

## **IMC's Strip Mining of the Peace River Basin: The Cost of Reclamation, the Price of Failure**

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IMC Phosphates has recently applied to the Florida Department of Environmental Protection for permission to strip mine three new sites, amounting to more than twenty-five thousand acres. In all cases, DEP has told IMC that they have permission to move forward with their plans. Charlotte County has spent millions of dollars on these challenges. The Peace River Manasota Water Supply Authority and Lee County have joined the challenge supporting Charlotte's investment in protecting the Peace River, Charlotte Harbor, their tributaries and headwater ecosystems.

Providing successful compensation of lost or impaired wetland functional values is usually a technically challenging and expensive proposition for anyone. Expenses related to permitting, engineering and environmental consulting fees, materials, and heavy equipment costs may exceed \$25,000/acre depending upon the type of project. In the case of phosphate mine reclamation in Florida habitats are being constructed, both upland and wetland, as required compensation for mining impacts. Differences exist between constructed wetlands on phosphate mined lands and wetlands constructed in other landscapes and land-uses. The strip mining process causes complete alterations of soils, ground and surface water hydrology and regional landscapes that are not typical of other wetland construction projects. Strip mining's complete disturbance of the land from the surface down forty-five feet or more represents a significant challenge for successful reclamation of mined lands where replacing the type, nature, and function of disturbed habitats is required by law. This challenge is much greater than attaining successful restoration or enhancement of habitats on unmined lands.

As an ecologist, it was my job to review IMC's reclamation plan and budget for the twenty thousand acre Ona property in Hardee County. In virtually every area, IMC has grossly underestimated the costs of reclamation. Their failure to budget properly will be reflected in the failure of their "restoration" of the natural system when the time comes. In my opinion IMC has not been able to demonstrate that the mitigation provided as a result of their reclamation is adequate as required by the Florida statutes (373.414(6)(b)) to offset the adverse impacts associated with strip mining. The failure of their reclamation ultimately may put the public at risk for the cost of the proper restoration and maintenance of these lands. Many of the problems associated with IMC's failed reclamation program are directly related to the mining process itself and require substantial modification, research and evaluation and even with those modifications one could not guarantee total success.

In my evaluation of approximately fifty IMC reclamation projects in 2003, I have observed no improvement in conditions since the completion of our study for Florida Institute of Phosphate Research (FIPR) in 1997 entitled Evaluation of Constructed Wetlands on Phosphate Mined Lands in Florida. This presents a risk that I believe is now associated with the goal of successful reclamation by IMC. Success cannot be assured and substantially effects the costs of reclamation. Furthermore, the very poor conditions I observed on most of IMC's reclamation projects means that their methods and budgets for management and monitoring are suspect and require significant review and modification.

I recently conducted an evaluation of IMC's reported reclamation costs by habitat type which considered the costs of earthmoving, planting, maintenance, and monitoring. The cost of the land was not a consideration of this evaluation since IMC is assumed to own or lease the lands being reclaimed. However, there would appear to be a substantial economic loss as a result of failed reclamation including those agricultural lands that will no longer be productive as a result of strip mining and unsuccessful reclamation.

## **Earthmoving**

Reclamation, the process of restoring the type, nature and functions of those impacted habitats and ecosystems, actually begins with the manner in which the strip mining occurs. If the mining process does not provide the basic ingredients for restoration then success is not possible. After mining, IMC does not attempt to reclaim the near surface physiology of reclaimed soils nor does the company restore the natural slopes contours and micro-topography of the unmined landscape. Without soil, habitat restoration is destined to fail. In addition the natural relationship between the soil and water table elevations does not exist in IMC reclamation sites. IMC's need to strip, segregate, relocate, and protect/stockpile the native soils A, Band C horizons during mining and properly relocate/contour these soils after mining during reclamation. This will cost substantially more than what they've budgeted, but the results will be substantially better.

