

**COPY**

Prepared by/When recorded, return to:

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712 South Oregon Avenue  
Tampa, Florida 33606-2543

**Settlement Agreement**

Between Peace River Manasota Regional Water Supply Authority  
and IMC Phosphates Company

This Settlement Agreement ("Agreement") is entered into this <sup>SA</sup>5<sup>th</sup> day of March 2003, by and between Peace River Manasota Regional Water Supply Authority ("PRMRWSA" or the "Authority"), a regional water supply authority established pursuant to section 373.1962, Florida Statutes and IMC Phosphates Company, a Delaware corporation authorized to do business in Florida ("IMC"), with regard to protection of the Peace River Basin and the Charlotte Harbor Estuary.

WHEREAS, the ecosystem of the Peace River Basin and the Charlotte Harbor Estuary is essential to the public health, safety and welfare of all citizens of Southwest Florida; and

WHEREAS, the ecosystem of the Peace River Basin and the Charlotte Harbor Estuary is dependent on water quality and freshwater flow in the Peace River; and

WHEREAS, the Authority and IMC strongly believe that the mining of phosphate should be conducted in such a way as to prevent environmental harm to the Peace River Basin and the Charlotte Harbor Estuary; and

WHEREAS, phosphate mining is a major component of the economic development of some counties in the Peace River Basin; and

WHEREAS, IMC is an industry leader in environmental stewardship in its reclamation of wetlands, uplands, lakes, wildlife habitats and the provision of environmental conservation easements; and

WHEREAS, IMC commits to protect and preserve the Peace River Basin and Charlotte Harbor Estuary and specifically water quality and freshwater flow in the Peace River; and

WHEREAS, the Authority and IMC are committed to the programs, activities and other obligations specified herein to protect the Peace River Basin and the Charlotte Harbor Estuary, and

WHEREAS, the Authority has challenged permit applications filed by IMC to mine phosphate on parcels in the Peace River Basin known as the Manson Jenkins Tract and the Altman Tract; and

WHEREAS, the Authority and IMC enter into this settlement agreement to resolve all litigation on the Manson Jenkins tract more specifically described at Exhibit "A," and the Altman tract more specifically described at Exhibit "B."

NOW THEREFORE, the Authority and IMC in order to maintain a sustainable high quality water supply from the Peace River and to protect the ecosystems of the Peace River Basin and Charlotte Harbor Estuary, and to provide further assurance of environmental protection during phosphate mining and restoration agree to the following terms:

1. Horse Creek Protection.

(a) IMC shall implement the Horse Creek Stewardship Program for Horse Creek as set forth in attachment "C" to this agreement. The Authority will create and coordinate a Technical Advisory Group (TAG) to consist of a representative from each of its members to review and provide input on the program throughout the duration of plan implementation. All terms and conditions of the Horse Creek Stewardship Program, including the corrective action provisions, are incorporated by reference herein and made a part hereof. Further, if corrective action required of IMC pursuant to the Horse Creek Stewardship Program is not effective to reverse adverse trends in water quality or abate exceedances of trigger levels, caused by IMC activities in the Horse Creek watershed, representatives of IMC and the Authority shall meet to evaluate alternative corrective actions. In the event of disagreement concerning the economic, technical or environmental feasibility of such alternative corrective actions or the causes of adverse trends in water quality in Horse Creek, the Authority and IMC shall initiate mediation by written declaration. If the parties are unable to negotiate mutually acceptable terms and conditions for mediation within 60 days of such written declaration, or if such mediation is unsuccessful, the Authority or IMC may seek relief as provided by law.

(b) If effects of IMC activities in the Horse Creek watershed interfere with the Authority's ability to produce water for its customers, and if corrective actions as required in section 1 (a) have not been effective, IMC agrees to take reasonable measures to mitigate the effects of such interference.

2. SWFWMD Cumulative Impact Study.

IMC shall assist and participate with Southwest Florida Water Management District (SWFWMD) and other regulatory agencies in cumulative impact analyses of the Peace River and implementation of any rules developed from these studies.

3. Peace River Minimum Flows and Levels ("MFL's").

IMC shall support an expedited schedule for adoption of MFL's for the middle and lower Peace River segments as currently identified by Southwest Florida Water Management District.

4. Avoidance of Accidental Spills.

(a) Engineering Standards for Embankments.

IMC shall implement engineering standards for construction of earthen embankments within its phosphate mining operations used for clay storage as set forth in Attachment "D," that exceed the requirements of the Florida Department of Environmental Protection in Chapter 62-672, Florida Administrative Code. IMC agrees to comply with the standards in Attachment "D" (as well as the requirements of Chapter 62-672) as a condition of this Agreement.

(b) Authority Inspections.

IMC agrees to provide access to representatives of Authority to conduct inspections of IMC clay storage areas during normal business hours and with at least 2 hours advance notification. IMC will accompany the Authority representatives to facilitate access and assure compliance with all applicable mine safety standards.

(c) Real-Time Monitoring.

IMC and Authority shall cooperate in implementing real-time monitoring of fluid levels in clay settling areas identified by the Authority as being of concern. IMC agrees to supply the necessary monitoring equipment and telemetry to allow real-time monitoring by the Authority at its facility.

