

**Guidebook
for Preparing an Application
for a
C-139 Basin
Works of the District Permit**



January 2002



Guidebook for Preparing an Application for a C-139 Basin Works of the District Permit

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FEE SCHEDULE

	General Permit	Individual Permit
<i>new</i>	\$250.00	\$1,880.00
<i>renewal</i>	\$250.00	\$1,880.00
<i>modification</i>	\$100.00	\$500.00
<i>transfer</i>	\$100.00	\$100.00

What is the first step in the initial application process?

The first step is to submit a Best Management Practices (BMP) Plan for pre-approval (see pages 9 through 11 of the Permit Application Form 1045 in this guidebook). District staff will respond within 10 days of receiving the BMP Plan. This enables the applicant to begin initiating the BMP Plan while the application is being prepared or processed, thereby reducing any potential delay of BMP implementation pending administrative processing of the application.

TYPES OF PERMITS

General Permit

For a General Permit, the applicant must be a single controlling entity responsible for implementing all conditions and terms of the permit. A single entity may be a single landowner or operator with multiple landowners/lessees, where the single entity is responsible for ensuring permit compliance. A General Permit is issued to the controlling entity as a single permittee. This authority must be demonstrated through documentation of the applicant’s legal authority.

An applicant may be a single landowner or operator/lessee responsible for all compliance requirements, including implementation and operation of the BMP Plans, maintaining adequate documentation of BMP implementation, and satisfying all reporting requirements for all lands in the permit boundaries. If the operator is not the landowner, the operator shall have the authority and the ability to implement BMPs and manage compliance with all conditions of the permit. In addition, the operator shall provide any written contracts or agreements demonstrating this authorization.

An applicant may be the single controlling entity for a permit boundary that includes multiple landowners and/or lessees as long as the applicant accepts responsibility for compliance with all conditions of the permit. The applicant shall have legally binding agreements with parcel operators to allow access to District personnel, when applicable, and to provide copies of records documenting BMP implementation. The South Florida Water Management District (SFWMD) shall contact the permittee to arrange site visits and review of documentation for all lands in the permit boundaries.

To qualify for a General Permit, the BMP Plan must be fully implemented within 90 calendar days. The 90-day implementation period may be exceeded only if the following conditions (Rule 40E-63.442(5), F.A.C.) are met:



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1. A new SWM/ERP permit or a modification of an existing SWM/ERP permit is required to construct the BMP, and
2. The SWM/ERP permit application has been submitted to the SFWMD, and
3. Interim BMPs are selected and implemented until construction is complete and the new BMP is in place.

Individual Permit

An Individual Permit is required for the following:

1. *Multiple landowners/lessees (co-permittees)*. The applicant may be a single entity or multiple entities (co-applicants). For the purpose of reporting to SFWMD, if there are co-applicants, there shall be a single representative for all of the participants. Upon issuance of the permit, each participant will be considered a co-permittee and shall submit a certificate of participation with the application. Although all reporting requirements are made to SFWMD by the single representative, all participants shall be legally responsible for permit compliance with respect to the acreage under each participant's operation; and/or
2. *Applicants wishing to implement an on-site discharge monitoring plan; and/or*
3. *Applicants wishing to implement BMP's not listed in the BMP Equivalent Points Tables; and/or*
4. *Applicants requiring more than 90 days to fully implement the proposed BMP Plan, unless they meet the requirements set forth in Rule 40E-63.442(5) F.A.C.*

Permit Modifications

Permit modifications of an existing permit are required for significant changes to the permit, including, but not limited to adding/subtracting acreage, alterations to the approved BMP Plan, changes to the discharge monitoring plan, addition/deletion of discharge structures, merging of basins, changing basin boundaries, modifications that result in a change in the conditions of an Individual Permit, or modifications that change the land use.

Permit Transfers

A request for transfer of an existing permit must be initiated within 30 days of any transfer, sale or conveyance of property. To qualify for a permit transfer, an action must be limited to changes in administrative information about the permittee, for example, name, address, title (see page 8 of the Permit Application Form 1045 in this guidebook).

