SCHEDULE 4.2

BEST MANAGEMENT PRACTICES PLAN
SUGAR CANE PRODUCTION

UNITED STATES SUGAR CORPORATION
PALM BEACH, HENDRY, AND GLADES COUNTIES, FLORIDA

Prepared for

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

January 12, 2009

Prepared by

URS Corporation
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January 12, 2009

Mr. Robert Taylor
Lead Environmental Engineering Specialist
Land Management and Land Acquisition Division
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

Subject: **Environmental Best Management Practices Plan-Sugar Cane Production**
United States Sugar Corporation
Palm Beach, Hendry, and Glades Counties
State of Florida
Job # 38617-027

Dear Mr. Taylor,

URS Corporation (URS) is pleased to present this Environmental Best management Practices (BMP) Plan for the United States Sugar Corporation (USSC) sugar cane production properties in Palm Beach, Hendry, and Glades Counties, Florida.

It is URS' understanding that as the property owner, the South Florida Water Management District (District) desires to have in place a set of general environmental BMP's for the sugar cane operations that are designed to maintain/protect water quality in accordance with the State's water quality standards, maintain the soil and water quality at the site which will not prohibit the District from using property as a water attenuation reservoir in the near future, and that will concurrently allow for continued economically-viable agricultural production on the site. This BMP plan is designed to meet these expectations by providing guidance to the USSC property on environmental preventative measures to be proactively implemented.

Sincerely,
URS Corporation

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1.0 OVERVIEW

1.1 BACKGROUND

The South Florida Water Management District (District) has acquired approximately 180,000 acres of the United States Sugar Corporation (USSC) properties in Palm Beach, Hendry, and Glades Counties, Florida for future restoration purposes such as water storage reservoirs and wetlands. **Figure 1** illustrates the USSC properties. Of the 180,000 acres, an estimated 150,000 acres is used for the cultivation of sugar cane. **Figure 2** illustrates the tracts of land in eastern Glades, eastern Hendry, and Palm Beach Counties that are utilized for the cultivation of sugar cane. Additionally, portions of the 150,000 acres are subleased each year for the cultivation of vegetables. The vegetables that are typically grown are corn, beans, and watermelons. This Environmental Best Management Practices (BMP) Plan shall be implemented by future tenants of the District that engage in sugar cane and vegetable production on portions of the acquired properties.

During the interim period (from acquisition to construction/land conversion), the District intends to utilize the property for continued agricultural operations primarily for the cultivation of sugar cane. In general, this BMP requirements document is not regulatory or enforcement based (as opposed to any existing or future permit that may contain BMP requirements); however, failure of a tenant to implement this BMP Plan will constitute a breach of the tenant's lease with the District. BMPs are production systems and management strategies scientifically shown to minimize adverse water quality and other environmental impacts of sugar cane production. BMPs can be defined as those operational procedures designed to achieve greatest agronomic efficiency in food and fiber production, while limiting the off-site effects of agricultural operations and maintaining an economically viable farming operation. All BMPs must protect the environment and be economically viable. A small percentage of the 150,000 acres, an estimated 2% to 4%, is used for vegetable growing as part of the sugar cane crop rotation. These acres are subleased to independent farmers who grow the vegetables. In the event that USSC plans to sub-lease large portions/substantial additional acres for vegetables or other crops not associated with the typical crop rotation, the District must be notified prior to leasing the acreage. It will be the District's lessee's responsibility to insure that its sub-tenant complies with the BMP Plan.

There are several sources of research that have been used to develop BMPs for sugar cane production in Florida. Primary sources include the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), University of Florida/Institute of Food and Agricultural Sciences (IFAS), Environmental Protection Agency (EPA), Florida Department of Environmental Protection (FDEP), and Florida Department of Agriculture and Consumer Services (FDACS). This document cites pertinent documentation from these sources that may guide the implementation, evaluation, verification and validation of each BMP.

The proposed acquisition areas have been cultivated since the 1920s. Initially vegetables were cultivated. Beginning in the 1930s, the predominant crop was sugar cane. Maintenance buildings with chemical storage areas are strategically spaced throughout the acquisition areas, as well as diesel powered pump stations and re-fueling areas. A railway system located throughout the properties is used to transport the sugar cane to the mills. Rail sidings, which are used to load the harvested sugar cane onto rail cars, are strategically placed along the railway system. Agrochemical application is conducted using mobile

equipment and also applied aerially, and the agrochemicals are stored in designated areas at the maintenance buildings. For tracts that are leased for vegetable cultivation, the agrochemicals are stored off-site and transported to the vegetable growing are on an as-need basis. USSG property personnel indicated there have been no central burn pits and the paper, boxes and cartons generated as part of the farming operations were burned in many small areas throughout the properties. Agricultural air strips are located on several properties.

1.2 ENVIRONMENTAL SITE ASSESSMENT (ESA)

Phase I and Phase II Environmental Site Assessment (ESA) activities were conducted on the property in August and September 2008 by Professional Services Inc. (PSI). Identified areas of potential point sources associated with the sugar cane operation are primarily:

- Chemical Storage and/or Maintenance Areas
- Airplane Landing Strips
- Equipment Staging Areas
- Diesel Powered Pump Stations
- Fuel Storage / Re-Fueling Areas

Section 2.0 provides descriptions of a variety of environmental BMPs as part of the sugar cane and vegetable operations. Although all BMPs are important with the need for diligent on-going implementation, particular attention needs to be addressed to the following:

- Pump Stations
- Chemical Storage Areas
- Copper Based Nutrients

Given below is a summary of the observations made during the Phase I ESA, as well as the results of the Phase II ESA at the above referenced areas/issues and URS' recommendations to address the issues.

- Diesel powered pump stations with aboveground storage tanks (ASTs) used to store diesel fuel were observed on the properties. The pump stations are used to control water in the cultivated fields. Soil staining and/or petroleum impacted soils were identified at most of the pump stations. **URS recommends implementing preventative measures for petroleum spills and diesel AST leaks. This should include repairing any leaks and use of absorbent material when leaks and/or spills occur. URS also recommends that site inspections be routinely conducted when the pump station (s) are in operation to verify the pump stations are being properly maintained and in compliance.**

- Chemical and equipment storage areas were observed on the properties. Areas of petroleum and agrochemical stained soil and stressed vegetation were observed at numerous chemical and equipment storage areas. **URS recommends improving housekeeping at the storage areas. This should include proper handling and storage of agrochemicals and use of absorbent at the equipment storage areas. URS also recommends monthly site inspections to verify the storage areas are being properly maintained.**

- During the Phase I ESA, PSI identified copper based nutrients from the USSC pesticide application records. Due to these copper based nutrients, PSI analyzed for copper in the sugar cane cultivation areas during the Phase II ESA. PSI divided the sugar cane cultivation area into 40-acre grids and sampled approximately 20% of these 40-acre grids that were historically and currently cultivated with sugar cane. An eight point composite sample was collected from each grid with each aliquot representing approximately 5-acres. All aliquots were collected from a depth of 0 to 6-inches bls using a stainless steel sample barrel. The Phase II ESA sampling identified areas of elevated copper in the sugar cane cultivation areas copper above the Service provisional Snail Kite threshold level of 85 milligrams per kilogram (mg/kg).

- URS identified 105, 40-acre grids with copper concentrations ranging from 70 mg/kg to 85 mg/kg, and 104, 40-acre grids with copper concentrations above 85 mg/kg. The current rates of application and amounts of copper based nutrients were review that have been applied on the USSC property. Utilizing this information, a mass balance equation was developed in order to determine if additional acreage would be impacted by copper based on the current application activities. URS determined that copper could potentially increase in the soils, per application, at a rate of 2.08 mg/kg per acre. Based on this application rate, and the fact that the property is leased through 2016, 12, 40-acre grids have the potential to accumulate copper above the Service's interim value for copper of 85 mg/kg during the lease agreement. However, most of the 12, 40-acre grids are located adjacent to soils with copper concentrations exceeding 85 mg/kg and/or are co-located with historically applied agrochemicals (organochlorine pesticides) that are targeted for abatement. **The current nutrient application regiment is acceptable over most areas. Based on the Phase II findings on elevated copper concentrations, no copper should be applied on the 4,160-acres. URS recommends sampling select areas within the cultivated fields every year in order to monitor the copper concentrations in the soil. Section 3 gives details of the sampling and compliance plan. In the event that USSC plans to increase the applications rate of the copper based nutrients, URS recommends that USSC discuss the application increase with the District prior to implementing.**

1.3 OBJECTIVE

Given below are sets of guidelines and requirements proposed for the day-to-day sugar cane farming operations:

- Continued economically-viable sugar cane operations on the properties that is agreeable for implementation by the lessee/tenant during the interim use,

- Maintain/protect water quality in accordance with the State's water quality standards; prevent exceedances of applicable State soil or groundwater Cleanup Target Levels" (CTLs) as set forth in Tables 1 and 2 of 62-777, F.A.C.; and implement such measures as necessary to maintain existing levels of pollutants and not interfere with District's intent to use the premises as a future water resource project.
- Comply with State regulations that are applicable to the sugar cane operations that result in conditions that will maintain the soil and water quality at the site which will not prohibit the District from using the property as a water attenuation project area at the end of the interim use period.
- Comply with permits/consent agreements issued by the District approving the site specific BMP plan for Water Management, Nutrient Management and Fertilizing, and Erosion/Sediment Control and the Discharge Monitoring Plan for nutrients (phosphorus and nitrogen).