5. Environmental Insurance.

Within ninety (90) days of execution of this Agreement, IMC shall establish insurance coverage in the amount of \$25,000,000 to provide payment to the Authority for clean-up and restoration costs for discharges from clay settling areas located on lands owned, leased or

otherwise controlled by IMC in the Peace River watershed, where such discharges are not in compliance with applicable permits and rules of regulatory agencies.

6. Wetlands on Clay Settling Areas.

IMC agrees that there shall be no clay settling areas on the Altman Tract and that clay settling areas on or required for the Manson Jenkins Tract shall not be used for wetlands mitigation.

7. Recordation of Agreement.

Within one-hundred and twenty (120) days of the execution of this agreement, IMC shall record this Agreement in the official records of the relevant jurisdictions of Hillsborough, Manatee, Sarasota, Hardee, Charlotte, DeSoto, Polk and Highlands Counties containing lands owned, leased, or otherwise controlled by IMC and lands to which IMC owns the mineral rights or has an option to purchase unless the property has completed the reclamation process. This Agreement and covenants herein shall run with this land and be binding on the successors and assigns of IMC.

8. Pre-1975 Mined Lands.

IMC shall reclaim property mined prior to January 1, 1975, according to the schedule included herewith as Attachment "E."

9. Dismissal of Challenges.

In consideration of IMC's commitments set forth above, the Authority agrees to file a voluntary dismissal of its petition for administrative hearing with prejudice in the Altman case [DOAH Case Number 02-4135] and to likewise withdraw any and all opposition to the final permit issued for the Manson Jenkins Tract on November 22, 2002 by Substitute Agency Head Stephen Seibert and dismiss the appeal currently pending at the First District Court of Appeal [Case No. 1D02-5112]. Notice of Voluntary Dismissal with prejudice of the Altman petitions shall be filed immediately upon execution of this Agreement in accordance with the Florida Administrative Code. The Authority shall not oppose nor challenge any approvals or any modifications requested by IMC solely to implement this Agreement.

10. Attorneys Fees/Costs.

Each party to this litigation shall bear its own fees and costs incurred in the prosecution or defense of litigation addressed herein.

11. Applicable Law.

This Agreement and its interpretation, construction and enforcement shall be governed by the laws of the State of Florida. The settling parties agree that the sole remedy under this Agreement available to any settling party is enforcement of the Agreement.

12. Mutually Drafted Agreement.

This Agreement has been negotiated at arms length and between parties represented by experienced and knowledgeable legal counsel. Accordingly, any rule, law, or legal decision that would require interpretation of any ambiguities in this Agreement against the party who drafted any particular provision are not applicable and are waived. Provisions of this Agreement shall be interpreted in a reasonable manner to effect the purpose of the parties and this Agreement. Further, each party hereto acknowledges it has read the entire Agreement, fully understands its terms and effects, and that this Agreement is being signed freely by them. Each of the terms of this Agreement are contractual, not a mere recital, and are the result of negotiations between parties.

13. Entire Agreement.

This Agreement contains the entire agreement and understanding between the settling parties concerning the resolution of the litigation described herein, and supercedes and replaces any and all prior written or oral negotiations or proposed agreements. Should any conflict or inconsistency arise between the provisions of this Agreement and those of any other prior written or oral negotiations, the provisions of this Agreement shall control. Should any provision in this Agreement be determined to be invalid or unenforceable, such a determination shall not affect the validity and enforceability of the remaining provisions in this Agreement. Each settling party acknowledges that no other settling party, or any agent or attorney of any settling party has made any promise, representation, or warranty whatsoever, expressed or implied, not contained herein or concerning the settlement of this litigation to induce any settling party to execute this Agreement. Each settling party acknowledges that it has not executed this Agreement in reliance of any such promise, representation or warranty not contained herein.

14. Execution in Counterparts.

This Agreement may be executed in counterparts with the same force and effect as if executed in one complete document.

15. Remedies.

In the event of breach of this Agreement by either party, the non-breaching party shall be entitled to seek all available legal and equitable remedies.

16. Headings.

The headings used in this Agreement are for convenience only and do not impart any substantive significance.

17. No Waiver.

No waiver by any settling party to this Agreement of any breach of any term or provision of this Agreement shall be construed to be, nor be, a waiver of any other term or provision hereof.

18. Applicable Law and Venue.

The laws of the State of Florida govern the validity, interpretation, construction and performance of this Agreement and venue for any suit involving this Agreement shall be in Sarasota County, Florida.

19. Notice.

All notices pertaining to or affecting this Agreement ("Notices") will be in writing and served in person or by certified mail, overnight or express mail services to the parties at the following addresses:

Peace River Manasota Regional Water Supply Authority  
Attn: Pat Lehman  
1645 Barber Road, Suite A  
Sarasota, Florida 34240

IMC Phosphates Company  
Attn: Richard Krakowski  
Post Office Box 2000  
Mulberry, Florida 33860-1100

OR

IMC Phosphates Company  
5000 Old Highway 37 South  
Mulberry, Florida 33860

Either party is entitled to specify any other address as its proper address upon notice to the other party.

20. Time for Performance.

The parties shall begin performance of all actions required herein upon execution of this Agreement, unless a different time for performance is specifically stated.

