



Hamilton
F00000655

December 20, 2010

Sent via Federal Express overnight delivery
Tracking No. 7965 7474 3827

Attention: Mr. Greg Strong, District Director
Florida Department of Environmental Protection
Northeast District Office
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7577

Re: Consent Order – FDEP vs. White Springs Agricultural Chemicals, Inc., d/b/a/ PCS
Phosphate – White Springs

Dear Mr. Strong:

At the request of Alissa Meyers, enclosed please find the original of the Consent Order which has been executed on behalf of White Springs Agricultural Chemicals, Inc., d/b/a/ PCS Phosphate – White Springs. Please forward a fully executed copy to my attention.

Very truly yours,

Karin S. Torain
An attorney for White Springs Agricultural Chemicals, Inc.,
d/b/a/ PCS Phosphate – White Springs

cc (via email w/o enclosure):

Alissa Blank Meyers —
Stan Posey —
Mike Brom
William D. Preston —
Mary Beth Deemer —
John Garlanger —

RECEIVED

DEC 21 2010

NORTHEAST DISTRICT
DEP-JACKSONVILLE

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Sposey@PCSphosphate.com

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OF FLORIDA DEPARTMENT	)	IN THE OFFICE OF THE
OF ENVIRONMENTAL PROTECTION	)	NORTHEAST DISTRICT
	)	
vs.	)	OGC FILE NO. 10-1878
	)	
WHITE SPRINGS AGRICULTURAL	)	
CHEMICALS, INC., d/b/a	)	
PCS PHOSPHATE - WHITE SPRINGS	)	
	)	

CONSENT ORDER

This Consent Order ("Order") is entered into between the State of Florida Department of Environmental Protection ("Department") and White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate - White Springs ("Respondent" or "PCS") to reach settlement of certain matters at issue between the Department and Respondent.

The Department finds and Respondent neither admits nor denies the following:

1. The Department is the administrative agency of the State of Florida having the power and duty to protect Florida's air and water resources and to administer and enforce the provisions of Chapter 403, Florida Statutes ("F.S."), and the rules promulgated and authorized in Title 62, Florida Administrative Code ("F.A.C."). The Department has jurisdiction over the matters addressed in this Order.
2. Respondent is a person within the meaning of Section 403.031(5), F.S.
3. Respondent currently operates the PCS Phosphate - White Springs facility ("Facility"), under Department Wastewater Permit No. FL0000655 ("Permit"), which expires on January 7, 2015. The Permit administratively combined two wastewater permits that had been previously issued separately for the Respondent's Swift Creek Chemical Complex (Permit Number FL0036226, as previously renewed on May 13, 2003) and Suwannee River Chemical

Complex (Permit Number FL0000655, as previously renewed on May 13, 2003). Permitted wastewater discharges from these two chemical complexes were integrated, sharing permitted surface water conveyances and outfalls, with the Respondent's mining operations that are all located within the overall boundary of the PCS Hamilton County Mine. The Permit merged the wastewater requirements for the two chemical complexes and associated mining activities into a single wastewater permit. Permit Number FL0036226 ("Previous Permit") was in effect during the activities described in paragraph 9, below. The Facility is located within the vicinity of County Road 137, White Springs, Hamilton County, Florida, at approximately, Latitude: 30° 24' 40" North and Longitude: 82° 46' 57", ("Property").

4. Respondent is the owner and is responsible for the operation of PCS Phosphate - White Springs, which mines and beneficiates phosphate rock, manufactures sulfuric and phosphoric acid, and produces fertilizer components and animal-feed supplements.

5. Respondent owns and leases portions of the Property on which the Facility is located and operated. Wastewater is generated from the processes described above along with storm water runoff, water from the clay settling areas, phosphate rock beneficiation plants, and two phosphogypsum stack systems. The Facility is authorized to discharge to surface waters and ground waters of the State of Florida ("State") only in accordance with the terms, conditions, and limitations of the Permit. The Facility is considered an "existing installation" under Chapter 62-520, F.A.C. As such, the Permit authorizes a ground water zone of discharge ("ZOD") of specific dimensions.