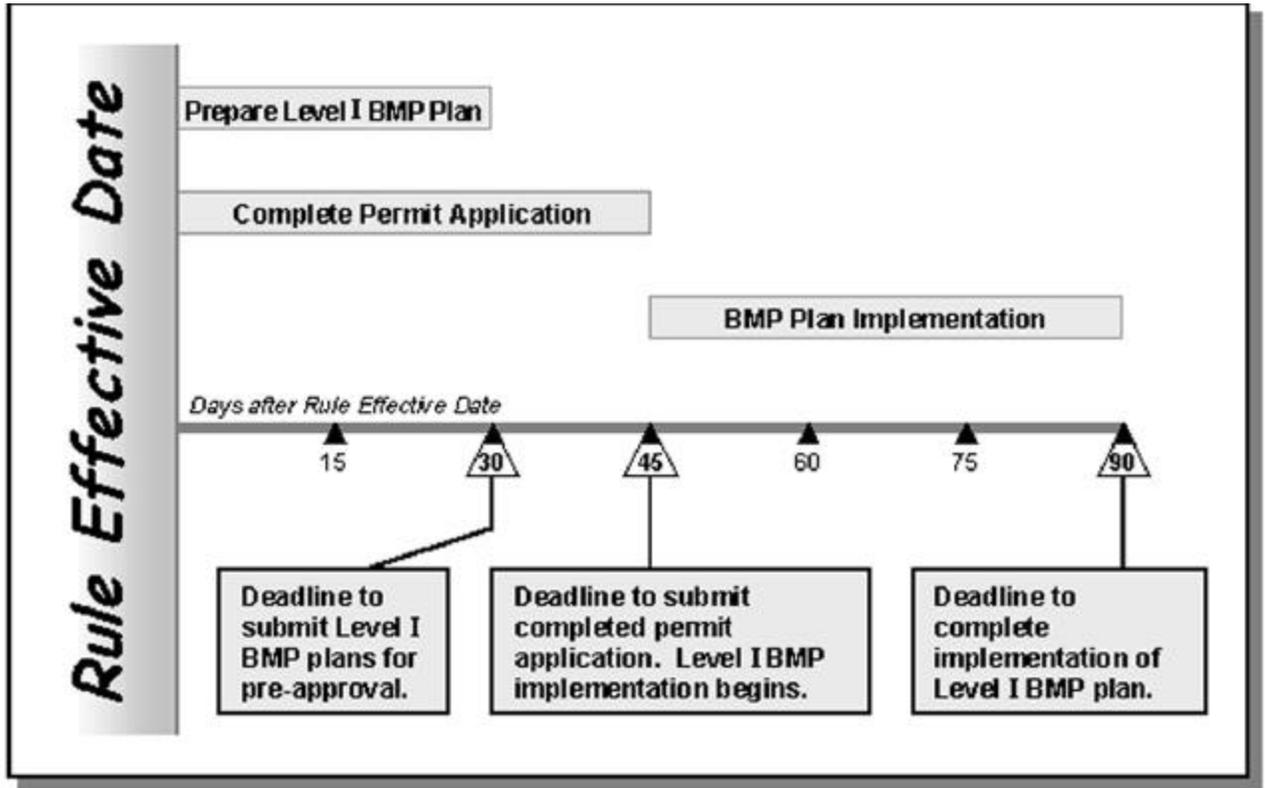
Permit Renewals

Permit renewals must be applied for prior to the expiration of an existing permit. Permits are generally valid for approximately a 5-year term. If a permittee allows a permit to expire prior to submitting an application for renewal, the expired permit will no longer be valid and a new permit must be obtained.



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TIMELINE



APPLICATION CHECKLIST

The completed application must include the following:

- 2 signed originals of the completed Application Form 1045*
- Correct application fee in the form of a cashier's check or money order made payable to "South Florida Water Management District"

2 copies of all items listed in the guidebook including:

- A map that correlates all parcel owners, operators, and lessees, with the county tax identification numbers (see page 7 of the Permit Application Form 1045 in this guidebook)
- Completed Best Management Practices Plan for each level of implementation (see pages 9 through 11 of the Permit Application Form 1045 in this guidebook)
- Copies of any written contracts, leases, or agreements where applicable
- Maps: either aerial photographs, sketches, or drawings that show, at a minimum, the property boundaries, location of the discharges, structures, primary and secondary canals and ditches, drainage flow patterns, the names of individual landowners and their associated parcels, land use, and BMPs.

* Items required for the application to be considered filed



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APPLICATION INSTRUCTIONS

PART I. GENERAL INFORMATION

Section 1. Permit Information

What is the difference between a General Permit and an Individual Permit?

A *General Permit* is valid when a single entity (Rule 40E-63.440, F.A.C.) is responsible as the permittee for satisfying all terms and conditions of the permit.

An *Individual Permit* is valid for multiple entities applying collectively as co-permittees, each accepting responsibility for satisfying terms and conditions of the permit.

An *Individual Permit* is also required under any one or more of the following four conditions:

1. The applicant intends to implement an optional discharge monitoring program, or
2. The applicant proposes using a BMP not listed in the BMP Equivalent Points Table, or
3. The applicant's BMP implementation schedule exceeds 90 days (see Rule Rule 40E-63.442(5), F.A.C. for the exception).

What other Permits might be needed?