WITNESS WHEREOF, the Authority and IMC have executed this Agreement on the dates shown below.

**PEACE RIVER MANASOTA REGIONAL  
WATER SUPPLY AUTHORITY**

By: Shannon Staub  
Shannon Staub  
Chairman  
Date: 3-10-03

Attest:

By: Patrick J. Lehman  
Patrick J. Lehman, P.E.  
Executive Director for the Authority

APPROVED BY  
MAR - 5 2003  
AUTHORITY BOARD

Approved as to form:

By: Douglas P. Manson  
Douglas P. Manson  
General Counsel for the Authority

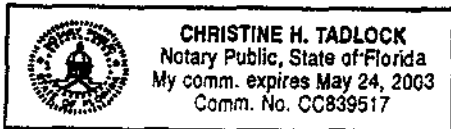
IMC PHOSPHATES COMPANY

Richard Krakowski  
By RICHARD KRAKOWSKI as its VICE PRESIDENT +  
GENERAL MANAGER  
OPERATIONS

STATE OF FLORIDA  
COUNTY OF Polk

The foregoing instrument was sworn to and subscribed before me this 6<sup>th</sup> day of March  
2003, by RICHARD KRAKOWSKI, who is personally known to me or has produced  
\_\_\_\_\_ as identification.

(SEAL)



Christine H. Tadlock

CHRISTINE H. TADLOCK

[Printed or typed name of notary]

Commission Number: CC839517



IN TOWNSHIP 31 SOUTH, RANGE 22 EAST, MANATEE COUNTY, FLORIDA:

SECTION 1 : All.

SECTION 2 : The S-1/2.

SECTION 11: All LESS that part lying south and west of the center line of a certain county-maintained road running easterly-westerly through said Section 11 and then, turning and running southeasterly to the south boundary thereof, the excepted part being that part of said Section 11 conveyed by George L. Manson to Harry Lesnick under deed dated July 22, 1959, recorded in Deed Book 409, page 265, Manatee County, Florida, more particularly described as: beginning at the southwest corner of said Section 11, run thence north along the west boundary thereof to a spike set 13.90 feet south of the half-section line of said Section 11, which point is on the south line of a certain county maintained road running easterly-westerly, continue thence north to the center of the road, thence easterly along the center of the road a distance of 2970 feet, more or less, to the center of a certain county maintained road running northerly-southerly, thence southerly and southeasterly along the center line of the road to the south boundary of said Section 11, thence west along said south boundary to the point of beginning.

SECTION 12: All.

SECTION 13: All LESS the S-1/2 of SE-1/4 of SW-1/4 and LESS the S-1/2 of SW-1/4 or SE-1/4.

SECTION 14: All LESS that part lying west of the center line of a certain county-maintained road run northwesterly-southeasterly through said Section 14, the excepted part being that part of said Section 14 conveyed by George L. Manson to Harry Leanick under deed dated July 22, 1959, recorded in Deed Book 409, page 265, Manatee County, Florida.

## IN TOWNSHIP 33 SOUTH, RANGE 22 EAST, MANATEE COUNTY, FLORIDA

- Section 1: That part lying south and east of State Road 37.
- Section 2: That part, if any, lying south and east of State Road 37.
- Section 10: That part lying south and east of State Road 37.
- Section 11: That part lying south and east of State Road 37.
- Section 12: All of the section.
- Section 13: All, LESS the following described tract: Begin at the Southwest corner of Section 13, thence proceed N 00°08'22" W, along the west line of the Section, 703.32 feet to the Watershed Boundary Line between the Horse Creek and East Fork Manatee River Basins; thence S 70°39'27" E, along the Watershed Boundary Line, 656.33 feet; thence N 54°20'37" E, 808.35 feet; thence N 87°01'51" E, 1471.24 feet; thence S 80°42'49" E, 1522.00 feet; thence S 35°44'47" W, 453.75 feet; thence S 12°20'01" E, 368.48 feet; thence S 47°27'45" W, 120.57 feet to the south line of the Section; thence N 89°39'59" W, along the south line of the Section, 1329.46 feet to the southeast corner of the SW- ¼ of the Section; thence N 89°41'26" W, along the south line of the Section, 2641.09 feet to the POINT OF BEGINNING.
- Section 14: All, LESS the following described tract: Begin at the southeast corner of Section 14, thence proceed N 88° 49'39" W, along the south line of the Section, 2612.74 feet to the southwest corner of the SE- ¼ of the Section; thence N 88°49'12" W, along the south line of the Section, 2612.69 feet to the southwest corner of the Section; thence N 00°09'14" E, along the west line of the Section, 5259.60 feet to the northwest corner thereof; said point also being on the Watershed Boundary Line between the Horse Creek and East Fork Manatee River basins; thence S 62°44'01" E, along the Watershed Boundary Line 911.05 feet; thence S 39°26'30" E, 2045.00 feet; thence S 09°12'34" E, 1639.06 feet; thence S 44°35'27" E, 830.69 feet; thence N 70°36'14" E, 1118.03 feet; thence S 37°25'01" E, 701.66 feet; thence S 70°39'27" E, 819.34 feet to the east line of the Section; thence S 00°08'22" E, along the east line of the Section, 703.32 feet to the POINT OF BEGINNING.

