 4-14. Projected Flows and Percent Change from 2009 Flows during Low Rainfall Year and 50 Percent Capture at the Horse Creek Flow Station with the Desoto Mine						
	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	84	0%	38	0%	199	0%
2020	85 8584	1%	38 3835	0% 0%-7%	203 203202	2%
2030	82	-2%	37 3735	-3% -3%-8%	197 197497	-1%
2035	82 8284	-3%	37 3735	-4% -4%-8%	196 196495	-1% -1%-2%
2040	83 8383	-1%	37 3735	-2% -2%-7%	200	1%
2050	86	3% 3%2%	39 3936	2% 2%-6%	207 207206	4%
2060	87 8786	3%	39 3936	2% 2%-5%	209 209208	5% 5%4%

Note: Variations in percentages with similar flow values is related to rounding nuances.
[Desoto Mine Effects on Peace River at Arcadia](#)

ERRATA NOTE: Same changes to values in Table 19 and replaced Figure 33 in Appendix G.

**Table 4-16. Projected Flows and Percent Change from 2009 Flows
during Average Rainfall Year and 50 Percent Capture
at the Peace River at Arcadia Flow Station with the Desoto Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	713	0%	328	0%	1,657	0%
2020	726	2%	332	1%	1,702	3%
2030	738	3%	336	2%	1,741	5%
2040	754 ⁵	6%	343	5%	1,785 ⁶	8%
2050	772	8%	351	7%	1,829	10%
2060	783	10%	355	8%	1,858	12%

ERRATA NOTE: Same changes to values in Table 21 in Appendix G. No figure change required.

**Table 4-18. Projected Flows and Percent Change from 2009 Flows
during Low Rainfall Year and 50 Percent Capture
at the Peace River at Arcadia Flow Station with the Desoto Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	330	0%	152	0%	766	0%
2020	337 ⁶	2%	154	1%	787	3%
2030	342	4%	156	3%	806	5%
2040	350	6%	159	5%	827	8%
2050	358	9%	163	7%	848	11%
2060	363	10%	165	9%	862	13%

ERRATA NOTE: Same changes to values in Table 23 in Appendix G. No figure change required.

**Table 4-20 Projected Flows and Percent Change from 2009 Flows
during Average Rainfall Year and 50 Percent Capture
at the Horse Creek Flow Station with the Ona Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	171	0%	78	0%	404	0%
2020	172 171	1% 0%	78 74	0% -4%	413 409	4 2%
2030	169 168	-1% -2%	76 73	-2% -5%	407 404	0 1%
2040	168 166	-1% -3%	76 72	-3% -7%	405 404	0% -1%
2045	168 168	-1% -2%	76 73	-2% -6%	405 404	0% 0%
2050	170 169	-1%	76 73	-2% -6%	408 404	1% 0%
2060	176 174	3% 2%	79 75	2% -3%	422 419	4%

ERRATA NOTE: Same changes to values in Table 25 and replaced Figure 39 in Appendix G.

**Table 4-22. Projected Flows and Percent Change from 2009 Flows
during Low Rainfall Year and 50 Percent Capture
at the Horse Creek Flow Station with the Ona Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	84	0%	38	0%	199	0%
2020	85	1%	38 35	0% -8%	203	2%
2030	83	-1 2%	37 35	-2% -9%	200 199	1% 0%
2040	83 2	-3 1%	37 35	-3% -9%	199 197	0% -1%
2045	83	-1%	37 35	-2% -8%	199 199	0%
2050	83	-1%	37 35	-2% -8%	201 199	1% 0%
2060	86	3 2%	39 36	2% -6%	208 207	4%

ERRATA NOTE: Same changes to values in Table 27 and replaced Figure 41 in Appendix G.

**Table 4-24. Projected Flows and Percent Change from 2009 Flows
during Average Rainfall Year and 50 Percent Capture
at the Peace River at Arcadia Flow Station with the Ona Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	713	0%	328	0%	1,657	0%
2020	<u>726724</u>	2%	<u>332334</u>	1%	<u>1,7024,697</u>	<u>3%2%</u>
2030	<u>738736</u>	<u>34%</u>	<u>336335</u>	2%	<u>1,7424,737</u>	<u>5%5%</u>
2040	<u>753752</u>	6%	<u>342342</u>	4%	<u>1,7834,779</u>	<u>8%7%</u>
2050	<u>771770</u>	8%	<u>350350</u>	7%	<u>1,8274,823</u>	10%
2060	<u>783784</u>	10%	<u>355354</u>	8%	<u>1,8584,853</u>	12%

ERRATA NOTE: Same changes to values in Table 29 in Appendix G. No figure change required.

**Table 4-26. Projected Flows and Percent Change from 2009 Flows
during Low Rainfall Year and 50 Percent Capture
at the Peace River at Arcadia Flow Station with the Ona Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	330	0%	152	0%	766	0%
2020	<u>336335</u>	<u>2%2%</u>	<u>154453</u>	1%	<u>787785</u>	<u>3%2%</u>
2030	<u>342344</u>	<u>4%3%</u>	<u>156455</u>	<u>3%2%</u>	<u>807804</u>	5%
2040	<u>349349</u>	<u>6%6%</u>	<u>159458</u>	<u>5%4%</u>	<u>826824</u>	8%
2050	<u>358357</u>	<u>9%8%</u>	<u>163462</u>	7%	<u>848845</u>	<u>11%10%</u>
2060	<u>363362</u>	10%	<u>165464</u>	<u>9%8%</u>	<u>862859</u>	<u>13%12%</u>

ERRATA NOTE: Same changes to values in Table 31 in Appendix G. No figure change required.

**Table 4-32. Projected Flows and Percent Change from 2009 Flows
during Average Rainfall Year and 50 Percent Capture
at the Horse Creek Flow Station with the South Pasture Extension Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	171	0%	78	0%	404	0%
2020	172 169	1 4%	78 76	0 2%	412 404	2 0%
2030	170 168	0 2%	76 75	-1 3%	409 403	1 0%
2040	174 170	2 0%	78 77	1 4%	418 410	3 1%
2050	175 172	3 1%	79 77	2 4%	422 413	4 2%
2060	177 173	3 1%	79 78	2 0%	424 416	5 3%

ERRATA NOTE: Same changes to values in Table 37 in Appendix G. No figure change required.

