WETLAND MITIGATION AND THE ROLE OF NEPA

By

Michael P. McCarthy

Sarasota, Florida

October 1, 2012

Capstone paper submitted in partial fulfillment of the requirements for the Certificate in NEPA

Duke Environmental Leadership Program

Nicholas School of the Environment

Duke University

Introduction

This paper examines wetland mitigation in the context of the recent Areawide Environmental Impact Statement (AEIS) on Phosphate Mining in the Central Florida Phosphate District prepared by the United States Army Corps of Engineers (USACE or Corps), and discusses the role the National Environmental Policy Act of 1969 (NEPA) may play in a re-evaluation of the current policy and practices of wetland mitigation.

The phosphate industry is seeking to construct new mines and expand existing mining activities in the Central Florida Phosphate District and has applied to the USACE for permits under Section 404 of the Clean Water Act, which prohibits the discharge of dredged or fill material in waters of the United States, including certain wetlands, without a permit from the Corps. Three of the applications were submitted by Mosaic Fertilizer, LLC and one by CF Industries, Inc.[1]

The impacts to wetlands from the proposed mining activity in question are primarily associated with land preparation (clearing and grading), the actual mining of phosphate, and the construction of associated infrastructure. Within the areas that are mined, wetlands are drained and cleared prior to mining. Mining infrastructure consists primarily of the beneficiation plant where phosphate is separated from other minerals, clay settling areas (CSAs), ditch and berms systems, and corridors connecting the mining areas with the beneficiation plant.[2]

NEPA requires federal agencies to consider the environmental effects of their actions. As a federal agency, the Corps has determined that issuance of the four permit applications constitute a "major Federal action significantly affecting the quality of the human environment" under NEPA, and, as required by the Act, has prepared a detailed statement. According to John Fellows, Regulatory Project Manager with the USACE, once it was determined that the mining projects would have significant impacts, an environmental impact statement, or EIS, was considered the appropriate tool to satisfy the requirements under NEPA rather than a less detailed environmental assessment, or EA, which is standard for projects with minimal environmental impacts. Further, given the expanse of the mining sites (the four sites contain 37,103 acres within the 1.32 million-acre Central Florida Phosphate District) and the similarity of the four mining projects, one comprehensive impact statement was considered appropriate,

which has been designated an Area Environmental Impact Statement. The Notice of Availability for the draft AEIS was published on June 1, 2012 and the comment period, initially 45 days, was extended to July 31, 2012 after pressure from local stakeholders who had requested a 90-day extension.[3]

A third piece of relevant legislation, actually more of a national policy, is the "No Net Loss" goal of wetland preservation. First pronounced in 1989 by President George H. Bush and followed by subsequent administrations, No Net Loss seeks to preserve the nation's wetlands by directing that any wetlands destroyed by a given activity must be replaced by the same amount, so that on balance what is eliminated is made up for, and so there is no "net" loss of wetland function. An applicant for a Section 404 permits whose activities will impair or destroy wetlands must propose to compensate, or mitigate, for any loss of wetland acreage or function. In the current phosphate mining applications, the estimate of existing wetlands to be disturbed is approximately 9,849 acres, and so a need for compensatory mitigation is evident.

The proposed mining activities will also have a potential wide range of environmental consequences, such as effects on streams and waterways, habitat loss from the enormous land requirements needed for mining, the demands on the local water supply (phosphate mining requires massive amounts of water to separate out the phosphate from the ore), the effects of construction on neighboring land uses and communities, and the storage of the hazardous byproduct phosphogypsum. However, this discussion is restricted to mitigation efforts as they relate to jurisdictional wetlands.