If the proposed Best Management Practices (BMP) Plan requires any changes to the existing water management system, it may be necessary to modify an existing consumptive water use, environmental resource program, surface water, right-of-way, and/or well-construction permit or apply for a new permit, where applicable. Questions about these permits or the need for one can be addressed by contacting the SFWMD at 561-686-8800 or visiting the website at www.sfwmd.gov.

Section 2. Applicant Information

The applicant is usually the responsible entity that will become the permittee or the co-permittee's representative once the permit is issued. An agent can be designated through an original letter of authorization from the responsible entity. In any case, the name, title, company name, address, and phone number of both the applicant and agent are required.

Section 3. Drainage Information

- Identify farms that discharge offsite by names and locations (section, township, range). If there is no farm name, it may be identified by section/township/range, landowner name, or similar naming convention.
- List the type of each off-site discharge for each farm. If there is no point source discharge, note this by saying "non-point" or overland flow off-site.
- Provide the total acreage drained. The sum of all of the individual farm acreage should equal the total permitted acreage.
- If a controlling discharge structure exists, please provide proof of ownership or authority to operate.



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Section 4. Additional Required Information

Additional documentation needed to consider the application complete includes, but is not limited to the following (copies are acceptable):

- Description of the entity legally responsible for implementation of BMPs. This may be the landowner or a lessee. To qualify as an applicant, a lessee shall provide documentation to show authority to operate, including a copy of the applicable lease agreement. The lease must be effective for the duration of the permit. The lessee shall formally accept responsibility for ensuring that all conditions of the permit are met, including BMP implementation, record keeping, reporting requirements, and field verifications, when applicable.
- Documents that verify ownership of the parcels and/or structures. A recorded deed, affidavit of ownership, or executed contract for purchase will satisfy this requirement.
- Written contracts or agreements with landowners, lessees or other entities, as applicable, describing authority and responsibility.
- Written contracts, agreements or equivalent regarding use or operation of the parcels and/or structures, such as lease agreements, as applicable.
- A clear delineation of the area and acreage contained in the permit application, including maps correlated to the list of parcel owners and lessees. Maps can be aerial photographs, sketches or drawings that show the property boundaries, locations of discharge structures, primary and secondary canals and ditches, drainage flow patterns, names of individual landowners, land use, and BMP implementation.
- The Best Management Practices Plan selected from the BMP Equivalent Points Tables, specific to crop or land use for each hydrologic drainage area (farm) described in the permit.
 1. Level I and Level II: a total of 15 points for initial implementation;
 2. Level III: the previous BMPs and an additional 10 BMP points (25 points total); and
 3. Level IV: the previous level BMPs and an additional 10 BMP points (35 points total).

PART II. PROPERTY INFORMATION

The purpose of this section is to identify all owners, lessees, properties, acreage, and associated property tax identification numbers. Part II must be completed for the applicant and each participant, as applicable.

Part II is required for a new application as well as a modification to a permit, as applicable. Check the applicable box as to whether this is a new participant or a participant in an existing permit (existing permit modification).

Section 1. Owner/Lessee Information

Provide the name, address, and phone number of the participant, i.e. parcel owner and the lessee, if applicable.

Section 2. Individual Parcel/Farm Information

- A separate sheet must be completed for each farm. The information in this section must correlate with the information provided in Sections 1 and 3.



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- Provide some way of identifying the farm. This can be done using the owner name, identification numbers, section/township/range, or some other designation (examples: Smith Farm 31, Smith North Farm, Farm Section 31).
- Briefly describe the current land use (examples: all cane, cane with vegetable rotation, sod, cane with rice rotation, pasture).
- List tax identification numbers for all parcels that make up the farm. Use additional sheets if necessary. One farm boundary may include one or more tax identification numbers. The total acreage of the parcels should match the total farm acreage.

Section 3. Certificate of Participation

The certification statement, indicating that the applicant/co-applicant will abide by the conditions of the permit, must be signed and dated by each participant whether it is the owner or lessee that is applying as an applicant or co-applicant, as applicable.

PART III. REQUEST FOR C-139 BASIN PERMIT TRANSFER

To qualify for a permit transfer, the changes must be limited to administrative information about the permittee. Section 1 and Section 2 may be completed and submitted separately, although both sections are required prior to approving the application for transfer.

All other changes or additions will require a permit modification.

Section 1. Permittee Information

This section is to be completed by the current permit holder. It requires:

- Name, address, and phone number of the current permit holder and the proposed transferee.
- Reason for the permit transfer with supporting documentation, for example: copy of a deed, lease, or contract.
- Original signature of the current permit holder and date.

Section 2. Transferee Information

This section is to be completed by the proposed transferee. It requires:

- Applicable transfer application fee and documentation.
- Original signature of the transferee and date.

PART IV. C-139 BASIN BMP PLAN

What is a BMP Plan?