**Table 4-34. Projected Flows and Percent Change from 2009 Flows
during Low Rainfall Year and 50 Percent Capture
at the Horse Creek Flow Station with the South Pasture Extension Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	84	0%	38	0%	199	0%
2020	85 4	1%	38	0 4%	202	2%
2030	84 3	0 4%	38 7	-1 2%	201 0	1%
2040	86 5	24%	38	0%	206 5	3%
2050	86	3 2%	39	2 4%	207 6	4%
2060	87 6	3%	39	24%	209 8	54%

ERRATA NOTE: Same changes to values in Table 39 in Appendix G. No figure change required.

**Table 4-36. Projected Flows and Percent Change from 2009 Flows
during Average Rainfall Year and 50 Percent Capture
at the Peace River at Arcadia Flow Station with the South Pasture Extension Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	713	0%	328	0%	1,657	0%
2020	726 <u>725</u>	2%	332	1%	1,702 <u>1,700</u>	3%
2030	738 <u>737</u>	3%	335	2%	1,741 <u>1,744</u>	5%
2040	754 <u>754</u>	6%	342	5%	1,785 <u>1,784</u>	8%
2050	772 <u>774</u>	8%	350	7%	1,829 <u>1,827</u>	10%
2060	783 <u>782</u>	10%	355	8%	1,858 <u>1,856</u>	12%

ERRATA NOTE: Same changes to values in Table 41 in Appendix G. No figure change required.

**Table 4-38. Projected Flows and Percent Change from 2009 Flows
during Low Rainfall Year and 50 Percent Capture
at the Peace River at Arcadia Flow Station with the South Pasture Extension Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	330	0%	152	0%	766	0%
2020	337 <u>336</u>	2%	154	1%	787	3%
2030	342	4%	156	3% <u>2%</u>	806 <u>806</u>	5%
2040	350	6%	159	5%	827 <u>827</u>	8%
2050	358	9% <u>8%</u>	163	7%	848 <u>847</u>	11%
2060	363	10%	165	9% <u>8%</u>	862 <u>864</u>	13% <u>12%</u>

ERRATA NOTE: Same changes to values in Table 43 in Appendix G. No figure change required.

**Table 4-114. Projected Flows and Percent Change from 2009 Flows
during Average Rainfall Year and 50 Percent
Capture at the Horse Creek Flow Station with Three Current Actions
and Two Reasonably Foreseeable Actions in the Horse Creek Subwatershed**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	171	0%	78	0%	404	0%
2020	<u>172466</u>	<u>1%-3%</u>	<u>7868</u>	<u>0%-12%</u>	<u>411398</u>	2%
2030	<u>160455</u>	<u>-6%-9%</u>	<u>7265</u>	<u>-7%-16%</u>	<u>385374</u>	<u>-5%-7%</u>
2035	<u>159454</u>	<u>-7%-10%</u>	<u>7165</u>	<u>-8%-17%</u>	<u>382374</u>	<u>-6%-8%</u>
2040	<u>162456</u>	<u>-5%-9%</u>	<u>7366</u>	<u>-6%-16%</u>	<u>389375</u>	<u>-4%-7%</u>
2050	<u>168464</u>	<u>-2%-6%</u>	<u>7567</u>	<u>-3%-14%</u>	<u>403389</u>	<u>0%-4%</u>
2060	<u>173467</u>	<u>1%-2%</u>	<u>7868</u>	<u>0%-12%</u>	<u>415402</u>	<u>3%-1%</u>

ERRATA NOTE: Same changes to values in Table 77 and replaced Figure 91 in Appendix G.

**Table 4-116. Projected Flows and Percent Change from 2009 Flows
during Low Rainfall Year and 50 Percent Capture
at the Horse Creek Flow Station with Three Current Actions
and Two Reasonably Foreseeable Actions in the Horse Creek Subwatershed**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	84	0%	38	0%	199	0%
2020	<u>8584</u>	<u>1%0%</u>	<u>3832</u>	<u>0%-16%</u>	<u>202204</u>	<u>2%1%</u>
2030	<u>7977</u>	<u>-6%-8%</u>	<u>3534</u>	<u>-7%-20%</u>	<u>189486</u>	<u>-5%-6%</u>
2035	<u>7877</u>	<u>-7%-8%</u>	<u>3534</u>	<u>-8%-19%</u>	<u>188486</u>	<u>-6%-7%</u>
2040	<u>8078</u>	<u>-5%-7%</u>	<u>3634</u>	<u>-6%-18%</u>	<u>191488</u>	<u>-4%-5%</u>
2050	<u>8284</u>	<u>-2%-4%</u>	<u>3734</u>	<u>-3%-17%</u>	<u>198495</u>	<u>0%-2%</u>
2060	<u>8584</u>	<u>1%0%</u>	<u>3832</u>	<u>0%-16%</u>	<u>204202</u>	<u>3%1%</u>

ERRATA NOTE: Same changes to values in Table 79 and replaced Figure 93 in Appendix G.

**Table 4-118. Projected Flows and Percent Change from 2009 Flows
during Average Rainfall Year and 50 Percent Capture
at the Peace River at Arcadia Flow Station with Three Current Actions
and One Reasonably Foreseeable Action in Peace River at Arcadia**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	713	0%	328	0%	1,657	0%
2020	726724	2%	332334	1%	1,7021,696	32%
2030	737734	3%	335334	2%	1,7391,733	5%
2040	753754	56%	342344	4%	1,7821,777	87%
2050	770768	8%	350349	7%	1,8251,848	10%
2060	780777	9%	354353	8%	1,8521,846	124%

ERRATA NOTE: Same changes to values in Table 81 in Appendix G. No figure change required.

**Table 4-120. Projected Flows and Percent Change from 2009 Flows
during Low Rainfall Year and 50 Percent Capture
at the Peace River at Arcadia Flow Station with Three Current Actions
and One Reasonably Foreseeable Action in Peace River at Arcadia**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	330	0%	152	0%	766	0%
2020	336335	2%	154	1%	787784	32%
2030	341340	3%	155	2%	805802	5%
2040	349348	6%	159	5% 4%	826823	8%
2050	358356	8%	162	7%	846843	110%
2060	362364	109%	164	8%	859855	12%

ERRATA NOTE: Same changes to values in Table 83 in Appendix G. No figure change required.