A list of agrochemicals currently used was provided to the District. The chemical usage list is included in *Section 2.6.1 Acceptable Agrochemicals and No Application Periods*. In the event that changes are made to the agrochemical list, a revised list should be provided to the District and should consist of a detailed specific agrochemical and pesticide product list, to include the quantity used, rates of application, and an evaluation of crop areas for effectiveness of the pesticides.

The U.S. Fish and Wildlife Service (Service) document titled "Derivation of No Application Periods for Interim Use Pesticides" defines the no application period as *the period of time prior to the conversion of the agricultural land to conservation purposes (i.e. flooding to create wetlands) during which a particular pesticide hazardous to fish and/or wildlife should not be applied, in order to allow adequate time for breakdown of pesticide residues before use of the land by the Service trust resources. This period of time was defined as five times the median half-life, representing 97 percent degradation.* A copy of this document is included in **Appendix A.**

1.4 STANDARDIZED BMP CHECKLIST

The District's intent is to ensure consistency of BMP implementation and future verifications on two levels:

1. Consistent BMP verification for each visit to the USSC properties; and,
2. Consistent BMP verification for site visits to similar land use operations.

In some cases, previously developed District and USSC BMP plans were earlier generation versions focused on addressing specific issue areas (i.e., phosphorous control) while possibly not addressing additional areas of the District's potential concern (i.e., petroleum management, chemical usage). In addition, there may be supplementary areas of common good management practices, such as general site condition housekeeping, that are to be included in all BMP site verifications.

An example of the Standardized *BMP Site Verification Findings Summary* checklist is provided in **Appendix B,** as a supplement to any previously developed site-specific BMP Plan. The checklist is

intended to serve as an additional guide to prepare for BMP site verification by the District representatives. The checklist attempts to identify BMP verification aspects which will require field observations and verification aspects which will consist of records review.

The following matrix and equivalent points table provides a *quick-glance* summary of the BMPs established for the agricultural operation. Further discussion of each BMP and key points to assist with advance preparation of BMP site verification are provided in **Section 2**.

Best Management Practices Checklist

United States Sugar Corporation
Palm Beach, Hendry, and Glades Counties
State of Florida

BMP Group/BMP Name	Site Verification		Training & Communications
	Observations	Records	
GENERAL			
• *Education-Employee Training* • *Overall Operations 'Housekeeping'*	✓	✓	✓
EXOTIC VEGETATION CONTROL			
Upland Exotic Vegetation Control • *Control and eradicate to the extent practicable Category I and II exotic/invasive pest plants*	✓		✓
Aquatic Exotic Vegetation Control • *Control and eradicate to the extent practicable Class I and II prohibited aquatic plants*	✓		✓
EARTHWORK			
No unpermitted earthwork, excluding ditch and routine maintenance. All non-routine maintenance requires contacting the District for approval.	✓	✓	✓
PESTICIDE & HERBICIDE MANAGEMENT			
Allowable agrochemical list and *No Application Period*		✓	✓
Pesticide & Herbicide Management • *Pesticide record keeping* • *Read and understand label* • *Pesticide storage*		✓	✓
Pesticide & Herbicide Application Optimization • *Integrated pest management* • *Application timing* • *Customized applications* • *Maintain soil pH in optimum range* • *Pesticide selection*	✓		✓
Pesticide & Herbicide Handling and Placement • *Reduce spray drift* • *Equipment calibration and maintenance* • *Pesticide spill management* • *Pesticide application equipment wash water* • *Prevent backflow to water sources* • *Mixing and loading activity locations* • *Pesticide container management* • *Excess pesticide mixture* • *Excess formulation (raw product)*	✓		✓
COPPER			
Minimize Use of Copper	✓	✓	✓
PETROLEUM & HAZARDOUS WASTE MANEGEMENT			
Gasoline and Diesel Fuel Storage & Containment • *Site equipment* • *Fuel delivery*	✓		✓

BMP Group/BMP Name	Site Verification		Training & Communications
	Observations	Records	
Farm Equipment Cleaning and Maintenance • *General equipment cleaning* • *Solvents and degreasers* • *Paint* • *Used oil, coolant and lead-acid batteries*	✓		✓

Nutrient (Phosphorus and Nitrogen) Load Reduction Best Management Practices
BMP Description and Equivalent Points Reference Table

As provided in **Schedule 4.1**, a separate District-approved BMP Plan is required for each land use or crop for nutrient (phosphorus and nitrogen) load reduction. BMP Plans shall be implemented across the entire farm acreage (drainage area) with individual BMPs consistently implemented during the water year across each land use (crop) area, including temporary, rotational, and cover crops (e.g., corn, watermelons, vegetables) The BMP Plans shall include BMPs from the following categories: water management, nutrient control practices, and particulate matter and sediment controls. Nutrient control practices at a minimum shall include spill prevention, soil testing, and fertilizer application control. The table below provides an array of Nutrient BMPs available for selection by operators. However, operators may propose other Nutrient BMPs to meet the minimum required BMP equivalent points for review and approval by the District.

BMP	PTS	DESCRIPTION
NUTRIENT CONTROL PRACTICES		MINIMIZES THE MOVEMENT OF NUTRIENTS OFF-SITE BY ENSURING RECOMMENDED APPLICATION RATES AND CONTROLLED PLACEMENT OF APPLICATION
Nutrient Application Control	2 ½	Uniform and controlled boundary application of nutrients 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 Phosphorous (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 5	Avoid excess application of P by determining plant nutrient requirements for adjustments during next growing season (crop specific). Pastures with Bahiagrass – Plant tissue analysis along with soil test is required to make nutrient application recommendation.
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 standard recommendations based on soil tests and development of site – specific (optimized) recommendations or application methods. Provide basis for reduction credit.
No Nutrients Imported Via Direct Land Application	20	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: only native range can use mineral supplements or molasses and still meet this BMP)
Nutrient Management Plan	5 - 25	Managing the amount, source, placement, form, and timing of the application of nutrients on lands with cattle operations. See Rule 40E-63.402 (2)

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 by Delayed or Minimized Discharge	5	Recirculation of water inside farm boundaries to improve WQ prior to off-site discharge, 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.
Low Volume Irrigation	5	Use of low volume irrigation methods, e.g. drip irrigation, microjet irrigation.
Approved and Operational Surface Water Reservoir (Fully Certified)*	20	Properly permitted, constructed and maintained storage system meeting specified Environmental Resource Permit (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).
Temporary Holding Pond	15	Temporary agricultural activities (as described in Chapter 40E-400, FAC.) with a properly constructed and permitted temporary holding pond.
Overland Sheet Flow Over Entire Property	15	No drainage improvements made to property so that property drains through overland sheet flow, or drainage improvements such as ditches have been removed to restore overland sheet flow drainage to the property.
No Point Discharge of Surface Water	15	Voluntarily disabling of drainage or implementation of other permanent means to prevent point discharge.
Tailwater Recovery System	10	A planned irrigation system in which facilities have been installed and the system is operated to collect, store, and transport irrigation tailwater and/or rainfall runoff that would have been discharged offsite without the system.
Precision Irrigation Scheduling	10	Combination of soil-moisture measuring equipment, specialized irrigation decision tools (e.g. computer software), and/or remote sensing tools to ascertain real-time crop needs to maximize irrigation system performance and to develop precise irrigation scheduling (time, location and amount).

*Surface water reservoir certification refers to a construction completion certification by a Florida licensed Professional Engineer as required in Chapter 40E-4, F.A.C., using Form 0881A for projects permitted after October 3, 1995, and Form 0881B for projects permitted prior to October 3, 1995, or the current certification requirements of Chapter 40E-4, F.A.C. (except where not required by existing permits).