A Best Management Practices (BMP) Plan combines the use of various operational programs and/or physical enhancements to minimize the levels of phosphorous leaving a farm. The BMP Plan is created by completing pages 9 through 11 of the application form in this guidebook. Each BMP is assigned a certain number of “equivalent points” for each crop type or land use.



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These “equivalent points” give the landowner the flexibility to develop a BMP Plan best suited for site-specific geographic and crop conditions and ensures an equivalent level of BMPs between farms. The BMP Plan identifies a minimum number of BMP equivalent points for each level of implementation.

When completing the BMP Plan form, please note the following:

1. The shaded cells in the table indicate the BMP is not applicable to the specific land use;
2. A BMP Plan must be completed for each land use within the permitted acreage;
3. The total points for each column must be the minimum required for that level;
4. If a proposed BMP is not described on the BMP Equivalent Points Table, page 12 must be completed for an alternate BMP. Alternate BMPs are only allowed under Individual Permits.

BMP implementation must include the following:

1. A description of the best management practice rationale, where appropriate;
2. An education and training program, arranged by the permittee or other educational resource, for management and staff responsible for implementing, documenting, and monitoring the approved BMP Plan;
3. A schedule for implementing the BMP Plan that includes, at a minimum, the initial BMPs to be fully implemented within 90 days of the effective date of Part IV of this Chapter 40E-63, F.A.C.; and
4. A description of the records and documentation to be maintained on-site to verify BMP implementation. Examples of documentation are described on the checklist entitled “C-139 Basin Annual Report,” found in the Guidebook under the Post Permit Compliance Section, Appendix C.

PART V. C-139 BASIN OPTIONAL DISCHARGE MONITORING PLAN

What is the Optional Discharge Monitoring Plan?

Water discharged from the C-139 Basin is monitored by SFWMD for phosphorous load (quality and quantity). The implementation of a discharge monitoring plan upstream of SFWMD monitoring sites on individual lands is optional. A landowner opting to monitor and record the discharges from the property must apply for an Individual Permit, submit a discharge monitoring plan that meets specified criteria and have the plan approved by the SFWMD. These farm-level monitoring plans consist of daily flow measurements achieved by maintaining operation logs during discharge events, collecting and compositing farm discharge water samples, analyzing those samples for total phosphorous, and submitting data to the SFWMD. The on-farm data will be evaluated for individual basin compliance if the C-139 Basin is determined to be out of compliance (see Appendix B3 of Chapter 40E-63, F.A.C.). A permittee implementing a permitted discharge monitoring program may be released from Level III and IV BMP implementation only after their written request for release is approved by the SFWMD. Under no circumstance will a release from Level I and II requirements be considered.



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BMP Equivalent Points Table

BMP	PTS	DESCRIPTION
NUTRIENT CONTROL PRACTICES		MINIMIZES THE MOVEMENT OF NUTRIENTS OFF-SITE BY EFFICIENT AND CONTROLLED APPLICATION
Nutrient Application Control*	2 ½	Uniform and controlled boundary application of nutrient with a minimum 4' setback from canals with no overlapping application for each application method (e.g. banding at the root zone or side-dressing, pneumatic controlled-edge application such as AIRMAX); fertilization through low volume irrigation system applied at root zone (fertigation); controlled placement by fertilization under plastic near root.
Nutrient Spill Prevention*	2 ½	Formal spill prevention protocols (storage, handling, transfer, and education/instruction).
Manage Successive Vegetable Planting to Minimize P	2 ½	Avoid successive planting of vegetables or other crops having high P needs to avoid P build up in soils. Includes successive planting with no successive P application.
Recommended Nutrient Application based on Plant Tissue Analysis	2 ½	Avoid excess application of P by determining plant nutrient requirements for adjustments during next growing season (crop specific).
	5	Citrus only – Additional points allowed for citrus because it provides information on current season P requirements.
Recommended Nutrient Application based on Soil Testing*	5	Avoid excess nutrient application by determining P requirements of soil and follow standard recommendations for application rates (crop specific).
Split Nutrient Application	5	More efficient plant uptake of P by applying small portions of total recommended P at various times during the growing season. Not to exceed total recommendation based on soil test.
Slow Release P Fertilizer	5	Avoid flushing excess P from soil by using specially treated fertilizer that releases P to the plant over time.
Reduce P Fertilization	5	Reduce the P application rate by at least 30% below the recommendation based on soil tests. Provide basis for reduction credit.
No Nutrients Imported Via Direct Land Application	15	No application of P, in any form, to the soil for amendments or plant nutrients. (Native and semi-improved range can claim this BMP and still apply fertilizer at maintenance or less than optimum production levels as a grass supplement every 6-8 years.)
No Nutrients Imported Indirectly Through Cattle Feed	15	No P import to the basin through cattle feed (note: native range is not excluded by use of mineral supplements or molasses)
Nutrient Management Plan (Level I & II/III/ IV)	15/25/35	Managing the amount, source, placement, form, and timing of the application of nutrients on lands with cattle operation.