**Table 4-122. Projected Contributions to the Charlotte Harbor Estuary
and Percent Change from 2009 Flows during Average Rainfall Year
and 50 Percent Capture with All Four Current Actions
and the Two Foreseeable Actions in the Myakka and Peace River Watersheds**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	1,794	0%	747	0%	3,884	0%
2020	<u>1,8281,824</u>	2%	<u>761750</u>	<u>2%1%</u>	<u>3,9783,958</u>	2%
2030	<u>1,8431,836</u>	<u>3%2%</u>	<u>766758</u>	<u>3%2%</u>	<u>4,0244,008</u>	<u>4%3%</u>
2040	<u>1,8721,864</u>	4%	<u>779771</u>	<u>4%3%</u>	<u>4,0914,072</u>	5%
2050	<u>1,9121,903</u>	<u>7%6%</u>	<u>797788</u>	<u>7%5%</u>	<u>4,1854,164</u>	<u>8%7%</u>
2060	<u>1,9371,928</u>	<u>8%7%</u>	<u>808798</u>	<u>8%7%</u>	<u>4,2444,223</u>	9%

ERRATA NOTE: Same changes to values in Table 93 in Appendix G. No figure change required.

**Table 4-124. Projected Contributions to the Charlotte Harbor Estuary
and Percent Change from 2009 Flows during Low Rainfall Year
and 50 Percent Capture with All Four Current Actions
and the Two Foreseeable Actions in the Myakka and Peace River Watersheds**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	1,116	0%	451	0%	2,354	0%
2020	<u>1,1371,134</u>	2%	<u>460453</u>	<u>2%0%</u>	<u>2,4092,404</u>	2%
2030	<u>1,1471,145</u>	3%	<u>464459</u>	<u>3%1%</u>	<u>2,4402,434</u>	<u>43%</u>
2040	<u>1,1641,164</u>	4%	<u>471466</u>	<u>4%3%</u>	<u>2,4752,470</u>	5%
2050	<u>1,1871,184</u>	6%	<u>482476</u>	<u>7%5%</u>	<u>2,5302,523</u>	7%
2060	<u>1,2011,198</u>	<u>8%7%</u>	<u>488481</u>	<u>8%7%</u>	<u>2,5612,555</u>	9%

ERRATA NOTE: Same changes to values in Table 95 in Appendix G. No figure change required.

TABLE 85

Projected Contributions to the Upper Charlotte Harbor Estuary and Percent Change from 2009 Flows during Average Rainfall Year and 50 Percent Capture with All Current and Foreseeable Actions within the Peace River Watershed

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	1,119	0%	510	0%	2,631	0%
2020	<u>1,144,136</u>	2%	<u>520,510</u>	<u>2%0%</u>	<u>2,707,687</u>	<u>3%2%</u>
2030	<u>1,153,146</u>	<u>3%2%</u>	<u>523,515</u>	<u>2%1%</u>	<u>2,738,722</u>	<u>4%3%</u>
2040	<u>1,182,173</u>	<u>6%5%</u>	<u>535,527</u>	<u>5%3%</u>	<u>2,806,787</u>	<u>7%6%</u>
2050	<u>1,214,205</u>	<u>9%8%</u>	<u>550,541</u>	<u>8%6%</u>	<u>2,883,862</u>	<u>10%9%</u>
2060	<u>1,238,229</u>	<u>11%10%</u>	<u>561,550</u>	<u>10%8%</u>	<u>2,940,920</u>	<u>12%11%</u>

ERRATA NOTE: Changed Figure 99.

TABLE 87

Projected Contributions to the Upper Charlotte Harbor Estuary and Percent Change from 2009 Flows during Low Rainfall Year and 50 Percent Capture with All Current and Foreseeable Actions within the Peace River Watershed

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	568	0%	259	0%	1,338	0%
2020	<u>582,580</u>	<u>3%2%</u>	<u>264,258</u>	<u>2%0%</u>	<u>1,378,137</u>	3%
2030	<u>588,586</u>	<u>4%3%</u>	<u>266,261</u>	<u>3%1%</u>	<u>1,396,139</u>	4%
2040	<u>603,601</u>	6%	<u>273,268</u>	<u>6%4%</u>	<u>1,432,143</u>	7%
2050	<u>620,618</u>	9%	<u>281,275</u>	<u>9%6%</u>	<u>1,473,147</u>	10%
2060	<u>633,630</u>	<u>12%11%</u>	<u>287,280</u>	<u>11%8%</u>	<u>1,504,149</u>	12%

ERRATA NOTE: No figure change required.

Appendix C:

Replacement Pages for Chapter 4

1 **4.2.1.1 No Action Alternative: Degree and Significance of Surface Water Resource Effects**

2 Under the No Action Alternative - No Mining scenario, as shown above, increases in flow in all
3 subwatersheds and watersheds are illustrative of the increased flow caused by changing land use
4 through urbanization. This scenario will be used for comparative purposes for the rest of this Chapter.