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 Any 4 Any 6 Any 8	2 ½ 5 10 15	• erosion control by leveling fields • reduce soil erosion using grassed swales and field ditch connections to laterals • minimize sediment transport with slow velocity in main canal near discharge structure • minimize sediment transport into canals by constructing ditch bank berms • minimize sediment build-up through a canal cleaning program • reduce sediments transported offsite by using field ditch drainage sumps • 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 • reduce sediment transport through the use of grassed waterways • reduce sediment transport through the use of filter strips or riparian buffers adjacent to waterways. No P is applied to these areas. • reduce sediments transported offsite by raising culvert bottoms above all ditch bottoms to minimize sediment transport • reduce sediments transported offsite by stabilizing soil through infrastructure improvements at canal/ditch intersections (e.g. flexible plastic pipe, polymer treatment) • maintain sustainable forage growth on pasture to reduce soil erosion/range seedings • reduce soil erosion with constructed ditch bank stabilization • reduce soil erosion with cover crops (not fertilized) • maintain vegetative cover in upland areas to reduce soil erosion • reduce soil erosion with vegetation on ditch banks • minimize P from plants by aquatic weed control (P source) at main discharge locations • reduce debris and aquatic plants (P source) leaving the site by using barriers at discharge locations

BMP	PTS	DESCRIPTION
PARTICULATE MATTER AND SEDIMENT CONTROLS FOR PASTURE MANAGEMENT		MINIMIZES NUTRIENTS IN DISCHARGES THROUGH ON SITE OPERATION AND MANAGEMENT PRACTICES
	2 ½	• restricted placement of stored feed and feeders to reduce "hot spots" near drainage ditches
	2 ½	• restricted placement of cowpens to reduce "hot spots" near drainage ditches
	2 ½	• restricted placement of water to reduce "hot spots" near drainage ditches
	2 ½	• provide shade structures to prevent cattle in waterways
	5	• low cattle density (1 head/2 acres, non-irrigated pasture)
	10	• restrict cattle from waterways through fencing of canals in a manner that protects water quality

2.0 BMP PLAN ELEMENTS AND SITE VERIFICATION GUIDELINES

2.1 GENERAL

2.1.1 Education - Employee Training

The singularly most important part of a BMP plan is the communication, education, and training of employees who will be responsible for its continual implementation on a daily basis.

In the event that obvious and excessive impacts are visibly detected during periodic site visits conducted by the District, a more comprehensive site-specific sampling plan that would depend on the magnitude of the impact should be developed under the direction of the District and applicable regulatory agencies. Many BMPs are good common sense practices which ultimately can produce a cost savings to the site operations, as well as, proactively preventing adverse water quality impacts. An integral part of the employee training should include an overview of the reasons for implementing BMPs as described earlier.

Implementation requirements include:

- Proper training of field operators responsible for handling, loading, and operating fertilizer and chemical application machinery and proper maintenance of field equipment can minimize the potential for misapplication of agriculture related chemicals.
- Training sessions can be formal or informal.
  - Once per year group meetings should be conducted to cover all the BMP topics: overall good housekeeping, water management, fertilizer (nutrient) controls, chemical handing and application, fuel, and equipment maintenance.
  - Frequent (weekly or bi-weekly) reminder sessions keep a more continual message with staff. Frequent meetings can be informal “start-of-day” 15-minute reminders with a different reminder topic referenced each session.
- The transfer of the information received during the required continuing education (such as spray applicator licensing) to the individual chemical application staff is essential.
- A standardized checklist of discussion points could be developed and utilized to ensure all staff are aware of the importance of proper handling and application of fertilizers and chemicals.
- Special efforts should be taken to ensure that non-English speaking field personnel understand proper handling, loading, and operating techniques.
- Record keeping of employee BMP training/communications can include maintaining an Employee Training Checklist such as example provided.

2.1.2 Good Housekeeping

Property infrastructure should be kept in an overall good and repaired condition. Any solid waste, trash and/or discarded equipment should be stored in appropriate areas pending offsite disposal. Equipment and facilities should be kept in a relatively neat and orderly fashion. Fence lines, gates, and signage should be kept in good and repaired condition.

Implementation requirements include:

- BMP implementation is verified by visual observations.

2.2 WATER MANAGEMENT

2.2.1 Minimize Property Over Drainage and Maximize Irrigation Efficiency

Potential movement of water quality constituents originating from fertilizers and agrochemicals is substantially related to irrigation and drainage water management. Irrigation mostly affects the movement of water soluble agrochemicals while drainage mostly affects the movement of chemicals absorbed on soil particles. The primary management objective is to minimize the over drainage of the property by the active control of the site water table.

Implementation requirements include:

- Site verification will include meetings with operation managers to understand property water management approach and visual observation of structures and tools used to assist with water management decisions. Observations will include:
  - Real-time weather monitoring to proactive manage or limit drainage and/or irrigation events.
  - Water management achieved through water control structures such as designed culvert sizes and openings or culverts with flashboard risers.
  - For off-site discharge, on/off control elevations shall be established to initiate and stop draining or pumping. USSC currently has on/off controls on structures that discharge into offsite canals.
  - Partition property into hydrologic blocks to allow for internal water management (as opposed to one location to downstream point) whenever possible.
  - Installed water level indicators (e.g., float wells, staff gauges) can provide a visual indicator of actual water table levels. U.S. Sugar has a water table monitoring system that is in compliance.
  - Daily operation and maintenance must be properly recorded on field logs ensuring that on/off control elevations are met for pumps discharging off site and to surface water impoundments if these elevations are established by the surface water or environmental resource permits. Field log data shall include water table elevations at pump start and stop times, and pump rpms. Daily rainfall data shall be collected at representative locations within the farm to ensure that the on/off control elevations are current with the runoff detention requirements established by the permit.
  - Site verification will include meetings with Tenant/Lessee to review property water management approach, records, and field observation of structures and tools used to assist with water management decisions.

2.3 NUTRIENT MANAGEMENT (FERTILIZING)

At a minimum, the nutrient management BMPs in the District-approved plan shall include spill prevention, soil testing, and fertilizer application control specific to phosphorus and nitrogen.

Phosphorus fertilizer shall be applied at the root zone. Phosphorus application later in the growing season not applied at the root zone will require justification.

2.3.1 Nutrient Application Optimization

Fertilizers can be a significant source of adverse downstream water quality impacts contributing to algal blooms and stimulate growth of noxious plants in receiving water bodies. A comprehensive approach to optimize the amount of nutrients needed for proper vegetation health and productivity while at the same time having a proactive consciousness to minimize the risk to inadvertent potential off-site transport of nutrients is essential. Listed below are the various nutrient application BMP optimization efforts that can be identified in the site-specific BMP Plan:

- Maintain soil pH in optimum range
- Utilize Organic material soil amendments that have water quality benefits
- Appropriate use of other nutrient sources (i.e. non-commercially produced sludge, chicken manure, mill mud, wood chips, bagasse, molasses, etc) and formulations to prevent increased phosphorous and nitrogen loads in discharges off site
- Split fertilizer applications

Implementation requirements include:

- Site verification will include discussion with operation managers to understand the agricultural operation nutrient application optimization approach.
- Records must be available and reviewed to reinforce the implementation tools used to assist with nutrient management decisions. Records shall identify:
  - Areas tested
  - Testing methodology (soil)
  - Test results
  - Application recommendations
  - Application methods (fertigation, soil broadcast, topical spray, aerial, etc.)
  - Actual mixture/application rate applied
- Where actual fertilizer formula or quantity varies from soil test recommendations, notation shall be made to explain the logic for the variations.

All nutrient sampling conducted to insure compliance with the Nutrient Management Plan will be conducted by USSC.

Select soil and groundwater samples will be collected and analyzed for phosphorous and/or total nitrogen. The total nitrogen data will monitored over a 2 to 3 year period and be used to develop a baseline and determine what the background concentrations of total nitrogen are for the USSC properties. Based on the background levels as determined by this sampling, if total nitrogen levels increase over the establish background levels, then USSC and the District will review the application of nitrogen based nutrients.

2.3.2 Nutrient Handling and Placement

Fertilizers can be a significant source of adverse downstream water quality impacts contributing to algal blooms and stimulate growth of noxious plants in receiving water bodies. Proper storage of fertilizers is essential to prevent inadvertent transport of these materials to off-site waterways. Formal practices and protocols shall be established as to the handling and placement of fertilizer, storage and disposal of fertilizer containers, and fertilizer transfer on-site. Fertilizer spills shall be cleaned-up immediately. Listed below are the nutrient handling and placement BMPs for the USSC properties.

