Florida Department of

Memorandum

Environmental Protection

TO: Cindy Falandysz, Industrial Wastewater Section

THROUGH: Yanisa Angulo, P.E, IW Program Manager
William Kutash, P.G., Waste program Administrator

FROM: Susan Pelz, P.E., Solid Waste Program Manager

DATE: January 25, 2005

SUBJECT: Florida Crushed Stone

Florida Crushed Stone Facility/Brooksville, Florida/PA82-17 Supplemental Plans, Revised 10/26/04, dated October 26, 2004 (received October 27, 2004), prepared by Coastal Engineering Associates, Inc.

I have reviewed this report with regard to solid waste and industrial by-product management at the site. The applicant/respondent should address the following comments:

1. Florida Crushed Stone (FCS) should clarify if the plans provided are intended to replace or supplement the Best Management Practices Plan – Revision 1, Florida Crushed Stone Company Fly Ash Recycling, Brooksville, Florida,... dated January 2003 (received January 17, 2003) prepared by Environmental Consulting & Technology, Inc.

2. It does not appear that the management of solid wastes or industrial by-products generated from several of the facility's operations (e.g., sewage treatment plant, sludges from sumps, process water pond cleaning, stormwater ditch cleaning, etc.) have been discussed in the plans provided.

Section 1, Best Management Practices Plan

3. §1.2 BMP Plan.

   a. Please clarify if the BMPP is intended to address potential groundwater and surface water impacts. The information on page 2 indicates that it is intended to prevent discharges of "constituents of concern" to "waters of the state."

   b. Please provide details of the "concurrent implementation of similar programs" referenced on Page 2.

4. §2.0, Constituents of Concern.

   a. Page 3. The Department has received data from other coal-fired power plants that indicate that the list of "constituents of concern" may include additional parameters. The following parameters have been detected in groundwater, surface water or in leaching tests of coal combustion by-products at other coal-fired power plants: Chloride, Gross alpha, Fluoride, Nitrate, Sulfate, Total dissolved solids, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Sodium, Strontium, Thallium, Vanadium, Zinc. FCS should include these parameters unless it is demonstrated that the materials managed at the site do not present a threat of contamination for these parameters.

(Comment #4 cont'd)

b. *Page 4.* The references to "background conditions" for the monitoring well results in unclear. The Solid Waste Section has not received details on well construction (e.g., screen interval), groundwater flow direction, or monitoring results for review. The location of MW-1 is unclear. It appears from the aerial photograph provided, that MW-CPL-1 is located directly adjacent to the coal pile and several other uncovered storage piles, and as such (if this is the MW-1 referenced in the BMPP) is unlikely to be an appropriate background location.

5. §3.2.1. Cement Plant. This section indicates that fly-ash, mill scale and slag are managed at the site. It is also the Department's understanding that industrial wastewater sludge ("gypsum") from a coal-fired power plant has also been managed at the site. Additionally, this section indicates that coal and waste tires are burned as fuel in the cement kiln. Specific information concerning the management of these materials was not provided. The following information should be provided: 1) all information required by Chapter 62-711, F.A.C, for operation of a waste tire processing facility; 2) a detailed description of each type of waste and industrial by-product material, including analytical characterization of the material, quantity of material received and used yearly, site plans showing the location and storage method for each type of material, description of the process generating the waste, if FCS is not the generator of the waste, the name and contact information for the generator. The Department is also aware that the baghouse dust from the kiln is reused onsite. However, information on the storage and management of this material was not provided.

6. §3.4, Minor Operations.

a. The information indicates that Cliff's Septic Service is located on a portion of the property. The Solid Waste Section received a complaint that Cliff's was dumping (land applying) septage onsite at their facility. Solid Waste staff attempted to investigate, but was denied access to the property. This allegation should be investigated by appropriate staff and revisions to the BMPP and other plans should address any potential impacts to groundwater or surface water in this area.

b. This section does not discuss the waste tire activities that historically occurred northeast of the coal pile. If all tires and tire residuals have not been removed for proper disposal, the potential impacts from this area should be included.

7. §3.5, Storage & Shipping. The information in this section indicates that only lime (calcium carbonate) is stored in the "A" frame building. However, §3.2.1 indicates that tailings from the process flow channel are also stored in the "A" frame building. This section should be revised to address impacts to ground and surface waters from spillage of all materials stored in the "A" frame building.

8. §4.1, State Permits. The facility's current waste tire processing facility permit, is permit number 22787-002-WT.

9. §4.6, Waste Minimization Assessment. A copy of this assessment should be provided for the Solid Waste Section's review.

10. §5.3.1., Debris removal. Details concerning the management and disposition of debris should be included

11. §5.3.4., Exposure reduction. Although this section indicates that piles will be covered to "minimize the amount of exposed stockpiles," inspections by Solid Waste staff have revealed several instances of inadequate covering of the Gannon ash/dredge material. Based on this, the exemption from solid waste permitting may no longer be valid. Additionally, §403.7045(1)(f), Florida Statutes and Rule 62-701.220(2)(d), F.A.C., require that a majority of the materials must be reused each year. FCS should provide waste quantity reports that demonstrate that a majority of the Gannon ash/dredge material has been used each year. The management of this material is not discussed in detail in the BMPP.

12. §6.0, Operational changes. See Comments #4.a. and #5 above regarding the proposed surface water monitoring.

Section 2, Site Water Management Plan

13. §2.1.2., Crushing, washing & separation. Please clarify where the "various process streams" convey the waste materials.

14. §2.2.2., Cement Plant. See Comment #5 above.

15. §2.4, Minor operations. See Comment #6 above.

16. §3.2.1., Overview. It does not appear that all Exhibits and Figures were provided. These should be provided to clarify the narrative descriptions.

17. §3.4.2., Surface runoff. Please clarify if Cooling Pond 5 is clay lined. Please clarify if groundwater monitoring is conducted around the coal pile, coal stormwater pond, mill scale, slag and waste tire piles.

18. §3.4.3, Cooling pond routing. Please define the size storm that is considered "extremely heavy rainfall" and would cause an emergency overflow.

19. §4.2.2, Collection of surface water samples. Table 1 does not appear to have been provided. See Comment #4.a. concerning the appropriateness of the parameters tested.

20. §4.3.1, groundwater monitoring. See Comment #4 concerning parameters and well construction details. Based on the information submitted in response to Comment #5, the adequacy of the groundwater monitoring plan (well locations, number of wells, and parameters) may need to be re-evaluated.

Groundwater Monitoring Plan

21. Based on the information submitted in response to Comment #5, the adequacy of the groundwater monitoring plan (well locations, number of wells, and parameters) may need to be re-evaluated. This section refers to several attachments that do not appear to have been provided.

sjp

Coastal engineering associates, inc.
Engineering
Planning
Surveying
Environmental
Construction Management

LG 10/28/04 OF- OK 11.1.04 Copies updated

October 26, 2004

Ms. Cindy Falandyzs
Industrial Wastewater
Southwest District Office
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Notice of Non-Compliance Letter June 1, 2004
Florida Crushed Stone
Doing Business As: Rinker Materials Corporation
Permit No. FLA012073
Conditions of Certification No. PA82-17
OGC File No. 98-0093
Hernando County

Ms. Falandyzs:

In accordance with the June 25, 2004 letter to your office in response to the above referenced subject and follow up correspondence and discussions with you, draft revisions of the required supplemental documents to PA82-17 are being provided for your review. Included in this packet is a document entitled *Florida Crushed Stone Facility / Brooksville, Florida / PA82-17 Supplemental Plans / Revised 10/26/04* that includes the following for the Florida Crushed Stone facility.

1. Best Management Practices Plan (BMPP) / Draft Revision, 10/26/04
2. Site Water Management Plan (SWMP) / Draft Revision, 10/26/04
3. Groundwater Monitoring Plan (GWMP) / Draft Revision, October 2004
4. Facility Site Plan / Draft Revision, 10/26/04
5. PA82-17 Conditions of Certification / Modified 11/04/02

A copy of the document has been provided to Buck Oven and the FDEP Office of Site Coordination Office in Tallahassee, Florida.

Please call me at the number below should you have any questions.

Sincerely,
COASTAL ENGINEERING ASSOCIATES, INC.

Tom Mountain
Sr. Vice President

copy: T. Woodard, Delta Power
C. Allen, Rinker
J. Morris, Rinker
HansPeter Dietiker, Chemical Lime
file

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Florida Crushed Stone Facility
Brooksville, Florida

PA82-17 Supplemental Plans

Best Management Practices Plan (BMPP)
Site Water Management Plan (SWMP)
Groundwater Management Plan (GWMP)

Revised 10/26/04

By

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SWD
IW PROGRAM

Introduction

The mining and industrial operations that take place at the Florida Crushed Stone (FCS) Facility operate under numerous permits issued by the Florida Department of Environmental Protection (FDEP) and the Southwest Florida Water Management District (SWFWMD). Operational requirements associated with Permits PA82- 17 and IO27-220624 resulted in the issuance of a FDEP Consent Order (OGC File No. 98-0093), which was finalized in December 1999. As a result of this Consent Order, the FCS Facility was required, in part, to prepare a Best Management Practices (BMP) Plan for the FCS Facility that was to include a supplement document, the Site Water Management Plan (SWMP). As required under PA82-17, II.C.1.b., groundwater monitoring is required under an approved Groundwater Monitoring Plan (GWMP).

These supplemental plans were developed and implemented by the Florida Crushed Stone Company as required and continue to be activily followed and utilized by the management of the various entities now operating at the FCS Facility. Since the inception of the plans, the Florida Crushed Stone Company has been sold and operations are now divided among several companies independent of the other. The Florida Crushed Stone Company name and all real property at the site and the limerock mine and the cement plant are now owned and operated, respectively, by Rinker Materialsof Florida, Inc.. The Chemical Lime Plant (tangible property only) is owned and operated by Chemical Lime Company of Alabama, Inc. The Power Plant (tangible property only), as previously, remains under the ownership of General Electric Capital Corporation and leased operated by Central Power and Lime, Inc. that is now owned by Delta Power Company, LLC.

The Best Management Practice Committee made up of representatives of the companies listed above have assembled and approved the latest versions of supplemental plans and exhibits as follows.

SECTION 1 Best Management Practices Plan (BMPP) / Draft Revision 10/08/04

SECTION 2 Site Water Management Plan (SWMP) / Draft Revision 10/08/04

SECTION 3 Groundwater Monitoring Plan (GWMP) / Draft Revision 9/30/04

EXHIBIT A Facility Site Plan / Draft Revision 10/08/04

PA82-17 Conditions of Certification / Modified 11/04/02

Florida Crushed Stone Facility
Brooksville, Florida
PA82-17 Supplemental Plans

SECTION 1

Best Management Practices Plan

Originally Prepared August 2000
Last Update May 2001
by PBS&J
5300 W. Cypress Street, Suite 300
Tampa, Florida 33607-1712

Revised 10/26/04

By

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BEST MANAGEMENT PRACTICES PLAN
FLORIDA PROFESSIONAL ENGINEER CERTIFICATION

This revision to the Best Management Practices Plan for the Florida Crushed Stone Facility located in Brooksville, Hernando County, Florida has been reviewed by Clifford E. Manual, Jr., P.E. of Coastal Engineering Associates, Inc. (Coastal), Brooksville, Florida, and appears to comply with good engineering standards and practices to assure that qualified personnel have properly gathered and evaluated the information submitted. Coastal's professional services have been performed using the degree of care and skill ordinarily exercised under similar circumstances by other professionals practicing in this field. The certification of the work contained herein applies only to the original sealed document(s), and specifically does not pertain to any copies of this document or any portion thereof including mylars, linen, sepia or other materials that can be changed by the entity or entities with whom such document(s) are filed. No other warranty, expressed or implied, is made as to the professional advice in this report.

COASTAL ENGINEERING ASSOCIATES, INC.

_____ _____

Cliff Manuel, Jr. P.E. Date of signature
President

BEST MANAGEMENT PRACTICES PLAN
OPERATING ENTITY CERTIFICATION

I certify that this document, revisions and all attachments were reviewed and evaluated by the appropriate plant management and engineering staff associated with the company/operation I represent.

_____ _____

Charles Allen Date
Rinker Materials/ Cement Plant

_____ _____

Russ Young Date
Rinker Materials/ Limerock Quarry

_____ _____

Terry Woodard Date
Central Power and Lime, Inc./ Power Plant

_____ _____

HansPeter Dietiker Date
Chemical Lime Company,Inc./ Lime Hydrating Plant

1.0 Overview

1.1 FCS Facility

The FCS Facility is a multipurpose industrial site, located in Hernando County, which contains a limestone mining, washing, and crushing facility; cement, power, and lime production facilities; and various other operations. The FCS Facility is contained on approximately 10,000 acres of land owned by FCS, which is located immediately northwest of the City of Brooksville, Florida. The active portion of the site is bounded by County Road (CR) 485 on the east, CR 491 on the west, and CR 476 on the north. Access to on-site facilities is provided by Cement Plant Road, the eastern end of which intersects CR 485 near Yontz Road and extends in a northwest direction through the center of the property, and Camp Mine Road, which parallels Cement Plant Road to the northeast. The FCS Facility Site Plan can be viewed within Exhibit A of the SWMP (supplement document). The plan provides an overview of the FCS Facility and identifies the location and aerial extent of on-site operations and ground features.

The principle on-site features related to the production of limestone include the North, South, Lykes-East/West, Jones and Cobb Road; and the Gregg Plant limestone processing facility, located near the center of the site, which crushes, washes, and separates the stone by aggregate size prior to distribution. The CPL Plant is located adjacent to Cement Plant Road, immediately southeast of the Gregg Plant, and includes a cement plant and power plant cogeneration facility. The Cement Plant uses waste limestone fines produced by the Gregg Plant and other raw materials to manufacture portland cement. Excess heat generated during the manufacture of cement is integrated with the adjacent co-generation Power Plant, which generates approximately 150 mw/hr. of power that is sold to a local power company.

Other on-site operations include the Chemical Lime Hydrating Plant, and two other small independent lease operations (Miller Tire and Cliff's Septic Tanks) which lease property from FCS and are located along Camp Mine Road. On-site transportation and material handling is facilitated through a network of general use roads, haul roads, and rail lines. On-site features that dominate the landscape include a series of large settling ponds that store mine tailings that settle out from the Gregg Plant process water; cooling ponds that contain water that is continually recycled through the power plant; and active and abandoned quarries.

The Gregg Plant and Cement Plant are operated by Rinker Materials of Florida, Inc. The Power Plant is operated by Delta Power, Inc. the Lime Hydrating Plant is operated by Chemical Lime, Inc.

1.2 Best Management Practices (BMP) Plan

The BMP Plan is part of the implementation of a best management practices program as stipulated in the Consent Order (CO #OGC File No.98-0093) which the Florida Crushed Stone Company and the Florida Department of Environmental Protection (FDEP) entered

into on December of 1999. As specified in the Consent Order, the objective of the BMP Plan is to prevent or minimize the potential for the release of pollutants to waters of the State from ancillary activities through plant site runoff, spillage or leaks, and/or drainage from raw material storage. Ancillary activities are defined as material storage areas, in-plant transfer, process and material handling areas, and loading and unloading operations. Other BMP Plan requirements include:

1) The BMP is to be maintained at the facility and FCS shall make the Plan available upon request.
2) The BMP Plan is to be documented in narrative form, and include any necessary plot plans, drawings, or maps.
3) The BMP Plan is to identify areas, systems or components of the Facility that have a potential for causing a release of pollutants to waters of the State, due to equipment failure, improper operation, or natural phenomena such as extreme rain or winds.
4) The BMP Plan is required to include a prediction of the direction, rate of flow, and total quantity of pollutants that could be discharged from the facility as a result of equipment failure, improper operation, or natural phenomena such as extreme rain or winds.
5) The BMP Plan is to establish preventative and remedial procedures to prevent pollutants from reaching waters of the State in amounts that would cause violation of water quality standards.
6) The BMP Plan is to be modified as necessary when there is a change at the Facility that would increase the potential for the release of pollutants to waters of the State.
7) The BMP Plan is to include a maintenance schedule for all earthen dams storing process wastewater and runoff above grade. Earthen dam maintenance is to be in accordance with good engineering practices and Rules 62-672.400 and 62-672.500, F.A.C.

The mission is to implement a facility-wide BMP Plan, which together with concurrent implementation of similar programs, manages the industrial discharges at the FCS Facility to maintain water quality. The operating entities of the FCS Facility are committed to the mission of the BMP Program.

The BMP Plan is directed toward reducing identified "Constituents of Concern" at the FCS Facility, which could or do discharge to surface waters of the State. The BMP Plan is intended to be a management tool utilized by the FCS Facility personnel to develop, implement, and routinely review BMP's in a continuing effort to identify, control and to the extent practicable, eliminate potential pollutant discharges to the surface water or groundwater. Summarized below are the short and long term goals of the BMP Plan.

1) Maintain a facility-wide Pollution Prevention training program .
2) Periodically evaluate alternative methods of controlling surface water discharges of process water as needed.

3) Promote awareness and enhance lines of communication relating to the BMP's and the Pollution Prevention concepts at all personnel levels within the facility.
4) Encourage continuous improvement, and then prioritize and implement the most economical and practicable run-off collection enhancements that have been identified.
5) Prioritize and implement the most economical and practicable process water surface discharge alternatives identified.
6) Demonstrate measurable reductions in identified contaminant loads to the existing surface water features from stormwater runoff that can be reasonably and practicaly acheived and develop target reduction goals based on implemented management programs and track the progress.
7) Demonstrate measurable improvement trends in effluent water quality for other identified constituents of concern that can be reasonably and practicaly acheived.

2.0 Constituents of Concern

Potential examples of the classification of constituents of concern are defined within this BMP Plan as:

1) Conventional- BOD, suspended solids, pH, and oil & grease,
2) Non-conventional- phosphorus, nitrogen, aluminum, iron, sulfates.
3) Toxic- any substance listed in Section 307 (a) (1) or 311 of the Clean Water Act, or chemicals listed in Section 313 (c) of Superfund Amendments Reauthorization Act, or any substance (not conventional or non-conventional) for which the United States Environmental Protection Agency (EPA) has published an acute or chronic toxicity criterion.

These types of constituents can originate from processes and/or materials found at the facility that could have the potential to mix with and discharge to the surface water features such as the perimeter ditch and groundwater. Previous investigations associated with the preparation of the SWMP have evaluated these constituents and their potential to affect surface water and ground water quality features on the site.

<u>Parameters for Evaluation of Water Quality of the Site</u>

1) Primary Drinking Water Standards
2) Secondary Drinking Water Standards
3) pH, TSS, TDS, and TRPH by FL PRO Method
4) Turbidity, Total RCRA Metals, DAP, AL, and Fe
5) Oil & Grease

Boron, Thallium, Fluoride

Results from the above referenced SWMP evaluation indicate that very few measured parameter values actually exceeded drinking water standards. It should be noted, however, that the original FDEP Consent Order did not specify the water quality

parameters to be evaluated, and drinking water standards were used for comparison purposes only.

Also, as discussed in Section 3.0 (Process Water Routing) of the SWMP, the FCS Facility does not have an off-site discharge to what is referred to as; "Waters-of-the-State" during normal (non-emergency) conditions. Therefore, based on these observations, the FCS Facility does not discharge a contaminant load to Waters-of-the-State that threatens public health and the environment.

Groundwater quality had been historically monitored at the FCS Facility by Imperial Testing Laboratories (ITL) since the mid-1980's. ITL prepared a revised Groundwater Monitoring Plan (GWMP) for the FCS facility. General information derived from the GWMP was obtained from ITL and provided herein.

Historical information collected indicates that elevated aluminum levels are a common background condition in many of the monitor wells. Although iron levels are elevated above those provided in the baseline period, elevated iron levels are a common background condition in many of the nearby monitor wells and have risen over the years. Elevated color levels, which were also observed in the monitoring wells, appears to correlate with the elevated iron levels and/or turbidity levels.

It should be noted that the only MCLs exceeded were for secondary standards for aluminum, color, and iron. Again, elevated aluminum and iron levels are a background condition common in many of the nearby monitor wells. Aluminum, iron, lead and odor MCLs were exceeded in MW-1, which had the highest aluminum, color, lead, iron, odor, and turbidity levels of all the wells sampled, although it is the farthest from any potential pollutant source. Monitoring well MW-1 had never been sampled before but was drilled in the late 1980s and was reportedly developed at the time of installation. According to FDEP, any turbidity measurement over 5 NTUs can lead to erroneously high dissolved metals content. ITL staff believes that this is the case with the elevated aluminum and iron levels throughout the site.

Given the elevated lead concentration detected at MW-1, ITL re-sampled the monitor well using low-flow quiescent sampling techniques in accordance with FDEP guidance documents. The results of the re-sample indicated that the turbidity levels were decreased, and the lead level decreased to below the MCL. The concentrations of the other elevated parameters were also decreased, but remained above their MCLs. ITL concluded that these results supported their opinion that elevated levels are related to background water quality conditions.

In addition to the constituents evaluated during the SWMP preparation, there are pollutants that could result from materials utilized at the facility that normally do not discharge to surface water features such as the perimeter ditch. These pollutants are gasoline, diesel, fuel, oil, lubricants, and used oil. These materials are addressed in the Spill Prevention, Control and Countermeasures (SPCC) Plans for each of the operations and are not included in the list of constituents previously discussed. Solvents and other

chemicals used at the each operation in small amounts are closely monitored, and they are handled in accordance with their respective Material Data Safety Sheet (MSDS) requirements.

3.0 Current Operations

The following sections describe the areas and types of operations from where constituents of concern may originate within the FCS Facility.

3.1 Gregg Plant

3.1.1 Limestone Mining

The FCS Facility contains a wide range of operations. The chief operation at the facility is the limestone mining operation along with the production of cement, electrical power, and hydrated lime. Limestone has been historically mined at the Brooksville site for many decades. Currently, the North, South, Lykes East/West, Jones and Cobb Road Quarries are being actively mined.

In general, three vertical cross-sections exist within the limestone quarries. The top zone consists of an overburden of soils that has a thickness of approximately 5 to 60 feet. The middle zone contains limestone, also known as "hard rock", which is about 100 feet thick; and the bottom zone contains limerock also known as "soft rock", which typically is greater than 35 feet thick. Limestone (hard rock), which produces the hard aggregate used in various construction activities, has higher commercial value than limerock (soft rock), which is used in the production of cement and soil cement. The constituents of concern that could potentially affect surface water quality from this operation are total suspended solids, total dissolved solids, pH, color, and some secondary metals.

3.1.2 Crushing, Washing and Separation

The limestone ore is trucked to the Gregg Plant on haul roads leading from the North, South, Lykes East/West, Jones and Cobb Road Quarries. Upon arrival at the Gregg Plant, the ore is dumped into a large crusher that reduces boulders to a specified maximum aggregate size. Following this initial crushing operation, the material is conveyed into the center of the Gregg Plant for additional crushing and washing. Following these operations, the limestone is segregated by a range of aggregate sizes and conveyed to material storage areas located adjacent to the Gregg Plant.

Washing the ore is necessary to remove waste material known as "tailings", which include limestone fines (CaCO3), silica, and clays. Approximately 40 percent of the ore produced by the quarries is removed as waste material during the washing operation and is conveyed away from the plant in various process streams. The Gregg Plant was recently modified to include the large crusher located at the front of the plant, and a new and more efficient process train, which began operation in early 1999. These modifications have significantly reduced the volume of process water and mine tailings

produced by the Gregg Plant. The constituents of concern with this operation are similar to the previously-stated ones from the Gregg Plant operations (TSS, TDS, pH, color, and select secondary metals).

Trucks pick up the washed limestone at "Load Out", a series of elevated hoppers located on the west side of the Gregg Plant. Each hopper contains a designated aggregate size range that conforms to an identified Florida Department of Transportation (FDOT) specification. Minor levels of the predominant constituents of concern can be anticipated with this operation, however since there is also a significant amount of truck vehicle use associated with the "Load Out" operation, the additional constituents associated with Total Recoverable Petroleum Hydrocarbons, oil and grease may be anticipated.

3.2 CPL Plant

The CPL Plant has been in operation since the mid 1980s. The original design incorporated a Cement Plant, Power Plant, and Lime Plant. The CPL plant allows for the beneficial use of mine tailings, produced by the Gregg Plant, that were previously being discarded. In particular, tailings produced by the Gregg Plant contain large quantities of calcium and silica, which are required in the production of cement. In turn, the Cement Plant produces excess heat, which benefits the creation of electrical power by the Power Plant. The Lime Plant was constructed to produce a chemically pure form of lime; however it is no longer in operation. Accordingly, the CPL Plant currently produces two distinct products (cement and electrical power) that benefit from limestone fines produced by the Gregg Plant. In this manner, materials that would otherwise be wasted are used in the development of useful products.

3.2.1 Cement Plant

Raw materials used in the production of cement include limestone tailings ($CaCO_3$ and silica), limerock and other mineral aggregates such as fly-ash, mill scale, and slag, which are heated in a kiln, fueled by coal and waste tires, to produce an aggregate product known as "clinker." Clinker is then ground into a powder and gypsum is added to produce cement. Tailings used in this process are dredged from the process flow channel located west of the Gregg Plant, trucked and conveyed to the Cement Plant site, and stored in the "A" Frame covered storage area located on the north side of the facility. The "A" Frame is also used to store limerock, which is trucked from the Gregg Plant.

Uncovered material piles located on the east side of the Cement Plant contain mill scale, slag, and used tires. Fly ash, which is produced through the combustion of coal in the Power Plant, is stored on-site in silos and is used as one source of Ferric Oxide and Alumina. Clinker is stored in a tarped material pile on the southeast side of the Power Plant. The constituents of concern with this operation include TSS, TDS, and pH, but also recognize more specifically; iron, coal, bauxite, lime, and mill scale.

TECO flyash

NOT true

3.2.2 Power Plant

The Power Plant is a 150-megawatt co-generation facility utilizing a pulverized coal combustion boiler to produce electricity. The Power Plant is integrated with the Cement Plant operation by capturing thermal energy produced by the kiln that would otherwise be wasted during the manufacture of cement. In this manner, the Power Plant becomes an economic source of electrical power, which is sold off-site to public electric utility providers.

Coal, which is used to generate heat for the Cement and Power Plants, is stored in an uncovered clay lined storage area located east of the Power Plant. The coal is delivered to the storage site by train hopper cars that travel across an overhead 300-foot long trestle.

The constituents listed above have a similar concern based on the close proximity of all three of the operations that make up the CPL Plant, however the use of coal is more closely identified as a constituent associated with this operation.

3.3 Chemical Lime Hydrating Plant

Chemical Lime Company's facility receives, transloads and stores high purity quick lime (CaO) via truck or rail. The quicklime is stored in fully enclosed silos or bins. A portion of this quicklime may be shipped as bagged or bulk loaded product. The remaining quicklime is used to produce hydrate, $Ca(OH)_2$. Hydrate (calcium hydroxide) is produced by mixing quicklime (CaO) and water in a controlled reactor vessel. The hydrate is then stored in fully enclosed bins prior to shipment or bagging.

The primary constituents in any discharge from this portion of the operation would be total suspended solids, dissolved solids, and pH.

3.4 Minor Operations

septic drying land application

FCS leases property to several small independent operations at the FCS Facility, including Miller Tire and Cliff's Septic Tanks. None of these operations generate a significant volume of process water. Cliff's Septic Tanks has been constructed in the recent past, and has a permitted on-site stormwater management facility. Therefore, Cliff's Septic Tanks was not considered as a contributor for affected run-off within the Site Waste Management Plan. The Miller Tire facility is a relatively small operation that consists of an office trailer, an unpaved access road, and equipment used to change truck tires. A small number of new and used tired are stored on-site. Since the majority of tire changing activities actually occur on the other sites, the use of chemicals and or cleaners is consider "de minimus" and not a potential impact to run-off. No other industrial related run off components affect the FCS facility.

3.5 Storage and Shipping

Figure 1-1 within the SWMP depicts the location of the storage and shipping facilities within the facilities. The dry granular product, calcium carbonate (lime), is stored in an "A" framed warehouse at the FCS Facility. There are two product-handling stations (conveyors) at the A-frame. Spillage of lime related products from the storage and shipping operations could be carried by stormwater run-off to nearby surfaces. However these surface waters are not defined as "waters of the state" and the potential for adverse impacts is minimal.

3.6 Gasoline and Vehicular Diesel Fuel, Waste Oil Storage, Other Fuel Oil Tanks

Gasoline tanks and diesel fuel tanks are located at various locations throughout the FCS facility. These petroleum storage tanks are located above ground within concrete secondary containment systems. The secondary containment systems are constructed to hold 110% of product in case of leak or failure of the aboveground tanks. Facility maintenance employees maintain daily inventories and product reconciliation. Due to their overall location from surface water features and the employment and use of secondary containment systems, spills or releases to waters of the state is highly unlikely. An above ground waste oil tank is located at the auto shop in a steel secondary containment. Due to its secondary containment system, a spill or release to waters of the state is protected against. Should constituents be released outside of their respective containment systems, the parameters of concern would be anticipated to be; TRPH, oil and grease.