## **Planting – Herbaceous**

There are typically two levels of plantings, the canopy (trees) and the undergrowth (ground cover). The demands of restoring different habitats such as oak scrub versus pine flatwoods are very different. The difference between doing it right and doing it as IMC has done and proposes to do on the Ona site amounts to several hundred dollars per acre, thousands of dollars for a project and that's just for vegetation.

In their reclamation budget, IMC assumes the same cost per plant per acre with no money budgeted for replanting and IMC commonly replants sites. The cost per plant varies significantly and diversity similar to that found in natural habitats is required for successful restoration. In addition IMC failed to budget for other important planting costs such as irrigation and water management.

## **Maintenance**

The major form of maintenance performed by IMC on their reclaimed lands is the herbicide management of exotic and problematic nuisance plant species using backpacks, airboats, and helicopters. Given the very poor condition of IMC's

reclamation projects, related to high coverage of exotic and nuisance species and improper water management, it is doubtful that their reported maintenance schedules are followed. Furthermore, the amount of disturbance and prevalence of exotic and nuisance species now existing in the landscapes adjacent to most reclamation sites significantly increase the opportunities for infestations to occur. Many of the unmined lands that were preserved adjacent to reclaimed strip mine areas are being impacted by exotic plant infestations.

Reclaimed and unmined landscapes adjacent to IMC reclamation projects must be managed simultaneously. Regular aggressive maintenance for the first three to five project years is necessary followed by annual maintenance for 5 to 15 years to treat hot spots before they become significant problems.

### **Monitoring**

Monitoring is an important aspect of the habitat reclamation and restoration process that is often poorly understood, misused and as a result under budgeted. The reasons for instituting a comprehensive monitoring program are many but may be classified into three general categories; assessing the effectiveness of policy or legislation, regulatory performance or audit functions and detecting change. Monitoring wetland systems should be required at four different levels; baseline monitoring, construction monitoring, time zero monitoring and post construction monitoring. The current lack of appropriate attention given to providing adequate monitoring of IMC's reclamation projects has resulted in a very serious compliance problem for IMC and the DEP. Typically, reclamation project monitoring is only conducted for two of the four levels discussed above (baseline and post construction). Post construction monitoring is performed by IMC in response to specific permit conditions related to success criteria in each permit where reclamation is required. The overwhelming focus of these conditions is on vegetation. There is typically no monitoring of groundwater hydrology, surface water hydrology, water quality, soils, aquatic fauna, wildlife, and ecosystem heterogeneity. One cannot fully comprehend the full extent of the poor conditions and problems associated with most of IMC's reclamation projects by reviewing the monitoring reports

they submit to DEP. Again, the cost of doing it right far exceeds what IMC currently proposes to spend.

I estimated the costs of reclamation and restoration by using a process and methodology determined to provide the greatest potential for reclamation success as defined in The DEP Phosphate Mine Reclamation Rule. These costs were estimated based on a third party, such as the State of Florida (similar to Piney Point), performing the work and supplying the materials at fair market value.

The DEP's ERP rule states that mitigation shall be deemed successful when all applicable water quality standards are met, the mitigation area has achieved viable and sustainable ecological and hydrological functions and the specific success criteria contained in the permit are met. The DEP requires that any applicant, including IMC, provide proof of financial responsibility for mitigation to conduct, mitigation activities, any necessary management of the mitigation site, monitoring of the mitigation and necessary corrective action indicated by the monitoring.

It is apparent that IMC has significantly underestimated the cost of reclamation for those habitat types found on the proposed Ona Mine site. The ultimate cost of reclamation will actually be higher when the cost of reclaiming clay settling areas is added to this total as well as the costs of reclaiming several miles of streams that IMC will mine but has not planned to reclaim. Restoration is part of the cost of the business of strip mining. If IMC is not held to standards that are tangible, measurable and successful, then the public may pay for their failure. The investment made by Charlotte County, the Peace River Manasota Water Supply Authority and Lee County in challenging IMC Phosphate's permits is significant, but it is small compared to the long term costs of allowing IMC to strip mine without proper restoration.