6. The Facility includes the Swift Creek Chemical Complex and the Suwannee River Chemical Complex:

a. The Swift Creek Chemical Complex produces sulfuric acid, phosphoric acid, and black liquid superphosphoric acid ("SPA") and additional ancillary operations (e.g., electrical cogeneration, raw material storage and handling, and product handling and shipping facilities). The Swift Creek Chemical Complex includes a phosphogypsum stack system and associated cooling pond and other process water storage or conveyance systems that occupy a

total area of approximately 670 acres. The current elevation of the Swift Creek phosphogypsum stack is 290 feet, and it is permitted to reach an elevation of 450 feet.

b. The Suwannee River Chemical Complex produces sulfuric acid, phosphoric acid, monoammonium phosphate ("MAP"), green superphosphoric acid ("SPA/LoMag"), defluorinated phosphoric acid ("DFP"), monocalcium phosphate ("MonoCal"), and di-calcium phosphate ("DiCal"). The Suwannee River Chemical Complex includes a phosphogypsum stack system and associated cooling pond and other process water storage or conveyance systems that occupy a total area of approximately 850 acres. The Suwannee River Complex includes two phosphogypsum stack systems, the Dorr-Oliver phosphogypsum stack system and the CTC phosphogypsum stack system. The CTC phosphogypsum stack system and associated process watershed areas occupy a total area of approximately 475 acres. The highest top elevations of the existing CTC phosphogypsum stack are between 244 and 268 feet and it is permitted to reach an elevation of 430 feet. The Dorr-Oliver phosphogypsum stack system currently encompasses a total process watershed area of approximately 370 acres. The current elevation of the Dorr-Oliver phosphogypsum stack is 210 feet, and it is permitted to reach an elevation of 290 feet.

7. The Permit authorizes operation for an average annual 26.9 million gallon per day ("MGD") discharge consisting of treated process wastewater, Contaminated Non-Process Wastewater ("CNPW"), sanitary wastewater, storm water, water from clay settling areas and related mining operations, phosphate beneficiation, and the phosphogypsum stack systems. Wastewater treatment includes pH adjustment and chemical precipitation when required using lime and other water treatment aids such as flocculants and shading dyes (as approved by the Department), settling/sedimentation, and adsorption/absorption on mining waste clay particles in clay settling areas.

8. Final discharge to surface waters of the State, occurs at outfalls D-001 (Swift Creek), D-002 (Hunter Creek), D-003 (Roaring Creek) and D-004 (Camp Branch) which are all class III fresh surface waters of the State.

9. On December 10, 2009, Respondent notified the Department of a sinkhole formation in the Number 3 settling compartment in the Swift Creek phosphogypsum stack system. The Respondent reported that the sinkhole resulted in a discharge to ground water of an initially estimated volume of 84 million gallons of process water. Based on a review of ground water modeling and topographic information for the Number 3 settling compartment, the quantity was subsequently revised to approximately 81.9 million gallons of process water released during the sinkhole formation (~13.9 million gallons) and subsequent collapse on December 10, 2009 (~68 million gallons). Ongoing seepage, including released process water, from the surficial aquifer to the Floridan Aquifer after the breach filled with phosphogypsum has been estimated to range from less than 15 to 20 gallons per minute.

10. On June 2, 2010, the Respondent and United States Environmental Protection Agency ("EPA") entered into an Administrative Order on Consent ("7003 Order") (attached for reference as Exhibit A) pursuant to Section 7003(a) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6973(a). Under the terms of the 7003 Order, Respondent is required to develop and implement certain plans, subject to EPA approval, for changes that are expected at Respondent's phosphogypsum stack systems.

11. The Department finds that the following violations occurred:

The December 10, 2009, sinkhole collapse resulted in a discharge to the Floridan Aquifer of approximately 82 million gallons of acidic process water.

a. The discharge to this sinkhole formation is an unauthorized discharge of wastewater to the Floridan Aquifer which is outside the Facility's permitted vertical zone of discharge in violation of Rule 62-620.300(1), F.A.C., and Section 403.088(1), F.S., which prohibits discharges to waters of the State without a permit from the Department.

b. The Department finds that the Respondent violated permit conditions I.A., I.B., and III.6, of the Previous Permit, by discharging process water at locations other than authorized by the Previous Permit which is a violation of Rules 62-4.030, and 62-620.300(5), F.A.C., that prohibits discharges and the operation and/or maintenance of the Facility in a manner that is inconsistent with the terms of the Previous Permit.

c. The Department finds that the Respondent violated the standards for ground water as a result of the untreated discharge of acidic process water to the Floridan Aquifer via the sinkhole formation which is a violation of permit condition III.8 of the Previous Permit, Rule 62-520.420, F.A.C., and Section 403.088(1), F.S.

d. The Department finds that Respondent violated Section 403.161(1)(a), F.S., which states that it shall be a violation of this chapter, and it shall be prohibited for any person: To cause pollution, except as otherwise provided in this chapter, so as to harm or injure human health or welfare, animal, plant, or aquatic life or property.

e. The Department finds that the above facts also constitute a violation of Section 403.161(1)(b), F.S., which makes it a violation to fail to comply with any rule, regulation, or permit issued by the Department.