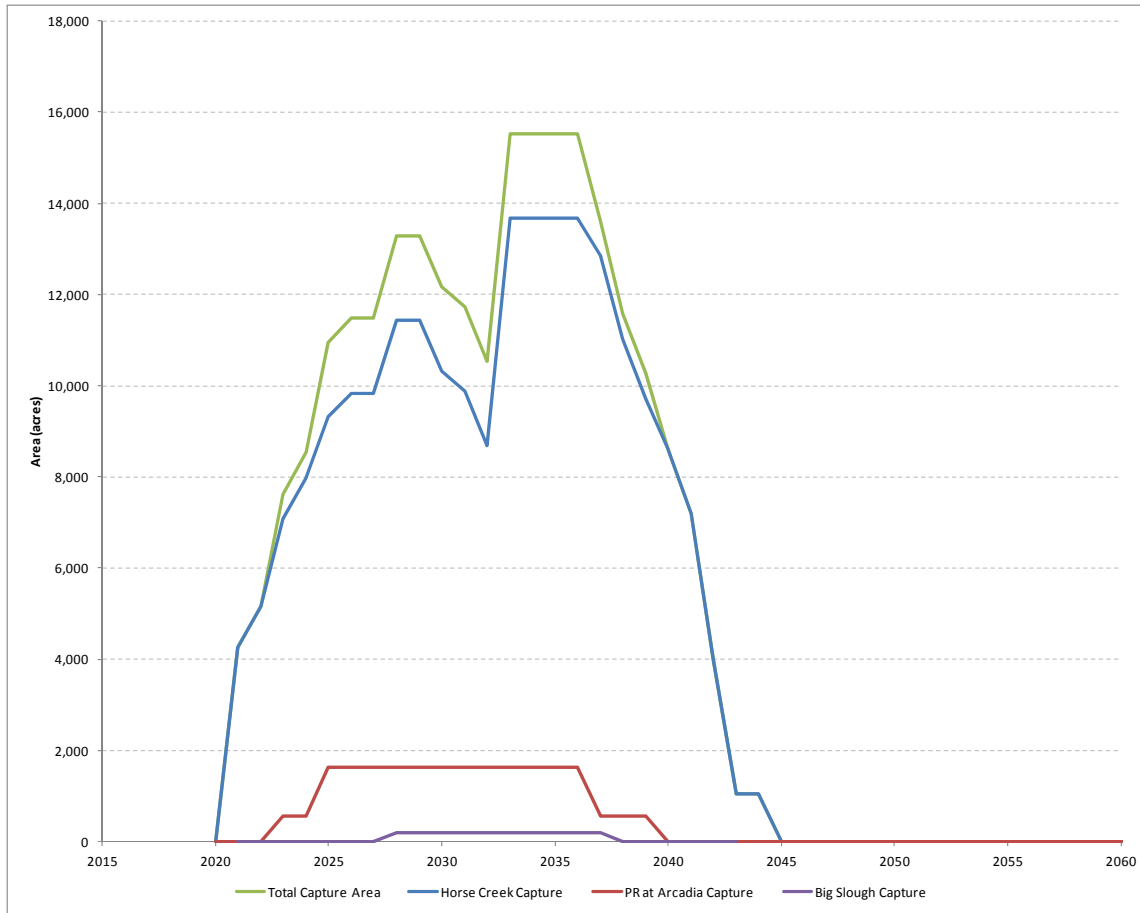
5 Under the No Action Alternative - Upland Mining Only scenario, the capture areas associated with the
6 mines on the four parcels would be smaller than under the Applicants' Preferred Alternatives as the mines
7 within upland areas alone would presumably be smaller than mines that would also impact wetlands or
8 waters, and the effect of the capture area would reduce the downstream flows compared to the 'no
9 mining' scenario, which assumes no capture areas. The degree of effect for the No Action Alternative -
10 Upland Only scenario would vary by mine and by subwatershed, as is the case for the alternatives
11 described below. At most, the degree of the effect would be less than any of the degree of effects
12 documented below as the Upland Mining Only scenario would be a subset of mining proposed. As for all
13 phosphate mines, under local and state permitting requirements the applicants would be required to
14 implement mitigation measures such as recharge ditches or wells, and monitor base flows in potentially
15 affected waterways. Mitigation would lower the degree of effect and make any effects not significant.

16 **4.2.2 Alternative 2: Desoto Mine**

17 The proposed Desoto Mine is located mostly in the Horse Creek subwatershed (88% - 15,993 acres), but
18 a portion is in the Peace River at Arcadia subwatershed (10% - 1,919 acres) and the Lower Myakka/Big
19 Slough subwatershed (2% - 375 acres). Mosaic proposes to construct an initial clay settling area (CSA), a
20 beneficiation plant, and initial mine infrastructure corridors. The Desoto Mine anticipated schedule has
21 mining to continue for the first 13 years of the mine life, and reclamation to continue to mine year 23.
22 Mosaic anticipates beginning mining at the Desoto Mine in 2021; therefore, mining should be complete by
23 2034 and reclamation by 2044.

24 The capture area graph for the Desoto Mine is presented in Figure 4-3. Because of the four draglines
25 proposed matrix excavation, mining effects would occur in the subwatersheds at different times and to
26 varying levels of impact. As indicated in Figure 4-3, mining activities would affect the two main
27 subwatersheds concurrently for much of this mine's life cycle. The capture area would increase for the
28 first portion of the life cycle as more and more of the land is incorporated into the mine's operations. Past
29 a certain point in any given mine's life cycle, the capture area curve descends--reflecting the stage at
30 which gradual reclamation and land release is occurring from the mine operations. This results in a
31 proportionate amount of the land area returning to contribute runoff to the pre-mining conditions. Where
32 the mine's footprint affects multiple subwatersheds within a larger watershed, the runoff analysis accounts
33 for the capture area for that portion of the mine's footprint associated with each subwatershed. Thus, in
34 terms of understanding what the mining effects are, where they occur (i.e., what streams are affected),

1 when the effects begin, and how long they last, it is essential to consider these changes in time and
 2 space as part of the impact assessment.



3

4 **Figure 4-3. Desoto Mine Stormwater Capture Area Graph**

4

5 The capture of stormwater in an active mine was evaluated for the most conservative bounding condition,
 6 where 100 percent of the stormwater (i.e., excess precipitation, as defined in Appendix J) is captured.
 7 Evaluations were also performed using a 50 percent-capture condition, which the Applicants indicated is
 8 still a high estimate of their standard practices. To illustrate the effect on stream flow at these
 9 subwatersheds under annual average rainfall conditions, 50 inches per year was applied for the surface
 10 water calculations in the Peace River watershed. The evaluation was repeated under low rainfall
 11 conditions (43 inches per year). This low rainfall value was selected because SWFWMD permits irrigation
 12 water use for similar low rainfall conditions. Forty-three inches per year is also about the lowest 20th
 13 percentile of the long-term average rainfall in the region. The detailed results are presented in Appendix
 14 G for this and all alternatives.

1 **4.2.2.1 Desoto Mine Effects on Horse Creek**

2 Tables 4-11 and 4-12 present the annual average and seasonal flow rates calculated for an average
 3 rainfall year for Horse Creek with the Desoto Mine for the 100 percent and 50 percent stormwater
 4 capture, respectively. Tables 4-13 and 4-14 present the annual average and seasonal flow rates
 5 calculated in a low rainfall year for Horse Creek with the Desoto Mine for the 100 percent and 50 percent
 6 stormwater capture, respectively.