- Phosphorus fertilizer shall be applied at the root zone. Phosphorus application not applied at the root zone will require justification.
- Other fertilizers are applied by fertigation, banded, broadcast, topical spray, aerial, etc.
- Nutrients are to be applied only when necessary
- Proper Fertilizer storage (see below)
- Equipment calibration and maintenance must be timely and documented
- Appropriate Fertilizer loading sites (see below)
- Apply materials to target areas without overlapping application of fertilizer
- Avoid high leaching-potential situations
- Promptly recover spilled fertilizer
- Use backflow prevention devices
- Alternate loading operation sites

Implementation requirements include:

- Site verification will include discussion with operation managers to understand the agricultural operation nutrient handling and placement strategies. In addition, site inspections will be made to observe the following items:
  - Always store fertilizer in an area that is protected from rainfall and away from nearby ground and surface water and separately from solvents, fuels, and pesticides since many fertilizers are oxidants and can accelerate a fire.
  - Storage of dry bulk materials on a concrete or asphalt pad may be acceptable if the pad is adequately protected from rainfall and from water flowing across the pad.
  - Permanent liquid fertilizer tanks stored on impermeable surface curbed surfaces, and within secondary containment structures.
  - Bulk fertilizer transports and field loading located away from canal and ditches. Diligent care with plastic tarps and/or immediate clean-up (shovel) of dry material has been

shown to be effective.

- Random locations of field load fertilizer operations on site to prevent a buildup of nutrients in one location.
- Clean up spilled material immediately.
- Collected material may be applied as fertilizer.
- Collect dry material by shovel, vacuum, loader or wash down area to a containment basin specially designed to permit recovery and application of the wash water to the crop.
- Discharge of cleanup wash water to ditches or canals is strictly prohibited.

2.4 EXOTIC VEGETATION CONTROL

2.4.1 Upland Exotic Vegetation Control

The intent of this BMP is to control and eradicate to the extent practical, and prevent the infestation of Category I and Category II exotic/invasive pest plants and to minimize impacts on water quality. In particular for water quality, chemical control of mature aquatic vegetation may result in large amounts of labile particulate phosphorus levels from farms. Timing and selection of methods for aquatic vegetation control shall prevent generation of particulate phosphorus due to inappropriate aquatic vegetation control methods and disposal. Glyphosate based herbicide Rodeo may be spot applied on the aquatic vegetation, followed by removal of the dead vegetation. Excessive amounts of Rodeo application are not allowed.

Multiple control methods may employed to implement this BMP including:

- Physical control
- Biological control
- Chemical control

Implementation requirements include:

- Site verification will include discussion with operation managers to understand the agricultural operation upland exotic vegetation management approach.
- Site manager will maintain a simple map showing the general areas where exotic/invasive vegetation eradication activities are conducted on an annual basis.
- Visual observations will be conducted to verify exotic/invasive vegetation is being reasonably controlled.

2.4.2 Aquatic Exotic Vegetation Control

The intent of this BMP is to control and eradicate to the extent practicable, and prevent the infestation of Class I and Class II prohibited aquatic plants. Multiple control methods may be employed to implement this BMP including:

- Physical control
- Biological control
- Chemical control

Implementation requirements include:

- Site verification will include discussion with operation managers to understand the agricultural operation upland aquatic exotic vegetation management approach.
- Site manager will maintain a simple map showing the general areas where exotic/invasive aquatic vegetation eradication activities are conducted on an as need basis.
- Visual observations will be conducted to verify no or a minimal amount of prohibited aquatic plants are present.

2.5 EROSION/SEDIMENT CONTROL

It is estimated that approximately 50-75% of the nutrient and chemicals discharged in stormwater runoff are associated with particulates (muck particles, dirt, dust, plant vegetation, etc.). The minimization and prevention of erosion and particulate/muck/dirt transport from blocks, fields, ditches, and canals to drainage pump stations or discharge culverts can have a substantial positive effect in preventing the off-site transport of nutrients and chemicals that can cause adverse downstream water quality problems.

Implementation requirements include:

- Records will be kept identifying description and location of the erosion/sediment control BMPs and all the maintenance and operations conducted through the year to sustain the BMP's effectiveness.

A minimum of four (4) erosion/sediment control BMPs from the equivalent points reference table above will be implemented and maintained consistently throughout the site at all times.

2.6 PESTICIDE AND HERBICIDE MANAGEMENT

2.6.1 Allowable Agrochemical List and No Application Period

The presence of agrochemicals (particularly persistent pesticides) should be minimized so as to not cause adverse impacts to anticipated flora and fauna. As current landowner, the District must ensure that all application of agrochemicals on-site is conducted in accordance with all applicable laws and regulations.

The following **Chemical Application Restrictions** matrix must be followed. This matrix is based on the U.S. Fish and Wildlife Service's "Derivation of No Application Periods". A copy of the document is included in **Appendix A**. The agrochemical list should be reviewed annually for the effectiveness of the applied chemical, changes in regulations regarding specific pesticides, and changes in the management and use of the pesticides must be followed. The experimental use of pesticides and herbicides is prohibited. All agrochemicals must be applied in strict accordance to label instructions and restrictions.

Additionally, USSC will provide the District a quarterly report of agrochemicals in use on the sugar cane production parcels.

2.6.1.1 CHEMICAL APPLICATION RESTRICTIONS

The following are lists of chemicals provided by USSC that are used for sugar cane cultivation and vegetable farming. The following agrochemicals have the potential to be used subject to the restrictions noted below. *Chemicals not specifically listed below may be evaluated on a case by case basis and added to the appropriate category below. For chemicals with no analytical test method and identified as a potential environmental risk, the chemical manufacturer will be contacted to obtain the chemical standard. The District will then contract a Florida based laboratory to develop an analytical test method for the chemicals.

SUGAR CANE

A. May be used at any time but only according to label restrictions:

1,2-propylene glycol	Polyacrylamide	Xylene
2,4-Dichlorophenoxyacetic Acid (*Unison)*	Hydroxy carboxylic acid and/or Polyacrylic acid (*Quest*)	Water and nonionic emulsifiers (*Foambuster*)
Ethylbenzene	Polyalkyleneoxide (*Kinetic*)	Plant nutrients (*Tracite*)
Glyphosate (*Roundup, Touchdown)*	Nonionic Colloidal water (*Strike Zone*)	
Magnesium Sulfate (*Dyna*)	Quartz	
Paraffin based mineral oil and/or XXX (*Crop Oil*)	Sodium salt (*Asulam*)	
Petroleum solvent	Urea (*Urea*)	
Phosphatidycholine (*L1700*)	Surfactant	

B. Must be discontinued at least 3 months prior to flooding:

2-Butoxyethanol (*Dynamic*)	Methanol (*Asulox)*	Mepiquat (*Reign*)
Azoxystrobin (*Azoxystrobin*)	Mesotrione (Callisto)	

C. Must be discontinued at least 6 months prior to flooding:

Ethoprop (*Mocap*)	Pyraclostrobin and/or Naphthalene (*Headline*)	Pyrimethanil (*Vision*)
Halosulfuron-methyl (*Sempra, Yukon*)	Phorate (*Thimet*)	Propylene Glycol and/or Carbofuran (*Furadan*)
Propylene Glycol and/or Chlorothalonil (*Quadris*)	Pendimethalin	Diphacinone (*Ramikk Brown*)

D. Must be discontinued at least 1 year prior to flooding:

Atrazine (*Atrazine*)	Ethylene dichloride (*Prowl*)	Esfenvalerate (*Asana*)
Clomazone (*Command*)	Metconazole (*Caramba*)	

E. Must be discontinued at least 2 years prior to flooding:

Ametryn (*Evik*)	Trifloxysulfuron-sodium (*Envoke*)	Cyproconazole (*Cyproconazole*)

Fluquinconazole
(*Jockey*)

F. Not allowed:
USSC does not apply any chemicals to the sugar cane that are not allowed.

****VEGETABLES – Beans, Watermelon, and Sweet Corn**

A. May be used at any time but only according to label restrictions:

Azadirachtin (*Aza-Direct & Azatin XL*)	Glyphosate (*Roundup, Durango, Touchdown, and Glyphomax*)	Bacillus subtillus strain QST 713 (*Serenade ASO, Serenade Max, Sonata, and Rhapsody*)
Bacillus thuringiensis subspecies (*Agree WG, Biobit HP, Crymax, Deliver, DiPel DF, Javelin WG, Lepinox, and Xentari DF*)	Sulfur (*Kumulus DF, Micro Sulf, Micronized Gold, Microthiol Disperss, Sulfur 90W, Thiolux Jet, and Wettable Sulfur*)	Beauveria bassiana (*BotaniGard 22WP*)
Carfentrazone (*Aim*)	Neem Oil (*Trilogy*)	Pelargonic Acid (*Scythe*)
Copper hydroxide (*Mankocide 61DF, Copper 70W, Champ DP, and Basic Copper 53*)	Hydrogen dioxide (*Oxidate*)	
EPTC (*Eptam*)	Potassium phosphite (*Fosphite, Prophyt, and Topaz*)	