3.7 Process Water Treatment System

The FCS Facility site contains numerous surface features that define on-site topographic conditions and related stormwater flow paths, as described and illustrated within the SWMP (Exhibit A). Of particular importance are the many active and inactive limestone quarries, active and inactive settling ponds, cooling ponds, and naturally low-lying areas located throughout the site. Given these drainage features, there is no off-site discharge of land surface runoff from the developed portion of the site, which includes the plant operations described previously. The only exceptions would occur in the event of an emergency discharge of excess water from Settling Pond 7 or Cooling Pond 4, which are described in detail within the SWMP. In an emergency release the excess water would discharge in a westerly direction to a low-lying area located on FCS property on the west side of CR 491. This low-lying area does not have a surface drainage outlet. Therefore, the excess water would remain on FCS property.

4.0 FCS Facility Permits, Operating Plans, and Procedures

There are numerous existing documents at the FCS Facility that address general requirements of Best Management Practices theory. The protocols and procedures addressed in these existing documents need not be duplicated here. The following

summarize the existing documents available at the Facility and describe the existing protocols.

4.1 State Permits

The mining and industrial operations that take place at the FCS Facility have required FCS to obtain a series of permits issued by the FDEP and the Southwest Florida Water Management District (SWFWMD). These permits include, but are not limited to, the following.

1) Power Plant Siting Conditions of Certification (No. PA82-17)
2) City of Brooksville Sewage Treatment Plant (STP) Permit (No. DO27-195835). Treated STP effluent (0.375mgd) is discharged to the FCS cooling ponds.
3) FCS STP Permit (No. DO27-159048). Treated STP Effluent (0.006mgd) is discharged to FCS cooling ponds.
4) Waste Tire Handling Permit WT27-268487
5) Environmental Resource Permits
   a. North Pit Extension
   b. McClung Property
   c. Lykes East/West
   d. Gregg Mine (40D-45 Area) Under review
   e. Cobb Road Under review
6) NPR
   a. (Pond 11A) 27-0172883-001
   b. (Pond 12 A/B) Under review
7) WWTP Operating Permits
   a. CPL Plant FLA012042
   b. Gregg Plant Safety Center Under review
   c. Gregg Mine Office 27-QB-00061
8) Storage Tank Registrations
   a. Rinker Rock Mine 278520231
   b. Rinker Cement 279804196
   c. Central Power and Lime 279046624
9) MSSW permits
   a. Cooling Ponds 1, 2, & 3
   b. Cooling Ponds 4 and 5 (No. MSW 403241.00)
   c. Pond 9 (No. MSSW 4510189.00)
10) Water Use Permits (20000215.009)

4.2 Site Water Management Plan (SWMP)

The overall objectives of the FCS Facility SWMP are to: (1) define routing of process and stormwater at the Facility; (2) assess the Facility's potential for causing surface or ground water pollution; and (3) propose operational or structural changes to the Facility

to prevent unpermitted discharges. In addition, the SWMP includes the following site related data and information:

1) Description of the flow path and pollutant concentrations of on-site water streams.
2) Description, including site map, of proposed water quality treatment or control facilities.
3) Description of proposed operational changes.
4) Schedule for implementing the recommendations of the SWMP, including deadlines for implementing operational changes and the permitting, construction and completion of near term structural changes.

4.3 Groundwater Monitoring Plan

The Groundwater Monitoring Plan (GWMP) has been prepared to comply with consent order requirements and partially fulfills the requirements of OGC File No. 98-0093. Sampling is conducted by an organization under State required sampling protocol. Sample analysis are completed by a certified chemical lab also State standards. The monitor wells for this plan are those approved by FDEP. Sampling parameters of all monitor wells is in accordance with the approved GWMP. The current list of tested parameters is provided in the GWMP.

4.4 Containment Integrity for Dams/Berms

Containment integrity for damns and berms is required in order to comply with conditions specified within FCS's permits. The permit conditions require FCS to conduct dam and berm inspections according to State requirements on an annual basis by an engineer registered in the State of Florida and experienced in the field of construction and maintenance of dams. Results of these inspections are kept on file. FCS also takes this further by performing weekly inspections of the dams and their applicable features by qualified personnel.

The intent of these inspections is to establish regular evaluation and an inspection record in order to minimize the risk of spills, releases, and discharges from settling pond and cooling pond storage feature at the FCS Facility.

4.5 Emergency Procedure Management

Each of the operations have specific emergency procedures that provide a basic plan of action to be followed in the event of a major plant emergency, which may include the following: 1) fire, 2) explosion, 3) rupture and/or release of substances such as fuel or gasoline, 4) equipment, building, or structure failure, 5) natural causes such as hurricanes, tornadoes, and severe thunderstorms, and 6) sabotage or bomb threats. The manual includes requirements and procedures for responding to sudden and non-sudden spills (petroleum spills, chemical spills, truck spills, and settling/cooling water releases).

4.6 Waste Minimization Assessment (WMA)

A WMA was conducted as part of this BMP Program. The general requirements of the WMA are summarized below. Generally defined, waste minimization is a component of Pollution Prevention. FCS's Pollution Prevention is a management program designed to implement process improvements that include source reduction, waste minimization, and on-site recycling to the greatest extent practicable. The specific objective of the Program is to reduce or eliminate certain material(s) that are a potential source of pollution when and where reasonably and practically acheivable. These processes are summarized below and may be included in training programs.

1) Source Reduction is the elimination of the source of pollution from a process by either eliminating that chemical or material that cause pollution or by substituting that material with a chemical or material that causes less pollution.
2) Waste Minimization is the implementation of changes that result in the conservation of materials that are the source of pollution.
3) On-site Recycling is the reuse of materials that are the source of pollution.

The waste reduction practices recommended in the WMA section of the BMPP include the following:

1) Evaluate materials that are purchased and used in the overall preventative maintenance system for machinery and vehicles.
2) Evaluate and use where feasible substitution of petroleum based (solvent) general-purpose cleaners with either aqueous alkaline based or citrus-based cleaners.
3) Evaluate and use where feasible silt fences or permanent curbs in around the raw material stockpiles in order to control the movement of fines during rain related events.

4.7 Spill Prevention, Control and Countermeasures (SPCC) Plans

Where required, operations within the FCS Facility shall have SPCC Plans in place. The purpose of SPCC Plans is to minimize the potential for costly oil and gasoline discharges to the environment. At a minimum each of the SPCC plans should:

1) Be kept onsite.
2) Be certified by a Registered (PE) Professional Engineer.
3) Have management approval.
4) Conform with all SPCC requirements in 40 CFR part 112.
5) Discuss spill history.
6) Discuss spill prediction (i.e., direction of flow).

7) Be reviewed every five years by management.
8) Be amended when the facility changes occur and recertified by a PE.
9) Include a spill kit onsite.

4.8 General Operating Procedures

4.8.1 Maintenance and Housekeeping

Good housekeeping is essential to the proper maintenance of the work place and is emphasized throughout the Brooksville facility. Employees are provided initial and annual refresher training that addresses the use of BMPs and the importance of good housekeeping. Regular schedules and assignments are developed by area supervisors to ensure safe, clean working conditions.

General housekeeping at each operation and adjacent property areas is the responsibility of the respective operations and maintenance departments. Spilled process material on the plant roads is controlled by a continuous wetting and sweeping of the roadways as required.

The street sweeping run-off is then introduced to the overall processed water system for settling. These applicable flow patterns are described within the Site Water Management Plan.

4.8.2 Record Keeping

All facility personnel are trained in proper record keeping requirements for their specific job functions as applicable. Each of the operating areas previously summarized in the SWMP and this BMP have operational record keeping requirements for the Facility or operations addressed in the documents.

4.8.3 Inspections

All plant personnel are trained to observe their surroundings during the course of their daily duties and to report anything that may contribute to releases of potentially harmful materials. Operating plans and permits previously summarized have an inspection component and record keeping requirements.

4.8.4 Plant Security

All access into and out of the Facility is monitored and recorded by the Facility Security Guard. The Security Guard is responsible for insuring that all outside contractors, consultants, and regulatory personnel are appropriately logged in and recorded. In addition, the Security Guard checks any outside contractor vehicles to insure that proper documentation is provided for all materials being brought into the Facility, and that all loads are properly documented and restrained on the vehicle.

4.8.5 Employee Training

All new employees receive initial training that covers chemical hazards in the work areas, location of the Material Safety Data Sheet manuals, the Health and Safety Procedures Manual, Emergency Procedure Manual, lock out and tag out procedures, respiratory protection, hearing protection and Employee Right-To-Know regulations.

Employees routinely receive annual training covering health, safety, environmental programs and compliance, employee responsibilities, identification of environmental incidents, management and reporting of chemical and petroleum spills, waste management, dams and dikes, and stormwater control. In addition, the training program informs all personnel of the components and goals of the BMP plan. All training sessions are properly documented with the name of the trainer, the names of the participants, the date the training was performed, and the subject.

4.8.6 Material Safety Data Sheets (MSDS)

MSDS forms for all chemicals utilized in the Facility are maintained by the facility Safety staff. The Safety staff ensures that updated versions of the MSDSs are available in various areas of the facility. Operation manuals and protocols involving the use of chemicals specifically reference the MSDS forms. MSDS forms are available to all employees for reference prior to handling any chemical in the Facility.

5.0 Best Management Practices

5.1 BMP Development Process

The intent of the BMP development process is to solicit and obtain input from respresentatives from each of the major operations (Gregg Plant, Cement Plant, Power Plant and Chemical Lime Hydrating Plant on development of BMPs for their areas of responsibility. The representatives (BMP Committee) are also responsible for routinely reviewing and modifying the BMPs as necessary to maintain the highest level of control over possible pollutant discharges. The BMPs provided in this BMP Plan are not intended to replace the technical operating procedures and protocols existing in other documents for the operation of the Facility. The BMPs developed in this BMP Plan are intended to provide the facility managers with additional concepts to oversee, guide, and monitor the general practices (Best Management Practices) within the FCS Facility.

5.2 BMP Committee

A BMP Committee has been established for the FCS Facility to ensure that the overall program is effective, implemented, and current. The BMP Committee is the group of people that will be responsible for continuing development of the BMP program;

assisting plant management and supervision in its implementation; and assisting staff in the maintenance and revision of the BMP Plan.

The initial task of the BMP Committee shall be to perform a review of existing operational facility components and associated practices for conformance with the specific objectives of the BMP program. In performing this review, the BMP Committee shall consider and recommend any appropriate pollution prevention measures that should be incorporated into the BMP program and addressed in the BMP Plan. Initial review and MPP adoption shall be completed six months of receipt of this BMP Plan.

The BMP Committee will be responsible for reviewing the purchasing practices and identifying toxic and hazardous materials on the property. They will also identify potential spill sources, establish incident reporting procedures, develop BMP inspection and records procedures, review spill incidents to determine and implement changes to the plan, coordinate spill incident response, cleanup and notify authorities, establish BMP training for plant personnel, aid coordination between departments in carrying out the BMP plan, and review of new construction for impact upon the BMP Plan.

Meetings of the BMP Committee shall be held quarterly for the first year after implementation of the BMP Plan and not less than annually thereafter, and at other times that management deems appropriate. The BMP Committee shall be made up of representatives from the business entities operating within the FCS Facility excluding minor operations.

5.3 Facility BMPs

5.3.1 Debris Removal

Stormwater control and conveyance structures require frequent debris removal to maintain proper function. Litter and wastes can clog inlets, catch basins and outlets, and lead to overflows, erosion and unintended flooding. Grates on process water inlets and outlets must be cleaned on a regular basis.

5.3.2 Education Programs

Education programs are effective nonstructural BMPs when implemented for all employees. Employees and supervisors will adapt to new methods or use alternative materials when they are informed of workable techniques during classroom instruction.

5.3.3 Preventive Measures

Source controls management techniques that reduce the exposure of materials to stormwater will be given additional emphasis. Since the facility's runoff does not represent a threat to waters of the state, these BMPs are oriented toward actions that are focused on materials handling techniques. Most measures that mitigate existing water quality conditions are preventive in nature, and these are discussed in this section. These

practices use alternative maintenance procedures, education of management and technical personnel, or redesign of structures to reduce the amounts of constituents entering stormwater and accumulating on impervious areas. Preventive measures are cost-effective ways to manage stormwater runoff because they usually require no land area or construction and can be implemented quickly and economically.

5.3.4 Exposure Reduction

The most effective way to reduce or eliminate constituent loading in stormwater is to limit the exposure of materials to rainfall and runoff. The simplest example is the covered storage facility utilized for the lime storage. Covering this constituent of concern limits exposure to rain, which helps reduce runoff to the nearby perimeter ditch. Other ideas for FCS's BMP committee to consider are:

1) The partial or total physical enclosure of stockpiled or stored material such as lime, clinker, bauxite, and coal. Covering is most effective as part of a system of BMP's which also addresses interception of runoff prior to contact with the stockpiled material.
2) Implementing rapid time management of raw materials and finished products to minimize the amount of exposed stockpiles in and around the CPL Plant. Rapid time management uses intensive scheduling to keep the time of exposure of raw materials to a minimum.
3) Site cleaning or housekeeping to reduce the amount of constituents available to enter stormwater. FCS will recycle empty drums regularly and move materials containing pollutants under cover as soon as possible. Grading and seeding of old stockpile areas and bare areas will reduce erosion and improve appearance. Continue rigid preventive maintenance program of equipment will reduce leaks, breakdowns, spills, and accidents.

5.3.5 Minimization of Pollutants

Overall, significant stormwater affects will be avoided by removing potential pollutants from the watershed, using alternative chemicals, using alternative practices, recycling or reducing the use of polluting chemicals and other materials. Brooksville facility managers are in the best position to devise alternative and innovative procedures and new techniques that avoid or reduce pollutants, and can be given guidance, incentives, and thought-provoking encouragement to do so.

6.0 Operational Changes

In order to improve and maintain Best Management Practices, and to place emphasis on the future water quality impacts of the Cement and Power Plant operations, FCS has begun quarterly reports on the monitoring of the Perimeter Ditch. Parameters being monitored are directed to those constituents that are most likely to escape from adjacent facility operations.

The parameters pH; Total Suspended Solids; Total Dissolved Solids; Total Recoverable Petroleum Hydrocarbons by FL PRO Method; Turbidity, 8 RCRA Total Metals; Aluminum; Iron; Oil and Grease are being monitored and evaluated. Quarterly monitoring of the Perimeter Ditch has begun with approval by FDEP, and incorporation of the SWMP, GWMP, and BMP Plan into FDEP Site Certification Plan.

Florida Crushed Stone Facility
Brooksville, Florida
PA82-17 Supplemental Plans

SECTION 2

Site Water Management Plan

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1.0 Overview

As a specified in the FDEP Consent Order (OGC File No. 98-0093), the objectives of the SWMP are to define routing of process and stormwater at the FCS Facility, assess the facility's potential for causing surface or ground water pollution; and propose operational or structural changes to the FCS Facility to prevent un-permitted discharges. In addition, The Consent Order states that the SWMP shall include the following:

1) Description of the flow path and pollutant concentrations of on-site water streams.
2) Description, including site map, of proposed water quality treatment or control facilities.
3) Description of proposed operational changes.
4) Schedule for implementing the recommendations of the SWMP, including deadlines for implementing operational changes and the permitting, construction and completion of structural changes.

Accordingly, the SWMP provided herein includes the above stated contents. Related topics of discussion are included in the BMP Plan.

2.0 Description of Plants and Operations

2.1 Gregg Plant

2.1.1 Limestone Mining

As stated previously, the FCS Facility contains a wide range of operations. Chief among these are limestone mining and the production of cement, electrical power, and hydrated lime. Historically, these many functions were made possible at the FCS Facility because of the mining operation and the limestone products created by the Gregg Plant. Limestone has been mined at the Brooksville site for many decades, which has resulted in a number of old quarries scattered throughout the site.

In general, a vertical cross-section through these limestone quarries would reveal three distinct zones. The top zone is an overburden of soils that has a thickness of 5 to 60 feet. The middle zone contains the limestone ore, also known as "hard rock", which is about 100 feet thick; and the bottom zone contains limerock, also known "soft rock", which typically is greater than 35 feet thick. Limestone (hard rock), which produces the hard aggregate used in various construction activities, has the higher commercial value than limerock (soft rock), which is used in the production of cement. Explosive charges are used to break away raw limestone material (ore) from the walls of the quarry.

2.1.2 Crushing, Washing, and Separation

The limestone ore is trucked to the Gregg Plant on haul roads from the North, South, Lykes East/West, Cobb Road and Jones quarries. Upon arrival at the Gregg Plant, the ore

is dumped into a large crusher that reduces boulders to a specified maximum aggregate size. Following this initial crushing operation, the material is conveyed into the center of the Gregg Plant for additional crushing and washing. Following these operations, the limestone is segregated by a range of aggregate sizes and conveyed to material storage areas located adjacent to the Gregg Plant.

Washing the ore is necessary to remove waste materials known as "tailings", which include limestone fines ($CaCO_3$), silica, and clays. Approximately 40 percent of the ore produced by the quarries is removed as waste material during the washing operation and is conveyed away from the plant in various process streams.

Trucks pick up the washed limestone at "Load Out", a series of elevated hoppers located on the west side of the Gregg Plant. Each hopper contains a designated aggregate size range that conforms to an identified Florida Department of Transportation (FDOT) specification.

2.2 CPL Plant

2.2.1 Overview

In the mid-1980s, FCS constructed a cogeneration facility that included the Central Power and Lime Plant and the FCS Cement Plant (commonly known as the CPL Plant), which allowed the beneficial use of mine tailings that were previously being discarded. In particular, tailings produced by the Gregg Plant contain large quantities of calcium and silica, which are required in the production of cement. In turn, the Cement Plant produces excess heat, which benefits the creation of electrical power. In this manner, materials and energy that would otherwise be wasted are used in the development of useful products.

As presented in Exhibit A, the Cement Plant is located near the center of FCS property on the east side of Cement Plant Road. The Power Plant is located on the southeast side of the Cement Plant.

2.2.2 Cement Plant

Raw materials used in the production of cement include limestone tailings ($CaCO_3$ and silica), limerock, fly ash, mill scale, slag, and used tires, which are heated in a kiln to produce an aggregate product known as "clinker". Clinker is then ground into a powder and gypsum is added to produce cement. Tailings used in this process are dredged from the process flow channel located west of the Gregg Plant, trucked and conveyed to the Cement Plant site, and stored in the "A" Frame covered storage area located on the north side of the facility. The "A" Frame is also used to store limerock, which is trucked from the Gregg Plant.

Uncovered material piles located on the east side of the Cement Plant contain mill scale, slag, and used tires. Fly ash, which is produced through the combustion of coal in the

Power Plant, is stored on-site ion silos and is used as a source of iron and aluminum. Clinker is stored in a tarp covered material pile on the southeast side of the Power Plant.

2.2.3 Power Plant

The Power Plant is a 150-megawatt (MW) co-generation facility utilizing a pulverized coal combustion boiler to produce electricity. The Power Plant is integrated with the Cement Plant operation by capturing thermal energy produced by the kiln that would otherwise be wasted during the manufacture of cement. In particular, the Power Plant boiler uses the hot air resulting from cooling the cement clinker from 2700 degrees Fahrenheit to 350 degrees Fahrenheit as combustion air. In this manner, the FCS Power Plant becomes an economic source of electrical power, which is sold off-site to public electric utility providers.

Coal, which is used to generate heat for the Cement and Power Plants, is stored in an uncovered clay lined storage area located east of the Power Plant. The coal is delivered to the storage site by train hopper cars that travel across an overhead 300-foot long trestle.

2.3 Chemical Lime Hyadrate Plant

The Chemical Lime Hydrating Plant is located between the Gregg Mine and the CPL Plant. The facility receives and transloads quicklime (CaO) for storage in fully enclosed silos or bins. Chemical Lime then ships this material by bulk carrier or as a bagged product. Chemical Lime also produces hydrated lime ($Ca(OH)_2$) on site by reacting quicklime and water in a vessel under closely controlled conditions. The hydrate (or calcium hydroxide) is then bagged or shipped from the facility by bulk carrier.

2.4 Minor Operations

FCS leases property to several small independent operations at the Brooksville Facility, including Miller Tire and Cliff's Septic Tanks. None of these operations generate a significant volume of process water. The latter two facilities have been constructed in the recent past, and have permitted on-site stormwater management facilities. Therefore, Miller Tire and Cliff's Septic Tanks will not be considered in further detail within the FCS SWMP.

3.0 Process Water Routing

3.1 Overview

This section has been prepared to address the FDEP Consent Order requirement to define the routing of process and stormwater at the FCS Facility. Discussions provided below describe surface drainage features of the facility, and the routing of industrial process water generated by the Gregg Plant, CPL Plant, Chemical Lime Hydrating Plant and various minor operations.

3.2 Surface Drainage Characteristics

3.2.1 Overview

The FCS Facility site contains numerous surface features that define on-site topographic conditions and related stormwater flow paths, as illustrated on Exhibit A. Of particular importance are the many active and inactive limestone quarries, active and inactive settling ponds, cooling ponds, and naturally low-lying areas located throughout the site. Given these drainage features, it is important to note that there is typically no off-site discharge of land surface runoff from the active (developed) portion of the site, which includes the plant operations described previously. The only exceptions would occur in the event of an emergency discharge of excess water from Settling Pond 7 or Cooling Pond 4, which will be described later. In these instances, the excess water would discharge in a westerly direction to a low-lying area located on FCS property on the west side of CR 491. This low-lying area does not have a surface drainage outlet feature. Therefore, even in the event of an emergency discharge from Settling Pond 7 or Cooling Pond 4, the excess water would remain on FCS property.

3.2.2 Basin and Sub-basin Definitions

To assist in the definition of surface drainage patterns on the FCS Facility site, drainage basins and sub-basins were delineated, as illustrated on Exhibit A. These delineations were created using available topographic mapping, and field observations of flow paths and topographic conditions. Given the limited coverage and accuracy of the available topographic mapping, these delineations were to a large extent using observations made in the field.

In particular, five drainage basins were delineated and identified as CNTR, EAST, NRTH, WEST, and SOTH, which are located in the center, eastern, northern, western, and southern portions, respectively, of the developed site. These five drainage basins were further delineated into 5, 7, 6, 6, and 4 drainage sub-basins, respectively, which produced a total of 28 sub-basins. Sub-basins that do not have a gravity discharge outlet feature under normal circumstances (i.e., not considering an emergency discharge) were identified as "closed basins" (I.D.), which accounted for 20 of the 28 sub-basins. Note, for the purpose of this evaluation, sub-basins that have a pumped discharge outfall, which includes Sub-basins WEST-3 (Settling Pond 7 pump) and SOTH-1 (Perimeter Ditch pump), were also considered to be closed basins.

Important surface features that cause sub-basins to be closed basins include old inactive quarries, active quarries, naturally low-lying areas, Settling Ponds 7 and 9, and Cooling Ponds 4 and 5. The 8 sub-basins not identified as closed basins generate stormwater runoff that discharges to sub-basins that are closed basins. Therefore, as stated previously, there is typically no off-site discharge from the active portion of the FCS Brooksville Facility site. Also, in the event of an emergency discharge from Settling Pond 7 and Cooling Pond 4, the water will discharge to a low-lying area located on FCS property west of CR 491, which does not have a surface discharge outlet feature.

3.3 Gregg Plant Process Water Routing

3.3.1 Process Water Generation

On average, the Gregg Plant uses over 2 million gallons per day (mgd) of water to wash waste materials from the limestone ore. This process water originates from water supply wells located in the vicinity of the plant, and from the Power Plant cooling ponds, to be described later. The resulting process water, which contains high concentrations of limestone fines ($CaCO_3$), silica, and clays, is conveyed from the plant site by various means. A large percentage of the process water is collected in a slurry tank located near the center of the plant, and pumped approximately 2,000 feet to a process water channel located on the west side of the Gregg Plant, as illustrated on Exhibit A. The slurry tank pump is a Morris pump with a rated capacity of approximately 20,000 gallons per minute (gpm).

The remaining process water sheet flows from the Gregg Plant and material piles, and is collected in various gravity systems that ultimately discharge to low lying areas that surround the plant site. These low-lying areas do not have a surface discharge feature, and to a large extent are old quarries that are no longer in use.

3.3.2 Settling Pond Routing

As described above, a large percentage of the process water generated by the Gregg Plant is pumped from the slurry tank to the upstream end of an open channel system located immediately west of the plant site. At this location, a significant portion of the tailings contained in the process water is excavated from the channel and trucked to the Cement Plant for use in the manufacture of cement.

Gregg Plant process water pumped to this channel flows north through Sub-basin WEST-1, then east through Sub-basins NRTH – 1 and 2, then west through Sub-basins WEST-2 and 3, and finally south through Sub-basin WEST-4 and WEST-5 until it enters the Power Plant cooling ponds located in Sub-basin SOTH-2, as illustrated on Exhibit A. Along this flow path, the process water passes through a series of gravity and pumped conveyances contained within a series of active and inactive settling ponds. These settling ponds are necessary to contain waste material (tailings) that settle out from the Gregg Plant process water. Given the large volume of waste material generated by the Gregg Plant, a settling pond is useful (active) for a limited period of time before it's storage volume is completely filled with mine tailings.

In order of occurrence, Gregg Plant process water passes through Settling Ponds, 10,12, 11,9, and combined Ponds 1, 2, and 3. At present, only Pond 12, located in Sub-basin NRTH – 1 and 2, has storage volume available for mine tailings. Therefore, Ponds 1, 2, 3, 9, 10 and 11 are already filled with mine tailings (inactive), except for an open channel that allows the process water to pass through the pond. Settling Pond 7, located in Sub-basin WEST-6, is also filled with tailings.

Settling Ponds 4, 9, 7 and 12 each have an emergency outfall structure located on a perimeter embankment. In the event of extremely heavy rainfall, an emergency overflow at these locations could occur. The emergency outfall for Ponds 9 and 12 will discharge water to the North Quarry, which borders these ponds on the north and is closed basins (Sub-basin NRTH-1). As described previously, the emergency outfalls for Settling Pond's 4 and 7 will discharge excess water in a westerly direction to a low-lying area located on FCS property on the west side of CR 491, which does not have a surface drainage outlet feature.

Effluent from the City of Brooksville Wastewater Treatment Plant (WWTP) is conveyed through a force main located along Cement Plant Road then discharges into Sub-Basin SOTH – 2 (Cooling Pond – 5)

3.3.3 Gregg Plant Surface Runoff

Gregg Plant process water not collected at the slurry tank sheet flows into nearby gravity collection systems that discharge to adjacent old quarry pits and a naturally low-lying area. In particular, the northern portion of the Gregg Plant site drains to a low lying area and old quarries located in Sub-basins EAST-4 and EAST-5, respectively. Sub-basin EAST-5 discharges to Sub-basin EAST-4, which are closed basins. The southern portion of the Gregg Plant site drains to old quarries located in Sub-basins CNTR-2, CNTR-3, and CNTR-4, which are all closed basins. Stormwater runoff would follow the same flow patterns described above.

3.3.4 Truck Operations

The washed limestone placed in the truck beds at Load Out is still quite wet. Therefore, after picking up the limestone, the trucks are required to stop at a truck-draining site located immediately south of the Gregg Plant. At this location, the trucks raise their beds and allow excess water to drain onto the ground, which sheet flows to an adjacent gravity drainage system and ultimately discharges to a nearby old quarry pit located in Sub-basin CNTR-2 (closed basin).

Before leaving the FCS Brooksville Site, the trucks pass through a truck wash facility located adjacent to Cement Plant Road, about 1,800 feet west of CR 485. The purpose of this facility is to wash limestone material from the trucks so that it is not deposited on public roadways. Wash water from this facility is collected in an adjacent concrete pit, and pumped to the perimeter discharge ditch at the CPL Plant.

3.4 CPL Plant Process Water Routing

3.4.1 Process Water Generation

The Power Plant uses water for various non-contact purposes, meaning that process water generated by the plant is not used to convey waste products other than heat. In particular,

all thermal energy produced by the Power Plant cannot be efficiently recycled, and the steam condenser at the co-generation plant rejects heat at a rate of about 600 million BTU/hour. This heat is carried away by pumping water through the condenser at a rate of 216 MGD, which raises the temperature of the water by about 10 degrees Fahrenheit. Two 75,000 GPM condenser water recirculation pumps are used to discharge the heated water to the cooling ponds located southwest of the Power Plant, where the water cools down to ambient conditions.

The Power Plant also generates other non-contact process water from various internal processes (e.g., pump seal water, cooling water) that is discharged to the Perimeter Ditch, located east of the plant. Water supplied to the Power Plant is provided by the cooling ponds, and two wells located adjacent to the plant. Well water is pumped to a ground storage tank located northeast of the Power Plant, on top of a hill. Water from the tank discharges by gravity to the Power Plant.

The manufacture of cement at the Cement Plant is a dry operation that does not require process water. However, stormwater runoff originating from the uncovered material storage sites is considered industrial process water by FDEP.

3.4.2 Surface Runoff

Uncovered piles of raw materials are located adjacent to the CPL/FCS Plants. In particular, piles of limestone are stored adjacent to the Lime Plant; and piles of mill scale, slag, used tires, and coal are stored adjacent to the Cement and Power Plants. Stormwater runoff from the Lime Plant sheet flows to a gravity discharge system located southwest of the plant, and eventually discharges to an old quarry located across Cement Plant Road in Sub-basin CNTR-2, which is a closed basin.