Exhibit "B"

Section 24: That part lying north of State Road 62, LESS the following described tract: Begin at the Northwest corner of Section 24, thence proceed S 89°41'26" E, along the north line of the Section, 2641.09 feet to the northeast corner of the NW- ¼ of the Section; thence S 89°39'59" E, along the north line of the Section, 1329.46 feet to the Watershed Boundary Line between the Horse Creek and East Fork Manatee River Basins; thence S 47°27'45" W along the Watershed Boundary Line, 937.28 feet; thence S 47°27'45" W, 1057.84 feet; thence S 44°00'59" W, 862.70 feet; thence S 47°00'11" W, 985.07 feet; thence S 69°40'57" E, 1180.90 feet to the north right-of-way line of State Road 62; thence S 80°20'42" W, along the north right-of-way of State Road 62, 54.02 feet; thence S 81°43'26" W, 199.90 feet; thence S 83°26'32" W, 100.04 feet; thence S 84°35'11" W, 100.12 feet; thence S 82°35'00" W, 200.02 feet; thence S 82°35'00" W, 200.02 feet; thence S 81°43'26" W, 499.61 feet; thence S 81°22'48" W, 500.01 feet; thence S 81°49'02" W, 499.49 feet to the west line of the Section; thence N 00°44'51" E, along the west line of the Section, 763.16 feet to the southwest corner of the NW- ¼ of the Section; thence N 00°41'53" E, along the west line of the Section, 2638.46 feet to the POINT OF BEGINNING.

## Horse Creek Stewardship Program

### Intent

The purpose of this program is two-fold. First, it provides a protocol for the collection of information on physical, chemical and biological characteristics of Horse Creek during IMC Phosphates' (IMC) mining activities in the watershed in order to detect any adverse conditions or significant trends that may occur as a result of mining. Second, it provides mechanisms for corrective action with regard to detrimental changes or trends caused by IMC's' activities, if any are found.

The overall goals of the program are to ensure that IMC Phosphates' mining activities do not interfere with the ability of the Peace River/Manasota Regional Water Supply Authority (Authority) to withdraw water from the Peace River for potable use nor adversely affect Horse Creek, Peace River or Charlotte Harbor.

There are three basic components to this stewardship program:

- Monitoring and Reporting on Stream Quality,
- Investigating Adverse Conditions or Significant Trends Identified Through Monitoring, and
- Implementing Corrective Action for Adverse Stream Quality Changes Attributable to IMC Activities

An important aspect of this program is that it will not rely solely upon the exceedence of a standard or threshold to bring about further investigation and, where appropriate, corrective action. The presence of a significant temporal trend alone will be sufficient to initiate such steps. This protection mechanism is not present in the vast majority of regulatory scenarios.

The mission of the Authority is to provide a reliable and safe drinking water supply to the citizens of the four counties comprising the Authority, Charlotte, DeSoto, Manatee and Sarasota Counties. The Peace River Facility is a critical component of the Authority's water supply system. The Peace River Facility located in DeSoto County utilizes the Peace River as its supply source.

It is critical for the Authority to protect the Peace River from impacts that would be detrimental to the operation of the Peace River Facility. As a tributary to the Peace River, the Authority's goal for the Horse Creek Stewardship Program is to provide assurance that the quantity and quality of Horse Creek flow as it contributes to the Peace River does not adversely impact the operation of the Peace River Facility.

## **Program Implementation and Oversight**

IMC will implement and fund the Horse Creek Stewardship Program with oversight by the Authority. The Authority will create and coordinate a Technical Advisory Group (TAG) to consist of a representative from each of its members to review and provide input on the program throughout the duration of the monitoring. IMC will create a project-specific quality assurance and quality control (QA/QC) plan for the program detailing all sampling, laboratory procedures, benthic and fish monitoring protocols and data analysis. The QA/QC plan will be consistent with the analogous protocols established in the HydroBiological Monitoring Program (HBMP) for the Lower Peace River/Upper Charlotte Harbor.

## **Historical, Background and Contemporaneous Data**

IMC will compile available data collected by others on water quality, quantity and aquatic biology of Horse Creek. This is expected to include, but is not limited to, information collected by the U.S. Geological Survey (USGS), the Florida Department of Environmental Protection (DEP), the Southwest Florida Water Management District (SWFWMD), the Charlotte Harbor Environmental Center (CHEC). Horse Creek data contained in the U.S. Environmental Protection Agency's (EPA) STORET database will also be obtained. Historic data will be reviewed to provide background information on Horse Creek, and data from ongoing collection efforts will be obtained to supplement that collected by IMC.

## **Monitoring Period**

Water quantity, water quality, macroinvertebrates and fish will be monitored as outlined below during the time that IMC Phosphates is conducting mining and reclamation in the Horse Creek watershed. Monitoring will begin no later than April 2003. In the event of temporary interruptions in mining activities (up to one year), this monitoring will continue during the period of inactivity. Monitoring will cease when mining and reclamation operations are completed in the Horse Creek watershed.