B. Must be discontinued at least 3 months prior to flooding:

Buprofezin (*Courier 40SC*)	Spinosad (*Entrust and SpinTor 2SC*)
Dimethoate (*Dimethoate 4EC)*	Trifloxystrobin (*Flint 50WP*)
Oxydemeton-methyl (*MSR Spray Concentrate*)	Azoxystrobin (*Amistar 80DF, Heritage, and Quadris*)
Pyrethrin (*Pyrellin EC*)	S-Methoprene (*Extinguish*)
Pyriproxyfen (*Esteem Ant Bait and Knack IGR*)	

C. Must be discontinued at least 6 months prior to flooding:

Bentazon (*Basagran*)	Dicofol (*Kelthane 50WSP*)	Methyl parathion (Penncap-M)
Carbaryl (*Sevin 80S*)	Ethoprop (*Mocap 15G*)	Permethrin (*Ambush 25W and Pounce 25W*)
Cyfluthrin (*Baythroid 2*)	Halosulfuron-methyl (*Sandea*)	Phorate (*Thimet 20G*)
Cyhalothrin (*Proaxis Insecticide*)	Imidacloprid (*Admire 2F*)	Pendimethalin (*Prowl*)

Diazinon (*Diazinon 4E*)	Methomyl (*Lannate LV and Lannate SP*)	Chlorothalonil (*Applause 720, Bravo, Choloronil 720, Echo, Equus, and Ridomil Gold Bravo*)
Pyraclostrobin (*Cabrio 20EG*)		

D. Must be discontinued at least 1 year prior to flooding:

Dichloropropene (*Telone II*)	Esfenvalerate (*Asana XL*)	S-Metolachlor (*Dual Magnum*)
Endosulfan (*Endosulfan 3EC*)	Myclobutanil (*Nova 40W*)	

E. Must be discontinued at least 2 years prior to flooding:

Bifenthrin (*Capture 2EC*)	Mefenoxam (*Ridomil Gold 4EC, Ridomil Gold SL, and Ultra Flourish*)	Boscalid (*Pristine 38WG*)
Cyromazine (*Trigard*)	Methoxyfenozide (*Intrepid 2F*)	

F. Not allowed:

Paraquat (*Gramoxone Inteon*)

G. Restricted Pending Further Evaluation (District is currently evaluating the long term affects of the chemical application):

Thiophanate-methyl (*Topsin M WSB and Thiophanate-methyl*)	Fludioxonil (*Maxim 4FS*)

* Any pesticide, regardless of the above categories, that is shown to be present in the soil, at or above the site specific cleanup target levels, may require additional restrictions, including reductions in use or the complete elimination of its use. These situations will be evaluated on a case-by-case basis.

2.6.2 Copper Compounds

Copper is an essential element required for the successful and economical growing of sugar cane. It is typically applied to the soil surface as a granular additive to fertilizer. The Phase II ESA identified 104, 40-acre grids, or 4,160-acres with elevated copper levels in the cultivated fields above the Service provisional Snail Kite threshold level of 85 mg/kg. Based on the Phase II findings on elevated copper concentrations, no additional copper should be applied on the 4,160-acres. In the event that copper is not bio-available, as verified by additional soil testing, USSC will work with the District to develop a copper nutrient application that will benefit the production of sugar cane and limit the residual copper levels in the soils as much as practical. **Table 1** displays the field identification numbers for copper concentrations above 85 mg/kg.

URS reviewed the current rates of application and amounts of copper based nutrients applied on the USSC property. Utilizing this information, a mass balance equation was developed in order to determine if additional acreage would be impacted by copper based on the current application activities. URS

determined that copper could potentially increase in the soils, per application, at a rate of 2.08 mg/kg per acre. Based on this application rate, and the fact that the property is leased through 2016, twelve, 40-acre grids have the potential to accumulate copper above the Service's interim value for copper of 85 mg/kg during the lease agreement.

During this interim use period, soil samples should be collected for previous sampled areas within the cultivated fields to confirm that residual copper concentrations are not accumulating in the soil. In the event that elevated copper concentrations are detected, then the tenant must implement measures to prevent further increases. A subsequent determination of a 20 percent or greater increase, based on the methodology in **Section 3.0**, below, will constitute a breach of the tenant's lease.

If the sampling conducted in the subsequent year again indicates elevated copper above the 85 mg/kg the District and USSC will work together to develop a copper application that will limit the residual copper levels in the soils as much as practical.

2.6.3 Pesticide and Herbicide Management

Florida pesticide law requires certified applicators to keep records of all restricted use pesticides (RUP). The federal worker protection standard (WPS) requires employers to inform employees of all pesticides applied.

- Pesticide record keeping
- Read and understand label
- Pesticide storage

Implementation requirements include:

- Site verification will include discussion with operation managers to understand the agricultural operation pesticide management approach. In addition, example records should be available and reviewed to reinforce the implementation tools used to assist with pesticide management decisions.
- Required records must be made available upon request to FDACS, USDA authorized representatives, and licensed health care professionals.
- Proper pesticide storage is important for (a) personnel safety and (b) as a preventative spill measure. Visual observations will ensure the following procedures are in place:
  - Storage structures should keep pesticides secure (locked) and isolated from the surrounding environment.
  - Pesticides need to be stored in their original containers.
  - Pesticides should not be stored near burning material, hot work (welding, grinding), or in shop area.
  - No smoking is allowed in pesticide storage areas.
  - Store personal protective equipment where it is easily accessible in the event of an emergency, but not in the pesticide storage area.

- Maintain a current written inventory and the Material Safety Data Sheets (MSDS) for the chemicals used in the operation. Do not store this information in the pesticide storage room itself.
- Large chemical quantities should not be stored for long periods of time. Adopt the "first in – first out" principle, using the oldest products first to ensure that the product shelf life does not expire.
- Containers need to be arranged so that labels are clearly visible; make sure labels are legible; refasten loose labels.
- Dry bags should be raised on plastic pallets to ensure that they do not get wet. Do not store liquid material above dry materials.
- Flammable pesticides should be stored separately from non-flammable pesticides.
- Segregated herbicides, insecticides, and fungicides to prevent cross-contamination and minimize potential for misapplication.
- Shelving should be made of plastic or reinforced metal. Metal shelving painted (unless stainless steel) to avoid corrosion. No wood shelving because it may absorb spilled pesticide materials.

2.6.4 Pesticide and Herbicide Application Optimization

Management of the types and amounts of pesticides applied in or on the soil or on plant foliage is important so the exact problem identified is being addressed and minimize the impacts to surface and ground water. Even pesticides designed for rapid breakdown in the environment can persist for years if present in high concentrations. Worst-case results can be contamination of drinking water; fish kills and other impacts to nontarget organisms; and administrative fines and legal remedies. The most obvious method to reduce the risk from pesticides is to use them only when necessary.

- Integrated pest management
- Application timing
- Customized applications
- Maintain soil pH in optimum range
- Pesticide selection

Implementation requirements include:

- Integrated Pest Management (IPM) is a philosophy of management pests that aims to reduce farm expenses, conserve energy, and protect the environment. IPM is a broad, interdisciplinary approach using a variety of methods to systematically control pests which adversely affect people and agriculture. Basic steps include:

  1) Identify key pests/vegetation and beneficial organisms and the factors affecting their populations.

2) Select preventative cultural practices to minimize pests/vegetation and enhance biological controls (e.g. soil prep, crop rotation, resistant varieties, modified irrigation dates, cover crops, augmenting beneficials, etc.).

3) Use trained 'scouts' to monitor pest/vegetation populations to determine if or when an emergency control tactic might be needed.

4) Predict economic losses and risks so that the cost of various treatments can be compared to the potential losses to be incurred.

5) Decide the best course and carry out the corrective actions.

6) Continue to monitor pest/vegetation populations to evaluate results of the decision and the effectiveness of correction actions. Use this information when making similar decisions in the future.

USSC currently has an IPM program in place and the policy has been implemented.

- Always follow pesticide/herbicide label instructions. However, pesticide and herbicide recommendations can change frequently. Registrations may be canceled or added at any time. Recommended rates or products that were valid at the start of the growing season may change. For pesticides/herbicides that are not generally used on the property, check with the local Extension agent for the most recent recommendations, or access the computer based Florida Agriculture Information Retrieval System (FAIRS).
- Base pesticide/herbicide selection on characteristics such as soil, geology, depth to water table, proximity to surface water, topography and climate, so that the potential for pollution of surface water and ground water is minimized.
- Consider the effect of a pesticide/herbicide application on any beneficial organism that may be present.