Mitigation Sequence and Types of Mitigation

The Clean Water Act prohibits the discharge of dredged or fill material into waters of the United States but does not itself require mitigation. Wetland mitigation requirements are a consequence of the federal "No Net Loss" policy described above. To provide guidance on mitigation, a 1990 Memorandum of Agreement between the Environmental Protection Agency (EPA) and the USACE established a three part process known as the mitigation sequence. Avoidance of wetland impairment is the first step, or preference, followed by minimization of unavoidable impacts. Only when avoidance and minimization have been exhausted is

compensatory mitigation of wetland impacts even considered. In short, mitigation substitutes new wetlands for destroyed wetlands so that on balance, there is no loss of wetlands. It is a purely compensatory measure, not designed to avoid impacts but only to make up for unavoidable impacts, and is a fallback position to be utilized as a last resort.

Additional and revised regulations, known as the 2008 Mitigation Rule, were issued on March 31, 2008, and specified four types of mitigation methods: establishment, enhancement, preservation, and restoration.[4] Mitigation plans can include one exclusively, all four, or a combination of each, and are largely within the discretion of the applicant. Establishment, or Creation, is the actual physical creation of a new wetland where one did not exist before. This is done by manipulation of the physical, chemical, and/or biological characteristics of the site. As will be shown, this is the most difficult to achieve of the four mitigation methods.

Enhancement consists of activities designed to improve one or more functions of existing wetlands, such as to improve water quality, flood water retention, or wildlife habitat. Since these are directed at existing wetlands, there is no gain in actual wetlands area from enhancement, but rather, so it is hoped, an overall improvement in wetland functions.

Preservation is the permanent protection of ecologically important wetlands or other aquatic resources through implementation of legal mechanisms - typically conservation easements but sometimes outright transfers of title - that prohibit development of designated wetlands. The conservation easement accomplishes the goal of preservation by transferring the development rights of the property to be protected to an entity such as a land trust that will ensure that the property is not developed, thereby preserving the wetlands on the property. Preservation may also cover upland areas adjacent to existing wetlands in situations where their development would affect wetlands. Preservation, like enhancement, does not increase any wetland area.

Finally, Restoration is the re-establishment or rehabilitation of a wetland with the goal of returning natural or historic functions and characteristics to a former or degraded wetland. Restoration may result in a net gain in wetland acres or wetland function, or both.

Once it is determined that mitigation is required, an applicant for a Section 404 permit has three options in effecting its plan. The applicant can propose to perform the mitigation itself,

called “permittee responsible mitigation”, or rely on one of two third party mitigation mechanisms. Permittee-responsible mitigation is usually performed at the same site as the impacted wetlands, but may also occur at an off-site location within the same watershed, with the success of the mitigation efforts the ultimate responsibility of the permittee or applicant.

The third party mitigation options include mitigation banking and “in-lieu fee” arrangements, both of which are performed off site. A wetlands mitigation bank is created by a third party, usually a private entity, by implementing one or all of the four methods of mitigation methods to create an area, or wetlands “bank”, which is then set aside to compensate for future conversions of wetlands for development activities. Upon approval of regulatory agencies, a Section 404 applicant can purchase credits from a mitigation bank to meet their requirements for compensatory mitigation. The credits are quantified based on the acreage and /or function of the wetlands in the bank.

The other third party mechanism, in-lieu fee mitigation, occurs when a permittee provides funds to a sponsor - a public agency or non-profit organization - which then builds and maintains a mitigation site. The success of the mitigation is the responsibility of the sponsor. In-lieu fee mitigation is also performed off-site and is conceptually similar to mitigation banking, with the main difference being the entities involved (mitigation banking is done by private entities, while in lieu fee mitigation is performed by public entities) and timing of the compensatory actions. In mitigation banking, an applicant draws on an existing inventory of already-mitigated wetlands, while in-lieu fee mitigation a sponsor collects funds, usually from multiple permittees, and *then* builds the mitigation site. However, in both third party mechanisms, the responsibility for the ultimate success of the mitigation lies with the third party, not with the applicant. There is a preference for mitigation banking over the permittee-responsible and in-lieu fee mechanisms.