## **Surface Water Monitoring Stations**

Four locations on Horse Creek will be monitored for physical, chemical and biological parameters:

- HCSW-1 - Horse Creek at State Road 64 (USGS Station 02297155)
- HCSW-2 - Horse Creek at County Road 663A (Goose Pond Road)
- HCSW-3 - Horse Creek at State Road 70
- HCSW-4 - Horse Creek at State Road 72 (USGS Station 02297310)

As indicated above by their station ID numbers, HCSW-1 and HCSW-4 are also long-term US Geological Survey (USGS) gaging stations, with essentially continuous stage and discharge records since 1977 and 1950, respectively.

### Water Quantity Monitoring and Analysis

Discharge data will be obtained from the USGS for stations HCSW-1 and HCSW-4 for compilation with other data collected through this monitoring program. If not already present, staff gages will be installed in the stream at HCSW-2 and HCSW-3 and surveyed to NGVD datum. If not already available, stream cross sections will be surveyed at those locations, extending to the approximate limits of the 25-year floodplain. Staff gage readings will be recorded at the time of any sampling efforts at those stations. Data on rainfall will be obtained using IMC's rain gage array (including any additional gages installed in the Horse Creek basin in the future).

Data analysis will focus upon, but not necessarily be limited to, the ongoing relationship between rainfall and streamflow in the Horse Creek watershed. This relationship can be established from data collected early in the monitoring program and used to track the potential effects of mining on streamflow. Analytical approaches are outlined under Water Quality below and such methods will be more fully described in the QA/QC plan to be developed as part of this stewardship program.

### Surface Water Quality Monitoring and Analysis

Water quality data will be obtained monthly at each station where flow is present. Field measurements will be made of temperature, pH, specific conductance, turbidity and dissolved oxygen. Grab samples will be collected and analyzed for:

Nitrate + Nitrite	Color
Total Kjeldahl Nitrogen	Total Alkalinity
Total Nitrogen	Chloride
Total Ammonia Nitrogen	Fluoride
Ortho Phosphate	Radium 226 + 228
Chlorophyll <i>a</i>	Sulfate
Calcium	Mining Reagents (petroleum-based
Iron	organics, fatty acids, fatty amido amines).

At Station HCSW-1, a continuous monitoring unit will be installed to record temperature, pH, conductivity, dissolved oxygen and turbidity. Because this station is located at a bridge crossing for a highway, the unit will be located some distance (within 100 m) upstream or downstream from the bridge to minimize the likelihood of vandalism. The unit will be permanently installed and its location surveyed. Data will be recorded frequently (at least

hourly) and will be downloaded at least monthly. This data will provide for the characterization of natural background fluctuations and may allow for the detection of general water quality changes not observed during the collection of monthly grab samples.

Table 1 presents the analytical schedules and procedures. All sampling will be conducted according to DEP's Standard Operating Procedures (SOP) for field sampling. Laboratory analyses will be performed by experienced personnel according to National Environmental Laboratory Accreditation Council (NELAC) protocols, including quality assurance/quality control considerations. Invertebrate sampling will be conducted by personnel with training and experience in the DEP's SOP for such sampling.

Results will be tabulated to allow for comparisons among stations and sampling events and through time. Results will be compared with available historic data for Horse Creek and its tributaries, and with applicable Florida surface water quality standards. Typical parametric and non-parametric statistics will be used to describe the results. In particular, regression analysis is expected to be employed to examine the relationship between each parameter and time. Both linear and non-linear regression will be considered, depending upon the patterns observed in the data. Since at least some of the parameters can be expected to vary seasonally, use of methods such as the Seasonal Kendall's Tau Test is anticipated. Other potential methods include Locally Weighted Scatterplot Smooth (LOWESS). In addition to trend analyses, annual reports will contain general statistics such as mean, median, standard deviation and coefficient of variance for each numerical parameter. Such general statistics will be calculated on both an annual and seasonal basis. Because the data will be maintained in a standard software format (i.e., MS Excel or MS Access), there will be virtually no logistical limitations on the types of analyses that can be conducted. The only limitations will result from the nature of the data itself (i.e., data quantity, distributions, etc.).

For each parameter, data analysis will focus upon, but not necessarily be limited to, (1) the relationship between measured values and the "trigger values" as presented in Table 1 and (2) temporal patterns in the data which may indicate a statistically significant trend toward the trigger value. Statistical significance will be based upon  $\alpha=0.05$ , unless data patterns/trends or other related information indicate that use of another significance level is more appropriate. Since the purpose of this monitoring is to detect trends toward the trigger values, should they be present, trend analyses and other statistical tests will generally focus only upon changes toward the trigger values. This will increase the statistical power for detecting such changes.

At least initially, the term over which trends are analyzed will be dependent upon the data collected to date. As the period of record increases, data analysis can move from a comparison of months, to seasons, to years. As noted above, seasonal patterns will always be considered during data analysis and attention will be given to differentiation between natural seasonal/climatic variation and anthropogenic effects (including mining), where possible. Where historic data exist for a given parameter or station, such data can be evaluated relative to that collected through this effort, although sampling frequency and consistency may not be sufficient to conduct standard trend analysis methods. Analytical methods will be more fully described in the QA/QC plan to be developed as part of this stewardship program.