Federal and State Chemical Hazard Information contacts and telephone numbers are given in **Appendix C**.

2.6.5 Pesticide and Herbicide Handling and Placement

Routine maintenance, good repair, and calibration of pesticide application equipment will minimize the unintended over (or under) application of chemicals. Correct measurement will keep the operation in compliance with the label, reduce risks to applicators, operation staff, and the environment, and may save money. Locate mixing and loading operations well away from groundwater wells and surface water ditches, laterals and canals where runoff may carry inadvertently transport spilled chemicals. Proper cleaning and disposal of "empty" pesticide containers is just as important as proper application of the chemicals. Listed below are the various required pesticide handling and placement BMPs.

- Reduce spray drift
- Equipment calibration & maintenance
- Pesticide spill management

- Pesticide application equipment wash water
- Prevent backflow to water sources
- Mixing and loading activity locations
- Pesticide container management
- Excess pesticide mixture
- Excess formulation (raw product)

Implementation requirements include:

- Site verification will include discussion with operation managers to understand the agricultural operation pesticide handling and placement approach. In addition site inspections will be made to observe the following items:

Permanent Locations

– A permanently located mixing and loading facility should be designed to provide a place where high-potential spill activities can be performed over an impermeable surface (such as sealed concrete) for easy cleaning and permits the recovery of spilled materials.

– USSC currently does not have a permanent mixing and loading facility. Should USSC elect to construct a permanent mixing and loading facility, the facility must be in compliance with IFAS standards.

– The mix/load facility should be located close to the chemical storage building.

– Permanent areas should have a roof with a substantial overhang on all sides to protect against windblown rainfall.

Temporary Locations

– Pesticide loading activities should be conducted at random locations in the field lessens the chance of buildup of spilled material at any one place. This will reduce the chance of adversely affecting the natural organisms which biologically degrade pesticides.

Nurse Tanks

– Use of clean water only in nurse tanks transported to the field to fill the sprayer is encouraged. Never introduce pesticides into a nurse tank.

– Inject pesticides into the transfer line or add them to the spray rig during filling.

– Pesticides may be introduced by conventional pouring, or pumped by a closed system, depending on label requirements and container type.

– Always use a check valve to prevent backflow of pesticides into the clean mix water.

Container Disposal

– No bags, boxes, and Group I pesticide containers may be burned on-site.

- Keep the rinsed containers in a clean area, out of the weather, or in large plastic bags for disposal or recycling to protect the containers from collecting rainwater.

URS has reviewed the USSC portable mix-load operations and the system is in compliance with IFAS.

2.7 COPPER

Copper has several necessary and beneficial uses within an active agricultural operation including use as fungicides and soil nutrients, and as a canal and ditch aquatic vegetation management tool. Recently, the topic of residual levels of copper in soils of tracts which are intended for conversion to water reservoir areas has had renewed discussion. The District has reported that some analyses and data extrapolations suggest that elevated copper levels have the potential to move through the aquatic food chain and bio-accumulate in the tissue of apple snails. The apple snail is the primary diet of the Snail Kite. It has been reported to the District that it is theorized that elevated copper levels can potentially result in underweight Snail Kite chicks. Since the Snail Kite is listed as an Endangered Species, and the potential for this bird to forage in the future reservoirs, the minimization of the risk for elevated copper levels is desired by the District. Extreme diligence is needed to minimize the amount of copper applied.

Implementation requirements include:

- Site verification will include discussion with operation managers to understand the agricultural operation copper application (if any) optimization approach.
- Records should be available and reviewed to reinforce the implementation tools used to assist with copper management decisions. Records should identify:
  - Locations (e.g. cultivated field, ditch and canal) where copper was applied
  - Time of application
  - Application mixture/application rate applied

2.8 PETROLEUM AND HAZARDOUS WASTE MANAGEMENT

2.8.1 Gasoline and Diesel Fuel Storage and Containment

The first line of management is to minimize the possibility of inadvertent petroleum product discharge and the need for clean-up and disposal. Stationary fuel storage tanks should be in compliance with FDEP storage tank regulations (Chapter 62-761, FAC for underground storage tanks (USTs) and Chapter 62-762, FAC for aboveground storage tanks (ASTs)). In the event of a discharge or spill, emergency response and chemical hazard information and telephone numbers are given in **Appendix C**.

Implementation requirements include:

- Site verification will include discussion with operation managers to understand the agricultural operation petroleum storage and containment management approach. In addition site inspections will be made to observe the following items:

Site Equipment

  - Placement of permanent fuel pumps on concrete or asphalt surfaces away from groundwater wells and surface water ditches, laterals and canals where runoff may carry inadvertently

transport spilled product.

- ASTs with volumes of 550 gallons or larger must be registered and located within secondary containment systems unless of double-wall construction.
- Visual inspections should be conducted on a least a monthly basis of the storage tanks and hoses to ensure the system is free from leakage from tank seams, connections, and fittings.

Fuel delivery

- Require delivery driver to report to facility manager upon arrival prior to loading or unloading.
- Agricultural operation employee should verify available tank capacity prior to product transfer.
- Agricultural operation employee should remain onsite during delivery to monitor product transfer.
- Clean-up equipment and/or materials should be located nearby if needed for immediate spill containment and clean up (boom, granular absorbent, etc.).

2.8.2 Equipment Cleaning and Maintenance

(Does not include pesticide application equipment) The same level of preventive measures should be taken to minimize adverse sediment/water quality impacts from the cleaning of equipment as with fertilizer and agrochemical handling and application. Other than preventative maintenance and emergency repair of machinery and equipment conducted on site, maintenance should be conducted in a centralized area a safe distance from the closest well-head or surface water ditch, lateral, and canal. It is recommended that equipment maintenance be limited to minor or emergency repairs. Activities such as engine or mechanical repair, which generate a waste or waste by-product, are not recommended to be conducted in the fields but at designated maintenance areas.

Implementation requirements include:

- Site verification will include discussion with operation managers to understand the agricultural operation hazardous waste management approach. In addition, site inspections will be made to observe the following items:

General Equipment Maintenance

- Where possible, it is recommended to use compressed air to remove clippings and dust from machinery. This is less harmful to the equipment's hydraulic seals, eliminates wash water, and produces dry material that is easy to handle.
- For regular field equipment wash down (other than pesticide application equipment, and with not degreaser or solvents), allow wash water to flow to a grassed retention area, swale, or sod fields as irrigation water. Do not allow wash water to flow directly to surface water ditch, lateral, or canal.
- Minimize the use of detergents and use only biodegradable, non-phosphate type. The amount

of water used to clean equipment can be minimized by using spray nozzles that generate high pressure streams and low volumes.

- If equipment is to be intensively washed, conduct over a concrete or asphalt pad that allows the water to be collected. Wash water can contain soaps, fertilizer residues, solids, and lubricating oil residues. Collected wash water can be handled through a recycling system, treatment system, off-site disposal at an industrial wastewater treatment facility, or use the wash water for field irrigation.

Solvents and Degreasers

- It is the intention that all major repairs and maintenance activities that would potentially require the use of solvents and degreasers be conducted on-site at designated maintenance areas. In the event that such activities occur on-site, the operator will follow the guidelines below:
  - Whenever practical, replace solvent baths with recirculating aqueous washing units.
  - Soap and water or other aqueous cleaners are often as effective as solvent-based cleaners.
  - Store solvents and degreasers in lockable metal cabinets in an area away from ignition sources (e.g. welding areas, grinders) and provide adequate ventilation.
  - Always wear the appropriate protective personal equipment, especially eye protection, when working with or handling solvents.
  - Solvent wash basins that drain into recovery drums can be provided by private firms contracted to pick-up and recycle or properly dispose of the drum content.
  - Never mix used oil and other liquid material with the used solvents.
- Records must be maintained of pick-up and quantities disposed.

Paint

- The use of power sprayers for painting equipment on-site requires the appropriate precautions to be taken not to impact soil or groundwater. The painting of equipment with solvent based paint by power sprayers is prohibited and must be conducted off-site.
- Touch-up and manual painting may be conducted on a limited basis.
- Care should be taken not to spill material onto soil or into surface water bodies.

Used Oil, Coolant, and Lead-Acid Batteries

- Collect used oil and oil filters in separate marked containers and recycle.
- Oil filters should be drained and taken to the same place as the used oil, or to a hazardous waste collection site.
- Coolant/Antifreeze must be recycled or disposed as a hazardous waste. Do not mix used oil with used coolant or sludge from solvents.
- Lead-acid storage batteries are classified as hazardous wastes unless they are recycled.