Stormwater runoff from the mill scale, slag, and used tires piles located adjacent to the Cement Plant discharge to the Perimeter Ditch located on the east side of the plant, which is clay lined. A pump located at the south end of this ditch discharges water to the eastern end of Cooling Pond 5, located in Sub-basin SOTH-2, which is a closed basin.

Stormwater runoff from the coal storage area sheet flows to the northeast, where it discharges to a stormwater pond located in an old mine quarry. This stormwater pond does not have a gravity discharge outlet feature. Water stored in the coal stormwater pond is pumped back to the coal storage pile and sprayed on the surface of the coal pile to control dust. Runoff from the coal pile storage area does not enter the Perimeter Ditch.

3.4.3 Cooling Pond Routing

As referenced above, a significant feature of the FCS Brooksville Facility are Cooling Ponds 4 and 5, located in Sub-basin SOTH-2, which were constructed to recycle cooling water required by the Power Plant. Located immediately southwest of the Power Plant, water is pumped through these cooling ponds in order to dissipate approximately 10 degrees Fahrenheit of heat added by the Power Plant. The points of withdrawal and

discharge are both located on the eastern side of Pond 5. However, the flow path through Cooling Ponds 4 and 5 is a circuitous route created by internal earthen embankments, which increases the time allowed to dissipate excess heat.

Gregg Plant process water, after passing through the settling ponds and conveyances described previously, discharges to the western end of Cooling Pond 4, which provides an important source of make-up water. By the time the Gregg Plant process water discharges to the cooling pond, the heavy particles associated with mine tailings have already settled out in upstream ponds and conveyances. A pump located near the northwest corner of Cooling Pond 5 makes it possible to pump water from the cooling pond to the Gregg Plant.

Cooling Pond 5 has two emergency outfall structures located on the west side of the pond. In the event of extremely heavy rainfall, an emergency overflow at these locations could occur. Excess runoff that passes through the Pond 5 emergency outfall structure will discharge in a westerly direction, pass through a ditch located on the east side of CR 491, discharge through a culvert beneath CR 491, and enter a channel system located in a low-lying area on the west side of CR 491. This low-lying area is on FCS property and does not have a surface outlet feature.

3.5 Chemical Lime Hydrate Plant Process Water Routing

Chemical Lime consumes water in the production of hydrate and in the wet scrubber that is the air pollution control device for the hydrator. The scrubber water discharge is recirculated back to the hydrator for production.

Surface runoff from rain events sheet flows into the on-site quarry areas that serve as closed basins.

3.6 Minor Operations Process Water Routing

Cliff's Septic Tanks, located in Sub-basin SOTH-3 has a permitted on-site stormwater management facility. The Miller Tire facility is a small operation that consists of an office trailer, an unpaved access road, and equipment used to change truck tires. Other than for human consumption, the facility does not use water. Stormwater runoff from the Miller Tire site sheet flows to the east, is conveyed beneath Camp Mine Road, and eventually discharges to a low lying area located east of Camp Mine Road in Sub-basin EaAST-4, which is a closed basin.

4.0 Water Quality Characteristics and Assessment

4.1 Overview

This section has been prepared to address the FDEP Consent Order requirement to assess the facility's potential for causing surface or groundwater pollution. Discussions provided below describe the water quality characteristics of surface water and groundwater at the

FCS Facility, as defined through the laboratory analysis of water samples collected throughout the FCS Facility. Sample sites were selected in a manner that allows the assessment of process water discharging from the various operations.

4.2 Surface Water Quality Characteristics

4.2.1 Sampling Sites

In order to characterize surface water quality at the FCS Facility, seventeen sites were identified throughout the property for the purpose of obtaining water quality samples. These sampling sites were selected in a manner that allows the evaluation of process water and surface runoff discharging from the plant sites. As illustrated on Exhibit A, these seventeen sampling sites include the following:

General Location	Sampling Site Names
Gregg Plant Offsite (Settling Ponds)	GPO-1, GPO-2, GPO-3
Site Runoff from the Gregg and Lime Plants	GSR-1, GSR-2, GSR-3
Cement and Power Plant Ditches	CPL-1 through CPL-8
Cooling Pond 5 Discharge to Power Plant	CPL-9
Coal Pond	Coal Pond
Water Body South of Cooling Pond 4 (Background)	BG

In particular, the three GPO sampling sites characterize Gregg Plant process water at the point of discharge from the slurry tank (GPO-1), at the point of discharge from Settling Pond 9 (GPO-2), and at the point of discharge to Cooling Pond 4 (GPO-3). Sampling sites GSR-1 and GSR-2 characterize land surface runoff flowing north from the Gregg Plant site. Sampling site GSR-3 characterizes land surface runoff flowing from the Lime Plant and the southern portion of the Gregg Plant.

Sampling sites CPL-1 and CPL-2 characterize water quality conditions in a small ditch located on the north side of the Cement Plant. Sampling sites CPL-3 through CPL-7 characterize conditions with the Perimeter Ditch; and Sampling Site CPL-8 characterizes conditions in the Perimeter Ditch at the point of pumped discharge to Cooling Pond 5. Sampling site CPL-9 characterizes conditions in Cooling Pond 5 at the point of pumped discharge to the Power Plant. A sampling site identified as "Coal Pond" characterizes conditions in the pond located east of the coal pile. Sampling site BG represents background surface water quality conditions, and is located in a water body located in a pasture immediately south of Cooling Pond 4.

4.2.2 Collection of Surface Water Samples

On January 28, 2000, PDS&J representatives conducted the surface water-sampling event at the FCS Brooksville Facility. A light rain was falling during the surface water sampling activities. Procedures used to collect the surface water samples were in accordance with PBS&J's FDEP approved Comprehensive Quality Assurance Plan (ComQAP) #910005.

Each of the surface water samples was collected with a dedicated pre-cleaned disposable Teflon bailer sampling device. Following the collection of surface water samples, they were documented, preserved on ice, and shipped under chain-of-custody procedures to U.S. Biosystems, Inc. in Boca Raton, Florida (ComQAP #980126). Water samples were analyzed for the parameters identified below.

Sampling Site	Parameters
GPO-1, GPO-2, and GPO-3	Primary and Secondary Drinking Water Standards
GSR-1, GSR-2, and GSR-3	Primary and Secondary Drinking Water Standards
CPL-1 and CPL-2	pH, TSS, TDS, and TRPH by FL PRO Method
CPL-3 through CPL-6	pH, TSS, TDS, FL PRO, Turbidity, Total RCRA Metals, DAP, AL, and Fe
CPL-7 and CPL-8	Same as for CPL-6, plus Oil & Grease
CPL-9	Primary and Secondary Drinking Water Standards
Coal Pond	pH, TSS, TDS, Total RCRA Metals, Turbidity
BG	Primary and Secondary Drinking Water Standards

Results from the above referenced laboratory analyses are summarized in Table 1, which indicate that certain measured parameter values exceeded drinking water standards. It should be noted, however, that FDEP Consent Order not specify the water quality parameters to be evaluated, and drinking water standards were used for comparison purposes only. Also, as discussed in Section 3.0 (Process Water Routing), the FCS Facility does not have an off-site discharge. Therefore, based on these observations, the FCS Facility does not discharge a contaminant load to Waters-of-the-Sate that affects public health and the environment.

4.3 Groundwater Quality Characteristics

4.3.1 Groundwater Monitoring

Groundwater quality had been monitored at the FCS Facility by Imperial Testing Laboratories (ITL) from the mid-1980's until recently. ITL (Jimmy Edwards, President) prepared a revised groundwater monitoring plan (GWMP) for the FCS facility. Information from this revised plan was obtained from ITL and provided herein, which includes an overview of the groundwater monitoring sites and observed groundwater quality conditions at the FCS Facility.

The locations and names of the groundwater monitoring wells are depicted on Exhibit A. Based upon information provided by ITL, groundwater quality samples obtained at the FCS Facility have resulted in only minor exceedences of Maximum Contaminant Levels (MCLs) since monitoring was initiated in the mid 1980's. For example, a June 24, 1999 letter from ITL to the FDEP indicated that several of the groundwater monitoring wells (MW-CPL-1, MW-CPL-8, and MW-CPL-5, and MW-1 (formerly MW-8)) were sampled during April 1999, which resulted in MCL exceedences at MW-CPL-1 for secondary standards for aluminum, color, and iron.

Information collected in March 1987 indicates that elevated aluminum levels are a common background condition in many of the monitor wells. Although iron levels are elevated above those provided in the baseline period, elevated iron levels are a common background condition in many of the nearby monitor wells and have risen over the years in MW-CPL-1. Elevated color levels, which was observed in three of the four monitoring wells, appears to correlate with the elevated iron levels and/or turbidity levels.

No MCLs were exceeded in MW-CPL-5. The only MCLs exceeded in MW-CPL-8 were secondary standards for aluminum, color, and iron. Again, elevated aluminum and iron levels are a background condition common in many of the nearby monitoring wells. Aluminum, iron, lead and odor MCLs were exceeded in MW-1, which had the highest aluminum, color, lead, iron, odor, and turbidity levels of all the wells sampled. Monitoring well MW-1 had never been sampled before but was drilled in the late 1980s and was reportedly developed at the time of installation. According to FDEP, any turbidity measurement over 5 NTUs can lead to erroneously high dissolved metals content. ITL staff believes that this is the case, although given baseline water quality measurements, elevated aluminum and iron levels are a background condition throughout the site.

Given the elevated lead concentration detected at MW-1, ITL re-sampled the monitor well using low-flow quiescent sampling techniques in accordance with FDEP guidance documents. The results of the re-sample indicated that the turbidity levels were decreased, and the lead level decreased to below the MCL. The concentrations of the other elevated parameters were also decreased, but remained above their MCLs. ITL concluded that these results supported their opinion that elevated levels are related to a background water quality condition.

4.3.2 FDEP Observations

ITL provided PBS&J a copy of an August 11, 1999 letter prepared by FDEP in response to the previously referenced groundwater sampling event. In summary, the Department commented that the hydrological complexity of the site and unknown future of the hydrological influences across the site cause difficulty in determining how to define a zone of discharge (ZOD) and a GWMP. The Department also stated the data does, however, show that there are currently no unusual parameters of concern in the groundwater. Furthermore, the Department recommended reducing the number of monitoring wells by omitting wells CPL-2 and CPL-7.

As a result, all remaining wells are considered compliance points, which include MW-CPLs-1, 3, 4, 5, 6, and 8. Finally, the Department stated that an outstanding issue is that of the GWMP quarterly parameters. Considering that there was an agreement in the past that groundwater was not a concern stemming from the domestic effluent portion of the site water budget, parameters were not to be customized as domestic water indicators, but as coal power plant indicators. It was the Department's recommendation to continue with existing groundwater parameters with the addition of the following: Arsenic, Barium, Cadmium, and Lead. Revisions to the GWMP were required as part of the FDEP Consent Order. Based on the information provided, PBS&J agreed with the Department and beleived that there are no unusual significantly impacting the groundwater quality beneath the site.

Groundwater quality continues to be monitored today by Creative Environmental Solutions (George K. Foster, Vice President) as authorized and recommended by the FDEP.

5.0 Proposed Water Quality Enhancements

5.1 Overview

This section addresses the FDEP Consent Order requirement to propose operational or structural changes to the FCS Facility in order to prevent unpermitted discharges, and to provide a schedule of the proposed changes. The initial sub-section, however, provides a review of the conclusions presented in the preceding sections in regard to the potential for un-permitted discharges to Waters-of-the-State from the FCS Facility. The potential for these discharges will affect the need for operational or structural changes to the FCS Facility.

5.2 Potential Impacts to Water-of-the-State

As described in Section 3.0 (Process Water Routing), there is no off-site surface discharge of process water or land surface runoff from the active portion of the FCS Facility during normal operating conditions. In particular, the 28 sub-basins that delineated and illustrated on Exhibit A, 20 are characterized as closed basins, meaning

they do not have a gravity discharge outlet feature under normal operating conditions. The remaining 8 sub-basins discharge to one of the 20 closed basin sub-basins.

The only potential for a discharge from the active portion of the FCS Facility is related to the operation of the emergency spillway structures located along the western embankment of Settling Pond 7 and Cooling Pond 4, which is designed to occur only under severe weather conditions. The operation and maintenance of these emergency spillway structures is addressed in the BMP Plan. However, should there be an emergency discharge from these spillways, the discharged water will be conveyed under CR 491 and be deposited in a low-lying portion of the FCS property located on the west side of CR 491. At this location, the discharged water will infiltrate into the ground or evaporate. Therefore, an off-site impact to Waters-of-the-State from the FCS Facility will not occur due to a surface discharge of process water or land surface runoff.

In addition, the observations and analytical results presented in Section 4.9 (Water Quality Characteristics) lead to the conclusion that (1) process water and surface runoff generated by the Gregg and CPL Plants is adequately controlled and treated by on-site settling ponds, cooling ponds, and other surface drainage features, and (2) there are no unusual contaminants significantly impacting the groundwater quality beneath the site. Accordingly, the potential for off-site impacts to Waters-of-the-State are non-existent.

5.3 Facility Improvements

5.3.1 Recent Gregg Plant Modifications

The Gregg Plant was recently modified through the construction of a new limestone crusher located at the beginning of the plant, and a new and more efficient process train that provides additional crushing, washing, and aggregate distribution. The new Gregg Plant facility was placed into service in early 1999, which has significantly reduced the generation of process water and the production of waste limestone fines.

In 2002 the Lime Rock Fines Recovery System (Sand Plant) was upgraded for improved efficiency, this plant discharges into the upstream end of the open channel system.

In March 2004, FCS completed the Bridge – Tunnel (Brunnel) project, this enables material to be transported from the Lykes West property under County Rd 491 to the Gregg Processing facility.
Overburden removal is scheduled to start in September 2004. Lime rock removal is planned to commence in November 2004.

A dredge will be temporarily installed in Settling Pond 12A in August 2004.
Mine tailings will be pumped into Settling Pond 12C.
Settling Pond 12 is a large settling pond built in two phases, dredging will allow activation of 12C while controlling process water through the system.

GROUNDWATER MONITORING PLAN

Florida Crushed Stone Facility
CPL Facility
Brooksville, Florida
April 2000

Originally Prepared by
IMPERIAL TESTING LABORATORIES
Water Resource Consultants
Lakeland, Florida

Revised by

Creative Environmental Solutions, Inc.
611 N. Broad Street
Brooksville, Fl 34601

CES Project #: 04-082

October 2004

FLORIDA PROFESSIONAL GEOLOGIST CERTIFICATION

This revision to the Groundwater Monitoring Plan for the Florida Crushed Stone Facility located in Brooksville, Hernando County, Florida has been reviewed by George K. Foster of Creative Environmental Solutions, Inc. (CES), Brooksville, Florida, and appears to comply with the current standards and practices in the field of geology in the State of Florida. CES's professional services have been performed using the degree of care and skill ordinarily exercised under similar circumstances by other professionals practicing in this field. The certification of geologic work contained herein applies only to the original sealed document(s), and specifically does not pertain to any copies of this document or any portion thereof including mylars, linen, sepia or other materials that can be changed by the entity or entities with whom such document(s) are filed. No other warranty, expressed or implied, is made as to the professional advice in this report.

_____

George K. Foster, PG 403 Date of signature
President/Principal
CES

INTRODUCTION AND HISTORY

This Groundwater Monitoring Plan (GWMP) has been prepared to comply with consent order requirements and partially fulfills the requirements of OGC File No. 98-0093. Under the terms of the Site Certification Document (SCD) developed during the approval of the power plant siting at this facility, the GWMP was prepared and implemented. That plan was submitted, approved and implemented in 1986. Since that time, modifications have included the replacement of cooling pond monitor well CPL-4 and the addition of another monitor well (CPL-8) because of groundwater flow inconsistencies.

As part of a facility review in 1997, FDEP reviewed the GWMP and the data generated from the implementation and operation of that plan. Based on the data collected since monitoring began in 1986, the FDEP concluded that there was no indication of a significant impact to the groundwater. After extensive review and additional water quality analysis requested by FDEP and provided by FCS, the review process culminated in August 1999 with FDEP comments and recommendations regarding the GWMP.

The original GWMP's goal as contained in the SCD was the monitoring of a clay lined coal storage area, the cooling ponds and a planned solid waste landfill. The solid waste landfill was originally planned for ash disposal but was never built because once the facility began operation it was discovered that all the ash could be consumed in the cement making process.

Monitor wells surrounding the coal storage area and cooling ponds were installed and monitored until the background water quality was established with a 95% statistical confidence level based on at least 4 quarters of data. The parameters for monitoring were those specified in the SCD as those representative of coal pile leachate. After establishment of the background water quality, only indicator parameters were monitored quarterly. Analysis of indicator parameter trends would determine whether expansion of the parameter list for quarterly monitoring to the full SCD parameters of concern list for future monitoring was necessary.

Background monitoring was begun in 1986 and completed in 1987. Since then, only once was it considered necessary to expand the analysis parameters to the full list in order to check for groundwater impacts by other coal leachate parameters. The check did not reveal any impact. In addition, the FDEP requested water quality analysis, which included and was much more extensive than the coal leachate list, did not reveal any impact, as indicated in their August 1999 letter. Also, they did not recommend adding any parameters to the SCD parameter of concern list.

Two of the monitor wells selected by FDEP for extensive groundwater quality analysis (CPL-1 and 8) were both around the coal storage area. Another was a cooling pond monitor well (CPL-5). The last (MW-1) was originally drilled to be a landfill monitor well but when the landfill was found unnecessary, MW-1 was retained as a water level monitor as a requirement of the SWFWMD permit.

All of the monitor wells were 4-inch in diameter and were originally equipped with dedicated electric jet pumps. When these pumps began to fail in the mid-1990's, they were replaced with dedicated submersible pumps. The monitor wells were sampled by purging and then sampling with the same dedicated equipment in accordance with Imperial Testing Laboratories' (ITL) Comprehensive Quality Assurance Plan No. 8703669G. Currently, sampling is being completed by Creative Environmental Solutions in accordance with FDEP Standard Operating Procedures (SOPs). Monitoring under the current GWMP is continuing.

MONITORING PLAN AND INFORMATION

Due to the lack of any discernible negative impact to the groundwater at the facility after almost +15 years of operation and monitoring, FCS feels confident that the risk of any future impact is minimal. Accordingly, the only changes in the current GWMP are those recommended in the FDEP August 1999 comment and recommendations letter. Those recommendations were:

(1) two monitor wells around the coal storage area (CPL-2 and CPL-7) be eliminated
(2) all the remaining currently monitored wells (CPL-1, 3, 4, 5, 6, and 8) be considered compliance points and
(3) Arsenic, Barium, Cadmium, and Lead be added to the current quarterly parameters monitored list (field pH, field conductivity, iron, TDS, sulfate, and chloride). These metals are on the original SCD groundwater monitoring list.

The only modification to these recommendations FCS has made was to eliminate the analysis of iron, TDS, sulfate and chloride. These parameters are all secondary standards and were only being analyzed as indicator parameters. Their function was to indicate when metals contamination might be occurring so that analysis for the metals themselves could begin. Since the most likely coal leachate metals to cause an impact are now being analyzed for each quarter, FCS sees no need to continue the indicator parameters analysis. It is FCS's understanding that the results of the sample analysis will be compared to FDEP-G-II groundwater quality standards to determine compliance.

The sampling protocol will continue to be that currently used and will be done by an organization that complies with FDEP Standard Operating Procedures (SOPs). Sample analysis will continue to be by an FDEP certified chemical lab with a current approved CompQAP covering the analyses to be performed. The samples will be analyzed for the four metals identified above using EPA method SW 6020A.

Current FDEP SOPs for groundwater sampling also require that certain parameters be measured in the field immediately prior to sampling during the well purging process. These are temperature, pH, conductivity, turbidity, and dissolved oxygen.

The monitor wells proposed for this plan are those recommended by FDEP and their locations are shown on EXHIBIT A. Diagrams showing the wells' construction and

lithology and a table showing the background groundwater quality already established for each well are attached. As previously noted, the only change in the wells' configuration from that shown on the diagrams is the current and proposed future use of dedicated submersible pumps as opposed to surface (jet) pumps. The results of a recent horizontal and vertical survey by a Professional Land Surveyor are also attached.

The current FDEP approved tested parameters are:

Arsenic	Barium
Cadmium	Lead
Sulfate	Chloride
Field pH	Field Conductivity
Total Dissolved Solids	Field Turbidity
Water Levels (NGVD)	

The following information is included to aid in assessing and understanding the proposed GWMP.

(a) Hydrogeological, physical, and chemical data for the site;

As discussed with FDEP during their review of the existing groundwater monitoring data, there is no consistent groundwater flow direction for the coal storage area. It is clear from the data and anticipated in the SCD that significant recharge and associated groundwater mounding does and will continue to occur beneath the cooling ponds. Both the cooling pond monitor wells are downgradient of this mounding effect. The inconsistency of the flow direction in the coal storage area is believed to be related to the combination of effects from this mounding and drawdown effects from production wells (Wells 17 and 18) located immediately adjacent to this area. This realization was the motivation behind FCS's proposed and approved modification of the existing GWMP to add monitor well CPL-8 to ensure that at least one well would be downgradient regardless of the flow direction. The risks associated with this inability to predict which well will be downgradient are offset by the number of wells surrounding the coal storage area and FDEP's recommendation to not allow a ZOD beyond the existing wells.

Background water quality for all the proposed wells was established long ago and is attached. Natural background groundwater quality is probably best represented by the results for MW-1 which are included as part of our attached submittal to FDEP dated June 24, 1999.This well was selected by FDEP because of its great distance from the cooling ponds, coal pile storage area, and any other activities which could affect the natural groundwater quality. Except for a few naturally elevated secondary parameter levels, the groundwater quality is typical for this area of Florida.

As the monitor well lithology logs indicate, they are all completed in limestone of the Floridan Aquifer. In the monitored areas, a separate surficial aquifer typically composed of sand and clay mixtures, which occurs occasionally in other parts of the region above the Floridan Aquifer, is not present. According to a 1987 SWFWMD staff report

prepared in connection with the facility's water use permit, the Floridan occurs under water table conditions at the site. That report also indicated representative values for transmissivity and storage coefficient of 1,196,800 gpd/ft and 0.15 respectively. A site-specific aquifer performance test conducted in 1987 at the request of SWFWMD on production well 18 immediately adjacent to the coal storage area indicated a transmissivity of 1,237,000 gpd/ft. The APT results are attached. Although there are likely variations in the vertical and horizontal hydraulic conductivity within the aquifer, there are not any zones effective enough in preventing flow to be considered confining beds. For information on topography, soils and surface water drainage systems surrounding the site please refer to the previously submitted March 15, 2000 Florida Crushed Stone- Brooksville, Florida Operations- Site Water Management Plan (SWMP)

(b) Waste disposal rate and frequency, chemical composition, method of discharge, pond volume, spray-field dimension, or other site specific information;

The primary wastewater is coal storage area leachate and stormwater. The entire coal storage area including a runoff collection sump is underlain by a very low permeability clay liner as reported in the initial GWMP, Appendix B, a copy of which is attached. The runoff collection sump in the west end of the storage area was designed to contain the 100 year storm according to FCS. Any additional stormwater which cannot be contained in the sump is pumped to the main runoff collection ditch which lies between the coal storage area and the CPL plant. Any discharge into this ditch, which drains the entire plant area, flows to the cooling ponds. As indicated in the SWMP, there is no surface discharge from these ponds except under extreme storm conditions and then no off-site discharge. The recharge from these ponds causes groundwater mounding beneath them which is monitored by monitor wells CPL-4 and 5. Water quality analysis results of both the coal storage area runoff collection sump and the main runoff collection ditch are included in the SWMP as are details regarding the size of the cooling ponds. Based on the monitoring data gathered during the past 15 years of operation, it appears that the coal storage area liner is preventing any significant leachate migration to the underlying groundwater.

(c) Toxicity of waste;

The actual coal pile leachate and wastewater are believe to be best characterized by the water quality analysis results of the sample taken from the coal storage are runoff collection sump. Rainfall coming in contact with the coal primarily becomes runoff because the very low permeability liner will not allow it to percolate to the aquifer below. The results of a recent sample analysis taken from the sump is included in the SWMP. A more complete analysis was done in 1994 and the results are attached. Of the complete SCD groundwater monitoring list of parameters analyzed, only a few secondary standards were exceeded. This indicates the wastewater is not toxic.

(d) Present and anticipated discharge volume and seepage rate to the receiving ground water; and physical, chemical, and microbiological characteristics of the leachate;

As discussed above, discharge from the coal storage area runoff collection sump is rare and in that event goes to the cooling pond where there is great dilution and discharge occurs only during extreme storm events. Attached is a water balance which estimates the seepage rate from the cooling and disposal ponds. Seepage from the coal storage area runoff collection sump is considered to be minimal if occurring at all due to the underlying clay liner. The likely chemical make up of the leachate/wastewater is discussed in (c) above.

(e) Disposal system water balance; Discussed in (d) above.

(f) Present and reasonably expected future pollution sources located within one mile radius of the site;

There are none known other than those discussed in the SWMP.

(g) Inventory depth, construction details and cones of depression of water supply wells or well fields and monitor wells located within on mile radius of the site or potentially affected by the discharge;

Construction details of the monitor wells are shown on the diagrams discussed in (a) above. Attached is a table prepared by SWFWMD for the site's production and water supply wells inventory data during the facility's most recent water use permitting renewal. Wells 1, 16, 19, and 21 are all small diameter (4") potable water supply wells. The other active wells are used primarily for producing greater quantities of water used in the various industrial processes ongoing at the facility.

(h) Site specific economic and feasibility considerations;

The facility as approved in the SCD was designed to route all waste and storm water to the huge limestone tailings disposal and cooling pond system where any pollutants would be diluted or bound up with the tailings. The pond system was designed not to discharge so that the maximum capture of rainfall could be achieved to minimize the need for groundwater pumpage for make up water to replace evaporation and seepage losses. Based on the monitoring data collected over the first 15 years of operation, this design appears to be working very well and there is no reason not to expect it to continue. See the SWMP for additional considerations.

(i) Chronological information on water levels in the monitor wells and water quality data on water supplies collected from the water supply and monitor wells;

Historical water level data collected from the monitor wells under the current GWMP are attached. Water quality data for the monitor wells was presented in (a) above. The data are believed to be representative of the upper Floridan Aquifer groundwater quality under the site. This is the aquifer into which all the small potable water supply wells used at the facility are completed.

(j) Type and number of waste disposal facilities within the installation;

For other than the small domestic effluent disposal facilities for the plants, the cooling ponds and the coal storage area, see the SWMP. The cooling ponds and coal storage area have been discussed above and based on the FDEP August 1999 comments and recommendations letter, the domestic effluent disposal facilities were not considered significant enough to monitor.

(k) Chronological information on surface water flows and water quality upstream and downstream from the site;

See the SWMP.

(l) Construction and operation details of disposal facilities;

See the SWMP and (b) and (d) above.

(m) History of construction and land development in the vicinity of the site.

See the SWMP.

LIST OF ATTACHMENTS

August 1999 FDEP GWMP comments and recommendations letter

June 1999 ITL groundwater quality results letter

Figure 1, Site Map with Monitor Well Locations

FDEP Technical Document – Determining Representative Ground Water Samples, Filtered, and Unfiltered

Well Construction/Lithology Diagrams

Background Groundwater Quality Tables

Professional Land Surveyor Monitor Well Survey

Drawdown vs. Time Data Plot and Analysis- 1987 Production Well 18 APT

Appendix B, Currently Approved/Implemented CPL/FCS GWMP

1994 Coal Storage Area Runoff Sump water analysis

FCS/CPL facility water balance

Historical monitor well water level data tables

CEMEX

April 29, 2003

Susan Pelz
Solid Waste Manager
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, FL 33619

Re: CEMEX Cement, Inc. Brooksville Cement Plant
Fly Ash Storage and Ash Analysis .

Dear Ms. Pelz

Please find the Fly Ash Storage and Handling Procedures and the Fly Ash Chemical Analyses you requested in our meeting last December.

If you need any further information please call me at (352) 799-2011.

Sincerely,

Charles E Walz

Charles E. Walz
Plant Environmental Manager
File
Lillian Deprimo

United States Operations
P.O. Box 6, Brooksville, Florida. 34605-0006. USA. Phone: (352) 796-7241, Fax: (352) 754-9836

CEMEX CEMENT, Inc.
BROOKSVILLE CEMENT PLANT

I. OVERVIEW

CEMEX Cement, Inc. Brooksville Cement Plant utilizes both mining and non-mining sources ("raw material substitute") of calcium, iron, alumina, and silica in their cement manufacturing process. Examples of mining sources include limestone rock, clay, and sand and examples of non-mining sources include, mill scale, foundry sands, and fly ash. The primary raw material substitute used by the Brooksville Cement Pant is fly ash. Approximately 295,000 tons of this material can be used annually as a non-mining source of iron, silica, and alumina.

Utilization of the fly ash material is both economically beneficial to CEMEX and environmentally beneficial by preserving our natural resources, promoting recycling, and reusing materials that may be otherwise discarded.