7 The largest influence on streamflow from the Horse Creek subwatershed from the mining capture areas of
 8 the Desoto Mine was predicted to occur around 2035. To ensure that the peak impact was represented,
 9 an extra computation was conducted for 2035 for this alternative. When considering the condition of 100
 10 percent capture of stormwater in the mining capture area of the Desoto Mine, Horse Creek may have an
 11 average annual flow of approximately 173 cfs without the Desoto Mine, and approximately 157 cfs with
 12 the Desoto Mine during average rainfall conditions. This corresponds to a decrease in flow of
 13 approximately 16 cfs, or 9 percent below the No Action Alternative conditions; and a decrease in flow of
 14 approximately 14 cfs, or 8 percent of the calculated 2009 average annual flow of 171 cfs. When
 15 considering the 50 percent stormwater capture condition, the annual average flow in Horse Creek may be
 16 approximately 166 cfs with the Desoto Mine during average rainfall conditions. This corresponds to a
 17 decrease in flow of approximately 7 cfs, or 5 percent below the No Action Alternative conditions; and a
 18 decrease in flow of approximately 5 cfs, or 3 percent below the calculated 2009 average annual flow.

**Table 4-11. Projected Flows and Percent Change from 2009 Flows
 during Average Rainfall Year and 100 Percent Capture
 at the Horse Creek Flow Station with the Desoto Mine**

Year	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	171	0%	78	0%	404	0%
2020	173	1%	78	0%	413	2%
2030	161	-6%	72	-7%	387	-4%
2035	157	-8%	71	-9%	378	-6%
2040	164	-4%	74	-5%	394	-2%
2050	175	3%	79	2%	422	4%
2060	177	3%	79	2%	424	5%

19

**Table 4-12. Projected Flows and Percent Change from 2009 Flows
during Average Rainfall Year and 50 Percent Capture
at the Horse Creek Flow Station with the Desoto Mine**

Year	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	171	0%	78	0%	404	0%
2020	173	1%	78	0%	413	2%
2030	167	-2%	75	-3%	401	-1%
2035	166	-3%	75	-4%	399	-1%
2040	169	-1%	76	-2%	407	1%
2050	175	3%	79	2%	422	4%
2060	177	3%	79	-2%	424	5%

1

2 The same evaluation was performed for a low rainfall year with similar results. Tables 4-13 and 4-14
3 present the annual average flows and seasonal flow rates calculated for a low rainfall year for Horse
4 Creek subwatershed with the Desoto Mine for the 100 percent and 50 percent stormwater capture
5 scenario, respectively. When considering the condition of 100 percent capture of stormwater in the mining
6 capture area of the Desoto Mine, Horse Creek may have an average annual flow of approximately 85 cfs
7 without the Desoto Mine, and approximately 77 cfs with the Desoto Mine during low rainfall conditions.
8 This corresponds to a decrease in flow of approximately 9 percent below the No Action Alternative
9 conditions; and a decrease in flow of approximately 7 cfs, or 8 percent of the calculated 2009 average
10 annual flow of 84 cfs. When considering the 50 percent stormwater capture condition, the annual average
11 flow in Horse Creek was reduced by a proportional percentage (about half the impact).

12

1

Table 4-13. Projected Flows and Percent Change from 2009 Flows during Low Rainfall Year and 100 Percent Capture at the Horse Creek Flow Station with the Desoto Mine						
	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	84	0%	38	0%	199	0%
2020	85	1%	38	0%	203	2%
2030	79	-6%	36	-7%	190	-4%
2035	77	-8%	35	-9%	186	-6%
2040	81	-4%	36	-5%	194	-2%
2050	86	3%	39	2%	207	4%
2060	87	3%	39	2%	209	5%

2

Table 4-14. Projected Flows and Percent Change from 2009 Flows during Low Rainfall Year and 50 Percent Capture at the Horse Creek Flow Station with the Desoto Mine						
	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	84	0%	38	0%	199	0%
2020	85	1%	38	0%	203	2%
2030	82	-2%	37	-3%	197	-1%
2035	82	-3%	37	-4%	196	-1%
2040	83	-1%	37	-2%	200	1%
2050	86	3%	39	2%	207	4%
2060	87	3%	39	2%	209	5%

Note: Variations in percentages with similar flow values is related to rounding nuances.
Desoto Mine Effects on Peace River at Arcadia

3

1 Tables 4-15 and 4-16 present the annual average flows and seasonal flow rates calculated in an average
 2 rainfall year for Peace River at Arcadia gage stations with the Desoto Mine for the 100 percent and 50
 3 percent stormwater capture, respectively. Tables 4-17 and 4-18 present the annual average flows and
 4 seasonal flow rates calculated in a low rainfall year for Peace River at Arcadia gage stations with the
 5 Desoto Mine for the 100 percent and 50 percent stormwater capture, respectively.

6 The largest influence on streamflow from the Peace River at Arcadia subwatershed from the mining
 7 capture areas of the Desoto Mine was predicted to occur in 2030. When considering the more
 8 conservative stormwater capture condition, 100 percent capture within the mining capture area of the
 9 Desoto Mine, Peace River at Arcadia may have an average annual flow of approximately 738 cfs without
 10 the Desoto Mine in 2030, and approximately 737 cfs with the Desoto Mine during average rainfall
 11 conditions in the same year. This corresponds to a decrease in flow of approximately 1 cfs, or less than 1
 12 percent below the No Action Alternative conditions. There is an increase in flow of approximately 24 cfs,
 13 or 3 percent above the calculated 2009 average annual flow of 713 cfs because of the predicted land use
 14 shifts in the watershed toward urbanization. When considering the 50 percent stormwater capture
 15 condition the annual average flow in Peace River at Arcadia may be approximately 738 cfs with the
 16 Desoto Mine during average rainfall conditions. This corresponds to a negligible decrease in flow below
 17 the No Action Alternative, but an increase in flow of approximately 25 cfs, or 3 percent above the
 18 calculated 2009 average annual flow. Flow increases from the 2009 levels can also be attributed to
 19 predicted changes in land uses from urbanization and the release of reclaimed land of existing mines in
 20 areas upstream of this subwatershed. The effect on annual average flow from the Peace River at Arcadia
 21 subwatershed during average rainfall conditions is indistinguishable from the No Action Alternative.