Store batteries on an impervious surface and preferably under cover until delivery to an authorized recycling facility.

All used oil, coolant, and lead-acid batteries are stored in containers in accordance with FDEP rules until being transported offsite for disposal by a licensed contractor.

3.0 SAMPLING AND COMPLIANCE PLAN (SUGARCANE AREAS)

3.1 VERIFICATION SAMPLING

Cultivated area sampling will be conducted by the District on an annual basis. Soil samples shall be collected from the cultivated area at randomly selected locations based on the grid pattern and numbering system used in the Phase I/II ESA. The BMP annual sampling event will randomly select a number of those grids sampled during the Phase I/II ESA. Based on the Phase I/II ESA findings and review of the chemicals list provided by USSC, the sampling activities by the District will involve grids, which are identified by USSC as being fallow. The grids generally comprise of 40-acres fields. Within each field, at equally spaced locations, eight (8) close-composite discrete samples from the top 6-inches of the soil will be collected and combined into a single composite sample. The composite samples will then be analyzed for a number of parameters of concern.

The number of grids to be sampled are determined according to the *a priori* statistical procedure recommended by the United States Environmental Protection Agency (EPA, 1989, Section 6). This procedure is based on commonly used, well-established statistical hypothesis testing processes, in which, collected data during each year is compared to the baseline dataset in order to detect the presence of any statistically significant difference (EPA, 2000). For determination of the sample size, EPA (1989) suggests a null hypothesis that is equivalent to the condition, under which the baseline and subsequent datasets display statistically significant differences. Conversely, the alternative hypothesis corresponds to a condition, under which the baseline and subsequent datasets are devoid of any statistically significant difference. Each year, upon collection of one round of post-baseline samples, the compiled baseline and subsequent datasets are statistically compared to assess whether further investigations are warranted. The components of the proposed statistical process are described in the following sections.

3.1.1 Determining Number of Baseline Grids

EPA (1989, Section 6.3.2) provides a quantifiable measure for determining an adequate sample size. The sample size is driven by three factors: (a) the chosen decision errors, (b) the variability of the potential contaminants of concern, and (c) the desired resolution, *i.e.*, the difference between the baseline and subsequent datasets that needs to be detected at the chosen confidence. The resulting equation is

$$n = \frac{(z_{1-\alpha} + z_{1-\beta})^2 s^2}{\Delta^2}$$

where,

n = number of grids to be sampled each year

α = the false positive rate, Type I error, or the significance (tolerable error for missing an actual difference between the baseline and subsequent datasets)

1-α = the confidence (probability of correctly identifying a significant change)

β = the false negative rate, or Type II error (tolerable error for incorrectly declaring a difference between the baseline and subsequent datasets)

1-β = the test power (probability of correctly identifying the absence of no difference)

$z_{1-\alpha}$, $z_{1-\beta}$= the confidence and power normal deviates

s^2 = standard deviation of parameter of concern

Δ = The minimum difference between the mean concentrations of the baseline and subsequent datasets to be detected at the chosen confidence

Samples collected at the selected grids during the Phase I/II ESA conducted on the USSC property by PSI in August and September 2008 shall be used as the baseline for comparison to future sampling results. Among parameters of concern, arsenic, copper and selenium have been analyzed extensively during Phase I/II ESA. The reported concentrations of these analytes based on composite samples from 40-acre sugarcane fields are used in order to compute their corresponding mean and standard deviation, as listed in Table 2. This table also displays the number of samples based on the chosen decision errors. In these calculations, the desired minimum difference is set as 20% of the computed mean concentrations. Among the parameters of concern, currently available baseline copper data indicate the highest sample size, which is selected to ensure the conservative nature of the proposed BMP annual sampling plan. This results in 119 grids to be randomly selected for baseline and sampling purposes as part of the BMP efforts, as highlighted in Table 2.

3.1.2 Baseline/Subsequent Datasets Statistical Comparisons

Annual BMP sampling will be conducted, at field locations with the same GPS coordinates measured during the initial sampling and at a time mutually agreed upon by the parties so as to minimize damage to field crops, to ensure consistency with the original Phase I/II ESA results. Upon completion of each annual BMP sampling round, the analytic results of parameters of concern will be compared to those compiled in the baseline and previous BMP datasets. For this purpose, a series of comprehensive statistical two-sample tests will be conducted. Pursuant to DON (2002), as listed on Table 3, two difference hypotheses will be assessed, including:

(a) Area-wide differences between the baseline and subsequent datasets: This hypothesis corresponds to a condition, under which the baseline concentrations are consistently different from the subsequent concentrations. Consequently, the statistical tests will be conducted through comparison of mean (parametric) and median (non-parametric) concentrations.

(b) Localized differences between the baseline and subsequent datasets: This hypothesis corresponds to a condition, under which only the elevated baseline and subsequent concentrations are different. Consequently, the statistical tests will be conducted through comparison of higher concentrations or exceedance ratios in each dataset.

The procedural aspects for the selection and implementation of the cited tests in Table 3 are described in details in DON (2002, Chapter 4). Appropriate statistical comparisons, including parametric t-tests, non-parametric Wilcoxon Rank Sum test, and non-parametric Slippage tests, will be conducted annually. Depending on the statistical characteristics of the subsequent datasets, additional test may be performed. In the case of detection of a statistically significant increase at 5% significance, when the increase in mean or median concentrations is greater than 20 percent, among subsequent measured concentrations with respect to the baseline concentrations, additional investigations and actions, as set forth below, will be pursued.

The specific objectives of additional investigations are: (a) to determine whether the detected increase in post-baseline concentrations are real, and not numeric artifacts caused by the variability of individual

samples results, and (b) if real, to determine whether the detected increases in post-baseline concentrations are due to practices by the tenant. For this purpose, additional investigations will be initiated, including a review of laboratory QA/QC results and information provided by the tenant concerning its chemical use practices during the period of interest. If increase in mean concentrations is attributed to few outlier samples among post-baseline data, locations associated with these outliers will be re-sampled to ensure the validity of the original results. The cost of additional investigations shall be the responsibility of the party requesting it.

If the District determines that a detected increase in mean or median concentrations in excess of 20% is a numeric artifact caused by the variability of individual samples, or attributed to historic conditions, no further action with regards to the tenant's lease will be pursued. On the other hand, if the increase in mean or median concentrations in excess of 20% is deemed to have been caused by other factors, the District will notify the tenant in writing of its determination and its basis, and the tenant will be requested to implement those measures, if any, that the tenant considers appropriate to prevent further increases in concentrations, including but not limited to additional sampling or best management practices.

If a statistically significant increase in concentrations is detected during a subsequent consecutive year and determined by the District to not be a numeric artifact or caused by variability of individual samples, the tenant shall work cooperatively with the District to develop a more comprehensive BMP plan to reduce or eliminate further increases. The new BMP plan shall be approved by the District, implemented by the tenant, and incorporated into the lease and, in the case of a subtenant, its sublease. In the event a subsequent consecutive sampling event results in a third, consecutive statistically significant increase, the District, in consultation with the tenant, shall review the tenant's standard farming practices, which review should include an assessment of the practices in terms of potential risk to future aquatic ecosystems or human health. If it is determined that the increase in concentrations may cause significant risk to future ecosystems that may be constructed in the area or human health to workers or occupants, the tenant will implement changes to its standard practices prescribed by the District, after joint consultation with the tenant, to reduce the potential for such risk. Failure to implement this review within the prescribed schedule will be considered a default of the tenant's lease.

3.1.3 Summary of BMP Sample Plan

Table 4 lists BMP sample plan inside and outside of sugarcane cultivation areas, as well as the current list of parameters of concern. Given the fact that for a number of parameters of concern, there are currently no baseline dataset available, the sample size computations will be repeated after the first round of BMP periodic sampling, which may result in applicable modifications of this BMP plan to address elevated parameters of concern covering parts or the entire extent of the investigated areas. Future changes in subsequent rounds of BMP may include further division of the investigated areas into more homogenous subareas for the purposes of sampling and statistical comparisons. Such changes may require additional sampling to accommodate the delineated subareas. Furthermore, in the event that obvious and excessive impacts are visibly detected during periodic site visits conducted by the District, a more comprehensive site-specific sampling plan that would depend on the magnitude of the impact should be developed under the direction of the District and applicable regulatory agencies. A list of potential parameters to be analyzed for is given below.