II. FLYASH HANDLING AND STORAGE

Currently, the CEMEX Brooksville Cement Plant receives wet fly ash by truck from three sources (Teco Big Bend Plant, Teco Gannon Plant, Florida Power Corp. Crystal River Plant and a small quantity from the Miller Brewing Co. in Albany, Ga.). The storage area locations are shown on the plant schematic provided herein as Attachment A. Upon arrival at the plant, signs direct the driver to the appropriate unloading location. At the designated site, the driver will unload and then proceed to the fly ash truck washout area located in Storage Area #1. The fly ash wash station utilizes a high-pressure wash nozzle that is supplied with recycled water from nearby concrete wash basins. These concrete basins allow the wash water to be reused and the material that is washed out of the truck to be recycled.

The three storage areas, shown in Attachment A, are discussed below.

- Storage Area #1

  Storage Area #1 is located with the fly ash truck wash facility and is west of the plant's rail and truck cement loading silos. The truck wash facility consists of a wash out pad and three successive settling basins that remove the solids and clarify the water. The clarified water is then recycled as truck wash water.

  Fly ash Storage Area #1 has a capacity of about 5,000 tons. This area is used to temporarily store the solids removed from the settling basins and as a reserve storage area should Storage Areas #2 or #3 be at capacity.

- Storage Area #2

  Storage area #2 is the primary fly ash storage area and is located adjacent to the secondary crusher feed hopper. This storage area has a capacity of approximately 15,000 tons. Fly ash placed in this area is loaded into feed hoppers and transported by belt conveyors to large steel tanks prior to its use as kiln feed.

- Storage Area #3

  Storage Area #3 is located adjacent to the active quarry operations and has a capacity of approximately 145,000 tons of ash in two large piles. The wet fly ash from Storage Area #3 is fed into the primary crusher along with limestone and transported by belt conveyor to the secondary crusher. From the secondary crusher, the fly ash material eventually becomes part of the kiln feed.

III. APPLICABILITY OF THE SOLID WASTE REGULATIONS

The general applicability of the Solid Waste regulations relative to storage of industrial byproducts such as fly ash is specified in FAC Chapter 62-701.220 (2)(d). Accordingly, exemption from this chapter's requirements is provided if:

- *A majority of the industrial byproducts are demonstrated to be sold, used or reused within one year;*

- *The industrial byproducts are not discharged, deposited, injected, dumped, spilled, leaked, or placed into or upon any land or water so that such industrial byproducts or any constituent thereof may enter other lands or be emitted into the air or discharged into any waters, including ground water, or otherwise enter the environment such that a threat of contamination in excess of water quality standards and criteria or air quality standards is caused; and*

- *The industrial byproducts are not hazardous wastes.*

A. "Speculative Accumulation"

The fly ash material at the CEMEX Brooksville Plant is stored on a temporary basis and used in the production of cement within the regulatory timeframe. The storage areas and their management requirements are discussed below in Section D

B. Protection to the Environment – Air

The Brooksville Plant receives wet fly ash that has been pugged with water by the generator. Accordingly, fugitive emissions are effectively

minimized. Historical Visual Emissions test results were not greater than 10% and thereby confirming the effectiveness of the wetting process. In addition, roadways in the vicinity of the three storage areas are routinely watered to minimize fugitives and to prevent fly ash materials tracked onto the roadways from becoming airborne.

C. Protection to the Environment - Groundwater

The fly ash used at the plant is generated through burning of coal at electrical generation facilities. Electrostatic precipitators in the exhaust gas stacks at the plants capture this very fine-grained material. The chemistry of the fly ash reflects the coal product that was burned. A breakdown of the chemistry of fly ash is presented in Attachment B. As shown therein, the fly ash is a high iron, Class F ash. The ash is predominantly silica (SiO_2), alumina (Al_2O_3) and iron oxide (Fe_2O_3). From a regulatory perspective, the constituents of concern are metals that are found in trace amounts in the ash and include arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.

The standard test used to establish toxic characteristics of materials such as fly ash is the toxic characteristics leaching procedure (TCLP). The results of recent testing of fly ash stored at the CEMEX facility is provided in Attachment B and shows that metals levels in the ash are far below the toxicity thresholds.

Specific research in metals concentration in fly ash leachate shows that the metals concentrations are low and are inversely related to pH values (Kazonich and Kim, 2001). The temporary fly ash piles are stored directly on soft limestone deposits that are comprised of clay, silt and sand sized particles of fairly pure calcium carbonate (calcite). A series of complex reactions occur at the ash/limestone interface at the bottom of the piles. The pH of the infiltrating rainfall rapidly increases with a subsequent decrease in metals concentration in the water. This occurs by 1) direct sorption of metals to the calcite, 2) incorporation of the metal cations into the crystal lattice of the calcite and 3) precipitation of metals as they bond with carbonate/CO_3 (Allen, et. al., 1993).

The result of these reactions is the removal of dissolved metals that might leach from the ash before the rainwater migrates any appreciable distance into the limestone. The fly ash stored in the quarry area is at an elevation that ranges about 10 to 20 feet above the ground water level. This provides a large buffer where the mechanisms that remove/immobilize any migrating metals can proceed.

D. Protection to the Environment – Surface Water

Several best management practices ("BMPs") are used in each fly ash storage area to minimize the impact of the materials to off-site surface water discharges. Examples of these BMPs include berms, containment basins, use of natural topography and road/area grading as discussed below.

- Storage Area #1

  Storage Area #1 and the associated Truck Wash facility were designed and constructed as part of a Pollution Prevention project initiated in 1998. Stormwater that falls within Storage Area #1 drains to the basins associated with the truck washing operations. Run-on is diverted by both the truck access ramp and the berms placed entirely around the perimeter of the storage area.

  In the event of excessive rainfall and flooding of this storage area, the storm water would drain through an overfill pipe to a drainage ditch that eventually discharges through NPDES Outfall #001. The road accessing Storage Area #1 drains to McKenzie pit where it is contained.

- Storage Area #2

  Storage area #2 is located on a hilltop that naturally diverts stormwater run-on from the North and South sides. Berms are used on the east and west sides of the storage area to both divert run-on and contain run-off. Grading is used to keep storm water from entering from the North and South. Runoff from the South and North portion of Storage Area #2 drains to the limestone fines settling area. The road accessing Storage Area #2 also drains to the limestone settling basin

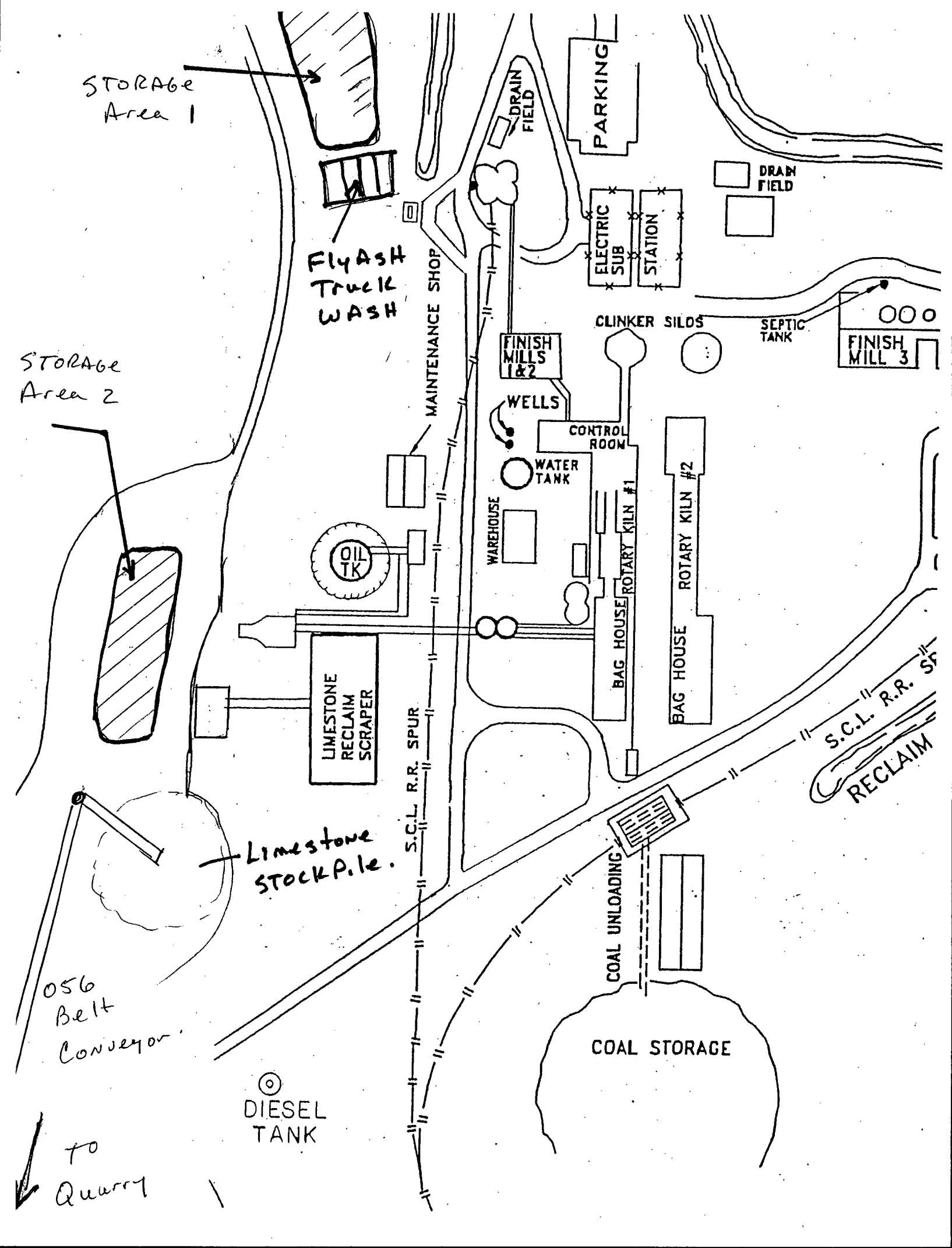
- Storage area #3

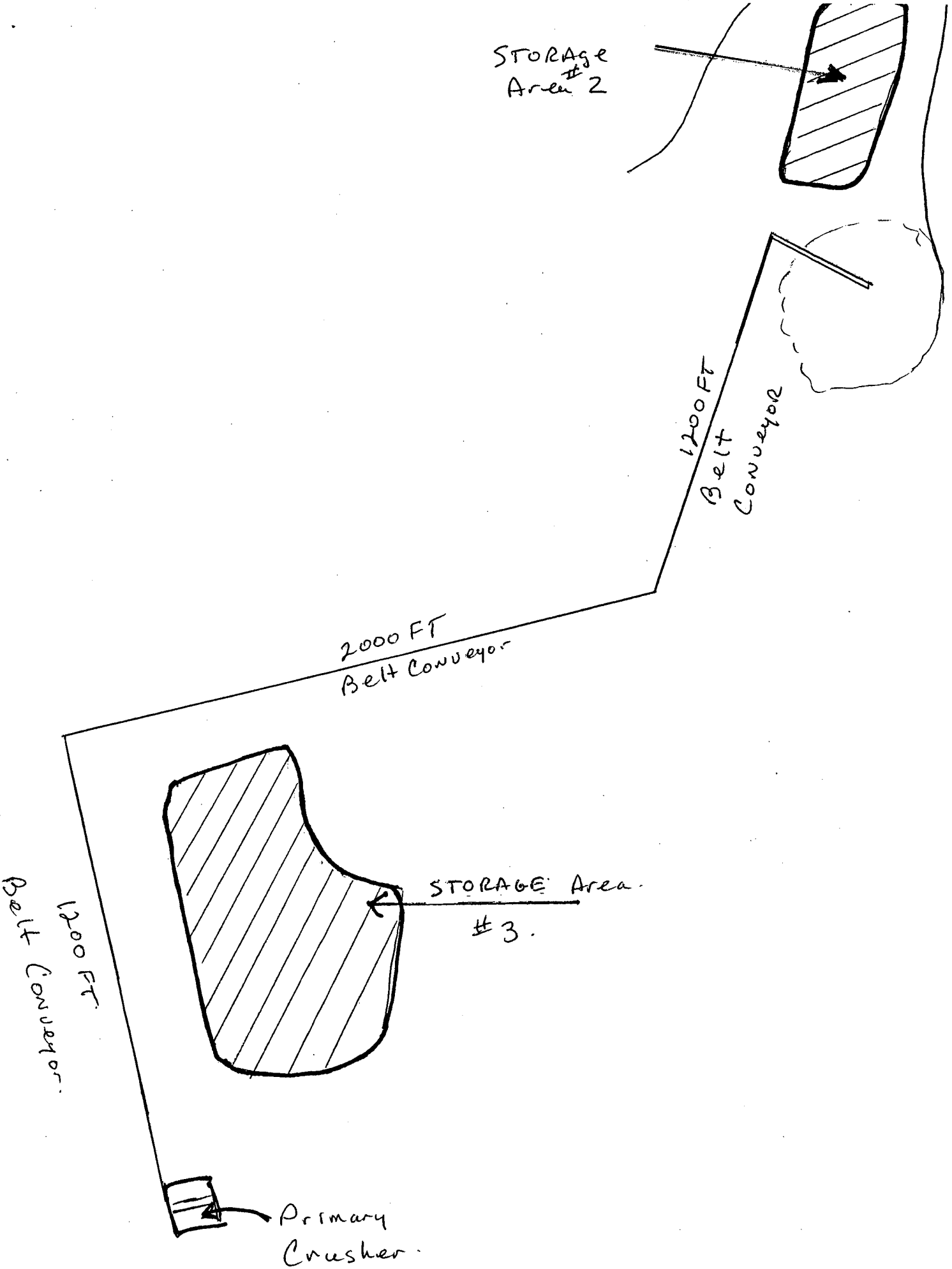
  Berms were placed around the perimeter of Storage Area #3 to divert run-on and contain runoff from Storage Area #3. In the event of major rains and flooding, stormwater within Storage Area #3 could overtop the NE portion of the perimeter berm. Should this occur, the stormwater would be contained in a nearby low-lying area. The road accessing Storage Area #3 drains to a canal before it is pumped to the limestone setting.

E. Non-Hazardous Nature of the Fly Ash

As stated in Section III.C above, the non-hazardous nature of the fly ash has been confirmed by the recent analytical testing provided in Attachment B.

ATTACHMENT A


STORAGE Area 1
FLY ASH Truck WASH
DRAIN FIELD
PARKING
DRAIN FIELD
ELECTRIC SUB STATION
MAINTENANCE SHOP
CLINKER SILOS
SEPTIC TANK
FINISH MILL 3
FINISH MILLS 1&2
WELLS
CONTROL ROOM
WATER TANK
STORAGE Area 2
WAREHOUSE
OIL TK
ROTARY KILN #1
ROTARY KILN #2
BAG HOUSE
BAG HOUSE
LIMESTONE RECLAIM SCRAPER
S.C.L. R.R. SPUR
S.C.L. R.R. SP
RECLAIM
Limestone STOCKPile.
056 Belt Conveyor
COAL UNLOADING
COAL STORAGE
DIESEL TANK
To Quarry


STORAGE Area #2
1200 FT Belt Conveyor
2000 FT Belt Conveyor
1200 FT Belt Conveyor
STORAGE Area #3.
Primary Crusher.

ATTACHMENT B

CEMEX

RAW MATERIAL EVALUATION FORM

Name The Raw Material : Bottom Ash: Low iron, wet

Which CEMEX Plant ? Brooksville

Raw Material Produced or Owned By:

Company: Florida Fly Ash
Street: PO BOX 268
City/State/Zip: Crystal River, FL 34423

Raw Material Inventory or Storage Location:

Company: Florida Power
Street: US 19
City/State/Zip: Crystal River, FL 34423

In the space provided below describe, in detail, the process from which this Raw Material is produced :

Bottom ash collected at the bottom of **Units #4 and 5**, both pulverized coal-fired utility boilers. Also contains coal mill rejects "pyrites". Both materials are sluiced to "hydrobins" where the water is decanted from the material.

Describe the typical physical characteristics, storage, proposed modes of transport, and annual tonnage:

A gray to black granular material. The material is stored in hydrobins until hauled to a stockpile for further dewatering. The material is transported in tarpped dump trucks. The annual tonnage produced is about 60,000 tpy.

This Evaluation Form Completed By :

Name : Werner Krupp
Title, Co.: Manager, Florida Fly Ash
Street: PO BOX 268
City/State: Crystal River, FL 34423
Phone: 352-563-2388

In the States or Localities of use, storage or production —

Is Raw Material a Hazardous Waste :	*Yes / No*
- Defined by Federal Regulations ? ---	No
- Defined by State Regulations ? ------	No
Is Raw Material a "Regulated" Waste ?	No
Is Raw Material a " Special " Waste ? --	No

(Note: Use Additional Pages(s) as attachments to this Form for any Needed Comments or Explanations)

Chemical Compounds :

Sample ID : 72-477725

Analyte	*Weight %*
*SiO_2 :	51.10
*Al_2O_3 :	25.29
*Fe_2O_3 :	3.96
*CaO :	1.01
*MgO :	0.49
*SO_3 :	0.03
*Na_2O :	0.26
*K_2O :	2.26
*TiO_2 :	1.27
*P_2O_5 :	0.09
*Mn_2O_3 :	0.01
*SrO :	0.05
$LOI_{(950\ C)}$:	14.07
Total :	99.89
Chlorine:	<0.001 ASTM C114.19
Total Sulfur:	0.113 ***NOTE 1***
Total Halogens:	0.0071

Regulatory Status : (attach all confirming laboratory results)

Sample ID : 9938996

METALS : / *Constituent*	*TCLP Limit: < mg / L*	*TCLP mg / L*	*TOTAL mg / Kg*	***SW-846 Methods*** Constituent Analysis
Arsenic	5.0	<0.03	<0.75	6010B or 7060
Barium	100.0	1.2	28	6010B
Cadmium	1.0	<0.008	<0.2	6010B
Chromium, Total	5.0	<0.001	5.3	6010B
Lead	5.0	<0.01	<0.25	6010B
Mercury	0.2	<0.0005	<0.04	7741
Selenium	1.0	<0.02	<0.5	6010B or 7740
Silver	5.0	<0.004	<0.1	6010B
Antimony	N/A	<0.03	<0.75	6010B
Beryllium	N/A	<0.003	0.6	6010B
Cobalt	N/A	<0.002	0.9	6010B
Copper	N/A	0.02	6.0	6010B
Manganese	N/A	0.15	16.6	6010B
Nickel	N/A	0.03	5.3	6010B
Thallium	N/A	<0.04	<1.0	6010B or 7841
Zinc	N/A	0.2	2.4	6010B
If Requested:			Volatile Organics :	8260B
If Requested:			Semi-Volatile Organics :	8270

*X-Ray Fluorescense spectrometry.
Samples fused at 1000C with $Li_2B_4O_7$

***NOTE 1** :If (Total Sulfurx2.5) minus (XRF SO_3) > 0.5%, additional test may be required.*

SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
[Sample Preparation: TCLP Method 1131; Total Metals Method 3050]

(OH only: spent foundry sand: ASTM D 3987-85 phenol ____mg/l;cyanide ____mg/l;fluoride ____mg/l)

PA only: Total Organic Carbon ____%

CA: some additional tests may be required.

I certify that I am a duly authorized representative of the producer, owner and /or generator and that all information provided hereon, or attached hereto is true, accurate and correct.

By : _____ _____

Signature ---- Title Date

CEMEX Environmental

Plant Operations/Environmental

rev3/5/01

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SINCE 1930
SGS Member of the SGS Group (Société Générale de Surveillance)

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4665 PARIS STREET
SUITE B-200
DENVER, CO 80239
TEL: (303) 373-4772
FAX: (303) 373-4791
www.comteco.com

November 1, 2002

CEMEX
1200 SMITH STREET
SUITE 2400
HOUSTON TX 77002

Sample identification by
CEMEX

SAMPLE ID: BROOKVLE/FPCRBA1/10-23-02

Kind of sample BOTTOM ASH

Sample taken by CEMEX

Date sampled October 23, 2002

Date received October 25, 2002

Analysis report no. 72-477725

PARAMETER	RESULTS
Silica, SiO_2	51.10
Alumina, Al_2O_3	25.29
Titania, TiO_2	1.27
Ferric Oxide, Fe_2O_3	3.96
Calcium Oxide, CaO	1.01
Magnesia, MgO	0.49
Potassium Oxide, K_2O	2.26
Sodium Oxide, Na_2O	0.25
Sulfur Trioxide, SO_3	0.03
Phosphorus Pentoxide, P_2O_5	0.09
Strontium Oxide, SrO	0.05
Barium Oxide, BaO	0.12
Manganese Oxide, Mn_2O_3	0.01
Loss on Ignition, LOI (Dry Basis)	14.07

Procedure: Mineral Analysis per ASTM, Volume 05.05, Method D4326-84.

Results: Mineral Analysis results are reported in weight percent (Wt. %), on a dry basis.

ISO9002 REGISTERED COMPANY
Certificate No. 7081/1

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Byron C. Cash

Denver Laboratory

MEMBER ACIL

F-466

CEMEX

RAW MATERIAL EVALUATION FORM

Name The Raw Material : Fly Ash: Low iron, wet

Which CEMEX Plant ? Brooksville

Raw Material Produced or Owned By:

Company: Florida Fly Ash
Street: PO BOX 268
City/State/Zip: Crystal River, FL 34423

Raw Material Inventory or Storage Location:

Company: Florida Power
Street: US 19
City/State/Zip: Crystal River, FL 34423

In the space provided below describe, in detail, the process from which this Raw Material is produced :

Fly ash collected by the air pollution control equipment on **Units #1 and 2** both pulverized coal-fired utility boilers.

Describe the typical physical characteristics, storage, proposed modes of transport, and annual tonnage:

A gray to black powder agglomerated by water. The material is stored in silos until conditioned with water and hauled directly to the plant or stored in a stockpile. The material is transported in tarpped dump trucks. The annual tonnage produced is about 140,000 tpy.

This Evaluation Form Completed By :

Name : Werner Krupp
Title, Co.: Manager, Florida Fly Ash
Street: PO BOX 268
City/State: Crystal River, FL 34423
Phone: 352-563-2388

In the States or Localities of use, storage or production ---

	Yes / No
Is Raw Material a Hazardous Waste :	
- Defined by Federal Regulations ? ---	No
- Defined by State Regulations ? -------	No
Is Raw Material a "Regulated" Waste ?	No
Is Raw Material a " Special " Waste ? --	No

(Note: Use Additional Pages(s) as attachments to this Form for any Needed Comments or Explanations)

Chemical Compounds :

Sample ID : 72-477723

Analyte	*Weight %*
*SiO_2 :	51.17
*Al_2O_3 :	25.84
*Fe_2O_3 :	8.21
*CaO :	1.46
*MgO :	0.75
*SO_3 :	0.18
*Na_2O :	0.35
*K_2O :	2.51
*TiO_2 :	1.24
*P_2O_5 :	0.17
*Mn_2O_3 :	0.01
*SrO :	0.08
$LOI_{(950\ C)}$:	7.72
Total :	99.69
Chlorine:	<0.001 ASTM C114.19
Total Sulfur:	0.17 ***NOTE 1***
Total Halogens:	<0.002

Regulatory Status : (attach all confirming laboratory results)

Sample ID : 9938995

METALS : *Constituent*	*TCLP Limit: < mg / L*	*TCLP mg / L*	*TOTAL mg / Kg*	***SW-846 Methods*** Constituent Analysis
Arsenic	5.0	0.04	34	6010B or 7060
Barium	100.0	0.2	684	6010B
Cadmium	1.0	<0.008	<0.2	6010B
Chromium, Total	5.0	0.1	25	6010B
Lead	5.0	<0.01	12.8	6010B
Mercury	0.2	<0.0005	0.1	7741
Selenium	1.0	<0.02	21	6010B or 7740
Silver	5.0	<0.004	<0.1	6010B
Antimony	N/A	<0.03	<0.75	6010B
Beryllium	N/A	0.01	5.2	6010B
Cobalt	N/A	0.02	8.6	6010B
Copper	N/A	0.4	69	6010B
Manganese	N/A	0.1	69	6010B
Nickel	N/A	0.05	23.5	6010B
Thallium	N/A	<0.04	<1.0	6010B or 7841
Zinc	N/A	0.8	36	6010B
If Requested:			Volatile Organics :	8260B
If Requested:			Semi-Volatile Organics :	8270

*X-Ray Fluorescense spectrometry.
Samples fused at 1000C with $Li_2B_4O_7$

***NOTE 1** :If (Total Sulfurx2.5) minus (XRF SO_3) > 0.5%, additional test may be required.*

SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
[Sample Preparation: TCLP Method 1131; Total Metals Method 3050]

(OH only: spent foundry sand: ASTM D 3987-85 phenol ____mg/l;cyanide ____mg/l;fluoride ____mg/l)

PA only: Total Organic Carbon ____%

CA: some additional tests may be required.

I certify that I am a duly authorized representative of the producer, owner and /or generator and that all information provided hereon, or attached hereto is true, accurate and correct.

By : _____ _____

Signature ---- Title Date

CEMEX Environmental

Plant Operations/Environmental

rev3/5/01

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FAX: (303) 373-4791
www.comtesco.com

November 1, 2002

CEMEX
1200 SMITH STREET
SUITE 2400
HOUSTON TX 77002

Sample identification by
CEMEX

SAMPLE ID: BROOKVLE/FFCRS1/10-23-02

Kind of sample FLY ASH

Sample taken by CEMEX

Date sampled October 23, 2002

Date received October 25, 2002

Analysis report no. 72-477723

PARAMETER	RESULTS
Silica, SiO_2	51.17
Alumina, Al_2O_3	25.84
Titania, TiO_2	1.24
Ferric Oxide, Fe_2O_3	8.21
Calcium Oxide, CaO	1.46
Magnesia, MgO	0.75
Potassium Oxide, K_2O	2.51
Sodium Oxide, Na_2O	0.35
Sulfur Trioxide, SO_3	0.18
Phosphorus Pentoxide, P_2O_5	0.17
Strontium Oxide, SrO	0.08
Barium Oxide, BaO	0.29
Manganese Oxide, Mn_2O_3	0.01
Loss on Ignition, LOI (Dry Basis)	7.72

Procedure: Mineral Analysis per ASTM, Volume 05.05, Method D4326-84.

Results: Mineral Analysis results are reported in weight percent (Wt. %), on a dry basis.

MQA ISO9002 REGISTERED COMPANY
Certificate No. 7061/1

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Byron C. Cat

Denver Laboratory

MEMBER ACIL

Post-it® Fax Note 7671	Date 11/1/02	# of pages ▶ 6
To Jeff Watson	From	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

TIONS ON REVERSE

CEMEX

RAW MATERIAL EVALUATION FORM

Name The Raw Material : Fly Ash: Low iron, wet

Which CEMEX Plant ? Brooksville

Raw Material Produced or Owned By:

Company: Florida Fly Ash
Street: PO BOX 268
City/State/Zip: Crystal River, FL 34423

Raw Material Inventory or Storage Location:

Company: Florida Power
Street: US 19
City/State/Zip: Crystal River, FL 34423

In the space provided below describe, in detail, the process from which this Raw Material is produced :

Fly ash collected by the air pollution control equipment on **Units #4 and 5** both pulverized coal-fired utility boilers.

Describe the typical physical characteristics, storage, proposed modes of transport, and annual tonnage:

A gray to black powder agglomerated by water. The material is stored in silos until conditioned with water and hauled directly to the plant or stored in a stockpile. The material is transported in tarpped dump trucks. The annual tonnage produced is about 250,000 tpy.

This Evaluation Form Completed By :

Name : Werner Krupp
Title, Co.: Manager, Florida Fly Ash
Street: PO BOX 268
City/State: Crystal River, FL 34423
Phone: 352-563-2388

In the States or Localities of use, storage or production ---

Is Raw Material a Hazardous Waste :	*Yes / No*
- Defined by Federal Regulations ? ---	No
- Defined by State Regulations ? -------	No
Is Raw Material a "Regulated" Waste ?	No
Is Raw Material a " Special " Waste ? --	No

(Note: Use Additional Pages(s) as attachments to this Form for any Needed Comments or Explanations)

Chemical Compounds :

Sample ID : 72-477724

Analyte	*Weight %*
*SiO_2 :	54.48
*Al_2O_3 :	25.12
*Fe_2O_3 :	5.18
*CaO :	2.02
*MgO :	1.00
*SO_3 :	0.25
*Na_2O :	0.35
*K_2O :	2.36
*TiO_2 :	1.35
*P_2O_5 :	0.13
*Mn_2O_3 :	0.01
*SrO :	0.07
$LOI_{(950\ C)}$:	7.48
Total :	99.80
Chlorine:	<0.001 ASTM C114.19
Total Sulfur:	0.15 ***NOTE 1***
Total Halogens:	<0.002

Regulatory Status : (attach all confirming laboratory results)

Sample ID : 9938996

METALS : *Constituent*	*TCLP Limit: ≤ mg / L*	*TCLP mg / L*	*TOTAL mg / Kg*	***SW-846 Methods*** Constituent Analysis
Arsenic	5.0	<0.03	4.4	6010B or 7060
Barium	100.0	0.3	323	6010B
Cadmium	1.0	<0.008	<0.2	6010B
Chromium, Total	5.0	0.15	31	6010B
Lead	5.0	<0.01	4.9	6010B
Mercury	0.2	<0.0005	0.2	7741
Selenium	1.0	0.2	22	6010B or 7740
Silver	5.0	<0.004	<0.1	6010B
Antimony	N/A	<0.03	<0.75	6010B
Beryllium	N/A	0.01	3.5	6010B
Cobalt	N/A	<0.002	2.3	6010B
Copper	N/A	0.3	34	6010B
Manganese	N/A	0.3	139	6010B
Nickel	N/A	0.01	14	6010B
Thallium	N/A	0.10	2.7	6010B or 7841
Zinc	N/A	0.9	20	6010B
If Requested:			Volatile Organics :	8260B
If Requested:			Semi-Volatile Organics :	8270

*X-Ray Fluorescense spectrometry.
Samples fused at 1000C with $Li_2B_4O_7$

NOTE 1 *:If (Total Sulfurx2.5) minus (XRF SO_3) > 0.5%, additional test may be required.*

SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
[Sample Preparation: TCLP Method 1131; Total Metals Method 3050]

(OH only: spent foundry sand: ASTM D 3987-85 phenol ____mg/l;cyanide ____mg/l;fluoride ____mg/l)

PA only: Total Organic Carbon ____%

CA: some additional tests may be required.