## **Aquatic Macroinvertebrate Sampling and Analysis**

Macroinvertebrate sampling will be performed three times annually and, in general, will be conducted concurrently with a monthly water quality sampling event. The first event would occur in March or April, the second event in July or August, and the third event in October or November. Specific months when sampling occurs may change from year to year to avoid very low or very high flows which would impede representative sampling.

In accordance with the DEP Standard Operating Procedures (DEP-SOP-001/01 FS 7000 General Biological Community Sampling), invertebrate sampling will not be conducted "... during flood stage or recently dry conditions." This is interpreted here to mean that a given sampling station will not be sampled for macroinvertebrates if (a) water is above the top of the stream bank, or is too deep or fast-moving to sample safely, or (b) if the stream has been dry during the preceding 30 days. In the event either of these situations occurs, the station will be revisited approximately one month later to determine whether sampling is appropriate at that time. If the stream is still in flood, or has again been dry during the preceding 30 days, invertebrate sampling will be postponed until the next season's sampling event. Note that the above situations are expected to be quite rare at the Horse Creek stations, and sampling efforts will generally be planned to avoid such conditions.

Sampling will be conducted at the same four stations on Horse Creek used for flow and water quality monitoring. The aquatic habitats at each station will be characterized, streamside vegetation surveyed, and photostations established. Qualitative macroinvertebrate sampling will be performed according to the Stream Condition Index (SCI) protocol developed by DEP (DEP-SOP-002/01 LT 7200) or subsequently DEP-approved sampling methodology. Consistent with DEP protocols, each invertebrate sample will be processed and taxonomically analyzed. Data from the samples will be used to determine the ecological index values presented in Table 1. Additional indices may also be calculated to further evaluate the invertebrate community. As noted in Table 1, the focus of the analysis will be to screen for statistically significant declining trends with respect to presence, abundance and distribution of native species, as well as SCI values. Results may also be compared with available historic macroinvertebrate data for Horse Creek and its tributaries, or with data from other concurrent collecting efforts in the region, if appropriate. Analysis of invertebrate community characteristics will include consideration of flow conditions, habitat conditions and selected water quality constituents.

Analytical approaches are outlined under Water Quality Monitoring and Analysis section above and such methods will be more fully described in the QA/QC plan to be developed as part of this Horse Creek Stewardship Program.

## **Fish Sampling and Analysis**

Fish sampling will be conducted three times annually, concurrent with aquatic macroinvertebrate sampling at the same four stations on Horse Creek. Based upon stream



morphology, flow conditions and in-stream structure (logs, sand bars, riffles, pools, etc.), several methods of sampling may be used, including seining, dipnetting, and electrofishing. Sample collection will be timed to standardize the sampling efforts among stations and between events.

All fish collected will be identified in the field according to the taxonomic nomenclature in *Common and Scientific Names of Fishes from the United States and Canada* (American Fisheries Society 1991, or subsequent editions). Voucher specimens will be taken of uncommonly encountered species and of individuals that cannot be readily identified in the field; with such specimens being preserved and logged in a reference collection maintained for this monitoring program. All fish will be enumerated and recorded. Total length and weight will be determined and recorded for individuals, however, for seine hauls with very large numbers of fish of the same species (a common occurrence with species like *Gambusia holbrooki*, *Heterandria formosa* and *Poecilia latipinna*), individuals of the same species may be counted and weighed *en masse*, with only a randomly selected subset (approximately 10 to 20 individuals of each such species) being individually measured for length and weight. Any external anomalies observed on specimens will be recorded.

Taxa richness and abundance and mean catch per unit effort will be determined for each station and each event, and data can be compared among stations and across sampling events. The ecological indices presented in Table 1 will be calculated and additional indices may also be calculated to evaluate the fish community, including similarity indices, species accumulation/rarefaction curves, diversity indices and evenness indices. As noted in Table 1, the focus of the analysis will be to screen for statistically significant declining trends with respect to presence, abundance and distribution of native species. Results may also be compared with available historic fisheries data for Horse Creek and its tributaries, and with data from other concurrent regional collecting efforts, if applicable. Analysis of fish community characteristics will include consideration of flow conditions, habitat conditions and selected water quality constituents.

Analytical approaches are outlined under Water Quality Monitoring and Analysis section above and such methods will be more fully described in the QA/QC plan to be developed as part of this Horse Creek Stewardship Program.

## Reporting

All data collected through this monitoring program will be compiled annually (January - December records) and a report will be generated summarizing the results. This report will include narrative, tabular and graphical presentation of the discharge records, surface water quality data, macroinvertebrate and fish sampling results. Results of statistical analyses will also be provided. Discussion will be included comparing across the sampling stations, as well as among seasons and sampling years. Emphasis will be placed upon identifying spatial and/or temporal trends in water quality and/or biological conditions. Where available, data collected from the same stations prior to the initiation of this program will be reviewed and incorporated to allow for longer-term evaluation of Horse Creek. In addition, data available from

sampling/monitoring efforts by agencies or other public entities will be reviewed and incorporated, where pertinent. Each report will also provide general information on the location and extent of IMC mining activities in the Horse Creek watershed, as they relate to this monitoring effort. Reports will be submitted to the Authority, as well as to the DEP Bureau of Mine Reclamation (BMR) and Southwest Florida Water Management District (SWFWMD).