**Table 4-15. Projected Flows and Percent Change from 2009 Flows
 during Average Rainfall Year and 100 Percent Capture
 at the Peace River at Arcadia Flow Station with the Desoto Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	713	0%	328	0%	1,657	0%
2020	726	2%	332	1%	1,702	3%
2030	737	3%	335	2%	1,740	5%
2040	754	6%	343	5%	1,785	8%
2050	772	8%	351	7%	1,829	10%
2060	783	10%	355	8%	1,858	12%

22

1

Table 4-16. Projected Flows and Percent Change from 2009 Flows during Average Rainfall Year and 50 Percent Capture at the Peace River at Arcadia Flow Station with the Desoto Mine						
	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	713	0%	328	0%	1,657	0%
2020	726	2%	332	1%	1,702	3%
2030	738	3%	336	2%	1,741	5%
2040	754	6%	343	5%	1,785	8%
2050	772	8%	351	7%	1,829	10%
2060	783	10%	355	8%	1,858	12%

2

3 Tables 4-17 and 4-18 present the flow and percent change from 2009 average annual and seasonal flows
 4 during a low rainfall year with 100 and 50 percent capture of stormwater, respectively. Changes in flows
 5 are indistinguishable from the No Action Alternative.

Table 4-17. Projected Flows and Percent Change from 2009 Flows during Low Rainfall Year and 100 Percent Capture at the Peace River at Arcadia Flow Station with the Desoto Mine						
	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	330	0%	152	0%	766	0%
2020	337	2%	154	1%	787	3%
2030	342	4%	156	2%	806	5%
2040	350	6%	159	5%	827	8%
2050	358	9%	163	7%	848	11%
2060	363	10%	165	9%	862	13%

6

**Table 4-18. Projected Flows and Percent Change from 2009 Flows
during Low Rainfall Year and 50 Percent Capture
at the Peace River at Arcadia Flow Station with the Desoto Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	330	0%	152	0%	766	0%
2020	337	2%	154	1%	787	3%
2030	342	4%	156	3%	806	5%
2040	350	6%	159	5%	827	8%
2050	358	9%	163	7%	848	11%
2060	363	10%	165	9%	862	13%

1

2 **4.2.2.2 Desoto Mine Effects on Lower Myakka/Big Slough Subwatershed**

3 An analysis was not conducted for the effect of the mining of 375 acres within the Myakka River
4 subwatershed. The Lower Myakka/Big Slough subwatershed has approximately 127 percent of the
5 stream flow as the Horse Creek subwatershed, but the mining area proposed in that watershed is 2
6 percent of the size mining area compared to the Desoto Mine area proposed in the Horse Creek. After
7 reviewing the effects on the Horse Creek stream flow (reductions that are less than 10 percent when the
8 stream flow is less and the area of mining is 42 times greater), any effect on the stream flow within the
9 Lower Myakka/Big Slough subwatershed was determined to be insubstantial.

10 **4.2.2.3 Desoto Mine: Degree and Significance of Surface Water Resource Effects**

11 While the Horse Creek flow rate from mining is projected to decrease up to 9 percent during a low rainfall
12 year in the dry season with a 100 percent capture area, the decrease in flow rates falls within the error
13 range for this analysis, which is based on extremely variable parameter (rainfall). The reduction in flows
14 within Horse Creek may be indicative of a change at the Horse Creek subwatershed level; therefore, the
15 effect cannot be considered minor. For a major effect, there must be an extended effect on surface water
16 flows at least at the subwatershed level that also leads to a violation of the MFLs for the subwatershed. In
17 addition to the potential reductions being within one order of significant figures, there are no SWFWMD
18 MFLs established for Horse Creek to which flow reductions can be compared. For this reason (no
19 contribution to a violation of MFLs for Horse Creek and a change in stream flow rates that falls within the
20 expected error range), the effect on surface water flows within Horse Creek cannot be considered to have
21 a major effect. The apparent reduction in flow is indicative of a change beyond the boundaries of the mine
22 within the Horse Creek subwatershed even though the degree may be within the realm of natural

1 variation. Therefore, the effects would be moderate without mitigation within the Horse Creek
2 subwatershed and minor with mitigation. Given the moderate level of an effect for this mine within the
3 watershed, the effect is expected to be significant without mitigation and not significant when mitigation is
4 considered.

5 Possible measures that would reduce the moderate degree of effect, mitigate the intensity factors, and
6 potentially make the effect not significant include recharge ditches and wells to maintain base flow in
7 Horse Creek and its tributaries, or reducing the capture area. There are also monitoring program and
8 other provisions in FDEP mining permits. If it is determined through monitoring that there is an
9 unanticipated impact to the creek, the Applicants would need to address those impacts.

10 The effects within the Peace River at Arcadia and Lower Myakka/Big Slough subwatersheds are none to
11 minor and are not considered significant.