Historical efforts by the phosphate industry included all mitigation methods, and were usually done on an on-site basis by the industry itself – i.e., permittee responsible mitigation, which although the least preferred by the Compensatory Mitigation Rule of 2008, is still acceptable if the circumstances warrant, such as the lack of a mitigation bank or in-lieu fee program in the same watershed. In the current Section 404 applications under consideration, mitigation banks are present in the affected watersheds – the Boran Ranch Mitigation Bank, the Myakka Mitigation Bank, and the Peace River Mitigation Bank, which have an aggregate of 558

credits for purchase.[5] However, these credits alone will not satisfy the mitigation needs of the proposed mining activity as planned, and the other methods will have to be used.

The Section 404 permit applications submitted to the USACE for the four mines did not include mitigation plans since USACE verifications of the applicants' wetland determinations was still ongoing. More specific information on the compensatory wetland mitigation to be provided by the applicants will be presented in the specific wetland mitigation plans, which will be submitted after final wetland determination. However, preliminary information submitted indicates that the applicants plan to provide permittee-responsible onsite mitigation through a combination of creation, restoration, enhancement, and preservation; hence a discussion of each is appropriate. Surprisingly, the preliminary information also shows that the amount of wetlands in each of the four mining sites will actually be *increased.*[6]

Problems with Mitigation Methods

Although the extent of wetlands to be created in the current applications is not known since specific mitigation plans are pending the final determination of the wetland acreage and location within the district, establishment, also known as creation or replacement, will be one of the tools.

As early as 1987, it was recognized by wetland experts that replacement, or creation, was a poor substitute for the real thing. Jon Kusler, chairman of the Association of Wetland Managers, submitted findings to the National Wetlands Policy Forum, and noted that "wetland scientists seem to agree that no wetland can be duplicated or replicated exactly. Most natural systems are far too complex, and represent thousands of years of geologic and hydrologic processes with resulting accumulations of soil profiles and ecologic niches of plant and species."[7] Even for a lay person, the creation of new wetlands would appear to have the least likelihood of success of the four methods, as there is a belief that nature cannot be improved upon.

How exactly is a wetland created? The mitigation section of the AEIS details the process as transplanting a layer of muck several inches thick from the existing wetland to the mitigation

site, the planting of vegetation, often nursery-grown plants, in up to three phases depending on the hydraulic needs of the planted vegetation, and most importantly the development of the appropriate hydrology. This last phase, the fine tuning of the delicate water requirements of the new wetland, is where most attempts at creation seem to fall short, as illustrated by the following cases.

An early example of the difficulties with wetland creation occurred in the town of Oldsmar, at the far north end of Old Tampa Bay. In 1999, Wal-Mart proposed a supercenter on 28 acres, in the middle of which was a five-acre cypress dome. The mitigation plan was approved and the company's contractor extracted the old cypress trees and transplanted them into three new wetland areas created around the parking lot. Five years later, many of the cypress trees had died, in effect drowning as the result of the man-made wetlands being built too deep and holding too much water. Further, upon extraction the tangled root system that binds the trees together underground was separated, so that the trees now stood alone, and were often knocked over easily from high winds.[8]

An opposite example comes from the phosphate arena and so is particularly relevant. In 2002, in preparation for a lawsuit in which he was listed as an expert witness, consultant Kevin Erwin toured several wetland mitigation sites built by IMC-Agrico (the predecessor to Mosaic). The consultant found that virtually all the wetlands the company built were deep marshes, with standing water two to four feet deep. However, one site that industry officials showed Erwin, a wet prairie, looked genuine, almost perfect. Upon further inspection, Erwin noted that the vegetation that looked so natural was a swath cut from one site and rolled out on the mitigation site like a piece of carpet. The problem was that with the water table several feet below the transplanted vegetation, the imitation wetland was not going to get the water it needed and would most likely not survive. The consultant's testimony convinced the judge in the particular lawsuit to rule against the mining company and deny the requested permit, which would have destroyed 600 acres of wetlands of Horse Creek, a major tributary of the Peace River.[9]