I certify that I am a duly authorized representative of the producer, owner and /or generator and that all information provided hereon, or attached hereto is true, accurate and correct.

By : _____ _____
Signature ---- Title Date

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TEL: (303) 373-4772
FAX: (303) 373-4781
www.comtesco.com

November 1, 2002

CEMEX
1200 SMITH STREET
SUITE 2400
HOUSTON TX 77002

Sample identification by
CEMEX

SAMPLE ID: BROOKVLE/FPCRS4/10-23-02

Kind of sample FLY ASH

Sample taken by CEMEX

Date sampled October 23, 2002

Date received October 25, 2002

Analysis report no. 72-477724

PARAMETER	RESULTS
Silica, SiO_2	54.48
Alumina, Al_2O_3	25.12
Titania, TiO_2	1.35
Ferric Oxide, Fe_2O_3	5.18
Calcium Oxide, CaO	2.02
Magnesia, MgO	1.00
Potassium Oxide, K_2O	2.36
Sodium Oxide, Na_2O	0.35
Sulfur Trioxide, SO_3	0.25
Phosphorus Pentoxide, P_2O_5	0.13
Strontium Oxide, SrO	0.07
Barium Oxide, BaO	0.21
Manganese Oxide, Mn_2O_3	0.01
Loss on Ignition, LOI (Dry Basis)	7.48

Procedure: Mineral Analysis per ASTM, Volume 05.05, Method D4326-84.

Results: Mineral Analysis results are reported in weight percent (Wt. %), on a dry basis.

MBI ISO9002 REGISTERED COMPANY
Certificate No. 7091/1

Respectfully submitted,
COMMERCIAL TESTING & ENGINEERING CO.

Byron C. Catt

Denver Laboratory

MEMBER ACIL

CEMEX

RAW MATERIAL EVALUATION FORM

Name The Raw Material : Fly Ash: High iron, dry

Which CEMEX Plant ? Brooksville

Raw Material Produced or Owned By:

Company: Tampa Electric Company
Street: PO BOX 111
City/State/Zip: Tampa, FL 33601-0111

Raw Material Inventory or Storage Location:

Company: Tampa Electric Company (Big Bend)
Street: PO BOX 111
City/State/Zip: Tampa, FL 33601-0111

In the space provided below describe, in detail, the process from which this Raw Material is produced :

Fly ash collected by the air pollution control equipment on Unit #3, a pulverized coal/coke-fired utility boiler. The coal:petroleum coke ratio is about 9:1.

Describe the typical physical characteristics, storage, proposed modes of transport, and annual tonnage:

A gray to black powder . The material is stored in silos until it is transported in pneumatic unloading trucks. The annual tonnage produced is about 80,000 tpy.

This Evaluation Form Completed By :

Name : Elanine H. Farrington
Title, Co.: Account Manager, Tampa Electric Company
Street: PO BOX 111
City/State: Tampa, FL 33601-0111
Phone: 813-228-1597

In the States or Localities of use, storage or production ---

Is Raw Material a Hazardous Waste :	*Yes / No*
- Defined by Federal Regulations ? ---	No
- Defined by State Regulations ? -------	No
Is Raw Material a "Regulated" Waste ?	No
Is Raw Material a " Special " Waste ? --	No

(Note: Use Additional Pages(s) as attachments to this Form for any Needed Comments or Explanations)

Chemical Compounds :

Sample ID : 72-477314

Analyte	*Weight %*	
*SiO_2 :	44.47	
*Al_2O_3 :	17.39	
*Fe_2O_3 :	19.22	
*CaO :	3.25	
*MgO :	0.97	
*SO_3 :	0.44	
*Na_2O :	0.50	
*K_2O :	2.01	
*TiO_2 :	0.82	
*P_2O_5 :	0.27	
*Mn_2O_3 :	0.03	
*SrO :	0.05	
$LOI_{(950\ C)}$:	10.47	
Total :	99.89	
Chlorine:	<0.01	ASTM C114.19
Total Sulfur:	0.710	***NOTE 1***
Total Halogens:	0.0195	

Regulatory Status : (attach all confirming laboratory results)

Sample ID : 9939197

METALS : *Constituent*	*TCLP Limits* *< mg / L*	*TCLP* *mg / L*	*TOTAL* *mg / Kg*	***SW-846 Methods*** Constituent Analysis
Arsenic	5.0	0.06	62	6010B or 7060
Barium	100.0	0.3	152	6010B
Cadmium	1.0	0.08	9.7	6010B
Chromium, Total	5.0	0.08	152	6010B
Lead	5.0	<0.01	58	6010B
Mercury	0.2	<0.0005	0.1	7741
Selenium	1.0	<0.02	<0.5	6010B or 7740
Silver	5.0	<0.004	<0.1	6010B
Antimony	N/A	<0.03	<0.75	6010B
Beryllium	N/A	0.01	4.0	6010B
Cobalt	N/A	<0.002	<0.05	6010B
Copper	N/A	0.06	35	6010B
Manganese	N/A	0.6	88	6010B
Nickel	N/A	0.5	157	6010B
Thallium	N/A	<0.04	7.1	6010B or 7841
Zinc	N/A	2.0	287	6010B
If Requested:			Volatile Organics :	8260B
If Requested:			Semi-Volatile Organics :	8270

*X-Ray Fluorescense spectrometry.
Samples fused at 1000C with $Li_2B_4O_7$

NOTE 1 *:If (Total Sulfurx2.5) minus (XRF SO_3) > 0.5%, additional test may be required.*

SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
[Sample Preparation: TCLP Method 1131; Total Metals Method 3050]

(OH only: spent foundry sand: ASTM D 3987-85 phenol ___mg/l;cyanide ___mg/l;fluoride ___mg/l)

PA only: Total Organic Carbon ____%

CA: some additional tests may be required.

I certify that I am a duly authorized representative of the producer, owner and /or generator and that all information provided hereon, or attached hereto is true, accurate and correct.

By : _____ _____

Signature ---- Title Date

CEMEX Environmental	Plant Operations/Environmental

rev3/5/01

CEMEX

RAW MATERIAL EVALUATION FORM

Name The Raw Material : Fly Ash: High iron, dry

Which CEMEX Plant ? Brooksville

Raw Material Produced or Owned By:

Company: Pnut Mart
Street: 430 Woodcrest Rd.
City/State/Zip: Sylvester, GA 31791-7765

Raw Material Inventory or Storage Location:

Company: Miller Brewing Co.
Street:
City/State/Zip: Albany, GA

In the space provided below describe, in detail, the process from which this Raw Material is produced :

Fly ash collected by the air pollution control equipment on pulverized coal-fired industrial boilers.

Describe the typical physical characteristics, storage, proposed modes of transport, and annual tonnage:

A gray to black powder . The material is stored in silos until it is transported in pneumatic unloading trucks. The annual tonnage produced is about 6,000 tpy.

This Evaluation Form Completed By :

Name : Royce McCrary
Title, Co.: , Pnut Mart
Street: 430 Woodcrest Rd.
City/State: Sylvester, GA 31791-7765
Phone: 800-346-2808

In the States or Localities of use, storage or production ---

	Yes / No
Is Raw Material a Hazardous Waste :	
- Defined by Federal Regulations ? ---	No
- Defined by State Regulations ? -------	No
Is Raw Material a "Regulated" Waste ?	No
Is Raw Material a " Special " Waste ? --	No

(Note: Use Additional Pages(s) as attachments to this Form for any Needed Comments or Explanations)

Chemical Compounds :

Sample ID : 72-477847

Analyte	*Weight %*	
*SiO_2 :	40.51	
*Al_2O_3 :	19.69	
*Fe_2O_3 :	23.63	
*CaO :	1.94	
*MgO :	1.13	
*SO_3 :	0.33	
*Na_2O :	0.57	
*K_2O :	2.33	
*TiO_2 :	0.91	
*P_2O_5 :	0.43	
*Mn_2O_3 :	0.07	
*SrO :	0.06	
$LOI_{(950\ C)}$:	8.26	
Total :	99.86	
Chlorine:	<0.001	ASTM C114.19
Total Sulfur:	0.614	***NOTE 1***
Total Halogens:	0.0055	

*X-Ray Fluorescense spectrometry.
Samples fused at 1000C with $Li_2B_4O_7$

***NOTE 1** :If (Total Sulfurx2.5) minus (XRF SO_3) > 0.5%, additional test may be required.*

Regulatory Status : (attach all confirming laboratory results)

Sample ID : 9939150

METALS : *Constituent*	*TCLP Limit: < mg / L*	*TCLP mg / L*	*TOTAL mg / Kg*	***SW-846 Methods*** Constituent Analysis
Arsenic	5.0	2.3	92	6010B or 7060
Barium	100.0	0.1	527	6010B
Cadmium	1.0	<0.008	<0.2	6010B
Chromium, Total	5.0	0.1	39	6010B
Lead	5.0	<0.01	<0.25	6010B
Mercury	0.2	<0.0005	0.6	7741
Selenium	1.0	<0.02	<0.5	6010B or 7740
Silver	5.0	<0.004	<0.1	6010B
Antimony	N/A	<0.03	<0.75	6010B
Beryllium	N/A	0.01	4.6	6010B
Cobalt	N/A	<0.002	<0.05	6010B
Copper	N/A	0.06	96	6010B
Manganese	N/A	0.4	98	6010B
Nickel	N/A	0.05	44	6010B
Thallium	N/A	<0.04	3.2	6010B or 7841
Zinc	N/A	2.8	49	6010B
If Requested:			Volatile Organics :	8260B
If Requested:			Semi-Volatile Organics :	8270

SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
[Sample Preparation: TCLP Method 1131; Total Metals Method 3050]

(OH only: spent foundry sand: ASTM D 3987-85 phenol ____mg/l;cyanide ____mg/l;fluoride ____mg/l)

PA only: Total Organic Carbon ____%

CA: some additional tests may be required.

I certify that I am a duly authorized representative of the producer, owner and /or generator and that all information provided hereon, or attached hereto is true, accurate and correct.

By : _____ _____

Signature ---- Title Date

CEMEX Environmental

Plant Operations/Environmental

rev3/5/01

CEMEX

RAW MATERIAL EVALUATION FORM

Name The Raw Material : Fly Ash: High iron, wet Which CEMEX Plant ? Brooksville

Raw Material Produced or Owned By:

Company: Tampa Electric Company
Street: PO BOX 111
City/State/Zip: Tampa, FL 33601-0111

Raw Material Inventory or Storage Location:

Company: Tampa Electric Company **(Big Bend)**
Street: PO BOX 111
City/State/Zip: Tampa, FL 33601-0111

In the space provided below describe, in detail, the process from which this Raw Material is produced :

Fly ash collected by the air pollution control equipment on **Units #1,2**and sometimes 3, pulverized coal/coke-fired utility boilers. The coal:petroleum coke ratio is about 9:1.

Describe the typical physical characteristics, storage, proposed modes of transport, and annual tonnage:

A gray to black powder . The material is stored in silos until it is transported in tarped dump trucks. The annual tonnage produced is about 120,000 tpy.

This Evaluation Form Completed By :

Name : Elanine H. Farrington
Title, Co.: Account Manager, Tampa Electric Company
Street: PO BOX 111
City/State: Tampa, FL 33601-0111
Phone: 813-228-1597

In the States or Localities of use, storage or production ---

	Yes / No
Is Raw Material a Hazardous Waste :	
- Defined by Federal Regulations ? ---	No
- Defined by State Regulations ? ------	No
Is Raw Material a "Regulated" Waste ?	No
Is Raw Material a " Special " Waste ? --	No

(Note: Use Additional Pages(s) as attachments to this Form for any Needed Comments or Explanations)

Chemical Compounds :

Sample ID : 72-477314

Analyte	*Weight %*
*SiO_2 :	44.47
*Al_2O_3 :	17.39
*Fe_2O_3 :	19.22
*CaO :	3.25
*MgO :	0.97
*SO_3 :	0.44
*Na_2O :	0.50
*K_2O :	2.01
*TiO_2 :	0.82
*P_2O_5 :	0.27
*Mn_2O_3 :	0.03
*SrO :	0.05
$LOI_{(950\ C)}$:	10.47
Total :	99.89
Chlorine:	<0.01 ASTM C114.19
Total Sulfur:	0.710 ***NOTE 1***
Total Halogens:	0.0195

Regulatory Status : (attach all confirming laboratory results)

Sample ID : 9939197

METALS : *Constituent*	*TCLP Limits* *≤ mg/L*	*TCLP* *mg/L*	*TOTAL* *mg/Kg*	***SW-846 Methods*** Constituent Analysis
Arsenic	5.0	0.06	62	6010B or 7060
Barium	100.0	0.3	152	6010B
Cadmium	1.0	0.08	9.7	6010B
Chromium, Total	5.0	0.08	152	6010B
Lead	5.0	<0.01	58	6010B
Mercury	0.2	<0.0005	0.1	7741
Selenium	1.0	<0.02	<0.5	6010B or 7740
Silver	5.0	<0.004	<0.1	6010B
Antimony	N/A	<0.03	<0.75	6010B
Beryllium	N/A	0.01	4.0	6010B
Cobalt	N/A	<0.002	<0.05	6010B
Copper	N/A	0.06	35	6010B
Manganese	N/A	0.6	88	6010B
Nickel	N/A	0.5	157	6010B
Thallium	N/A	<0.04	7.1	6010B or 7841
Zinc	N/A	2.0	287	6010B
If Requested:			Volatile Organics :	8260B
If Requested:			Semi-Volatile Organics :	8270

*X-Ray Fluorescense spectrometry.
Samples fused at 1000C with $Li_2B_4O_7$

***NOTE 1** :If (Total Sulfurx2.5) minus (XRF SO_3) > 0.5%, additional test may be required.*

SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
[Sample Preparation: TCLP Method 1131; Total Metals Method 3050]

(OH only: spent foundry sand: ASTM D 3987-85 phenol ____mg/l;cyanide ____mg/l;fluoride ____mg/l)

PA only: Total Organic Carbon ____%

CA: some additional tests may be required.

I certify that I am a duly authorized representative of the producer, owner and /or generator and that all information provided hereon, or attached hereto is true, accurate and correct.

By: _____ _____
Signature ---- Title Date

CEMEX Environmental

Plant Operations/Environmental

rev3/5/01

CEMEX

RAW MATERIAL EVALUATION FORM

Name The Raw Material : Fly Ash: High iron,wet

Which CEMEX Plant ? Brooksville

Raw Material Produced or Owned By:

Company: Tampa Electric Company
Street: PO BOX 111
City/State/Zip: Tampa, FL 33601-0111

Raw Material Inventory or Storage Location:

Company: Tampa Electric Company (Gannon)
Street: PO BOX 111
City/State/Zip: Tampa, FL 33601-0111

In the space provided below describe, in detail, the process from which this Raw Material is produced :

Fly ash collected by the air pollution control equipment on Units #1&2, coal(eastern)-fired wet bottom cyclonic utility boilers.

Describe the typical physical characteristics, storage, proposed modes of transport, and annual tonnage:

A gray to black powder agglomerated by water. The material is stored in silos until conditioned with water and hauled directly to the plant. The material is transported in tarpped dump trucks. The annual tonnage produced is about 8,000 tpy.

This Evaluation Form Completed By :

Name : Elanine H. Farrington
Title, Co.: Account Manager, Tampa Electric Company
Street: PO BOX 111
City/State: Tampa, FL 33601-0111
Phone: 813-228-1597

In the States or Localities of use, storage or production ---

	Yes / No
Is Raw Material a Hazardous Waste :	
- Defined by Federal Regulations ? ---	No
- Defined by State Regulations ? -------	No
Is Raw Material a "Regulated" Waste ?	No
Is Raw Material a " Special " Waste ? --	No

(Note: Use Additional Pages(s) as attachments to this Form for any Needed Comments or Explanations)

Chemical Compounds :

Sample ID : 72-477311

Analyte	*Weight %*	
*SiO_2 :	52.08	
*Al_2O_3 :	21.20	
*Fe_2O_3 :	12.07	
*CaO :	3.19	
*MgO :	1.02	
*SO_3 :	0.26	
*Na_2O :	0.86	
*K_2O :	2.32	
*TiO_2 :	1.05	
*P_2O_5 :	0.61	
*Mn_2O_3 :	0.03	
*SrO :	0.07	
$LOI_{(950\ C)}$:	5.10	
Total :	99.86	
Chlorine:	<0.01	ASTM C114.19
Total Sulfur:	0.29	***NOTE 1***
Total Halogens:	0.0195	

Regulatory Status : (attach all confirming laboratory results)

Sample ID : 9939198

METALS : *Constituent*	*TCLP Limit* *< mg / L*	*TCLP* *mg / L*	*TOTAL* *mg / Kg*	***SW-846 Methods*** *Constituent Analysis*
Arsenic ----------	5.0	0.06	62	6010B or 7060
Barium ----------	100.0	0.3	152	6010B
Cadmium ----------	1.0	0.08	9.7	6010B
Chromium, Total --	5.0	0.08	152	6010B
Lead ----------	5.0	<0.01	58	6010B
Mercury ----------	0.2	<0.0005	0.1	7741
Selenium ----------	1.0	<0.02	<0.5	6010B or 7740
Silver ----------	5.0	<0.004	<0.1	6010B
Antimony ----------	N/A	<0.03	<0.75	6010B
Beryllium ----------	N/A	0.01	4.0	6010B
Cobalt----------	N/A	<0.002	<0.05	6010B
Copper----------	N/A	0.06	35	6010B
Manganese----------	N/A	0.6	88	6010B
Nickel----------	N/A	0.5	157	6010B
Thallium ----------	N/A	<0.04	7.1	6010B or 7841
Zinc ----------	N/A	2.0	287	6010B
If Requested: ----------			Volatile Organics :	8260B
If Requested: ----------			Semi-Volatile Organics :	8270

*X-Ray Fluorescense spectrometry.
Samples fused at 1000C with $Li_2B_4O_7$

***NOTE 1** :If (Total Sulfurx2.5) minus (XRF SO_3) > 0.5%, additional test may be required.*

SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
[Sample Preparation: TCLP Method 1131; Total Metals Method 3050]

(OH only: spent foundry sand: ASTM D 3987-85 phenol ____mg/l;cyanide ____mg/l;fluoride ____mg/l)

PA only: Total Organic Carbon ____%

CA: some additional tests may be required.

I certify that I am a duly authorized representative of the producer, owner and /or generator and that all information provided hereon, or attached hereto is true, accurate and correct.

By : _____

Signature ---- Title

Date

CEMEX Environmental

Plant Operations/Environmental

rev3/5/01

UPS Next Day Air®
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Shipping Document

See instructions on back. Call 1-800-PICK-UPS (800-742-5877) for additional information.

TRACKING NUMBER 1Z 345 963 22 1003 658 7

1 SHIPMENT FROM

SHIPPER'S UPS ACCOUNT NO. — UPS Account No. **345963**

REFERENCE NUMBER

NAME: Charles Walz — TELEPHONE: 352-796-7241

COMPANY: CEMEX-BROOKSVILLE PLANT

STREET ADDRESS: 16301 PONCE DE LEON BLVD

CITY AND STATE: BROOKSVILLE FL — ZIP CODE: 34614-0849

PLEASE PRESS HARD YOU ARE MAKING 3 COPIES

2 EXTREMELY URGENT DELIVERY TO

NAME: Susan Pelz — TELEPHONE: 813 744 6100.

COMPANY: FL. DEP. Solid WASTE.

STREET ADDRESS: 3804 Coconut Palm Dr. — DEPT./FLR. — Residential ☐

CITY AND STATE (INCLUDE COUNTRY IF INTERNATIONAL): TAMPA FL — ZIP CODE: 33619

3 WEIGHT — WEIGHT (ENTER "LTR" IF LETTER): 8 oz — DIMENSIONAL WEIGHT (If Applicable)

SHIPPER'S COPY 1

CHARGES

4 TYPE OF SERVICE
- ☑ NEXT DAY AIR
- ☐ EXPRESS (INT'L)
- FOR WORLDWIDE EXPRESS SHIPMENTS Mark an "X" in this box if shipment only contains documents of no commercial value. ☐ DOCUMENTS ONLY — $

5 OPTIONAL SERVICES
- ☐ SATURDAY PICKUP See instructions. ☐ SATURDAY DELIVERY See instructions. — $
- ☐ INSURED VALUE Contents are automatically protected up to $100. For insured value over $100, see instructions. $ ____ AMOUNT — $
- ☐ C.O.D. If C.O.D., enter amount to be collected and attach completed UPS C.O.D. tag to package. $ ____ AMOUNT — $

6 ADDITIONAL HANDLING CHARGE ☐ An Additional Handling Charge applies for certain items. See instructions. — $

TOTAL CHARGES — $

7 METHOD OF PAYMENT: ☐ BILL SHIPPER ☐ BILL RECEIVER ☐ BILL THIRD PARTY (NEXT DAY AIR ONLY; RECORD ACCOUNT NO. IN SECTION 8) ☐ CREDIT CARD (American Express, Diner's Club, MasterCard, Visa) ☐ CHECK

8 RECEIVER'S / THIRD PARTY'S UPS ACCT. NO. OR MAJOR CREDIT CARD NO. — EXPIRATION DATE /

THIRD PARTY'S COMPANY NAME

STREET ADDRESS

CITY AND STATE — ZIP CODE

The shipper authorizes UPS to act as forwarding agent for export control and customs purposes. The shipper certifies that these commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

9 SHIPPER'S SIGNATURE X Charles Walz

DATE OF SHIPMENT 4/30/03

0101911202609 6/00 S

logged
7/11/05

COMPLAINT FORM

Complaint #: 05/04/05 Program Area: SW County: Hernando

Open Date: 5/6/05 Priority: _____ Reviewer: _____

***** Company or Person Lodging the Complaint *****

Name: A. N. Sevier Job Title: _____

Company: _____ Phone: 352/796-8278

Address: _____

County: _____ Other Phone _____

***** Company or Person against whom the Complaint is Lodged *****

Name: Cemex Job Title: _____

Company: _____ Phone: _____

Address: US 98, North of Brooksville

County: Hernando Other Phone _____

*****Complaint Details*****

Description: Mr.Sevier is concerned because Cemex is storing wet flyash and dry flyash in uncovered piles adjacent to a mine with a direct connection to the aquifer. He alleges that the company receives far more flyash than they use, and that the piles are essentially being used for solid waste disposal. There are 2 storage areas, one for wet flyash and another for dry flyash.

He would like a call back from Solid Waste to discuss whether Cemex is allowed to store flyash in this manner or dispose of it on site.

Directions: _____

Received By: Beth Knauss Mode: phone

Time Existed: _____ Recontact Requested?: Yes

Initial Disposition: Discussed regulatory exemptions for the material with Mr. Sevier. I explained that the material was excluded from regulation as a hazardous waste, and that it is used as a product on site and sold to concrete plants. The conditions of storage may have to be addressed through the facility's stormwater permit if it is not being managed as a waste.

SM
LM

Environmental Consulting & Technology, Inc.

D.E.P.
JAN 17 2003
Southwest District Tampa

January 17, 2003
021074-0100

Mr. William Kutash
Department of Environmental Protection
Waste Management Division
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Florida Crushed Stone
Best Management Practices Plan Revision 1
Hernando County

Dear Mr. Kutash:

Environmental Consulting & Technology, Inc. (ECT) is pleased to submit the attached Best Management Practices Plan Revision 1 on behalf of the Florida Crushed Stone Company.

Please contact me if you have any questions on this submittal.

Sincerely,
ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Sandra Tippin
Staff Scientist

cc: Mr. Charles Allen, Florida Crushed Stone Company

Attachment

1408 North Westshore Blvd., Suite 115
Tampa, FL
33607

(813)
289-9338

FAX (813)
289-9388

See Board Report

BEST MANAGEMENT PRACTICES PLAN – REVISION I FLORIDA CRUSHED STONE COMPANY FLY ASH RECYCLING BROOKSVILLE, FLORIDA

PREPARED FOR:

FLORIDA CRUSHED STONE COMPANY
Brooksville, Florida

PREPARED BY:

ECT
Environmental Consulting & Technology, Inc.
1408 North Westshore Boulevard
Suite 115
Tampa, Florida 33607
(813) 289-9338
(813) 289-9388 facsimile

Sandra Tippin
Staff Scientist

F.A. "Rick" Fetterly, P.E.
Associate Engineer

021074-0100
JANUARY 2003

TABLE OF CONTENTS

12/16
JRM 12/16/02

Florida Department of

Environmental Protection

Southwest District

CONVERSATION RECORD

Date December 13, 2002 **Subject** FCS revised BMP for TECO ash
Time 10:40 AM **Permit No.**
County Hernando
M **Phone No.**

Representing Paco Amram with ECT representing Florida Crushed Stone

[X] Phoned Me **[ ] Was Called** **[ ] Scheduled Meeting** **[ ] Unscheduled Meeting**

Other Individuals in Conversation/Meeting

Summary of Conversation/Meeting: Mr. Amram requested for an extension on the BMP revision for handling TECO / Gannon ash. I explained that the Department has been expecting a BMP revision for quite awhile. Mr. Amram stated that he is working with Mr. Allen on the submittal, however, he is unable to submit a revised version in the time given and requested that he be able to submit it in mid-January. I agreed to Mr. Amram' s request and explained to him that the submittal shall be no later than the above-mentioned date. I also stated that if he had any further problems to please contact the Department.

Signature
Lindsay L. McCoy

Title E.S. I, Solid Waste Compliance/Enforcement

SIS 12/19/01
SP 12/18
file

Florida Department of
Environmental Protection
Southwest District

CONVERSATION RECORD

Date 12/14/01 **Subject** TECO – Gannon – Ash Management

Time 11:00 AM **Permit No.** N/A

County Hernando

M r. Charles Allen **Phone No.** ???????????/

Representing Florida Crushed Stone

[x] Phoned Me [ ] Was Called [ ] Scheduled Meeting [ ] Unscheduled Meeting

Other Individuals in Conversation/Meeting None

summary of conversation/meeting called as a follow-up to Sara Smithee's inspection as to any concerns the department had relating to management of the Gannon ash at the site prior to reuse. I informed him I had not reviewed the photographs taken yesterday nor had a thorough conversation with Sara on the inspection. He proceeded to inform me that Pile 3 has been closed and the berm was being reconstructed as well as a tarp was ordered for covering and would probably be in place within two weeks. Pile 1 was about 70% covered and was being utilized for current retrieval of ash which was transported to the staging area for use daily. This pile would be extended with the balance of the ash removed from the Gannon plant. He believed they would be receiving an additional 20,000 tons in addition to the 151,000 tons received to date.

He also informed me that it would probably take FCS about 3 years to reuse the ash received from TECO – Gannon. He also informed me that they have stopped taking ash from Florida Power's Crystal River Power Plant for the past few months due to their inability to manage and reuse the material in a timely manner.

Bob Butera, P.E.