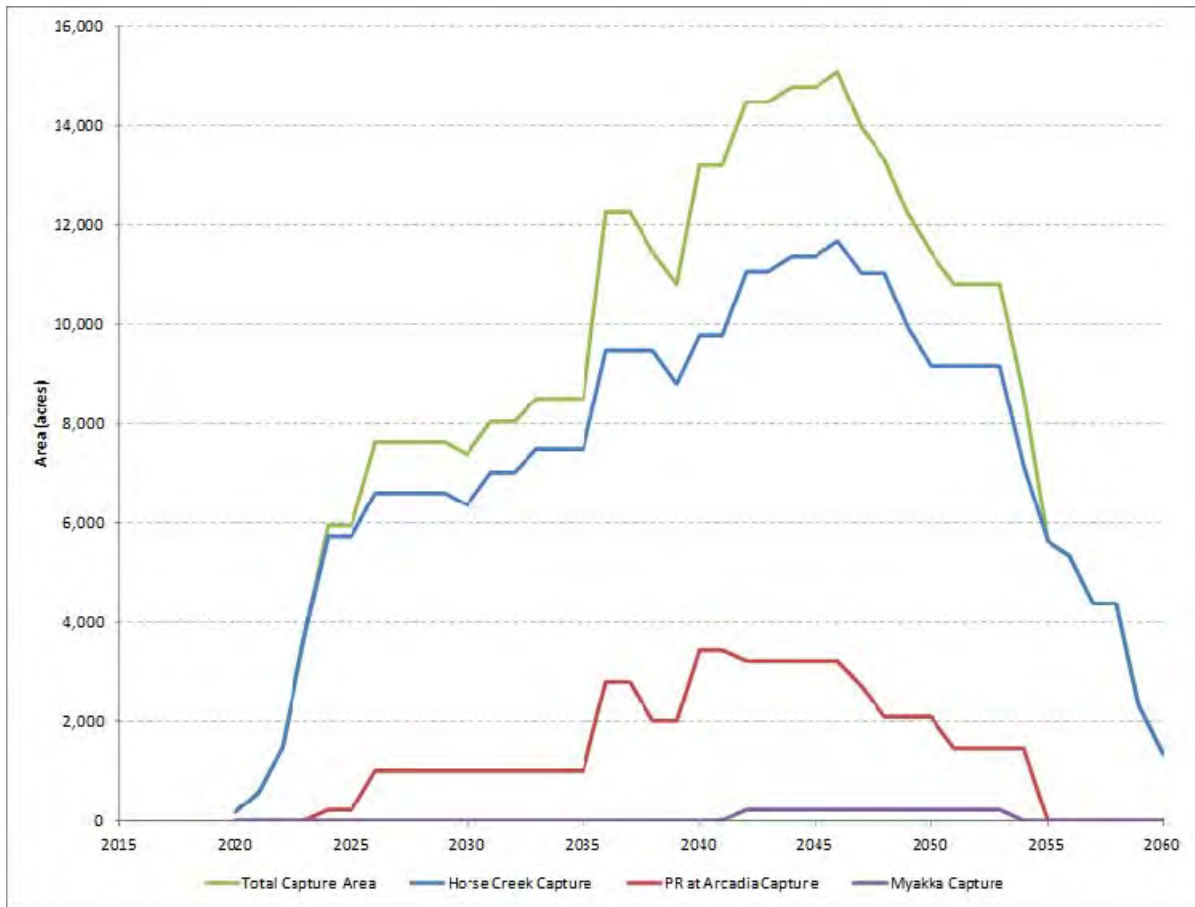
12 The individual effect of the Desoto Mine on the Peace River watershed and on Charlotte Harbor is none
13 to minor, which is not significant. The moderate (without mitigation) degree of effect on Horse Creek and
14 minor degree of effect on the Peace River at Arcadia are overwhelmed at this scale by the contributions
15 of other tributaries, and over time by the predicted increases in flow due to changes in land use. These
16 effects are described further in the No Action Alternative section above (4.2.1) and in the surface water
17 resources cumulative effects section (4.12.2).

18 4.2.3 Alternative 3: Ona Mine

19 The proposed Ona Mine is located mostly in the Horse Creek subwatershed (77% - 17,242 acres), but
20 includes some small portions in the Peace River at Arcadia subwatershed (22% - 4,808 acres) and the
21 Upper Myakka River subwatershed (1% - 269 acres). Mosaic proposes to use the CSAs in two existing
22 mines to support the initial stages of mining at the Ona Mine. This would allow mining to begin without
23 having to construct a new CSA on unmined ground. The use of existing CSAs would also allow the use of
24 mine corridors in these two existing mines, reduce the CSA footprint in the new mine, and reduce overall
25 surface water capture time and acres for this mine. The Ona Mine anticipated schedule has mining to
26 continue for the first 29 years of the mine operations, and reclamation to continue to mine year 45.
27 Mosaic anticipates beginning mining at the Ona Mine site in 2020; therefore, reclamation should be
28 complete by 2065.

29 The capture area curve for the Ona Mine site is presented In Figure 4-4 and reflects the gradual increase
30 in acreage included in the recirculation system boundary over the roughly 29-year period of active mining,
31 with a gradual return of lands to contribute to downstream flows as reclamation rates exceed the mining
32 rates and result in a net decrease in the capture area acreages. On the basis of this analysis, the peak
33 years of capture are predicted to occur toward the end of the period of matrix extraction, after which

1 reclamation and land release would gradually return the full mine footprint to contributing runoff to
 2 downstream waters.



3

4 **Figure 4-4. Ona Mine Stormwater Capture Area Graph**

5 The mining sequence indicates that for approximately the first 15 years of mine operations, mining would
 6 occur only in the Horse Creek subwatershed, with no mining during that period in the Peace River at
 7 Arcadia and Upper Myakka River subwatersheds. The acreages of proposed mining in these two
 8 subwatersheds are relatively small in their respective subwatersheds, and the duration of influence much
 9 shorter than the likely influence on the Horse Creek subwatershed.

10 **4.2.3.1 Ona Mine Effects on Upper Myakka River**

11 An analysis was not conducted for the effect of the mining of 269 acres within the Myakka River
 12 subwatershed. The Myakka River subwatershed has approximately 142 percent of the stream flow as the
 13 Horse Creek subwatershed, but the mining area proposed in that watershed is 1 percent of the size
 14 mining area compared to the Ona Mine area proposed in the Horse Creek. After reviewing the effects on
 15 the Horse Creek stream flow (reductions that are less than 10% when the stream flow is less and the

1 area of mining is 100 times greater), any effect on the stream flow within the Myakka River subwatershed
 2 was determined to be insubstantial.

3 **4.2.3.2 Ona Mine Effects on Horse Creek**

4 Tables 4-19 and 4-20 present the annual average flows and seasonal flow rates calculated for an
 5 average annual rainfall for Horse Creek with the Ona Mine for the 100 percent and 50 percent stormwater
 6 capture scenario, respectively. Tables 4-21 and 4-22 present the annual average flows and seasonal flow
 7 rates calculated for an average low rainfall year for Horse Creek with the Ona Mine for the 100 percent
 8 and 50 percent stormwater capture scenario, respectively.

9 The largest influence on streamflow from the Horse Creek subwatershed from the mining capture areas of
 10 the Ona Mine was predicted to occur from 2040 to 2045. To ensure that the peak impact was
 11 represented, an extra computation was conducted for 2045 for this alternative. When considering the
 12 condition of 100 percent capture, Horse Creek may have an average annual flow of approximately 173 to
 13 174 cfs without the Ona Mine, and approximately 161 to 162 cfs with the Ona Mine during average rainfall
 14 conditions. This corresponds to a decrease in flow of approximately 11 to 13 cfs, or 6 to 8 percent below
 15 the No Action Alternative conditions; and a decrease in flow of approximately 9 to 10 cfs, or 5 to 6 percent
 16 below the calculated 2009 average annual flow of 171 cfs. When considering the 50 percent capture
 17 condition, the annual average flow in Horse Creek may be approximately 168 cfs with the Ona Mine
 18 during average rainfall conditions. This corresponds to a decrease in flow of approximately 5 cfs, or 3
 19 percent below the No Action Alternative conditions; and a decrease in flow of approximately 3 cfs, or 1
 20 percent below the calculated 2009 average annual flow.