A BMP Plan is required for each land use or crop. BMP Plans shall be implemented across the entire farm acreage (drainage area) with individual BMPs consistently implemented across each land use (crop) area.

*See notes on page 22.



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BMP Equivalent Points Table

BMP	PTS	DESCRIPTION
WATER MANAGEMENT PRACTICES		MINIMIZES THE QUANTITY OF OFF-SITE DISCHARGES WHICH CARRY NUTRIENTS DOWNSTREAM
½ Inch Detained 1 Inch Detained	5 10	Delayed discharge (based on measuring daily rain events using a rain gage).
Improvements to Water Management System Infrastructure to Further Increase Water Quality Treatment	5	Recirculation of water internal to the drainage of the farm to improve WQ prior to off-site discharge (Particularly applicable to discharge from rice and vegetables), includes: fallow field flood water with no direct discharge (instead allow to “drain” via evapotranspiration, seepage, use as irrigation water); or Increasing water detention using properly constructed canal berms.
Reduced Flow through Water Table Management	5	Decreasing discharge by optimizing drainage and irrigation schedules and/or by using low volume irrigation methods, e.g. drip irrigation
Approved and Operational Surface Water Reservoir	10	Properly permitted, constructed and maintained storage system meeting specified ERP Basis of Review criteria (version in effect at the time of permitting or in effect at the time of permit modification for modified systems): System meets Section 5.2.1 Water Quality Criteria-Volumetric Requirements
	10	System meets Section 6.2 Water Quantity Criteria-Discharge Rate
	15	System meets Section 6.3 Water Quantity Criteria-Design Storm (must have a valid construction and operating permit)
Temporary Holding Pond	15	Temporary agricultural activities (as described in Chapter 40E-400, F.A.C.) with a properly constructed and permitted temporary holding pond.
No Direct Discharge	15	Overland sheet flow over entire property, no direct discharge.

A BMP Plan is required for each land use or crop. BMP Plans shall be implemented across the entire farm acreage (drainage area) with individual BMPs consistently implemented across each land use (crop) area.

*See notes on page 22.



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BMP Equivalent Points Table

BMP	PTS	DESCRIPTION
PARTICULATE MATTER AND SEDIMENT CONTROLS		MINIMIZES THE MOVEMENT OF P, IN PARTICULATE MATTER AND SEDIMENTS, OFF-SITE BY CONTROLLING THE AMOUNT OF ERODED SOIL AND PLANT MATTER IN DISCHARGE
Any 2	2 ½	<ul style="list-style-type: none"> • control erosion by leveling fields • minimize sediment transport with slow velocity in main canal near discharge structure
Any 4	5	<ul style="list-style-type: none"> • reduce soil erosion using grassed swales and field ditch connections to laterals
Any 6	10	<ul style="list-style-type: none"> • minimize sediment transport into canals by constructing ditch bank berms
Any 8	15	<ul style="list-style-type: none"> • minimize sediment build-up through a canal cleaning program • minimize P from plants by aquatic weed control (P source) at main discharge locations • reduce sediments transported offsite by using field ditch drainage sumps • reduce debris (P source) leaving the site by using barriers at discharge locations • reduce soil erosion with constructed ditch bank stabilization • minimize sediment transport with slow field ditch drainage near pumps/structure • reduce sediments transported offsite by maintaining a sediment sump/trap upstream of drainage structure • maintain sustainable forage growth on pasture to reduce soil erosion/range seedings • reduce sediments transported offsite by stabilizing soil through infrastructure improvements at canal/ditch intersections (e.g. flexible plastic pipe, polymer treatment) • reduce soil erosion with cover crops • reduce sediments transported offsite by raising culvert bottoms above all ditch bottoms to minimize sediment transport • reduce soil erosion with vegetation on ditch banks

A BMP Plan is required for each land use or crop. BMP Plans shall be implemented across the entire farm acreage (drainage area) with individual BMPs consistently implemented across each land use (crop) area.

*See notes on page 22.