In addition to the reporting outlined above, raw data compiled through sampling will be provided to the Authority monthly. This data will be submitted within six (6) weeks of each sampling event (pending the completion of laboratory/taxonomic analyses).

### **Monitoring Program Evaluation**

To ensure this program is providing useful information throughout its tenure, it will be evaluated regularly. Each annual report will include a section devoted to a summary of the immediate and long-term utility of each information type being collected. Recommendations will also be provided in the report regarding possible revisions, additions or deletions to the monitoring program to ensure that it is appropriately focused. Based upon such recommendations, IMC Phosphates will coordinate with the Authority and TAG on a regular basis regarding amendments to the monitoring program. Coordination on this issue may be initiated at any time by either party and will occur at least once every five years, whether or not either party individually requests it.

### **Protocol for Addressing Potential Problems Identified Through Monitoring**

An important element of the monitoring program will be the ongoing analyses of data to detect exceedences of specific trigger values (see Table 1) as well as statistically significant temporal trends toward, but not necessarily in excess of, those values. The analyses will evaluate the data collected through this Horse Creek Stewardship Program, as well as that reported by other entities where appropriate.

### **Impact Assessment/Characterization**

In the event the annual data evaluation identifies trigger value exceedences or statistically significant trends in Horse Creek, IMC will conduct an impact assessment to identify the cause of the adverse trend. The impact assessment may include more intensive monitoring of water quality in terms of frequency of sampling, laboratory analyses conducted, or locations monitored. In all cases, however, the impact assessment will include supplemental quantitative and qualitative data evaluations and consultation with Authority scientists, as well as perhaps other investigations within the basin (e.g., examination of land use changes, discharge monitoring records reviews of others, water use permit reports of others, etc.).

If the "impact assessment" demonstrates to the satisfaction of IMC and Authority scientists that IMC's activities in the Horse Creek watershed did not cause the exceedence or trend, IMC

would generally support Authority's efforts to implement actions to reverse or abate the conditions. IMC's support will focus upon scientific solutions where IMC can assist in the abatement of others' problems.

If the impact assessment indicates or suggests that IMC is the cause of the exceedences or trend, then IMC shall take immediate corrective actions. The intensity of such actions would be based upon the potential for ecological harm to the ecology of Horse Creek or the integrity of the potable water supply to the Authority.

### **Corrective Action Alternatives Evaluation and Implementation**

The first step in the corrective action process shall be to prepare quantitative projections of the short-term and long-term impacts of the trigger value Exceedance or adverse trends. Quantitative models and other analytical tools will provide IMC and Authority scientists with the analyses necessary to determine: (1) whether the impacts will persist or subside over the long term; (2) the cause(s) of the adverse trend(s) in terms of specific IMC activities that are contributing to the trend(s); and (3) alternative steps that IMC could effectuate to reverse the adverse trend, if needed.

If impact modeling confirms that adverse trends in water quality or a trigger value Exceedance is caused by IMC activities in the Horse Creek watershed, IMC shall meet with Authority within 30 days of detection of the adverse trend or trigger exceedance to evaluate alternative solutions developed by IMC. IMC shall begin implementation of its proposed alternative solution selected by the Authority within 30 days and report to Authority as implementation milestones are reached. Throughout the modeling, alternatives assessment, and preferred alternative implementation steps of the corrective action process, more intensive impact assessment monitoring will continue to track the continuation, or the abatement, of the trigger value Exceedance or adverse trend. Only when the impact assessment monitoring demonstrated conclusively that the condition has been reversed, with respect to the particular parameter(s) of concern, may IMC reduce its efforts back to the general monitoring and reporting program.

Alternative solutions may include conventional strategies such as the implementation of additional best management practices, raw material substitutions, hydraulic augmentation of wetlands, etc. IMC shall consider "out of the box" solutions (such as discharges of water to result in lower downstream concentrations of a parameter of concern, where the pollutant does not originate from IMC's activities) and emerging principles and technologies for water quantity management, water quality treatment and watershed protection, as well as other solutions recommended by Authority.

**Table 1. Parameters, General Monitoring Protocols and Corrective Action Trigger Values for the Horse Creek Stewardship Plan**