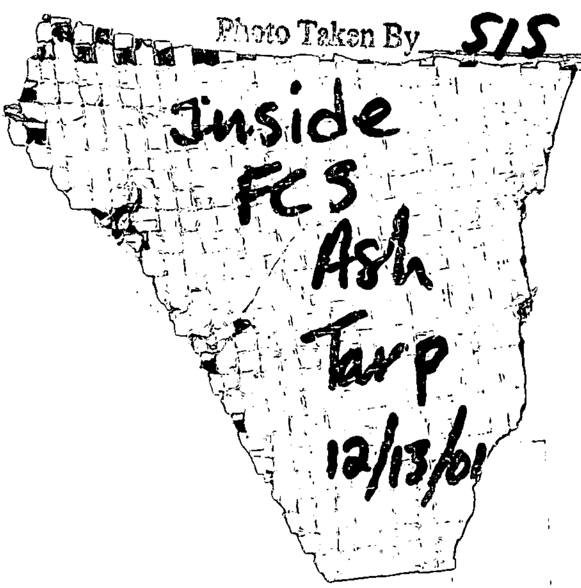
Hernando County

Photo made 12/13/01

Time

Location FL Crushed Stone
TECO Gannon Ash Storage Area

Photo Taken By SIS




12 13 '01


12 13 '01

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA 12/13/01
HERNANDO COUNTY SIS

Pile 1 - looking W

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA 12/13/01
HERNANDO COUNTY SIS

Pile 1 looking W

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA 12/13/01
HERNANDO COUNTY SIS

Pile 1 - looking E


12 13 '01


12 13 '01


12 13 '01


12 13 '01

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA 12/13/01
HERNANDO COUNTY SIS

Pile 1 - looking SE

temporary pile
- staging area

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA 12/13/01
HERNANDO COUNTY SIS

- orange pile = bentonite
  black pile = ash
  square box to left is screen

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA 12/13/01
HERNANDO COUNTY SIS

mixed ~~bentonite~~ boxite + ash
inside concrete containment
staging area

SW side of pile 3
looking SE
(from SW corner)

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA 12/13/01
HERNANDO COUNTY SIS


12 13 '01


12 13 '01

SW corner pile 3

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA
HERNANDO COUNTY

12/13/01
SIS

looking NE

2 of 5

~~NE corner~~ N corner pile 3
looking SW

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA
HERNANDO COUNTY

12/13/01
SIS

3 of 5

~~NE corner~~ pile 3
NE side
looking SE

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA
HERNANDO COUNTY

12/13/01
SIS

4 of 5

~~NE corner~~ pile 3
SW side
from S corner looking NW

FL CRUSHED STONE – TECO GANNON ASH
STORAGE AREA
HERNANDO COUNTY

12/13/01
SIS

5 of 5

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

SITE INSPECTION REPORT

OWNER/OPERATOR: Florida Crushed Stone
MAILING ADDRESS: c/o Charles Allen
P.O. Box 1508
Brooksville, Fl 34605-1508

NAME OF SITE:	FCS – TECO Gannon Slag/Ash Storage	**INSPECTION DATE:**	December 13, 2001
SITE ADDRESS:	Cement Plant Rd	**PERMIT NO:**	N/A
CITY:	Brooksville		

REASON FOR VISIT: COMPLIANCE INSPECTION

PERSONS PRESENT: Sara Smithee – FDEP and Jim Daniel, Production Manager - FCS

SUMMARY REPORT: This visit was to conduct an inspection of the TECO ash storage areas as described in the April 2001 Best Management Practices Plan, Gannon Station, Tampa Florida, prepared by Environmental Consulting & Technology, Inc, received April 30, 2001. Mr. Daniel stated that there are two piles at the facility. Pile 1, labeled Pile 1 in the BMP, is the larger pile. It was at least 60% tarped with a berm of light colored dirt around the base of the tarped portion. The un-tarped portion also had the light colored berm, however, it had been contaminated with ash in some areas. There was no berm on the West side of the pile because this is where the last, approximately 20,000 tons of ash is to be placed. Mr. Daniel stated that the berm would be replaced on Friday because the workers would not leave the pile without a berm over the weekend. Pile 2, labeled Pile 3 in the BMP (and in the rest of this document), contained the maximum amount of ash allotted by the BMP. It was not graded or tarped. The berm was intact all the way around the pile, but had been contaminated with ash in several areas. Mr. Daniel stated that when the pile was graded prior to tarping, the contaminated berm material would be pushed into the ash and covered. New berm material would be placed around the perimeter of the finished pile. Mr. Daniel stated that he thought the entire process of receiving the ash and grading and tarping both piles would be completed in around 45 days.

Prior to use in the hopper, the TECO ash is currently being mixed with bauxite due to a shortage of fly ash at the present time. Therefore, two separate piles of ash were observed during this inspection. One pile, which was off to the side, was pure ash. This is screened, mixed with bauxite and transported a few yards to the concrete containment temporary storage area for future use in the hopper. The over from the screen are either placed in the metals recovery waste container or the class I waste container for removal from FCS.

DEFICIENCIES NOTED:

1) There was no berm or silt fence around the West side of Pile 1, potentially causing stormwater to discharge to surface water, contrary to Section 6.2 of the BMP.
2) The berm was outside of the tarp, contrary to Section 6.3 of the BMP, which indicates that the tarp will be placed over the berm and anchored with tires.
3) Piles were not completely covered, contrary to Section 6.3 of the BMP.
4) Ash was piled outside of storage or staging areas.
5) Screening is not included in the BMP.
6) Disposal of non-processable material in not outlined in the BMP.

RECOMMENDATIONS:

The owner/operator should perform the following activities to bring the facility into compliance:

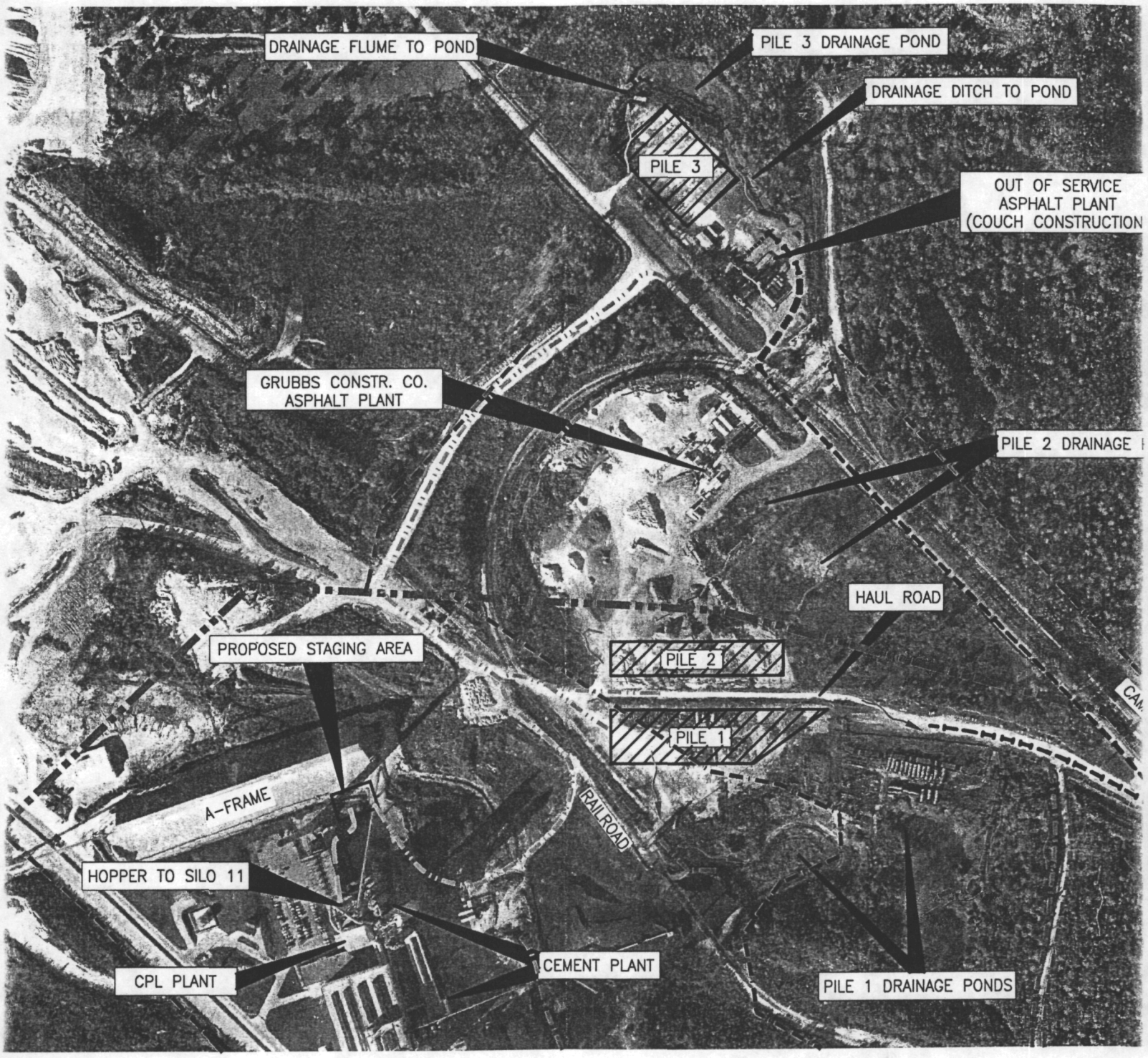
1) Install berm or silt fence as required by the BMP.
2) Install berm and tarp as depicted in the BMP.
3) Cover piles as required by the BMP.
4) Remove ash from areas outside the approved storage or staging areas.
5) Cease screening or revise BMP to include the activity.
6) Revise BMP to include disposal of non-processable material.

Please notify the Department within 7 days of completion of the above activities. If you have any questions, please call Susan Pelz at (813) 744-6100, ext. 386.

FDEP REPRESENTATIVE: _____ Jan 4, 2002

Sara I. Smithee, E.S.I Solid Waste Section — Date Mailed to Facility

Cc: Susan Pelz, P.E., FDEP
Robert Butera, P.E., FDEP



Best Management Practices Plan
Gannon Station, Tampa, Florida

Figure 3

TO Bill

DATE 6-4-01 TIME 10:05 am

WHILE YOU WERE OUT

M Patrick Shell

of TECO

PHONE 641-5210

AREA CODE NUMBER EXTENSION

TELEPHONED		PLEASE CALL	X	WILL CALL AGAIN	
RETURNED YOUR CALL				CALL IMMEDIATELY	
CAME TO SEE YOU				WANTS TO SEE YOU	

MESSAGE Re: Status of the Best Management Plan

FAX # 641-5081

By

WASTE MGT TAMPA SWD x:8137446125

** Transmit Conf.Report **

P.1

Jun 5 2001 15:55

Telephone Number	Mode	Start	Time	Pages	Result	Note
96415081	NORMAL	5,15:54	1'02"	6	# 0 K	

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	3804 Coconut Palm Drive Tampa, FL 33619-8318

FAX

Date: 6-5-01

Number of pages including cover sheet: 6

To: Patrick Shell
TECO

Phone: 641-5210

Fax phone: 641-5081

CC:

From: Bill Kutash

Phone: (813) 744-6100 x 353

Fax phone: (813) 744-6125

REMARKS: ☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	3804 Coconut Palm Drive Tampa, FL 33619-8318

FAX

Date: 6-5-01

Number of pages including cover sheet: 6

To: Patrick Shell
TECO

Phone: 641-5210

Fax phone: 641-5081

CC:

From: Bill Kutash

Phone: (813) 744-6100 x 353

Fax phone: (813) 744-6125

REMARKS: ☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

June 5, 2001

Florida Crushed Stone Company
c/o Mr. Charles E. Allen
10311 Cement Plant Road (34601)
P.O. Box 1508
Brooksville, FL 34605-1508

RE: Reuse BMP for Dredge, Coal and Coal Ash Byproduct Recycling from the Ash Storage Area at TECO's Gannon Station at Florida Crushed Stone - dated April 2001 (received April 30, 2001)

Dear Mr. Allen:

The Department has reviewed the Best Management Practices (BMPs) and additional information submitted by ECT, Inc. outlining your proposal to use TECO Gannon Station ash and industrial dredge material in the manufacturing of cement. This Department reuse exemption does not include Ash Byproducts other than those normally collected and stored in the Ash Storage Area identified in attached Figure #1. Section 403.7045(1)(f), Florida Statutes (F.S.), provides that the following wastes or activities are not regulated by the Department as solid waste:

(f) Industrial byproducts, if:

1. A majority of the industrial byproducts are demonstrated to be sold, used, or reused within 1 year.

2. The industrial byproducts are not discharged, deposited, injected, dumped, spilled, leaked, or placed upon any land or water so that such industrial byproducts, or any constituent thereof, may enter other lands or be emitted into the air or discharged into any waters, including groundwaters, or otherwise enter the environment such that a threat of contamination in excess of applicable department standards and criteria is caused.

Exemption letter 6/5/01

3. The industrial byproducts are not hazardous wastes as defined under §403.703 and rules adopted under this section.

Based upon the information you have submitted, the Department has concluded that, if the conditions set forth below are complied with, this proposed reuse is expected to meet each of the three criteria of the statute and does not require a permit from the Department. Specifically, the Department agrees that the proposed project does constitute the use or reuse of the ash and industrial dredge materials; that the ash and industrial dredge materials is not a hazardous waste; and that the proposed reuse BMP provides adequate assurance that the ash and industrial dredge materials will not be discharged, deposited, injected, dumped, spilled, leaked, or placed upon any land or water so that the waste, or any constituent thereof, may enter other lands or be emitted into the air or discharged into any waters, including groundwaters, or otherwise enter the environment such that a threat of contamination in excess of applicable department standards and criteria would result. This conclusion is conditional upon your compliance with the BMPs and with the following conditions:

1) Florida Crushed Stone shall continue to test to ensure that the ash and industrial dredge materials are not a characteristic hazardous waste. The TECO Gannon Ash and industrial dredge material, before receipt at the facility, should be retested whenever their is reason to believe that the process or operation generating the waste has changed, and Florida Crushed Stone shall maintain records of such testing on site for three years

2) Stormwater runoff which contacts solid waste (i.e. slag/dredge material) in the staging area shall be managed as leachate and shall not be discharged to the soil, ground water or surface waters.

3) Waste quantity reports which detail the quantities received, stored and processed (i.e. used on site) shall be maintained at the facility and provided to the Department upon request.

4) Florida Crushed Stone specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the approved activity is located or conducted to:

(a) Have access to and copy any records provided for in the BMPs or above conditions;

(b) Inspect the facility, equipment, practices, or operations provided for in the BMPS or above conditions; and

(c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with the BMPs, above conditions, or Department rules.

The Department's conclusion that the proposed reuse ash and industrial dredge materials is exempt from permitting under Section 403.7045(1)(f), F.S., is based upon compliance with the above conditions, and is applicable only for the specific processes and operations set forth in your submittals. If you fail to comply with these conditions and the proposed BMPs, or if you fail to meet any of the three criteria in Section 403.7045(1)(f), F.S., this conclusion will not be binding and the Department may initiate enforcement for disposal of solid waste without a permit.

Qualification for the exemption under Section 403.7045(1)(f), F.S., does not mean that you qualify for exemptions from any other Department or local permits which may be required for this project. It does not authorize any injury to public or private property or any invasion of rights, nor any infringement of federal, State, or local laws or regulations. It does not relieve you from any liability for harm or injury to human health or welfare, animal or plant life, or

property caused by the construction or operation of this project, or from penalties therefore, nor does it allow you to cause pollution in contravention of Florida Statutes and Department rules. Finally, this exemption is based upon laws and rules currently in effect; if those laws or rules change in the future, you may be required to comply with those changed laws or rules within a reasonable period of time.

Thank you for your submittals and patience with this process. If you have any questions about this letter or other aspects of the waste reuse process, please contact William Kutash (813 744-6100 x353) in our Tampa District office.

Sincerely yours,

Deborah A. Getzoff
Director of District Management
Southwest District Office

RJB/ab

cc: Robert Stafford, TECO, Environmental Affairs
F.J. "Paco" Amram, P.E., ECT, Inc.
Mark Culbreth, P.G., ECT, Inc.
Mary Jean Yon, BSHW, Tallahassee
Chris Mcguire, OGC, Tallahassee
Richard Teddar, BSHW, Tallahassee
William Kutash, SWD Waste Div., Tampa
Buck Oven, Power Plant Siting, Tallahassee

P:\PROJECTS\010184\SITELOC.dwg 02/27/01

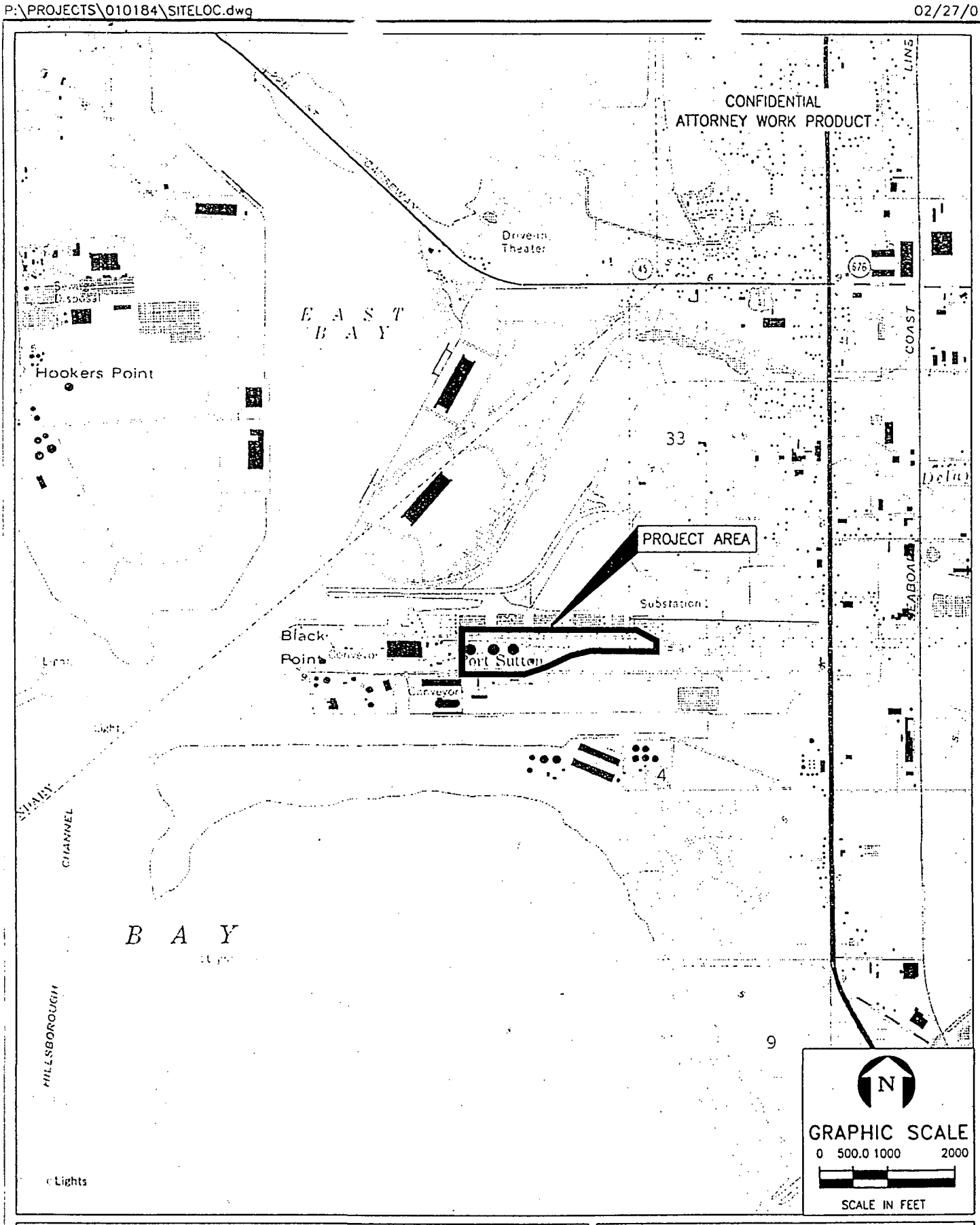


FIGURE 1.
SITE LOCATION MAP
TECO F.J. GANNON STATION
PORT SUTTON ROAD
TAMPA, FLORIDA
Sources: USGS Quad Map of Tampa, Fl., 1981; ECT, 2001.

ECT
Environmental Consulting & Technology, Inc.

TECO
TAMPA ELECTRIC

June 1, 2001

Mr. William Kutash
Program Administrator
Waste Management Division
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

Via Federal Express
Airbill No. 7915 7449 2284

Re: Tampa Electric Company (TEC)
F.J. Gannon Station
Fly Ash Combustion By-Product
Sampling Plan Report

Dear Mr. Kutash:

Please find enclosed a copy of the combustion by-product sampling report for the characterization of fly ash that is generated at the referenced facility.

If you have any questions regarding this submittal, please contact me at (813) 641-5040.

Sincerely,

Robert E. Stafford
Administrator
Environmental Affairs

Enclosure

EA\tl\RES1510

State of Florida
Department of Environmental Regulation

District Routing Slip

To: Bill Kutash Date: 7 May 01

C.C. To:

	Pensacola	**Northwest District**	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Apalachicola	Northwest District Satellite Office	
X	**Tampa**	**Southwest District**	
	Punta Gorda	Southwest District Branch Office	
	Bartow	Southwest District Satellite Office	
	Orlando	**Central District**	
	Melbourne	Central District Satellite Office	
	Jacksonville	**Northeast District**	
	Gainesville	Northeast District Branch Office	
	Fort Myers	**South District**	
	Marathon	South District Branch Office	
	West Palm Beach	**Southeast District**	
	Port St. Lucie	Southeast District Branch Office	

Reply Optional ☐ Reply Required ☐ Info Only ☒
Date Due _____ Date Due: _____

D.E.P.
MAY 10 2001
Southwest District Tampa

Comments:

Hamilton Oven 277-0472
From: Siting Coordination Tel.: MS 48

10-31-90

FOWLER WHITE
ATTORNEYS AT LAW
ESTABLISHED 1943

May 7, 2001

HAND DELIVER

Mr. Hamilton S. Oven, P.E., Administrator
Siting Coordination Office
Florida Department of Environmental
Protection
Twin Towers Office Building, Suite 649
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Florida Crushed Stone
Modification Request
PA 87-17

Dear Mr. Oven:

As indicated in our letter, dated March 20, 2001, we are attaching a letter from Jack Adams of PBS&J, dated May 2, 2001, which responds to the Department's letter of July 18, 2000. Please note that the PBS&J letter sets forth the Department's concern and then provides a response.

We trust that you will find these responses in order and we can proceed to amending the conditions of certification. If you have any questions or care to discuss these responses, please call.

Sincerely,

Jacob D. Varn

FOWLER, WHITE, GILLEN, BOGGS, VILLAREAL AND BANKER, P.A.
TAMPA • CLEARWATER • FORT MYERS • ST. PETERSBURG • TALLAHASSEE
101 N. MONROE STREET, SUITE 1090 • TALLAHASSEE, FL 32301 • P.O. BOX 11240 • TALLAHASSEE, FL 32302
TELEPHONE (850) 681-0411 • FAX (850) 681-6036 • www.fowlerwhite.com

PBS&J

An employee-owned company

May 2, 2001

Pat Venable, REM
Environmental Manager
Florida Crushed Stone
10311 Cement Plant Road
Brooksville, Florida 34605-1508

Subject: Florida Department of Environmental Protection (FDEP)
June 8, 2000 FDEP Internal Memorandum to Hamilton Oven
Permit No. PA 82-17

Dear Mr. Venable:

The purpose of this letter is to provide assistance with a response to comments detailed in the above referenced FDEP internal memorandum. The discussion provided below addresses some general concerns of FDEP and resulting Consent Order requirements of FCS. We have also addressed each of the numbered comments from the June 8, 2000 memorandum separately to meet the concerns of FDEP.

General Discussion

The man-made surface waters (limestone quarries, settling ponds, cooling ponds, etc.) within the boundaries of Florida Crushed Stone (FCS) Brooksville property have been, and will continue to be, an integral part of the industrial process of the facility operations. FCS views all surface water bodies within its property as process ponds and as necessary extensions of the industrial operations. As discussed in the Site Water Management Plan (SWMP), it is important to note that there is typically no off-site discharge of land surface runoff from the active (developed) portion of the site, which includes the plant operations.

The only exceptions would occur in the event of an emergency discharge of excess water from Settling Pond 7 or Cooling Pond 4. In these instances, the excess water would discharge in a westerly direction to a low-lying area located on FCS property on the west side of CR 491. This low-lying area does not have a surface drainage outlet feature. At this location, the discharge water will infiltrate into the ground or evaporate. Therefore, even in the event of an emergency discharge from Settling Pond 7 or Cooling Pond 4, the excess water would remain on FCS property. The FCS Brooksville Facility site is essentially a closed drainage basin and an off-site impact to Waters of the State will not occur due to a surface discharge of process water or land surface runoff.

Furthermore, based on surface water sampling and observations, the FCS Brooksville Facility does not discharge a contaminant load to any surface water bodies that affects public health and the environment. Based on groundwater monitoring and observations, PBS&J also believes that there are no unusual contaminants significantly impacting the groundwater quality beneath the site.

FDEP Comment I. SWMP

1. The SWMP includes surface water sampling results of runoff from different areas of the facility. The samples labeled GSR-1, GSR-2 (runoff from the Gregg Plant) and GSR-3 (runoff from the Lime Plant located south of Gregg Plant) indicate exceedances of the groundwater standards for beryllium, chromium, lead, manganese, iron and aluminum. The SWMP did not address the GSR 1-3 results. Changes to the facility were not proposed by the SWMP. The stated rationale for this is the lack of documentation that there have been significant impacts to the groundwater beneath the site and that there is no discharge to surface water. The current groundwater-monitoring plan does not include these parameters, so the existing and/or potential impact of these exceedances has not been determined. There is, however, mention of barriers in the BMP, but these are not sufficiently described. Please refer to the comments under BMP.

Response:

The SWMP did not address the GSR 1-3 results because they are not of concern. As stated in the SWMP, Drinking Water Standards (62-550 FAC) were listed with the surface water sampling results for *comparison purposes only*. The Consent Order for the Florida Crushed Stone facility did not indicate the standards that would be applied to surface waters at this site. There are several reasons, both regulatory and technical, why Drinking Water Standards should not be considered applicable to site surface waters. Florida Administrative Code Chapters 62-520, 62-550, and 62-777, which reference the Drinking Water Standards, clearly do not apply to site surface waters. If the Class V (Navigation, Utility, and Industrial Use) Criteria for Surface Water Quality from Chapter 62-302.530 are applied to the site, then there are no applicable standards for aluminum, beryllium, iron, and manganese. There would be no exceedences of the lead criteria (Class V criteria = 0.050 mg/l) and there would be very minor exceedences of the chromium criteria (Class V criteria = 0.11 mg/l).

The technical reason that the Drinking Water Standards should not be applied to site surface waters relates to the inability to control turbidity in surface water samples. High turbidity levels can adversely impact the quality of water samples that will be analyzed for metals. Although turbidity was not measured in the laboratory for samples GSR 1-3, it can be assumed that turbidity was very high in these samples based on the analyzed values for total suspended solids. Site surface water samples should not be compared to Drinking Water Standards if there has been no attempt to evaluate the potentially significant adverse impact of turbidity on the quality

of the surface water analytical data. No modifications have been made to either the SWMP or the BMP to address exceedences of Drinking Water Standards in site surface waters because these exceedences are not believed to be of concern. Refer to the response to Comment II.1 for a related discussion of the groundwater constituents of concern.

2. The SWMP does not address how the levels of the parameters referenced above will be reduced.

Response:

As stated above, we do not believe that the levels of the parameters referenced above are of concern. Therefore, a plan has not been included to address how these parameters will be reduced.

3. The SWMP proposes quarterly monitoring of the perimeter ditch for pH, TSS, TDS, TRPH by FLO PRO Method, turbidity, 8 RCRA Total Metals, aluminum, iron, oil and grease. The proposal is partly to monitor the effects of the proposed expanded plant which anticipates the additional storage of raw material piles to the north of the "A" frame building. According to the SWMP, FCS proposes to begin this sampling program upon approval by the Department and incorporation into the Site Certification Plan. We have no objection to the proposed monitoring. However, construction of a storage area would be our preferred option.

Response:

FCS will construct the new materials storage area to minimize surface water runoff into the perimeter ditch. FCS also currently employs efficient materials management and good housekeeping practices to minimize the amount of exposed stockpiles in and around the facility.

4. FCS requested approval to pump the wash water generated by the truck wash into the Brooksville STP effluent force main. This proposal would eliminate the current wash water discharge to the South Quarry. We concur with this request.

Response:

FCS has initiated the aforementioned proposal.

FDEP Comment II. GWMP:

1. In the GWMP, FCS agrees to include sampling for arsenic, barium and lead in addition to the parameters that were previously being monitored. However, beryllium,

chromium, manganese and aluminum had not previously been included in their GWMP since until now we did not have sampling results indicating these constituents were of concern. Beryllium, chromium, manganese and aluminum need to be included in the GWMP (reference SWMP comments under item I.1, above).

Response:

PBS&J does not believe that beryllium, chromium, manganese, and aluminum should be included as constituents of concern for the purposes of groundwater monitoring. They should also not be included in the GWMP. The sampling results referenced in the FDEP comment above are surface water sampling data that does not directly impact, and should not be related to, site groundwater. This is especially true for these metals constituents because surface water sampling is subject to adverse turbidity influences that can be controlled somewhat during groundwater sampling (i.e. well filter pack, field filtration, etc.). PBS&J suspects that many of the "groundwater criteria exceedences" indicated in the data from the surface water sampling are the result of high turbidity in these samples. In addition, prior to 1996, analyzing for beryllium, chromium, manganese, and aluminum had been part of the groundwater sampling program at this site. There were no significant prior exceedences of groundwater criteria for beryllium, chromium, and manganese.

As recently as 1999, site groundwater wells had been sampled and analyzed for beryllium and chromium, with all results Below Detection Limits. Therefore, there appears to be no justification for beryllium, chromium, and manganese to be included in the GWMP. PBS&J acknowledges that there have been exceedences of the Secondary Drinking Water standard for aluminum in some monitor wells in the past. As stated in the June 1999 response from Imperial Testing Laboratories to Ms. Cindy Cathey, FDEP-Southwest District, elevated concentrations of both iron and aluminum appear to be a background condition common in many of the site monitor wells. Therefore, there does not appear to be any justification for aluminum to be included in the GWMP.