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BMP Equivalent Points Table

BMP	PTS	DESCRIPTION
PASTURE MANAGEMENT		MINIMIZES NUTRIENTS IN DISCHARGES THROUGH ON SITE OPERATION AND MANAGEMENT PRACTICES
	2 1/2	<ul style="list-style-type: none"> • restricted placement of feeders to reduce "hot spots" near drainage ditches
	2 1/2	<ul style="list-style-type: none"> • restricted placement of cowpens to reduce "hot spots" near drainage ditches
	2 1/2	<ul style="list-style-type: none"> • restricted placement of feed and water to reduce "hot spots" near drainage ditches
	2 1/2	<ul style="list-style-type: none"> • provide shade structures to prevent cattle in waterways
	5	<ul style="list-style-type: none"> • low cattle density (1 head/2 acres, nonirrigated pasture)
	5	<ul style="list-style-type: none"> • reduced P in feed (by a minimum of 20%)
	10	<ul style="list-style-type: none"> • restrict cattle from waterways through fencing of canals in a manner that protects the discharge water quality

A BMP Plan is required for each land use or crop. BMP Plans shall be implemented across the entire farm acreage (drainage area) with individual BMPs consistently implemented across each land use (crop) area.

*See notes on page 22.



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NOTES

A BMP Plan is required for each land use and crop. BMP Plans shall be implemented across the entire farm acreage (drainage area) with individual BMPs consistently implemented across each land use (crop) area.

Minimum required points for each BMP Plan:

- Level I: Initial 15 points for each BMP Plan.
- Level II: First “Out of Compliance”, no additional BMPs; however, onsite verification of BMPs begin. Frequency of visits based on compliance record.
- Level III: Second “Out of Compliance”, 10 additional BMP points for each BMP Plan (25 points total). Onsite verification of BMPs continue.
- Level IV: Third “Out of Compliance”, 10 additional BMP points for each BMP Plan (35 points total). Onsite verification of BMPs continue.

An asterisk (*) indicates a BMP that is required when there is land application of nutrients and no permitted and properly operated surface water detention system.



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NUTRIENT MANAGEMENT PLAN FOR PHOSPHORUS REDUCTION

This type of BMP plan is only applicable to cattle operations. The written plan for managing the amount, source, placement, form, and timing of the application of nutrients and soil amendments containing phosphorus shall address all of the following, including descriptions of records management for each. In order to qualify for the complete nutrient management plan (35 points), all three levels outlined below must be implemented in their entirety. An approved BMP Plan may consist of a Nutrient Management Plan or selection of a combination of BMPs from the BMP Equivalent Points Table, but not both. The Nutrient Management Plan shall address training, implementation and documentation for all elements of the Plan.

Level I – 15 points

AMOUNT

Determine field conditions and recommendations for each tract or field.

- Current and/or planned plant production sequence, crop rotation or pasture plan
- Calibration of application equipment to ensure nutrient application rates
- Soil sampling and laboratory analyses (may include plant tissue testing)
- Recommended nutrient/amendment rates based on soil test results
- Application rate consistent with pre-determined nutrient budget

SOURCE

Determine all phosphorus sources and develop a phosphorus budget for each tract or field. Examples of sources to consider:

- Irrigation water, manure residuals, soil residuals, atmospheric deposition, or other sources of phosphorus
- Content of phosphorus in fertilizers or soil amendments
- Feed or other mineral supplements
- Manure or other organic material (i.e. crop residuals, hay, mortality)

PLACEMENT

Control and management of nutrient storage, transport and deployment. The plan shall address training, implementation and documentation for each of the following:

- Storage control measures to protect phosphorus fertilizer and organic by-products containing phosphorus from weather and leakage
- Spill prevention protocols for storage, handling and transport of fertilizer and organic materials
- Calibration of application equipment to ensure uniform distribution of material at planned rates
- Identification of sensitive areas or resources and the associated nutrient management restrictions
- Identification of setbacks required for nutrient applications adjacent to waterbodies, drainage-ways, and other sensitive areas
- Description of protocols for clean up of spills and residual materials from equipment and proper collection, replacement, usage, and/or disposal



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Form

Analysis and recommendation for type of nutrient supplement and associated application rates and methods for each tract or field. Address, at minimum:

- Accountability for starter fertilizers in recommendations and nutrient budget analyses
- Nutrient value determination and accountability for manure and organic by-products
- Controlled application of phosphorus fertilizer to prevent overlapping and to ensure efficiency in uptake, or slow release fertilization methods
- Fertigation (or chemigation) less than the soil intake/infiltration rate and the total field capacities of the soil

Timing

Describe methodology used to ensure timely application of fertilizer or other nutrients to each tract or field to maximize uptake and minimize the amount of phosphorus transported offsite.

- Use a water budget to guide timing of nutrient applications
- Conduct nutrient applications corresponding with plant nutrient uptake characteristics and requirements
- Avoidance of nutrient applications to saturated soils
- Consideration of weather and climactic conditions (i.e. no application prior to rainfall, high winds)
- Use split applications when possible for greater efficiency and avoidance of potential runoff

LEVELS II AND III

Option A or Option B may be chosen for Level II implementation and the remaining option chosen for Level III.