Pollutant Category	Analytical Parameters	Analytical Method	Reporting Units	Monitoring Frequency	Trigger Level	Basis for Initiating Corrective Action Process
General Physico-chemical Indicators	pH	Calibrated Meter	Std. Units	Monthly	<6.0->8.5	Excursions beyond range or statistically significant trend line predicting excursions from trigger level minimum or maximum.
	Dissolved Oxygen	Calibrated Meter	mg/L <sup>(1)</sup>	Monthly	<5.0	Excursions below trigger level or statistically significant trend line predicting concentrations below trigger level.
	Turbidity	Calibrated Meter	NTU <sup>(2)</sup>	Monthly	>29	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Color	EPA 110-2	PCU	Monthly	<25	Excursions below trigger level or statistically significant trend line predicting concentrations below trigger level.
Nutrients	Total Nitrogen	EPA 351 + 353	mg/L	Monthly	>3.0	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Total Ammonia	EPA 350.1	mg/L	Monthly	>0.3	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Ortho Phosphate	EPA 365	mg/L	Monthly	>2.5	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Chlorophyll a	EPA 445	mg/L	Monthly	>15	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
Dissolved Minerals	Specific Conductance	Calibrated Meter	µs/cm <sup>(3)</sup>	Monthly	>1,275	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Total Alkalinity	EPA 310.1	mg/L	Monthly	>100	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Calcium	EPA 200.7	mg/L	Monthly	>100	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Iron	EPA 200.7	mg/L	Monthly	>0.3 <sup>(6)</sup> >1.0 <sup>(7)</sup>	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Chloride	EPA 325	mg/L	Monthly	>250	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Fluoride	EPA 300	mg/L	Monthly	>1.5 <sup>(6)</sup> >4 <sup>(7)</sup>	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Radium 226+228	EPA 803	pCi/L <sup>(4)</sup>	Quarterly	>5	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Sulfate	EPA 375	Mg/L	Monthly	>250	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Total Dissolved Solids	EPA 180	Mg/L	Monthly	>500	Exceedance of, or statistically significant trend line predicting concentrations in excess of, trigger level.
	Mining Reagents	Petroleum Range Organics	EPA 8015 (FL-PRO)	mg/L	Monthly <sup>(5)</sup>	>5.0
Total fatty acids, including Oleic, Undecic, and Linolenic acid.		EPA/600/4-91/002	mg/L	Monthly <sup>(5)</sup>	>NOEL	Statistically significant trend line predicting concentrations in excess of the No Observed Effects Level (NOEL to be determined through standard toxicity testing with IMC reagents early in monitoring program, NOEL to be expressed as a concentration - e.g., mg/L)
Fatty amido-amines		EPA/600/4-91-002	mg/L	Monthly <sup>(5)</sup>	>NOEL	Statistically significant upward trend line predicting concentrations in excess of No Observed Effects Level (NOEL to be determined through standard toxicity testing with IMC reagents early in monitoring program, NOEL to be expressed as a concentration - e.g., mg/L)
Biological Indices: Macroinvertebrates	Total Number of Taxa	Stream Condition Index (SCI) sampling protocol, taxonomic analysis, calculation of indices according to SOP-002/01 LT 7200 Stream Condition Index (SCI) Determination	Units vary based upon metric or index	3 times per year	N/A	Statistically significant declining trend with respect to SCI values, as well as presence, abundance or distribution of native species
	Abundance					
	Percent Diptera					
	Number of Chironomid Taxa					
	Shannon Weaver Diversity <sup>(6)</sup>					
	Florida Index					
	EPT Index					
Biological Indices: Fish	Total Number of Taxa	Various appropriate standard sampling methods, taxonomic analysis, calculation of indices using published formulas	Units vary based upon metric or index	3 times per year	N/A	Statistically significant declining trend with respect to presence, abundance or distribution of native species
	Abundance					
	Shannon-Weaver Diversity <sup>(6)</sup>					
	Species Turnover (Morisita Similarity Index <sup>(6)</sup> )					
Rarefaction/Species Accumulation Curves <sup>(6)</sup>						

**Notes:**

- (1) Milligrams per liter.
- (2) Nephelometric turbidity units.
- (3) Micromhos per centimeter.
- (4) PicoCuries per liter.
- (5) If reagents are not detected after two years, sampling frequency will be reduced to quarterly - if subsequent data indicate the presence of reagents, monthly sampling will be resumed.
- (6) At Station HC SW-4 only, recognizing that existing levels during low-flow conditions exceed the trigger level.
- (7) At Stations HC SW-1, HC SW-2, and HC SW-3.

**References:**

- (a) Brewer, J. E., Zar, J. H., van Ende, C. N. Field and Laboratory Methods for General Ecology, 3rd Edition. Wm. C. Brown Co., Dubuque, IA, pp. 237; 1990
- (b) Gotelli, N.J., and G.R. Graves. 1996. Null Models in Ecology. Smithsonian Institution Press, Washington, DC.

# IMC Phosphates Company

## Clay Settling Area Design Criteria



Exhibit "D"

<u>Minimum Dam Geometry</u>	<u>FDEP</u>	<u>IMC</u>
Minimum Freeboard	5 ft.	5 ft.
Wave Size and Run-Up Design	N/S	90 mph
Side Slopes (upstream)	2H:1V	2.5H:1V
Side Slopes (downstream)	2H:1V	3.0H:1V
Crest Road Width	N/S	30
Toe Road Width	N/S	25
 <u>Factors of Safety</u>		
Bearing Capacity	1.5	10+
Horizontal Shear at Base	1.75	4.2
Horizontal Shear Due to Seepage	1.5	1.5
Shear Failure or Circular Arc	1.5	1.5

# **IMC Pre 1975 Land Reclamation**

- **Noralyn Mine Site – 2,690 Acres**  
Range 25, Township 30-31, Range 24, Township 30  
– Completion - December 2007
- **Clear Springs Mine Site – 240 Acres**  
Range 25, Township 29-30  
– Completion - December 2007
- **Payne Creek Mine Site – 1,200 Acres**  
Range 23, Township 32, Range 24, Township 37  
– Completion - December 2007