**Table 4-19. Projected Flows and Percent Change from 2009 Flows
 during Average Rainfall Year and 100 Percent Capture
 at the Horse Creek Flow Station with the Ona Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	171	0%	78	0%	404	0%
2020	172	1%	78	0%	413	2%
2030	166	-3%	74	-4%	398	-2%
2040	162	-5%	73	-6%	391	-3%
2045	161	-6%	72	-7%	387	-4%
2050	161	-4%	74	-5%	395	-2%
2060	175	2%	79	1%	420	4%

21

**Table 4-20 Projected Flows and Percent Change from 2009 Flows
during Average Rainfall Year and 50 Percent Capture
at the Horse Creek Flow Station with the Ona Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	171	0%	78	0%	404	0%
2020	172	1%	78	0%	413	2%
2030	169	-1%	76	-2%	407	1%
2040	168	-1%	76	-3%	405	0%
2045	168	-1%	76	-2%	405	0%
2050	170	-1%	76	-2%	408	1%
2060	176	3%	79	2%	422	4%

1

2 The same evaluation was performed for a low rainfall year with similar results. Table 4-21 presents the
3 flow and percent change from 2009 average annual and seasonal flows during a low rainfall year with 100
4 percent capture of stormwater in the capture area of the Ona Mine at the Horse Creek flow station. When
5 considering the condition of 100 percent capture of stormwater in the mining capture area of the Ona
6 Mine, Horse Creek may have an average annual flow of approximately 86 cfs without the Ona Mine, and
7 approximately 79 cfs with the Ona Mine during low rainfall conditions. This corresponds to a decrease in
8 flow of approximately 8 percent below the No Action Alternative conditions; and a decrease in flow of
9 approximately 5 cfs, or 6 percent of the calculated 2009 average annual flow of 84 cfs. When considering
10 the 50 percent stormwater capture condition (Table 4-22), the annual average flow in Horse Creek was
11 reduced by a proportional percentage (about one half the impact).

12

Table 4-21. Projected Flows and Percent Change from 2009 Flows during Low Rainfall Year and 100 Percent Capture at the Horse Creek Flow Station with the Ona Mine

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	84	0%	38	0%	199	0%
2020	85	1%	38	0%	203	2%
2030	81	-3%	37	-4%	195	-2%
2040	80	-5%	36	-6%	192	-3%
2045	79	-6%	36	-7%	190	-4%
2050	81	-4%	36	-5%	194	-2%
2060	86	2%	39	1%	207	4%

1

Table 4-22. Projected Flows and Percent Change from 2009 Flows during Low Rainfall Year and 50 Percent Capture at the Horse Creek Flow Station with the Ona Mine

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	84	0%	38	0%	199	0%
2020	85	1%	38	0%	203	2%
2030	83	-1%	37	-2%	200	1%
2040	83	-1%	37	-3%	199	0%
2045	83	-1%	37	-2%	199	0%
2050	83	-1%	37	-2%	201	1%
2060	86	3%	39	2%	208	4%

2

3 **4.2.3.3 Ona Mine Effects on Peace River at Arcadia**

4 Tables 4-23 and 4-24 present the annual average flows and seasonal flow rates calculated for an
 5 average annual rainfall year for Peace River at Arcadia with the Ona Mine for the 100 percent and 50
 6 percent stormwater capture scenario, respectively. Tables 4-25 and 4-26 present the annual average

1 flows and seasonal flow rates calculated for a low rainfall year for Peace River at Arcadia with the Ona
 2 Mine for the 100 percent and 50 percent stormwater capture scenario, respectively.

3 The largest influence on streamflow from the Peace River at Arcadia subwatershed from the mining
 4 capture areas of the Ona Mine was predicted to occur in 2040. However, the effect on annual average
 5 flow from the Peace River at Arcadia subwatershed during average rainfall conditions was expected to be
 6 minimal and likely would not be detected because of the comparatively small area being impacted in the
 7 Peace River at Arcadia subwatershed (i.e., one would not be able to determine a change in the
 8 monitoring data). When considering the more conservative stormwater capture condition, 100 percent
 9 capture within the mining capture area of the Ona Mine, Peace River at Arcadia may have an average
 10 annual flow of approximately 754 cfs without the Ona Mine in 2040, and approximately 750 cfs with the
 11 Ona Mine during average rainfall conditions in the same year. This corresponds to a decrease in flow of
 12 approximately 4 cfs, or less than 1 percent below the No Action Alternative conditions; however, there is
 13 an increase in flow of approximately 37 cfs, or 5 percent above the calculated 2009 average annual flow
 14 of 713 cfs because of other predicted land use changes in the watershed. When considering the
 15 50 percent stormwater capture condition the annual average flow in Peace River at Arcadia may be
 16 approximately 753 cfs with the Ona Mine during average rainfall conditions. This is nearly the same effect
 17 as the 100 percent capture area. Both of these effects are so small as to be inconsequential. Flow
 18 increases from the 2009 levels can be attributed to predicted changes in land uses from urbanization and
 19 the release of reclaimed land of existing mines in areas upstream of this subwatershed.

**Table 4-23. Projected Flows and Percent Change from 2009 Flows
 during Average Rainfall Year and 100 Percent Capture
 at the Peace River at Arcadia Flow Station with the Ona Mine**

	Annual Average Flow (cfs)	Annual Average Percent Change from 2009 Flows	Dry Season Average Flow (cfs)	Dry Season Average Percent Change from 2009 Flows	Wet Season Average Flow (cfs)	Wet Season Average Percent Change from 2009 Flows
2009	713	0%	328	0%	1,657	0%
2020	726	2%	332	1%	1,701	3%
2030	736	3%	335	2%	1,741	5%
2040	750	5%	340	4%	1,780	7%
2050	769	8%	349	6%	1,825	10%
2060	782	10%	354	8%	1,858	12%

20