The industry claims the technology has advanced. Today, according to the AEIS, the phosphate industry uses sophisticated integrated surface/groundwater modeling to predict target hydrologic conditions in mitigation wetlands and streams. The latest construction technology includes laser and global positioning system (GPS) guided earthmoving equipment which

enables the topography to be precisely contoured to achieve favorable elevation sand hydrology.[10]

However, even assuming the military-like precision of the new methods for wetland creation, the general consensus seems to be that creation can never fully compensate for a destroyed wetland. To even be able to make the comparison in the first place, there must be adequate, reliable, and uniform monitoring of the created wetlands using criteria for success that are credible, which, as will be shown later on, has been lacking.

Given the uncertainty of their success, and the cost involved in both creating a new imitation wetland (replacement freshwater wetlands can cost as much as $100,000 acre)[11] as well as the costs associated with upkeep and monitoring, and the availability of other mitigation alternatives, it may be time perhaps to drop establishment as a form of allowed mitigation.

Enhancement is another mitigation tool that warrants a closer look. As defined earlier, enhancement consists of activities designed to improve one or more functions of existing wetlands, such as to improve water quality, flood water retention, or wildlife habitat. The idea behind enhancement is basically improving an existing wetland. However, what enhancement means in reality is often no more than the removal of non-native exotic plants, usually melaleuca and Brazilian pepper trees, and then perhaps periodic spraying afterwards.[12] Here, as in preservation, there is no net gain in wetland acreage, but only a supposed gain in wetland "function and values", which leads to the obvious question of how wetland functions and values are measured. If for example, an activity destroys five acres of wetlands, but enhancement is proposed as mitigation on adjacent existing wetlands, it becomes necessary to have some way to measure the value of the destroyed wetlands in order to compare it to the value of the mitigation. Simply comparing acreage won't work, since there is no increase in acreage by enhancement. To address this issue, a handful of measuring systems have been devised over the years – the Wetlands Rapid Assessment Protocol (WRAP), the Uniform Mitigation Assessment Method (UMAM), and the Hydrogeomorphic Approach (HGM). Without discussing the details of each, it is important to note that all of the methods are at bottom somewhat subjective, and it's not difficult to see why even if one doesn't have a scientific background. As much as we like to quantify and measure, wetlands are so varied and complex and have evolved over such a long

period of time that their "functions and values" are just not suitable for accurate comparison and measurement.

Preservation is another mitigation method in which no actual wetlands are gained, and since it requires no creation or replacement effort it is an attractive tool from the permittee's standpoint. Preservation is generally accomplished through the use of conservation easements. The conservation easement is granted by the owner of the property to a grantee such as a charitable association or trust. Granting of the easement basically gives away the development rights in the property, while ownership is retained. Under the Uniform Conservation Easement Act of 1981, the holder of the easement has to meet statutory guidelines, such as having a purpose of "retaining or protecting the natural, scenic, or open-space values of real property, assuring the availability of real property for agricultural, forest, recreational, or open-space use, protecting natural resources, maintaining or enhancing air or water quality, or preserving the historical, architectural, archaeological, or cultural aspects of real property." Preservation is allowed as mitigation although once again, as in enhancement, no wetland acres are being gained, as the preserved wetlands were already wetlands prior to the permit application. But enforcement is the larger issue. Once the easement is conveyed, it is the responsibility of the holder of the easement to enforce the terms of its provisions, but what if the holder of the easement ceases to exist? There are also questions as to duration. The language granting the easement is supposed to be unlimited in duration *unless the instrument creating it otherwise provides*. Also, the Uniform Conservation Easement Act does not affect the power of a court to modify or terminate a conservation easement in accordance with the principles of law and equity, when for example a change in surrounding land use or conditions frustrates the purposes of the easement. In short, there is no guarantee that these easements are perpetual.