Option A: 10 points

In conjunction with the previous levels of the Nutrient Management Plan, permittee is required to select and implement a combination of any **six** of the following:

1. Particulate matter and sediment controls listed in the BMP Equivalent Points Table
2. The first four pasture management controls listed in the BMP Equivalent Points Table
3. Additional conservation practices (refer to NRCS Conservation Practice Standards):
 - Conservation Cover (replaces cover crop in table)
 - Grassed Waterway (replaces grassed swales and field ditch connections to laterals in table)
 - Filter Strips or Field Border
 - Irrigation Water Management
 - Conservation Crop Rotation
 - Cover and Green Manure
 - Residue Management
 - Herbaceous Wind Barriers



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Option B: 10 points

In conjunction with the previous levels of the Nutrient Management Plan, permittee elects to implement a Mass-Balance component to eliminate a net export of phosphorus.

Step 1: All “**IN**” sources of phosphorus must be identified, quantified and catalogued in the nutrient budget. Examples of these sources are identified below:

- *Fertilizer applied* – phosphorus content is known
- *Manure or other organic by-product applied* – phosphorus content must be determined by testing or through estimation and the basis for such
- *Irrigation water* – phosphorus content can be determined through water samples or historical background levels
- *Residual manure or organic materials* – phosphorus content must be determined through plant tissue analysis, manure testing or estimation with standard guidelines
- *Feed and mineral supplements* – animal feed phosphorus content is known
- *Cow/calf import* – phosphorus determination for each cow/calf brought onto the farm
- *Mortality* – when disposal is on-farm, phosphorus content of cow/calf
- *Other sources* – phosphorus content from atmospheric deposition, rainfall or other sources may be considered if they can be accurately quantified

Step 2: All “**OUT**” sources of phosphorus must be identified, quantified and catalogued in the nutrient budget. Examples of these sources are identified below:

- *Discharges* – all surface water runoff through sheet flow or by pumping or other means must be tested for phosphorus levels by way of a discharge monitoring plan
- *Crop yields* – phosphorus content in crop yields can be determined through plant tissue analysis or estimation with standard guidelines
- *Cow/calf export* – phosphorus determination for each cow/calf removed from the farm
- *Other organic removal* – phosphorus content from other organics removed from the farm (such as aquatic vegetation, hay, mortalities, etc.) should be considered with accurate quantification methods

Step 3: The difference between the summation of all quantified “IN” sources (*Step 1*) and all quantified “OUT” sources (*Step 2*) will yield the mass balance.

IN – OUT = BALANCE

If the BALANCE is positive, then the net import of phosphorus is greater than the net export and the tract, field or basin is meeting the plan. If the BALANCE is negative, then the net export of phosphorus is greater than the net import and the tract, field or basin is not meeting the plan and will require re-evaluation or additional BMPs. Regardless of the balance, if the water quality of the discharge shows excessive P load compared to the C-139 Basin limitations, additional measures may be required.



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REQUIREMENTS FOR OPTIONAL DISCHARGE MONITORING PLAN

The form and requirements for the optional discharge monitoring plan are listed on page 13 of the application in this guidebook.

WATER QUALITY

Monitoring Requirements

All off-site discharges must be monitored for phosphorous concentrations and water quantities. During periods of off-site discharge, water quality information is obtained through use of an automatic sampler. Samples are collected and preserved, to be delivered to the laboratory no later than 21 days from the time the first sample was drawn. Composite samples are multiple samples that are mixed together to give a mean concentration during a given time period. Sample preservation is conducted by using acid in the composite sample jar prior to the collection of the first sample. Digestion of the phosphorous samples must occur within 28 days from when the first sample was drawn. If the automatic sampling equipment becomes inoperable for any reason, grab samples must be taken twice daily during flow events until the automatic sampling equipment becomes operable. Sampling methods most commonly used are as follows:

Flow-Proportional/Flow Weighted Water Samples (FPFW) – This method is best suited for gradually varying flows that can be approximated by a time function. As flow increases, the number of samples increases.

Time-Proportional/Time Weighted Water Samples (TPTW) – This method is best suited for steady flow discharge in the flow period. When a flow event is triggered, the samples are drawn based on elapsed time. For example, the sampler could be set to draw a sample of a predetermined volume at the beginning of each flow event and every two hours thereafter.

WATER QUANTITY

Monitoring Requirements

Offsite discharges must be monitored to calculate the water quantity and the total phosphorous load. To determine quantity through a control structure, the discharge system is analyzed and a method of calculation is presented to the District in a calibration methodology report for approval. A Florida-registered Professional Engineer (“P.E.”) must prepare the calibration methodology report. Monitoring requirements include, but are not limited to, recording upstream and downstream water level readings twice daily during pump discharge events, flow duration (time), pump speeds as applicable (or engine speeds including verified drive ratios), daily rainfall, weir elevations as applicable, continuous monitoring of culvert water elevations as applicable, and backup monitoring equipment.