*2. **Also, FCS proposes to omit iron, TDS, sulfate and chloride from the GWMP. We have no objection to elimination of iron as it appears to be in the background wells; however, TDS, sulfate and chloride should remain in the GWMP as they act as indicators of impacts from the coal pile area and the domestic effluent discharge to Pond 5.***

Response:

Agreed. TDS, sulfate, and chloride will be included in the GWMP. As discussed above, for the same reason that it is acceptable to eliminate iron from the sampling regimen, aluminum should not be included in the GWMP. Elevated levels of iron and aluminum appear to be a background condition.

FDEP Comment III.BMP:

1. The BMP submitted was not certified by a P.E. This is required by Paragraph 9.1.(3) of the Consent Order.

Response:

An updated BMP plan certified by a State of Florida registered Professional Engineer (P.E.) will be submitted under separate cover to FDEP.

2. The BMP was not signed by the plant manager and engineer as required by Paragraph 9.1.(2) of the C.O. The document submitted includes 3 pages for the Gregg and CPL Plants to be signed by Pat Venable; however, the entire document must be executed in accordance with the CO requirements.

Response:

An updated BMP plan signed by the FCS Environmental Manager will be submitted to FDEP under separate cover.

3. Paragraph 9.1.(7) of the C.O. requires the inclusion of a dam maintenance schedule into the BMP. A copy of the inspection form should be included under Section 2.2 of the BMP. This form should include space for the inspector's observations including recommendations for any necessary maintenance activities and the date on which each recommended activity took place. The BMP should also include reference Rules 62-672.400 and 62-672.500, F.A.C.

Response:

FCS is currently in compliance with Rules 62-672.400 and 62-672.500. FCS staff conducts weekly dam and berm inspections. Inspection results are recorded on the attached Dam Inspection Form and records are stored on site. In addition an engineer registered in the State of Florida and experienced in the field of construction and maintenance of dams conducts dam and berm inspections on an annual basis. An updated BMP plan will be submitted to FDEP under separate cover, which includes a copy of the inspection form, an inspection schedule and reference to Rules 62-672.400 and 62-672.500.

4. Section 1.3.1.1 indicates that the potential constituents of concern are secondary standards. The BMP does not mention the water quality exceedances noted in the SWMP sampling results, which we also consider to be of concern.

Response:

The BMP does not mention the water quality exceedences noted in the SWMP sampling results because we do not consider these "exceedences" to be of concern. As discussed above, only groundwater quality criteria (i.e., Drinking Water Standards) were exceeded, which are not directly applicable to site surface waters. Refer to the responses to Comment I.1 and II.1 for related discussions of this issue.

*5. **Section 2.4, Waste Minimization Assessment, proposes the installation of silt fences or permanent curbs around the raw materials stockpiles in order to control the movement of fines during rain related events. Should housing of the raw material not be practicable, then installation of permanent curbs would be the preferable option. FCS should provide a description of this proposal in the SWMP along with drawings of each area to be curbed. The areas to be included were not clearly described in the BMP. We could not determine if this proposal included the areas that were the source of the water quality exceedances noted in the SWMP.***

Response:

FCS feels that housing of all raw materials would not be practicable. However, installations of permanent curbing and silt fencing BMPs have been implemented. New permanent curbing has been installed along areas of Cement Plant Road that help to keep fines within the roadway to be collected by the facility street-sweeper. Silt fences have also been added around gypsum storage areas to minimize material from entering the perimeter ditch drainage system. A description of other proposed improvements are described and included on drawings in the updated BMP plan to be submitted under separate cover to FDEP.

*6. **On page 16 of the BMP, there is a reference to the construction of speed bump style curbing around truck washing and load out areas. This construction should be detailed in the SWMP.***

Response:

Speed bump style curbing has been constructed in the truck washing area near the exit of the FCS Brooksville Facility on Cement Plant Road. The speed bump curb helps contain the wash water. The wash water generated by the truck wash is currently pumped into the Brooksville STP effluent force main. A description of other proposed improvements are described and included on drawings in the updated BMP plan to be submitted under separate cover to FDEP.

*7. **The information provided in the SWMP and site observation of handling practices should be used in the BMP as a basis for developing the specific operational measures to be taken in order to eliminate contaminants from entering the waste stream. These measures***

could include provisions for tarping the working face of raw materials piles when not in use, if contained storage is not feasible, sweeping, etc. Although the BMP adequately describes different areas to be investigated, it has not been developed sufficiently to specify necessary operational measures. The BMP Committee needs to be developed.

Response:

Specific operational measures are described in the updated BMP plan to be submitted under separate cover to FDEP. In order to facilitate the implementation, maintenance and revision of the BMP plan, a specific BMP Committee has been created to include the following members:

Pat Venable, CPL

Mike Vardeman, CSR Cement

Matt Mouncey, CSR Aggregates

James Morris, CSR Gregg Mine

Members were selected because of their familiarity with the facility and its operations, and to provide adequate structure and directions to the facility's entire site water management program. An organizational chart, description of duties and contact information are included in the updated BMP plan to be submitted under separate cover to FDEP.

If you have any questions regarding the information submitted or need additional information, please do not hesitate to contact me at (813) 282-7275, extension 520.

Sincerely,

Jack Adams

Jack Adams, P.E.
Senior Water Resources Engineer

c: Michael Vardeman (CSR)
Matt Mouncey (CSR)
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Best Management Practices Plan
Florida Crushed Stone
Brooksville, Florida
April, 2000

TABLE OF CONTENTS

Attachments

BMP's - Gregg Plant (Limestone Mining) Process Water
BMP's - Gregg Plant (Crushing, Washing, and Separation) Process Water
BMP's - CPL Plant (Surface Water Run Off / Perimeter Ditch)

1.0 INTRODUCTION

The following sections provide a discussion of the goals and objectives for the Florida Crushed Stone Best Management Practices (BMP) Program, and a brief overview of the Florida Crushed Stone (FCS) Brooksville CPL Plant/Gregg Plant & Mining Facility background and current operations.

1.1 FCS-BMP PROGRAM GOALS AND OBJECTIVES

This document is part of the implementation of the BMP Program as stipulated in the Consent Order (CO # OGC File No. 98-0093) which FCS and the Florida Department of Environmental Protection (FDEP) entered into on December of 1999. The "goals" of the CO are presented in Section 1.2 of the FCS "Site Water Management Plan" (SWMP). The goal of the FDEP and FCS is to implement a BMP program at the facility, which together with concurrent implementation of similar programs, manages the industrial discharges at the Brooksville facility to maintain water quality. FCS management is committed to the goal of the BMP Program.

The management program is a BMP Plan (BMPP) directed toward reducing identified "Constituents of Concern" at the facility, which could or do discharge to surface waters of the State. This BMPP is intended to be a management tool utilized by the facility personnel to develop, implement, and routinely review BMP's in a continuing effort to identify, control and to the extent practicable, eliminate potential pollutant discharges to the surface water or groundwater.

Summarized below are the short and long term goals of the BMPP. These goals provide specific time frames for implementation of the stated goals.

Short-term Goals:

1) Implement an effective, facility-wide Pollution Prevention classroom-training program within 3 months of Program implementation.
2) Evaluate alternative methods of controlling surface water discharges of process water within 6 months of Program implementation.
3) Evaluate perimeter ditch sample collection activities and identify potential improvements within 9 months of Program implementation.

Long-term Goals:

1) Increase awareness and enhance lines of communication relating to the BMP's and the Pollution Prevention concepts at all personnel levels within the facility.
2) Encourage constant improvement, and then prioritize and implement the most economical and practicable run-off collection enhancements that have been identified.
3) Prioritize and implement the most economical and practicable process water surface discharge alternatives identified.

4) Demonstrate measurable reductions in contaminant loads to the existing surface water features from stormwater runoff. Develop target reduction goals based on implemented management programs and track the progress.
5) Demonstrate measurable improvement trends in effluent water quality for other constituents of concern.
6) Integrate existing plans and manuals with the BMP Plan to create an effective Environmental Resource Manual.

The following section provides a brief summary of the facility background, current operations, and pollutants of concern.

1.2 FACILITY BACKGROUND AND CURRENT OPERATIONS

The FCS Brooksville Facility is a multipurpose industrial site, located in Hernando County, which contains a limestone mining, washing, and crushing facility; cement, power and lime production facilities; and various other operations. The FCS Brooksville Facility is contained on approximately 10,000 acres of land owned by FCS, which is located immediately northwest of the City of Brooksville, Florida. The active portion of the site is bounded by County Road (CR) 485 on the east, CR 491 on the west, and CR 476 on the north. Access to on-site facilities is provided by Cement Plant Road, the eastern end of which intersects CR 485 near Yontz Road and extends in a northwest direction through the center of the property, and Camp Mine Road, which parallels Cement Plant Road to the northeast. The Facility Site Plan can be viewed within Exhibit A of the *SWMP* (separate document). This plan provides an overview of the FCS Brooksville Facility and identifies the location and aerial extent of on-site operations and ground features.

The principle on-site features related to the production of limestone include the North and South Quarries (currently the only active quarries located on-site); and the Gregg Plant limestone processing facility, located near the center of the site, which crushes, washes, and separates the stone by aggregate size prior to distribution. The Cement, Power and Lime (CPL) Plant is located adjacent to Cement Plant Road, immediately southeast of the Gregg Plant, and includes three separate operations, as the name indicates. The Cement Plant uses waste limestone fines produced by the Gregg Plant and other raw materials to manufacture portland cement. Excess heat generated during the manufacture of cement is integrated with the adjacent co-generation Power Plant, which generates about 125 Mw of power that is sold to a local power company.

Other on-site operations, described within the SWMP, include the Soft Rock Plant and Dura Rock (soil cement) Plant located just east of the North Quarry, and three independent operations (Don Olson Truck Tire, Grubbs Construction Asphalt and Cliff's Septic Tanks) which lease property from FCS and are located along Camp Mine Road. On-site transportation and material handling is facilitated through a network of general use roads, haul roads, and rail lines. On-site features that dominate the landscape include a series of large settling ponds that store mine tailings that settle out from the Gregg Plant process water; cooling ponds that contain water that is continually recycled through the power plant; and active and abandoned quarries.

1.3 CONSTITUENTS OF CONCERN

Potential examples of the classification of constituents of concern are defined within this BMPP as:

- Conventional – BOD, suspended solids, pH, and oil & grease,
- Non-conventional – phosphorus, nitrogen, aluminum, iron, sulfates.
- Toxic – any substance listed in Section 307 (a) (1) or 311 of the Clean Water Act, or chemicals listed in Section 313 (c) of Superfund Amendments Reauthorization Act, or any substance (not conventional or non-conventional) for which the United States Environmental Protection Agency (EPA) has published an acute or chronic toxicity criterion.

These types of constituents can originate from processes and/or materials found at the facility that could have the potential to mix with and discharge to the surface water features such as the perimeter ditch and groundwater. Previous investigations associated with the preparation of the SWMP have evaluated these constituents and their potential to affect surface water and ground water quality features on the site.

Parameters for Evaluation of Water Quality of the Site

- Primary Drinking Water Standards
- Secondary Drinking Water Standards
- pH, TSS, TDS, and TRPH by FL PRO Method
- Turbidity, Total RCRA Metals, DAP, AL, and Fe
- Oil & Grease

Results from the above referenced SWMP evaluation indicate that very few measured parameter values actually exceeded drinking water standards. It should be noted, however, that the original FDEP Consent Order did not specify the water quality parameters to be evaluated, and drinking water standards were used for comparison purposes only.

Also, as discussed in Section 3.0 (Process Water Routing) of the SWMP, the FCS Brooksville Facility does not have an off-site discharge to what is referred to as; "Waters-of-the-State" during normal (non-emergency) conditions. Therefore, based on these observations, the FCS Brooksville Facility does not discharge a contaminant load to Waters-of-the-State that threatens public health and the environment.

Groundwater quality has been historically monitored at the FCS Brooksville Facility by Imperial Testing Laboratories (ITL) since the mid-1980's. ITL is currently preparing a revised Groundwater Monitoring Plan (GWMP) for the FCS facility. The GWMP will be used in the overall classroom educational program for the facility's operators. General information derived from the GWMP was obtained from ITL and provided herein.

Historical information collected indicates that elevated aluminum levels are a common background condition in many of the monitor wells. Although iron levels are elevated above those provided in the baseline period, elevated iron levels are a common background condition in many of the nearby monitor wells and have risen over the years. Elevated color levels, which were also observed in the monitoring wells, appears to correlate with the elevated iron levels and/or turbidity levels.

It should be noted that the only MCLs exceeded were for secondary standards for aluminum, color, and iron. Again, elevated aluminum and iron levels are a background condition common in many of the nearby monitor wells. Aluminum, iron, lead and odor MCLs were exceeded in MW-1, which had the highest aluminum, color, lead, iron, odor, and turbidity levels of all the wells sampled, although it is the farthest from any potential pollutant source. Monitoring well MW-1 had never been sampled before but was drilled in the late 1980s and was reportedly developed at the time of installation. According to FDEP, any turbidity measurement over 5 NTUs can lead to erroneously high dissolved metals content. ITL staff believes that this is the case with the elevated aluminum and iron levels throughout the site.

Given the elevated lead concentration detected at MW-1, ITL re-sampled the monitor well using low-flow quiescent sampling techniques in accordance with FDEP guidance documents. The results of the re-sample indicated that the turbidity levels were decreased, and the lead level decreased to below the MCL. The concentrations of the other elevated parameters were also decreased, but remained above their MCLs. ITL concluded that these results supported their opinion that elevated levels are related to background water quality conditions.

In addition to the constituents evaluated during the SWMP preparation, there are pollutants that could result from materials utilized at the facility that normally do not discharge to surface water features such as the perimeter ditch. These pollutants are gasoline, diesel, fuel oil, lubricants and used oil. These materials are addressed in the Facility Spill Prevention, Control and Countermeasures (SPCC) Plan and are not included in the list of constituents previously discussed. Solvents and other chemicals used at the Facility in small amounts are closely monitored, and they are handled in accordance with their respective Material Data Safety Sheet (MSDS) requirements.

The following sections describe the areas from which constituents of concern may originate within the Facility.

1.3.1 Gregg Plant

1.3.1.1 Limestone Mining

As described in detail within the text of the SWMP, the FCS Brooksville Facility contains a wide range of operations. The chief operation at the facility is the limestone mining operation along with the production of cement, electrical power, lime and soil cement. The majority of the raw products created and handled at the Brooksville Facility result from the mining operation and the limestone products created by the Gregg Plant.

Limestone has been historically mined at the Brooksville site for many decades. Currently, only the North and South Quarries are being actively mined.

In general, three vertical cross-sections exist within the limestone quarries. The top zone consists of an overburden of soils that has a thickness of approximately 5 to 60 feet. The middle zone contains limestone, also known as "hard rock", which is about 100 feet thick; and the bottom zone contains limerock, also known as "soft rock", which typically is greater than 35 feet thick. Limestone (hard rock), which produces the hard aggregate used in various construction activities, has higher commercial value than limerock (soft rock), which is used in the production of cement and soil cement. The constituents of concern that could potentially affect surface water quality from this operation are total suspended solids, total dissolved solids, pH, color, and some secondary metals.

1.3.1.2 Crushing, Washing and Separation

The limestone ore is trucked to the Gregg Plant on haul roads leading from the North and South Quarries. Upon arrival at the Gregg Plant, the ore is dumped into a large crusher that reduces boulders to a specified maximum aggregate size. Following this initial crushing operation, the material is conveyed into the center of the Gregg Plant for additional crushing and washing. Following these operations, the limestone is segregated by a range of aggregate sizes and conveyed to material storage areas located adjacent to the Gregg Plant.

Washing the ore is necessary to remove waste materials known as "tailings", which include limestone fines ($CaCO_3$), silica, and clays. Approximately 40 percent of the ore produced by the quarries is removed as waste material during the washing operation and is conveyed away from the plant in various process streams. The Gregg Plant was recently modified to include the large crusher located at the front of the plant, and a new and more efficient process train, which began operation in early 1999. These modifications have significantly reduced the volume of process water and mine tailings produced by the Gregg Plant. The constituents of concern with this operation are similar to the previously stated ones from the Gregg Plant operations (TSS, TDS, pH, color, and select secondary metals).

Trucks pick up the washed limestone at "Load Out", a series of elevated hoppers located on the west side of the Gregg Plant. Each hopper contains a designated aggregate size range that conforms to an identified Florida Department of Transportation (FDOT) specification. Minor levels of the predominant constituents of concern can be anticipated with this operation, however since there is also a significant amount of truck vehicle use associated with the "Load Out" operation, the additional constituents associated with Total Recoverable Petroleum Hydrocarbons, oil and grease may be anticipated.

1.3.2 CPL Plant

The CPL Plant has been in operation since the mid 1980s. The CPL plant allows for the beneficial use of mine tailings that were previously being discarded. In particular, tailings produced by the Gregg Plant contain large quantities of calcium and silica, which are required in the production of cement. In turn, the Cement Plant produces excess heat,

which benefits the creation of electrical power. The Lime Plant was constructed to produce a chemically pure form of lime, which is used in a wide range of manufactured products. Accordingly, the CPL Plant produces three distinct products (cement, electrical power and lime) that benefit from limestone fines produced by the Gregg Plant. In this manner, materials that would otherwise be wasted are used in the development of useful products.

1.3.2.1 Cement Plant

Raw materials used in the production of cement include limestone tailings ($CaCO_3$ and silica), limerock, fly ash, mill scale, slag, and used tires, which are heated in a kiln to produce an aggregate product known as "clinker." Clinker is then ground into a powder and gypsum is added to produce cement. Tailings used in this process are dredged from the process flow channel located west of the Gregg Plant, trucked and conveyed to the Cement Plant site, and stored in the "A" Frame covered storage area located on the north side of the facility. The "A" Frame is also used to store limerock, which is trucked from the Gregg Plant.

Uncovered material piles located on the east side of the Cement Plant contain mill scale, slag, and used tires. Fly ash, which is produced through the combustion of coal in the Power Plant, is stored on-site in silos and is used as a source of iron and aluminum. Clinker is stored in a tarped material pile on the southeast side of the Power Plant. The constituents of concern with this operation include TSS, TDS, and pH, but also recognize more specifically; iron, coal, bauxite, lime, and mill scale.

1.3.2.2 Power Plant

The Power Plant is a 125-megawatt co-generation facility utilizing a pulverized coal combustion boiler to produce electricity. The Power Plant is integrated with the Cement Plant operation by capturing thermal energy produced by the kiln that would otherwise be wasted during the manufacture of cement. In this manner, the FCS Power Plant becomes an economic source of electrical power, which is sold off-site to Florida Power Corporation (FPC).

Coal, which is used to generate heat for the Cement and Power Plants, is stored in an uncovered clay lined storage area located east of the Power Plant. The coal is delivered to the storage site by train hopper cars that travel across an overhead 300-foot long trestle. The constituents listed above have a similar concern based on the close proximity of all three of the operations that make up the CPL Plant, however the use of coal is more closely identified as a constituent associated with this operation.

1.3.2.3 Lime Plant

The Lime Plant produces a relatively pure form of lime ($CaCo_3$) that is sold for the off-site manufacture of fertilizer and acid neutralizers. The production of lime is essentially a dry process that does not generate a significant amount of process water.

Limestone fines are conveyed to the Lime Plant from stockpiles located on the south side of the Gregg Plant. The predominate constituent associated with this operation would be TSS & TDS, and pH from production related fines

1.3.2.4 Soft Rock and Dura Rock Plants

Two relatively minor operations controlled by FCS at the Brooksville Facility include the Soft Rock and Dura Rock Plants, which are located immediately east of the North Quarry. Neither plant facility produces a significant volume of process water. The Soft Rock Plant is a crushing and sizing operation that prepares limerock (soft rock) for commercial use. The Dura Rock Plant produces two soil cement products including Dura Rock, which is produced by adding cement to lime rock; and Dura Base, which is produced by adding cement to mine tailings. Dura Rock has greater strength then Dura Base. There are no significant constituents associated with this operation.

1.3.2.5 Leased Properties

FCS leases property to several independent operations at the Brooksville Facility, including Don Olsen Truck Tire, Grubbs Construction Asphalt, and Cliff's Septic Tanks. None of these operations generate a significant volume of process water. The latter two facilities have been constructed in the recent past, and have permitted on-site stormwater management facilities. Therefore, Grubbs Construction Asphalt, and Cliff's Septic Tanks were not considered as a contributor for affected run off within the Site Waste Management Plan. The Don Olsen Truck Tire facility is a relatively small operation that consists of an office trailer, an unpaved access road, and equipment used to change truck tires. A small number of new and used tires are stored on-site. Since the majority of tire changing activities actually occur on other sites, the use of chemicals and or cleaners is consider "de minimus" and not a potential impact to run off. No other industrial related run off components affect the FCS facility.

1.3.3 Storage and Shipping

Figure 1-1 within the SWMP depicts the location of the storage and shipping facilities within the facility. The dry granular product, calcium phosphate (lime), is stored in an "A" framed warehouse at the Brooksville Facility. There are two product handling stations (conveyors) at the A-framed Facility. Spillage of lime related products from the storage and shipping operations could be carried by stormwater run-off to nearby surfaces. However these surface waters are not defined as "waters of the state" and the potential for adverse impacts is minimal

1.3.4 Gasoline and Vehicular Diesel Fuel, Waste Oil Storage, Other Fuel Oil Tanks

Gasoline tanks and vehicular diesel fuel tanks are located at various locations throughout the Brooksville facility. These petroleum storage tanks are located above ground and within earthen and concrete secondary containment systems. Facility maintenance employees maintain daily inventories and product reconciliation. Due to their overall location from surface water features and the employment and use of secondary containment systems, spills or releases to waters of the state is highly unlikely. An above ground waste oil tank is located at the auto shop in a steel secondary containment. Due to its secondary containment system, a spill or release to waters of the state is protected against. Should constituents be released outside of their respective containment systems, the parameters of concern would be anticipated to be; TRPH, oil and grease.

1.3.5 Process Water Treatment System

The FCS Brooksville Facility site contains numerous surface features that define on-site topographic conditions and related stormwater flow paths, as described and illustrated within the SWMP (Exhibit A). Of particular importance are the many active and inactive limestone quarries, active and inactive settling ponds, cooling ponds, and naturally low-lying areas located throughout the site. Given these drainage features, there is no off-site discharge of land surface runoff from the developed portion of the site, which includes the plant operations described previously. The only exceptions would occur in the event of an emergency discharge of excess water from Settling Pond 7 or Cooling Pond 4, which are described in detail within the SWMP. In an emergency release the excess water would discharge in a westerly direction to a low-lying area located on FCS property on the west side of CR 491. This low-lying area does not have a surface drainage outlet. Therefore, the excess water would remain on FCS property.

2.0 OVERVIEW OF EXISTING FACILITY PERMITS, OPERATING PLANS, AND PROCEDURES

There are numerous existing documents at the Facility that address general requirements of Best Management Practices theory. The protocols and procedures addressed in these existing documents need not be duplicated here. The following summarize the existing documents available at the Facility and describe the existing protocols.

The mining and industrial operations that take place at the FCS Brooksville Facility have required FCS to obtain a series of permits issued by the FDEP and the Southwest Florida Water Management District (SWFWMD). These permits include, but are not limited to, the following:

FDEP Permits

a) Power Plant Siting Conditions of Certification (No. PA82-17)
b) Industrial Wastewater Permit (No. IO27-220264 (FLA012073))
c) City of Brooksville Sewage Treatment Plant (STP) Permit (No. DO27-195835). Treated STP effluent (0.375 mgd) is discharged to the FCS settling and cooling ponds.
d) FCS STP Permit (No. DO27-159048). Treated STP effluent (0.006 mgd) is discharged to FCS cooling ponds.
e) Waste Tire Handling Permit (No. WT27-268487). Waste tires are stored east of the Cement Plant and are fuel feed stock used in the manufacture of cement.

SWFWMD Permits

f) Management and Storage of Surface Waters (MSSW) Permit for the Modification of Cooling Ponds 4 and 5 (No. MSW 403241.00)

g) MSSW Permit for the Construction of Cooling Pond 9 (No. MSSW 4510189.00).
h) Individual Water Use Permit (No. 200215.07)

2.1 SITE WATER MANAGEMENT PLAN (SWMP)

The overall objectives of the Brooksville facility SWMP are to: (1) define routing of process and stormwater at the Facility; (2) assess the Facility's potential for causing surface or ground water pollution; and (3) propose operational or structural changes to the Facility to prevent unpermitted discharges. In addition, the SWMP includes the following site related data and information:

1. Description of the flow path and pollutant concentrations of on-site water streams.
2. Description, including site map, of proposed water quality treatment or control facilities.
3. Description of proposed operational changes.
4. Schedule for implementing the recommendations of the SWMP, including deadlines for implementing operational changes and the permitting, construction and completion of near term structural changes.

2.2 CONTAINMENT INTEGRITY FOR DAMS/BERMS

Containment integrity for dams and berms is required in order to comply with conditions specified within FCS's permits. The permit conditions require FCS to conduct dam and berm inspections on an annual basis by an engineer registered in the State of Florida and experienced in the field of construction and maintenance of dams. Results of these inspections are kept on file. FCS also takes this considerably further by performing weekly inspections of the dams and their applicable features.

The intent of these inspections is to establish a formalized procedure and an inspection record to minimize the risk of spills, releases, and discharges from settling pond and cooling pond storage features at the Facility.

2.3 EMERGENCY PROCEDURES MANUAL

The Emergency Procedures Manual provides a basic plan of action to be followed in the event of a major plant emergency, which may include the following: 1) fire, 2) explosion, 3) rupture and/or release of substances such as fuel or gasoline, 4) equipment, building, or structure failure, 5) natural causes such as hurricanes, tornadoes and severe thunderstorms, and 6) sabotage or bomb threats. The manual includes requirements and procedures for responding to sudden and non-sudden spills (petroleum spills, chemical spills, truck spills, and settling/cooling water releases).

2.4 WASTE MINIMIZATION ASSESSMENT (WMA)

A WMA was conducted as part of this BMP Program. The general requirements of the WMA are summarized below. Generally defined, waste minimization is a component of Pollution Prevention. FCS's Pollution Prevention is a management program designed to implement process improvements that include source reduction, waste minimization, and on-site recycling to the greatest extent practicable. The specific objective of the Program is to reduce or eliminate certain material(s) that are a potential source of pollution. These processes are summarized below and will be included in FCS training programs.

Source Reduction is the elimination of the source of pollution from a process by either eliminating that chemical or material that cause pollution or by substituting that material with a chemical or material that causes less pollution.

Waste Minimization is the implementation of changes that result in the conservation of materials that are the source of pollution.

On-site Recycling is the reuse of materials that are the source of pollution.

The waste reduction practices recommended in the WMA section of this BMPP include the following:

1) Evaluate materials that are purchased and used in the overall preventative maintenance system for machinery and vehicles at the Brooksville facility. This will be completed within 9 months of Program implementation.
2) Evaluate substitution of petroleum based (solvent) general-purpose cleaners with either aqueous alkaline based or citrus based cleaners. This will be completed with 9 months of Program implementation.
3) Install silt fences or permanent curbs in around the raw material stockpiles in order to control the movement of fines during rain related events.

3.0 GENERAL FACILITY OPERATING PROCEDURES

3.1 MAINTENANCE AND HOUSEKEEPING

Good housekeeping is essential to the proper maintenance of the work place and is emphasized throughout the Brooksville facility. New employees are introduced to it's importance during the "Safety and Health Orientation." This is training required for all new employees. It is also emphasized during regular safety meetings. Additionally, an annual "Environmental Training" session addresses the use of BMPs and the importance of good housekeeping. Regular schedules and assignments are developed by area supervisors to ensure safe, clean working conditions.

General housekeeping of the Gregg Plant, CPL Plant and adjacent property areas is the responsibility of the respective operations and maintenance departments. Spilled process

material on the plant roads is controlled by a continuous wetting and sweeping of the roadways.

The street sweeping run-off is then introduced to the overall processed water system for settling. These applicable flow patterns are described within the Site Water Management Plan.

3.2 RECORD KEEPING

All facility personnel have been trained in proper record keeping requirements for their specific job functions. Each of the operating areas previously summarized in the SWMP and this BMP have operational record keeping requirements for the Facility or operations addressed in the documents.

3.3 INSPECTIONS

All plant personnel have been trained to observe their surroundings during the course of their daily duties and to report anything that may contribute to releases of potentially harmful materials. The overall operating plans and permits previously summarized have an inspection component and record keeping requirements and specifically address inspection frequency.

3.4 PLANT SECURITY

All access into and out of the Facility is monitored and recorded by the Facility Security Guard. The Security Guard is responsible for insuring that all outside contractors, consultants, and regulatory personnel are appropriately logged in and recorded. In addition, the Security Guard checks any outside contractor vehicles to insure that proper documentation is provided for all materials being brought into the Facility, and that all loads are properly documented and restrained on the vehicle.