Of all the mitigation methods, Restoration appears to offer the best chance of success since the mitigation target was formerly a wetland. Typically these are areas that were previously drained or filled for agricultural purposes. Restoration has some of the same challenges as replacement, but unlike replacement, a wetland is not being created from scratch. The vegetation and hydrology actually existed at one time. In addition, the amount of mitigation would be relatively straightforward and capable of measurement - one acre of restored wetlands

for one acre of destroyed wetlands - without the need for complicated, subjective measurements of wetland functions and values.

Importance of Effective Monitoring

Besides the problems with the individual mitigation methods themselves, an additional concern is related to the monitoring of proposed mitigation plans. The USACE is in charge of following up on such plans to make sure they are being carried out. Oversight activities include submission of monitoring reports by the applicant and actual physical inspection of the mitigation sites. It is no doubt a difficult task given the number of plans ongoing throughout the country at any given time and the resources required, but the importance can't be overstated; for if no one is checking, how can the ultimate success of the individual plans, and by extension the ultimate success of the "no net loss" policy itself, be accurately assessed?

Unfortunately, monitoring has been found to be inadequate. In September 2005, the United States Government Accountability Office (GAO) issued a report to the House of Representatives Committee on Transportation and Infrastructure, entitled "Wetlands Protection: Corps of Engineers Does Not Have an Effective Oversight Approach to Ensure That Compensatory Mitigation is Occurring."[13] In coming to the conclusion stated in the report's title, the GAO visited seven of the 38 USACE Districts that implement the 404 program. The seven chosen were the busiest in terms of mitigation required, accounting for over two-thirds of all the compensatory mitigation required for fiscal year 2003. The GAO found that overall, the seven Corps districts performed limited oversight to determine the status of compensatory mitigation. In the study, a total of 249 permit files were reviewed - 152 permittee-responsible files, 85 mitigation bank files, and 10 in-lieu fee arrangements. Of the 152 permittee-responsible files, monitoring reports were required by the Corps for 89. However, only 21 of the 89 files, or 24 percent, contained evidence that the Corps had actually received the report and only 15 percent of the files contained evidence that the Corps had conducted a compliance inspection. Slightly more oversight was shown for the mitigation conducted by the 85 banks and the 10 in-lieu fee programs. For the 60 mitigation banks that were required to submit monitoring reports, 70 percent showed that at least one monitoring report had been received. The percentage of the

mitigation bank files with evidence that the Corps conducted an inspection ranged from 13 percent to 78 percent in the seven districts. For the 6 in-lieu fee files that required a monitoring report, 5 had submitted at least one report. In addition, the Corps had conducted compliance inspections for 5 of the 12 in-lieu fee arrangements.[14]

Additional findings of the GAO report pointed out inconsistencies in the level of priority assigned to mitigation and found that enforcement actions for non-compliance were almost always limited to negotiation despite an array of available enforcement methods. The GAO had issued similar reports in 1988 and again in 1993, concluding both times that the USACE was not ensuring that mitigation was taking place. A recent conversation with the GAO revealed that the 2005 has not been updated, revised, or superseded by another report. It is still the most recent study by the GAO on the subject and there doesn't seem to be any evidence of a turnaround in monitoring results.

Whether it is from a lack of priority or a lack of resources, the GAO report makes it clear that monitoring has been inadequate. In defense of the USACE, this is a monitoring burden that they didn't ask for and is not one of their traditional functions such as building bridges and other infrastructure. Reprioritizing may help, but this would necessarily require other functions and responsibilities of the Corps to be de-prioritized. Additional resources of course would help as well, but is there a political will for more resources to fund something that has not been a historical function of the Corps?

An even more fundamental problem could be the mitigation sequence *as actually practiced*, in contravention of the 2008 Mitigation Rule. The authors of *Paving Paradise*: *Florida's Vanishing Wetlands and the Failure of No Net Loss* (Gainesville: University Press of Florida, 2009) argue convincingly that the process as specified in the 2008 Mitigation Rule is in practice being followed in reverse order. In effect, mitigation, which is intended to be only used as a last resort when there are unavoidable impacts, has ended up driving the process and essentially becomes the justification for the permit.[15] In other words, if there is a sound mitigation plan that on paper creates more wetlands than are proposed to be destroyed, then the application is most likely to be approved. Take for example the current 404 applications in the Central Florida Phosphate District. Preliminary estimates show that there will be actually be a net gain in wetlands from the mitigation efforts of the applicants. If there is going to be a net

gain of wetlands, the attitude may be that there's no point focusing on avoidance. And on to the next permit.