REPORTING REQUIREMENTS

Water quality and quantity data shall be submitted to the SFWMD in accordance with permit conditions in an approved electronic format. The permittee is responsible for calculating daily flow according to the permitted methodology.



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Calibrations

A water control structure calibration includes the data collection procedure performed in the field (methodology) and the development of the calibration equation. Water flow and canal water elevation data are collected to predict the amount of water moving through the structure. The mathematical calibration equation is then developed to predict flow for the structure under its full range of operating conditions. This equation is used to calculate flow quantity during discharge events. Accurate operation logs (see sample log next page) must be kept for inputs to calculate flows.

Calibration Report Checklist

- Certification of the calibration and its applicable operating range by a Florida-registered P.E.
- Calibration field data collection methodology
- Calibration data evaluation methodology
- Description of primary and back-up instrumentation necessary to determine flow

Other information required for a calibration report includes, but is not limited to, the following:

- Structure identification (name/number)
- Pump identification (orientation/number)
- Date and reason the calibration was performed
- Date the new calibration equation becomes effective
- Type of structure/pump
- Size of pump, as applicable
- Structure configuration
- Full operating range of the structure or pump, as applicable
- Full range of static lift
- Verification of relativity of upstream and downstream water elevation instruments
- Structure elevations (i.e. pump centerlines, discharge pipe centerlines, weir elevations)
- Drive ratios, as applicable
- Actual raw field data with a minimum of 5 valid test points collected in the full operating range
- Calibration equation and basis for determination
- Sample log (must record upstream and downstream water elevations at approximately the same time each day, pump/engine speeds, start/stop times, daily rainfall, operators initials)
- Signed and sealed engineer's certification statement

For both pumps and culverts, upstream and downstream water level elevations must be recorded during discharge events. If the discharge structure is a culvert or a weired culvert, water elevations must be continuously recorded and the weir elevation must be documented with all changes in elevation (i.e. adding/removing boards) noted and dated. If the structure is a pump, the start and stop time, upstream and downstream staff gage readings (at least twice daily at approximately the same time each day), and pump speed must be recorded. A sample pump log is included on page 28 of this guidebook. Changing an engine or a drive ratio will affect calculated flows and must therefore be reported at the time the change is made. Modifications to a structure may affect the previously approved calibration and must be reported to the SFWMD. The SFWMD's "Flow Calibration Guidelines" shall be used for review criteria.

Calculations

Daily flows can be determined by calculating the flow at the first daily reading and at the second daily reading. Each of these readings can then be multiplied by half of the total daily hours of operation and summed for daily flow. Other flow calculation techniques may be acceptable. The SFWMD must approve the calculation methodology in the discharge monitoring plan.



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SAMPLE PUMP LOG

DAY	START / CONTINUE				STOP				RAIN	INIT.	COMMENTS
	TIME	RPM	INSIDE GAUGE	OUTSIDE GAUGE	TIME	RPM	INSIDE GAUGE	OUTSIDE GAUGE			
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
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POST-PERMIT COMPLIANCE

As part of permit compliance, the permittee is required to certify annually that the permitted BMPs are being implemented for the previous calendar year. The report must be submitted to the SFWMD Regulation Department by February 1 of each calendar year. The "C-139 Annual Report – Certification of BMP Implementation" form (hereinafter referred to as "BMP Annual Report") is included on page 30 of this guidebook to meet this reporting requirement. The form shall be completed for each land use or farm. The permittee shall indicate on the form the BMPs that were implemented on the associated parcels for the previous calendar year.

BMP implementation includes record keeping and documents available for review by SFWMD staff that demonstrate the implementation of BMPs. Examples and details are listed on the BMP Annual Report form.

A second function of permit compliance is on-site BMP verifications by SFWMD staff. This component is only initiated by the SFWMD if the C-139 Basin is determined to be out of compliance. The documentation described above shall be available to SFWMD staff for review during these site visits.

Finally, for the Optional Water Quality Monitoring Program, the permit compliance activities include the monthly submittal of data to the SFWMD (see page 26 of this guidebook for details of this plan), quality control audits of data, verification of calculated flow, and compliance with conditions as specified in the permit.

Comprehensive BMP Annual Report

If the C-139 Annual Report form is not submitted by February 1 of each year, the permittee shall submit a comprehensive BMP Annual Report. The comprehensive BMP Annual Report is a more detailed version of the BMP implementation form that follows. It includes the form and the required supporting documentation to verify the implementation of each BMP. This documentation includes all maps, copies of sample receipts, laboratory reports, etc. Examples of other acceptable documentation are listed on the form.