3.5 EMPLOYEE TRAINING

All new employees receive initial training by the Safety Supervisor. This training covers chemical hazards in the work areas, location of the Material Safety Data Sheet manuals, the Health and Safety Procedures Manual, Emergency Procedure Manual, lock out and tag out procedures, respiratory protection, hearing protection and Employee Right-To-Know regulations.

Employees routinely receive 40 to 50 hours of training annually covering health, safety, environmental programs and compliance, employee responsibilities, identification of environmental incidents, management and reporting of chemical and petroleum spills, waste management, dams and dikes, stormwater control. Now, in addition, the training program will now inform all personnel of the components and goals of the BMP plan. All training sessions are properly documented with the name of the trainer, the names of the participants, the date the training was performed, and the subject.

3.6 MATERIALS DATA SAFETY SHEETS (MSDS)

MSDS forms for all chemicals utilized in the Facility are maintained by the facility Safety staff. The Safety staff ensures that updated versions of the MSDSs are available in various areas of the facility. Operation manuals and protocols involving the use of chemicals specifically reference the MSDS forms. MSDS forms are available to all employees for reference prior to handling any chemical in the Facility.

4.0 BEST MANAGEMENT PRACTICES

4.1 BMP DEVELOPMENT PROCESS

The intent of the BMP development process is to solicit and obtain input from each Facility manager on development of BMPs for their areas of responsibility. The managers are also responsible for routinely reviewing and modifying the BMPs as necessary to maintain the highest level of control over possible pollutant discharges. The BMPs provided in this BMPP are not intended to replace the technical operating procedures and protocols existing in other documents for the operation of the Facility. The BMPs developed in this BMPP are intended to provide the facility managers with additional concepts to oversee, guide and monitor the general practices (Best Management Practices) within the Facility.

4.2 BEST MANAGEMENT PRACTICES COMMITTEE

A BMP Committee will be established for the Brooksville Facility to ensure that the overall program is effective, implemented, and current. The BMP Committee is the group of people that will be responsible for continuing development of the BMP Program; assisting plant management and supervision in its implementation; and assisting staff in the maintenance and revision of the BMP Plan.

The initial task of the BMP Committee shall be to perform a review of existing operational facility components and associated practices for conformance with the specific objectives of the BMP Program. In performing this review, the BMP Committee shall consider and recommend any appropriate pollution prevention measures that should be incorporated into the BMP Program and addressed in the BMPP. Initial review and BMPP adoption shall be completed six months of receipt of this BMP Plan.

The BMP Committee will be responsible for reviewing the purchasing practices and identifying toxic and hazardous materials on the property. They will also identify potential spill sources, establish incident reporting procedures, develop BMP inspection and records procedures, review spill incidents to determine and implement changes to the plan, coordinate spill incident response, cleanup and notify authorities, establish BMP training for plant personnel, aid coordination between departments in carrying out the BMP plan, and review of new construction for impact upon the BMPP.

Meetings of the BMP Committee shall be held quarterly for the first year after implementation of the BMPP and not less than annually thereafter, and at other times that management or the chairman deems appropriate.

4.3 FACILITY BEST MANAGEMENT PRACTICES (BMPs)

Debris Removal

Stormwater control and conveyance structures require frequent debris removal to maintain proper function. Litter and wastes can clog inlets, catch basins and outlets, and lead to overflows, erosion and unintended flooding. Grates on process water inlets and outlets must be cleaned on a regular basis.

Education Programs

Education programs are effective nonstructural BMPs when implemented for all employees. Employees and supervisors will adapt to new methods or use alternative materials when they are informed of workable techniques during classroom instruction.

Preventive Measures

Source controls management techniques that reduce the exposure of materials to stormwater will be given additional emphasis. Since the facility's runoff does not represent a threat to waters of the state, these BMPs are oriented toward actions that are focused on materials handling techniques.

Most measures that mitigate existing water quality conditions are preventive in nature, and these are discussed in this section. These practices use alternative maintenance procedures, education of management and technical personnel, or redesign of structures to reduce the amounts of constituents entering stormwater and accumulating on impervious areas. Preventive measures are cost-effective ways to manage stormwater runoff because they usually require no land area or construction and can be implemented quickly and economically.

Exposure Reduction

The most effective way to reduce or eliminate constituent loading in stormwater is to limit the exposure of materials to rainfall and runoff. The simplest example is the covered storage facility utilized for the lime storage. Covering this constituent of concern limits the exposure of it to rain, which helps reduce its transport to the nearby perimeter ditch. Other ideas for FCS's BMP committee to consider exposure reduction are:

- The partial or total physical enclosure of stockpiled or stored material such as lime, clinker, bauxite, and coal. Covering is most effective as part of a system of BMP's which also addresses interception of runoff prior to contact with the stockpiled material.

- Implementing rapid time management of raw materials and finished products to minimize the amount of exposed stockpiles in and around the CPL Plant. Rapid time management uses intensive scheduling to keep the time of exposure of raw materials to a minimum.

- Site cleaning or housekeeping to reduce the amount of constituents available to enter stormwater. FCS will recycle empty drums regularly and move materials containing pollutants under cover as soon as possible. Grading and seeding of old stockpile areas and bare areas will reduce erosion and improve appearance. Continue rigid preventive maintenance program of equipment will reduce leaks, breakdowns, spills and accidents.

Minimization of Pollutants

Overall, significant stormwater affects will be avoided by removing potential pollutants from the watershed, using alternative chemicals, using alternative practices, recycling or reducing the use of polluting chemicals and other materials. Brooksville facility managers are in the best position to devise alternative and innovative procedures and new techniques that avoid or reduce pollutants, and can be given guidance, incentives, and thought-provoking encouragement to do so.

4.4 OPERATIONAL CHANGES

In order to improve and maintain Best Management Practices, and to place emphasis on the future water quality impacts of the Cement and Power Plant operations, FCS proposes to produce quarterly reports on the monitoring of the Perimeter Ditch. Parameters to be monitored will be directed to those constituents that are most likely to escape from adjacent facility operations.

The parameters pH; Total Suspended Solids; Total Dissolved Solids; Total Recoverable Petroleum Hydrocarbons by FL PRO Method; Turbidity, 8 RCRA Total Metals; Aluminum; Iron; Oil and Grease will be monitored and evaluated. Quarterly monitoring of the Perimeter Ditch will begin upon approval by FDEP, and incorporation of the SWMP, GWMP and BMP Plan into the FDEP Site Certification Plan.

BEST MANAGEMENT PRACTICES
FLORIDA CRUSHED STONE MANAGEMENT PRACTICES PLAN

Initiation Date	April 5, 2000
BMP Title	Gregg Plant (Limestone Mining)Process Water
BMP Objectives	• Ensure Process Water Contained within Settling Pond System • Reduce Rainshed Area Reporting to System • Enhance Distribution of Aggregate Wash Water
Description of BMP Practices	• Routine maintenance of dikes and dams of the settling pond system. • Telemetry maintenance to monitor critical parameters of the settling pond dike/dam system. • Complete addition of new limestone crusher at the Gregg Plant and monitor efficiency of its operation. • Manage process water in accordance with Site Water Management Plan. • Maintain systems to enhance evaporation of process water. • Refer to the SWMP and the Emergency Procedure Manual in the event of a spill of process water.
Area of Applications	• Gregg Plant, Settling Pond 7 and Cooling Pond 4
BMP Limitation(s)	• May not be able to operate emergency spillway structures if rain related conditions would cause exceedences of spillway retention capacity.
Maintenance and Inspection Requirements	• Surveillance and inspection of emergency spillway systems. • During rainy conditions, ensure that overflows from the settling and cooling pond do not exceed spillway capacity. • Maintenance of telemetry communication systems.
Inspections Required	• Weekly in-house inspection of the settling/cooling pond associated dikes and earthen dams by FCS trained technicians. • Annual inspection of dikes and earthen dams by registered Professional Engineer from outside firm. • Routine monitoring of the settling and cooling pond system to ensure structural integrity of the dike/dam system. • Routine surveillance of settling pond system. • Weekly checks of alarms and levels on the monitoring systems.
Last Date BMP Updated	Initial BMP
Signatory Authority **Name** **Title** **Date**	_____ Pat Venable Environmental Manager _____

BEST MANAGEMENT PRACTICES
FLORIDA CRUSHED STONE MANAGEMENT PRACTICES PLAN

Initiation Date	April 5, 2000
BMP Title	Gregg Plant (Crushing, Washing, and Separation) Process Water
BMP Objectives	• Ensure Process Water is properly routed within the Process Water Conveyance System • Reduce Truck Wash and Load Out Effluent being sent to the Process Water System • Enhance distribution of Aggregate Wash Water
Description of BMP Practices	• Routine examination of water discharge point from rock crushing activities • Telemetry maintenance to monitor critical parameters of the New Rock Crushing operation. • Monitor efficiency of new limestone crusher at the Gregg Plant to reduce generation of process water. • Manage truck washing &"Load Out" water by placing speed bump style curbing around each applicable vehicle area to control runoff. • Refer to the SWMP and the Emergency Procedure Manual in the event of a spill of process water.
Area of Applications	• Gregg Plant Crushing, Washing, and Separation plus Truck Washing & Load Out Area
BMP Limitation	• Heavy rain may exceed curbing of truck washing & Load Out areas.
Maintenance and Inspection Requirements	• Surveillance and inspection of rock crushing/washing conveyance systems. • During rainy conditions, monitor the potential overflows from the truck washing-Load Out area to assure that it does not exceed it's retention capacity. • Maintenance of truck washing & Load Out area curbing as needed.
Inspections Required	• Weekly in-house inspection of the Gregg Plant's process water conveyance points by FCS trained technicians. • Routine monitoring of the truck washing & Load Out curbing system to ensure that structural integrity remains. • Routine surveillance of sheet flow/surface features in Gregg Plant Area to monitor for erosion.
Last Date BMP Updated	Initial/Baseline BMP
Signatory Authority **Name** **Title** **Date**	 Pat Venable Environmental Manager _____ _____

SWMP

BEST MANAGEMENT PRACTICES
FLORIDA CRUSHED STONE MANAGEMENT PRACTICES PLAN

Initiation Date	April 5, 2000
BMP Title	CPL Plant Surface Water Run Off / Perimeter Ditch
BMP Objectives	• Ensure Surface Run-off water is properly routed within the Perimeter Ditch System • Reduce potential run off from raw materials stockpiled next to the Perimeter Ditch System • Enhance run off exposures from maintenance operations by moving materials (drums, containers etc) under cover.
Description of BMP Practices	• Routine examination of water entry points along the Perimeter Ditch System. • Routine examination of maintenance activities to reduce industrial run off. • Evaluate efficiency of the installation of silt fences in and around the raw material stockpiles (lime, coal, bauxite, etc) to reduce the potential for material runoff into the Perimeter Ditch System. • Refer to the SWMP and the Emergency Procedure Manual in the event of a spill of material that could impact the water within the Perimeter Ditch.
Area of Application(s)	• Cement Plant, Power Plant, Lime Plant
BMP Limitations	• Heavy rain may wash vehicular related constituents into Perimeter Ditch System.
Maintenance and Inspection Requirements	• Surveillance and inspection of raw materials and other runoff problem areas abutting the Perimeter Ditch System. • During rainy conditions, ensure that outdoor maintenance activities are not impacted or have chemicals that could provide a runoff exposure into the Perimeter Ditch System.
Inspections Required	• Weekly in-house inspection of the CPL Plant's run off points by FCS trained technicians. • Routine monitoring of the Perimeter Ditch system to ensure that no obvious contaminations are present within the system. • Routine surveillance of sheet flow/surface features in the overall CPL Plant Area.
Last Date BMP Updated	Initial BMP
Signatory Authority **Name** **Title** **Date**	_____ Pat Venable Environmental Manager _____

TAMPA ELECTRIC

March 1, 2001

Mr. William Kutash
Program Administrator
Waste Management Division
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

Via Hand Delivery

Re: Tampa Electric Company (TEC)
F.J. Gannon Station Ash Storage Area
Fossil Fuel Combustion
Industrial By-Products
Sampling and Analysis Plan

Dear Mr. Kutash:

In a letter dated February 12, 2001, from the Florida Department of Environmental Protection, the Department requested that TEC develop a Synthetic Precipitation Leaching Procedure (SPLP) characterization sampling plan for the various waste streams generated at each of our power plants located in the Southwest District. In response to the Department's request, TEC is in the process of developing appropriate sampling and analysis plans that will characterize industrial by-products for such power plants.

From a priority standpoint, a sampling and analysis plan for the referenced facility was developed first and a copy of that plan was e-mailed to you on February 27, 2001. In addition, a hard copy of the plan is enclosed with this submittal.

This facility's sampling and analysis plan was developed first for the purpose of addressing an immediate issue associated with the construction schedule and on-going activities affiliated with the Bayside Re-powering project. As you recall, the enclosed sampling and analysis plan is a component or subset of the ash redistribution and reuse project that TEC and Florida Crushed Stone discussed with the Department during our meeting on February 23, 2001.

TEC has an immediate need to initiate partial closure of the existing ash storage area to accommodate vehicular parking and potentially use the closed section of the ash storage area as an equipment laydown area for the Bayside project. Therefore, this sampling and analysis plan is provided to the Department as requested for immediate review so we can continue to make

progress toward Department approval of the on site ash redistribution project as well as the reuse project TEC has with Florida Crushed Stone.

In summary, TEC is prepared to execute this plan immediately. Therefore, if the Department has any comments, please let me know by the close of business on March 8, 2001. Otherwise, we will implement the plan and continue to update the Department on our progress.

If you have any questions or comments regarding this information, I may be reached at (813) 641-5040.

Sincerely,

Robert E. Stafford
Administrator-Land Programs
Environmental Affairs

EP\gm\RES1485

Enclosure

c: Ms. D.A. Getzoff. FDEP - SW

TAMPA ELECTRIC

March 1, 2001

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Program Administrator
Waste Management Division
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

Via Hand Delivery

D.E.P.
MAR 0 1 2001
Southwest District Tampa

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Environmental Affairs

EP\gm\RES1485

Enclosure

c: Ms. D.A. Getzoff. FDEP - SW

COMBUSTION BY-PRODUCT SAMPLING PLAN
ASH STORAGE AREA
F.J. GANNON / BAYSIDE GENERATING STATION
TAMPA, FLORIDA

Prepared for:

TAMPA ELECTRIC
Environmental Affairs Department
6944 U.S. Highway 41
Apollo Beach, Florida 33572-9200

Prepared by:

Environmental Consulting & Technology, Inc.
5405 Cypress Center Drive
Tampa, Florida 33609
(813) 289-9338
(813) 289-9388 Facsimile

ECT No. 0010184-0101

FEBRUARY 2001

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

1.1. BACKGROUND

The Florida Department of Environmental Protection (FDEP) has requested that Tampa Electric Company (TEC) quantify the potential for certain combustion by-products to act as sources of ground water contamination. Data from published sources reviewed by the FDEP suggests that bottom ash, fly ash, and co-managed ash can produce leachate that has the potential to exceed maximum contaminant limits established for ground water resources. Given that the data reviewed by the FDEP is from nationwide sources, the Department has requested a site-specific characterization of selected combustion by-product waste streams. This sampling plan has been developed to provide a characterization of the materials in the ash disposal area.

This sampling plan has been prepared following the guidelines outlined in Chapter 9 of SW-846. As requested by the Department, this sampling plan includes a Synthetic Precipitation Leaching Procedure (SPLP), procedures for sample collection, statistical justification for the number of samples proposed for collection and analysis, a proposed analyte list, and analytical methods for analysis of the samples.

1.2. LOCATION

The site is located, as shown on Figure 1, southeast of Tampa on the east shore of the Hillsborough Bay portion of Tampa Bay. The majority of the 157-acre plant site and associated support facilities is west of U.S. Highway 41 and north of Port Sutton Road. The center of the plant is at 27°54'25" north latitude, 82°25'22" west longitude. The property outlined in Figure 1 includes parts of Sections 4 and 5, Township 30 South, Range 19 East. The property also extends about 200 feet (ft) north of the section line into Sections 32 and 33, Township 29 South, Range 19 East.

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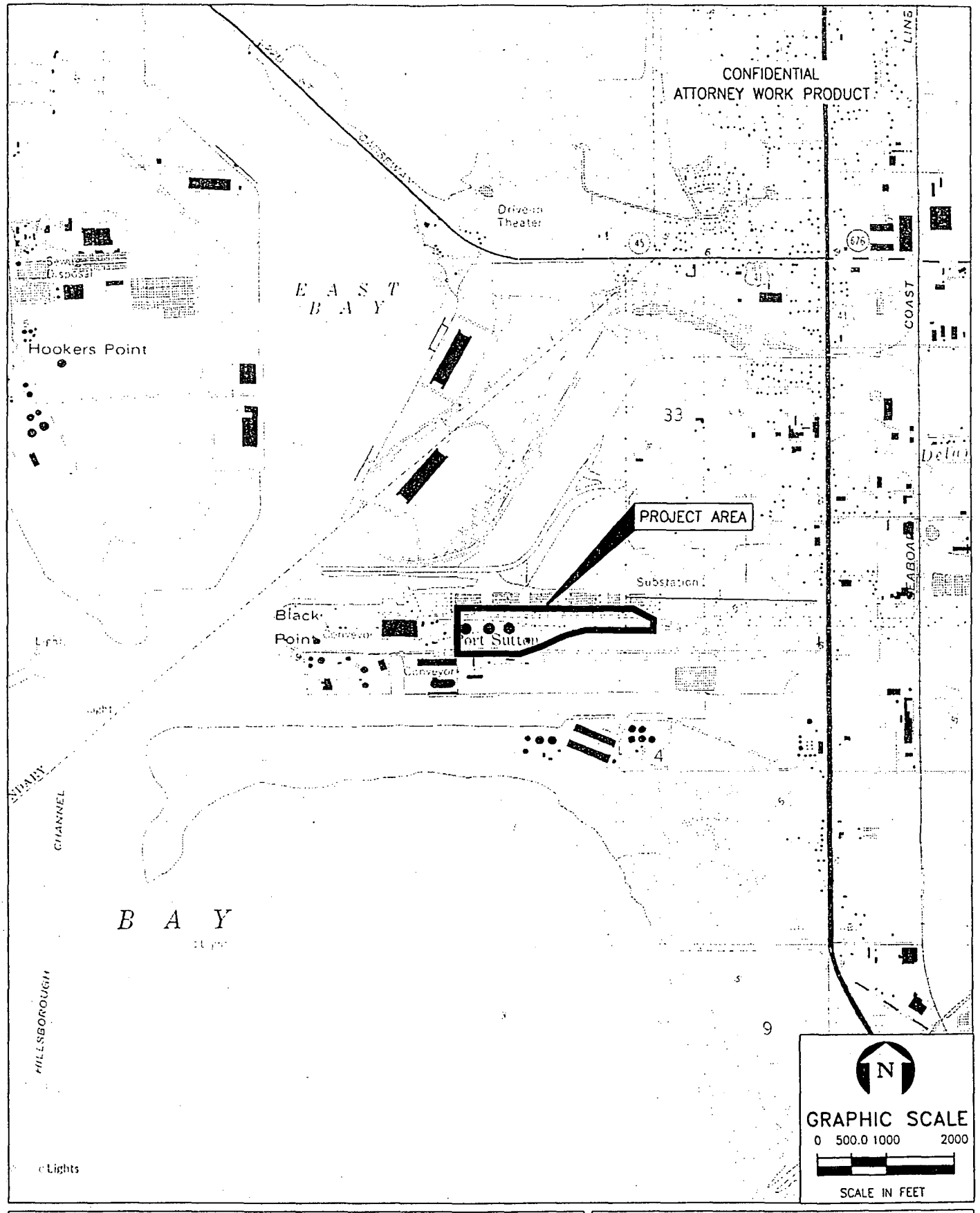

FIGURE 1.
SITE LOCATION MAP
TECO F.J. GANNON STATION
PORT SUTTON ROAD
TAMPA, FLORIDA
Sources: USGS Quad Map of Tampa, Fl., 1981; ECT, 2001.

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1.3. OBJECTIVES

The primary objective of the sampling effort proposed in this sampling plan is to generate sufficient data to characterize the materials in the ash storage area with respect to its potential to act as a source of ground water quality impacts. Specific objectives include:

- Development of an analytical procedure to characterize the potential for generation of leachate; and
- Collection of a sufficient number of samples to adequately characterize the specific media in accordance with the guidelines in SW-846.

2.0 SAMPLING PLAN

2.1. COMBUSTION BY-PRODUCT DESCRIPTION

The combustion by-product material addressed in this sampling plan is the material in the ash storage area. The ash storage area is located on the southern property line near the center of the property. Figure 2 identifies the location of the ash storage area at the F.J. Gannon station.

2.1.1. PHYSICAL STATE

Fly ash, bottom ash and slag, and coal pieces are the primary constituents that make up the materials in this area. These unconsolidated materials are predominantly black granular materials ranging in size from very fine grained to coarse grained. Of the materials observed in this area, no obvious visible signs of stratification have been documented.

Fly ash is the finer uncombusted material that is borne in the flue gas from the furnace and carried out of the boiler. Fly ash is typically collected in the economizers and air heaters or is collected by the particulate control equipment. Bottom ash is the uncombusted material that settles to the bottom of the boiler unit. The bottom ash does not melt and therefore, remains in the form of unconsolidated ash.

Boiler slag is the unconsolidated material that settles to the bottom of the boiler. Slag, unlike bottom ash, forms when operating temperatures exceed ash fusion temperature and remains in a molten state until it is drained from the boiler bottom.

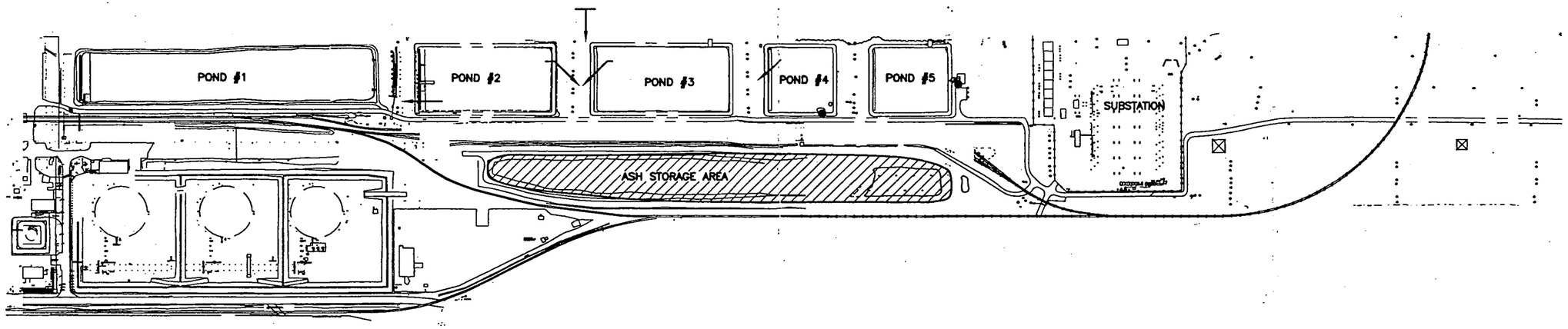

FIGURE 2.
ASH STORAGE AREA
TECO F.J. GANNON STATION
PORT SUTTON ROAD
TAMPA, FLORIDA
Sources: Tomasino & Associates, Inc., 2000; ECT, 2001.

ECT
Environmental Consulting & Technology, Inc.

2.1.2. MANAGEMENT, STORAGE, AND VOLUME

This area has been used to store channel dredgings, excess fly ash, and waste neutralization tank bottoms. The area is approximately 1,450 ft long and 120 ft wide. Approximately 12 ft of material exists within the bermed area below the top of the berm. At the eastern end of this area, this material has been mounded up. This area contains approximately 126,000 cubic yards of material.

2.1.3. CHEMICAL COMPOSITION

The characteristics of ash differ depending upon the type and content of the fuels burned. For coal-fired plants, the composition of the ash is a function of the type of coal that is burned, the extent to which the coal is prepared and burned, and the operating conditions of the boiler. While these factors vary for different plants and different types of coal, generally more than 95 percent of ash is made up of silicon, aluminum, iron, and calcium in their oxide forms, with magnesium, potassium, sodium, and titanium representing the remaining primary constituents. A variety of trace constituents with highly variable concentrations may also be contained in ash.

2.2. SAMPLING PROTOCOL

2.2.1. SAMPLING STRATEGY

Several sample collection strategies have been reviewed with respect to the collection of a representative set of samples that will be used to generate an analytical data set that accurately characterizes the parameter distribution for each parameter of concern. A modified simple random sampling strategy approach is proposed for collection of the samples. The simple random sampling strategy will be used; however, each sample will consist of a composite of subsamples.

Five composite samples are proposed for analysis. Each of these samples will consist of a composite from three borings. The materials from each boring will be retained and referred to as a sub-sample. The granular nature of the materials in the ash storage area, supports the use of a GeoProbe and macrocore sampler for collecting the samples. Each sub-sample will consist of the materials recovered in the macrocore sampler as the boring

is advanced from land surface to the bottom of the storage area. The bottom of the storage area is identified by the marine clays beneath the fly ash.

The material from each boring will be homogenized and retained. A portion of the material from each boring will be placed into laboratory-supplied containers and held at the laboratory. These samples will not be analyzed unless directed to do so. A portion of the material from each of the three borings comprising a composite sample will be placed into a stainless steel bowl and homogenized. This homogenized composite will be placed into laboratory-supplied containers and analyzed at the laboratory.

As stated previously, the five composite samples will be analyzed upon receipt at the laboratory. The samples from each of the 15 individual borings that comprise the five samples will be held. The mean and variance for each parameter from the five composite samples will be calculated and analyzed to determine whether a sufficient number of samples were collected. If the data show that not enough samples were collected and analyzed, then all fifteen sub-samples will be analyzed and the analysis repeated. Should this second analysis document that the variability is not adequately characterized, then an appropriate number of additional samples will be collected and sent to the laboratory for analysis.

2.2.2. SAMPLING PARAMETERS AND METHODS

As requested, TEC proposes to use the SPLP - Method 1312 to determine the mobility of the inorganic analytes potentially present with the by-product materials. The parameters proposed for chemical analyses are listed in Table 1 and include all of the inorganic parameters for which primary drinking water standards are established, as well as several additional parameters of concern. The proposed analytical methods are also listed in Table 1.

Table 1. Proposed Parameters for Ash Storage Area Analysis
TECO F.J. Gannon Station
Tampa, Florida

PARAMETERS
Aluminum
Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Chromium
Copper
Iron
Lead
Manganese
Mercury
Molybdenum
Nickel
Selenium
Silver
Sodium
Strontium
Thallium
Vanadium
Zinc

The samples will be analyzed by a commercial laboratory with an approved Comprehensive Quality Assurance Plan. At this time, it is anticipated that the analyses will be conducted by Environmental Conservation Laboratories at their Jacksonville laboratory.

2.2.3. SAMPLING EQUIPMENT, CONTAINERS AND CUSTODY

As stated previously, a GeoProbe will be used to collect the samples. All samples will be placed in laboratory-supplied containers properly preserved, and transported to the laboratory. All sample handling including transport to the laboratory will be conducted following Environmental Consulting & Technology, Inc.'s (ECT's) Comprehensive Quality Assurance Plan. Chain of custody will follow the sample containers beginning at the laboratory and ending at the laboratory, following all analyses and authorization from TEC to discard the remaining samples.

2.2.4. QUALITY ASSURANCE

For the purposes of quality control and assurance, two duplicate samples will be collected from the subsamples plus another duplicate from the composite. The duplicates will not be taken from the same composite sample, but rather should be made up of a second composite sample created from the same set of subsamples. One equipment blank will be collected. The equipment blank will be from a rinseate off the sampling mixing bowls and instruments.

3.0 DATA ANALYSIS AND REPORTING

3.1. COMPUTATIONAL APPROACH

This section documents the computational approach to be used to analyze the data. Selection of the methods for statistical analysis of the analytical data will be based on the distributional characteristics of the data. For data sets that approximate a normal distribution, or which can easily be normalized, the applicable statistical methods outlined in SW-846 will be utilized. However, most environmental data are not normally distributed. Many environmental data sets exhibit a log-normal distribution and many parameters typically present at low concentrations will exhibit a truncated distribution due to the effects of the limitations of the analytical equipment. For these data sets, or others that cannot be normalized, non-parametric statistical methods may be used.

Two analyses will be conducted:

- First, the data will be analyzed to evaluate whether a sufficient number of samples have been collected to adequately characterize the distributional characteristics of the parameters of concern. The method proposed for this analysis follows the procedures outlined in Chapter 9 of SW-846.

  If the calculated number of samples is greater than the number of samples analyzed, then the appropriate number of additional samples will be analyzed and this evaluation repeated. Once the data document that the appropriate number of samples have been analyzed, then the second evaluation will be conducted.

- The second evaluation will consist of calculating the means and the 95% upper confidence interval of the concentrations for each parameter and comparing them to the appropriate regulatory criteria.

3.2. REPORT

The final report will include a discussion of the following:

- Objectives of the by-product characterization study;
- Description of the sampling program;
- Summary of the chemical results and statistical evaluation;
- Comparison of the results to primary drinking water standards; and
- Conclusions regarding the likely ground water risk from the by-products.