EPA Method 8141 (organophosphorus pesticides)
EPA Method 8151 (chlorinated herbicides)
EPA Method 6010/7471 (copper)
FL-PRO Method (total residual petroleum hydrocarbons)
EPA Method 8100 (polynuclear aromatic hydrocarbons)
EPA Method 8020 (volatile organic hydrocarbons)
Metconazole and pyraclostrobin

Table 2. Statistical Determination of the Number of Baseline Grids

Decision Parameters	Selected Value	Normal Variate
Significance = alpha	5%	$z_{1-alpha}$ = 1.64
Power = 1 - beta	80%	z_{1-beta} = 0.84
Delta as % of Baseline Mean	20%	

Chemical-Specific Parameters	Arsenic (mg/kg)	Copper (mg/kg)	Selenium (mg/kg)	Atrazine (ug/kg)**
Desired Resolution	1.32	12.7	0.60	13.47
Baseline Mean*	6.61	63.7	2.98	67.33
Baseline Standard Deviation*	4.49	55.6	2.33	25.65
n (Number of Samples)	**72**	**119**	**95**	**23**

*Computed based on Phase 2 Sugercane 40-acre Composite (SC) Data
**3 outlier results are excluded

Table 3. Statistical Comparative Tests

Difference Hypothesis	Test	Comparison	Type
Area-wide Difference	Wilcoxon Rank Sum (WRS)	Median	Non-parametric
	Gehan	Median	Non-parametric
	Student's two-sample t-test	Mean	Parametric
	Satterthwaite t-test	Mean	Parametric
Localized Difference	Slippage	High concentrations	Non-parametric
	Quantile	High concentrations	Non-parametric
	Two-sample test of proportions	Percent of measurements above a given cutoff	Non-parmetric

Table 4. Summary of Sample Plan

Areas	Number of Samples		Parameters*
Sugar Cane Cultivation Area	119 composite samples	Annually (40-acre eight point composite soil sample using close composite methodology– top 6'')	Arsenic, Copper, Selenium Clomazone Pendimethalin Analytical test method will be developed for fungicides Caramba and Headline by Florida based laboratory.
Pump Stations	No Sample	If no staining / stressed or disturbed vegetation.	
	0 sample 1 each site	If impacts observed (five point composite soil sample – top 6'')	EPA Method 602 EPA Method 610 FL-PRO
Chemical and Equipment Storage Areas	No Sample	If no staining / stressed or disturbed vegetation	
	1 each site	If impacts observed (five point composite soil sample – top 6'')	EPA Method 602 EPA Method 610 FL-PRO Arsenic, Copper, Selenium Clomazone Pendimethalin 8151 Analytical test method will be developed for fungicides Caramba and Headline by Florida based laboratory.

**Parameter Descriptions*

EPA Method 602 (purgeable aromatics)
EPA Method 610 (polynuclear aromatic hydrocarbons)
FL-PRO (total residual petroleum hydrocarbons)
Total Arsenic
Copper by EPA Method 6010/7471
Selenium
Clomazone by EPA Method 8141
Pendimethalin by EPA Method 8081
EPA Method 8151 (chlorinated herbicides)

3.1.4 References

Department of the Navy (DON). "Guidance for Environmental Background Analysis. Volume I: Soil." NFESC. User's Guide. UG-2049-ENV. April 2002.

U.S. Environmental Protection Agency (EPA). "Methods for Evaluating the Attainment of Cleanup Standards. Vol. 1: Soils and Solid Media." Office of Policy, Planning, and Evaluation. Washington, D. C. EPA 230/02-89-042. 1989

United States Environmental Protection Agency (EPA). "Data Quality Objectives Process for Hazardous Waste Site Investigations. EPA QA/G-4HW Final." EPA/600/R-00/007. January 2000

4.0 STANDARDIZED FORM: BMP SITE VERIFICATION FINDINGS SUMMARY

Future BMP site verification visits will be conducted at the request of the District.. BMP implementation will be reviewed per the guidelines and 'Implementation Requirements' described for each BMP earlier in this document as well as taking site specific issues and time of year into account. The site verification findings, including a written review of observations, site photographs taken, and a summary of records reviewed, are expected to be provided by the field reviewer in a detailed report. The field verified implementation status of each BMP will be classified in one of three categories:

Implementation Verified
Implementation Verified with Comment
Additional Attention Required

The standardized form for reporting *BMP Site Verification Findings Summary* to be included in the BMP field verification report is included in **Appendix B**.

APPENDIX B
SITE VERIFICATION CHECKLIST

United States Sugar Corporation
Palm Beach, Hendry, and Glades Counties
State of Florida

Best Management Practices (BMP) Site Verification Checklist

Tract No.:
SFWMD Representative(s):
Property Representative(s):
Inspection Date:

BMP	Description/Comment	Implementation Verified	Additional Attention Required
Property Use and Structures			
Housekeeping			
General Site -			
Storage Areas -			
Additional Observations -			
Employee Training			
Schedule -			
Topics -			

Additional Observations -			
Hazardous Material/ Chemical Use			
Chemicals Used -			
Application Type -			
Application Schedule -			
Material Records -			
Additional Observations:			
Petroleum Products			
Product Use -			
Pump Station(s) -			
Storage Location(s) -			
Additional Observations:			
Chemical Storage			
Storage Location -			
Building/Area Type -			
Pump Station(s) -			

Additional Observations:			
Mixing & Loading Areas			
Area Description -			
Area Observations -			
Additional Observations:			
Waste Storage and Disposal			
Waste Types -			
Storage Location -			
Waste Disposal -			
Waste Disposal Records -			
Additional Observations:			
Water Management			
Observations -			
Water Mgmt Controls -			
Weather Monitoring -			
Additional Observations:			
Erosion/Sediment Controls			
Erosion Controls -			

Sediment Controls -			
Additional Observations:			
Exotic Vegetation Management			
Observations -			
Physical Controls -			
Biological Controls -			
Chemical Controls -			
Additional Observations:			
General Field Notes			

Notes:

N/A - Not Applicable

APPENDIX C
EMERGENCY RESPONSE and CHEMICAL HAZARD INFORMATION PHONE NUMBERS

Emergency Reporting

For Ambulance, Fire, or Police **Dial 911**

State Warning Point 24hrs. Toll Free 1-800-320-0519
(Department of Community Affairs, or (850) 413-9911
Division of Emergency Management)

National Response Center 24hrs. Toll Free 1-800-424-8802
(Federal law requires that anyone who releases into the environment a reportable quantity of a hazardous substance [including oil when water is or may be affected] or a material identified as a marine pollutant, must immediately notify the NRC).

DEP Emergency Response, 24 hrs. Toll Free **1-800-342-5367**

HELP LINE NUMBERS

Chemical hazard information and regulatory questions

- **CHEMTREC HOT LINE (Emergency only) 24 hrs** Toll Free 1-800-424-9300
- SARA Title III help line Toll Free 1-800-535-0202
- CERCLA / RCRA help line Toll Free 1-800-424-9346
- Pesticide Container Recycling Program 352-392-4721
  Pesticide Information Officer at University of Florida

COUNTY COOPERATIVE EXTENSION OFFICES

Pam Beach County	559 N. Military Trail West Palm Beach, FL 33415	(561) 233-1700
Hendry County	1085 Pratt Boulevard Dallas B Townsend Agricultural Center Labelle, FL 33935	(863) 674-4092
Glades County	900 US Highway 27 SW Moore Haven, FL 33471	(863) 946-0244

STATE OF FLORIDA AGENCIES

Florida Department of Agriculture and Consumer Services

Bureau of Pesticides	(850) 487-0532
Bureau of Compliance Monitoring	(850) 488-3314
Division of Agriculture and Environmental Services	(850) 488-3731

Florida Department of Environmental Protection

FDEP Stormwater/Nonpoint Source Management Section (Tallahassee)	(850) 488-3605
FDEP Hazardous Waste Management Section (Tallahassee)	(850) 488-0300

FDEP District offices - West Palm Beach	(561) 681-6800

Florida Fish and Wildlife Conservation Commission

620 South Meridian Street	(850) 488-4066 or
Tallahassee, FL 32301	(850) 488-4069

Water Management Districts

South Florida Water Management District (West Palm Beach)	(561) 686-8800 or 1-800-432-2045

University of Florida (Gainesville)

Pesticide Information Office	(352) 392-4721
Agricultural Law Policy Office	(352) 392-1881

UNITED STATES AGENCIES

EPA National Offices & Numbers

Office of Water (202)-382-5700
4604, 401 M Street, SW
Washington, DC 20460
(Provides Information on Clean Water Act and related water pollution regulations)

Florida Administrator of EPA Pesticide Registration

Bureau of Pesticides/ Division of Inspection (850) 487-2130
Dept. of Agriculture and Consumer Services
3125 Conner Blvd., MD-2
Tallahassee, FL 32399-1650

National Pesticide Telecommunications Network

Provides information on pesticides and pesticide poisonings. 1-800-858-7378
Operating 24 hours a day, 365 days a year.