Conclusion

Considering all the problems with mitigation, both with the methods used and the implementation and monitoring of plans to ensure that it actually occurs, a possible solution would be to discard the no net loss policy altogether and no longer require mitigation as part of a Section 404 application. Although extreme, this option has the benefit of simplicity and would save the expense and administrative burdens of the mitigation measures and their oversight. This could put the focus back on avoidance as there would be nothing to offer for destroying wetlands, forcing applicants to make a determination of what is truly unavoidable. At first glance this sounds like a green light to destroy wetlands with no consequences, but without mitigation clouding the picture, the resulting transparency could eventually lead to legislation that prohibits wetland destruction altogether, or that may prioritize wetlands and declare the more important ones off limits under any circumstances, and this could end up actually preserving more wetlands than the current no net loss policy.

Less drastic would be to keep the existing mitigation sequence but limit all mitigation efforts to restoration within the existing watershed using one of the third party methods, either mitigation banking or an in-lieu fee arrangement. Mitigation banking does have a certain appeal with free market enthusiasts, since the supply of credits would determine their price, which in turn would influence an applicant's plans. If banking were the only mitigation option available, a point could conceivably be reached where destruction of wetlands is just too expensive and would be completely avoided. Also, the third party mechanisms, as shown by the GAO report, have a better record of oversight than permittee-responsible plans, and obviously the more oversight exercised by the USACE the more likely mitigation is to succeed.

The above are just a few possible solutions to the problems with the current state of wetland mitigation. The NEPA process, with its scoping requirements, comment period, and public meetings - all of which involve an informed public in the decision-making process - provides an ideal forum in which to focus on the current issues in wetland mitigation as well as

offer any number of potential improvements. These could be similar to those discussed above, or maybe a combination of existing practices with something entirely new and as of yet unheard of, what former Secretary of Defense Donald Rumsfeld might term an "unknown unknown." In any event, the heart of the NEPA process and its true value is the exploration and consideration of alternatives, alternatives that could in the present context make the duties of the USACE easier and, maybe somewhat ironically, could even benefit the phosphate industry itself.

Endnotes

[1] U.S. Army Corps of Engineers Jacksonville District, *Draft Areawide Environmental Impact Statement on Phosphate Mining in the Central Florida Phosphate District*, http://www.phosphateaeis.org/ (May 2012).

[2] http://www.phosphateaeis.org/

[3] "Phosphate mining: not much impact?" *Sarasota Herald-Tribune*, June 24, 2012.

[4] Compensatory Mitigation for Losses of Aquatic Resources, 33 CFR Part 332.

[5] http://www.phosphateaeis.org/

[6] *Sarasota Herald-Tribune*, June 24, 2012.

[7] Jon Kusler, as quoted in Craig Pittman and Matthew Waite, *Paving Paradise*: *Florida's Vanishing Wetlands and the Failure of No Net Loss* (Gainesville: University Press of Florida, 2009), 119.

[8] Pittman and Waite, 123-125.

[9] Pittman and Waite, 115.

[10] http://www.phosphateaeis.org/

[11] Pittman and Waite, 123.

[12] Pittman and Waite, 136.

[13] U.S. Government Accountability Office, *Report to the Ranking Democratic Member, Committee on Transportation and Infrastructure, House of Representatives, Wetlands Protection: Corps of Engineers Does Not Have an Effective Oversight Approach to Ensure That Compensatory Mitigation is Occurring* (Washington, DC: GAO-05-898, 2005).

[14] *Wetlands Protection*

[15] Pittman and Waite, 120-121.