12. The voluntary settlement discussions with the Department have resulted in this Order to resolve the violations identified above and addressed herein at the Facility. It is the Respondent's contention that neither this Order nor actions taken hereunder shall constitute an admission by the Respondent of liability for any wrongdoing regarding any of the events leading up to the signing of the Order. Accordingly, the Respondent does not admit, by signature of this Order or otherwise, that it has violated any statute or rule promulgated thereunder. The parties are entering into this Order, without a Notice of Violation having to be issued, to enable the activities described in or authorized by this Order to be implemented without resort to litigation, which could delay such implementation.

Having reached a resolution of the matter, the Department and the Respondent mutually agree and it is

ORDERED:

13. Subject to the provisions of paragraph 34 of this Order and applicable provisions of Section 120.60, F.S., Respondent shall comply with the approval procedures for the following submittals under this Order:

- i) Monitoring Revisions;
- ii) Zone of Discharge Evaluation Report;

iii) Hydrogeologic Characterization Plan; and

iv) Remedial Summary Report.

a. The Department shall provide Respondent with its written approval, approval with conditions or modifications as a contingency of approval, or disapproval for any submittal, specification, or schedule submitted for Department approval pursuant to or required by this Order.

b. Respondent shall revise any submittal, specification, or schedule in accordance with the Department's written comments within thirty (30) days of Respondent's receipt of the Department's written comments unless such comments specify an alternative due date, in which case Respondent shall submit to the Department any revised submittal, specification, or schedule in accordance with the due date specified by the Department. Revised submittals are also subject to approval, approval with conditions and/or modifications, or disapproval by the Department following these approval procedures. Any revised submittal that is not approved or is not approved with conditions and/or modifications is considered noncompliant with the terms of this Order; however, such noncompliance shall not be subject to the stipulated penalties specified under paragraph 21 of this Order.

c. Upon receipt of the Department's written approval, or approval with conditions and/or modifications, Respondent shall implement any approved work plan in accordance with the schedule and provisions contained therein.

14. Respondent shall comply with the following corrective actions within the stated time periods:

a. On December 15, 2010, Respondent submitted to the Department the proposed locations and construction plan for additional shallow and deep Floridan Aquifer monitoring wells ("Monitoring Well Plan"), attached hereto and incorporated herein as Exhibit B. These wells will be used to further define and monitor the extent of the zone of capture being induced by onsite ground water production wells at locations west and northwest of the Swift Creek phosphogypsum stack system, regionally down gradient from the Swift Creek sinkhole location and between the Swift Creek phosphogypsum stack system and the

Suwannee River. On December 17, 2010, the Department approved the Monitoring Well Plan subject to the contingencies specified therein. The Respondent shall implement the Monitoring Well Plan as approved on December 17, 2010, and as specified therein.

b. On October 6, 2010, Respondent submitted a written report to the Department, certified by a third-party engineer licensed to practice in the State of Florida (Ardaman File No. 09-13-0277B, dated October 5, 2010), identifying the expected extent and configuration of the sinkhole formation, and providing proposed grouting and stabilization activities, an implementation schedule, and other necessary activities. The implementation schedule was subsequently revised, dated December 8, 2010, and provided to the Department in a meeting on December 10, 2010. The October 5, 2010, written report and revised December 8, 2010, implementation schedule (collectively "Grouting Plan") are attached hereto and incorporated herein as Exhibit C. The Department and Respondent may modify the implementation schedule for the Grouting Plan where such changes are mutually agreed upon in writing pursuant to paragraph 32 of this Order.

c. Respondent shall take action and complete all activities to effectively grout and seal the breach in the confining unit associated with the sinkhole described in paragraph 9 of this Order in accordance with the approved Grouting Plan.

d. Respondent shall complete corrective actions in conformance with the Grouting Plan. Prior to the completion of the Grouting Plan, the Respondent shall provide the Department with preliminary completion documentation at a meeting for a joint review of the extent to which activities have effectively grouted and sealed the breach in the confining unit associated with the sinkhole described in paragraph 9 of this Order. Within 5 working days from such a joint meeting or similar review, the Department shall advise the Respondent whether or not the Department concurs that the preliminary completion documentation indicates that the work under the Grouting Plan has been effectively completed. If the Department does not concur with the preliminary documentation, the Department will specify the additional documentation that is believed necessary to determine that the work under the Grouting Plan has been effectively completed.

e. Within 5 business days of the demobilization by the grouting contractor, the Respondent shall notify the Department, in writing, of the date of completion of grouting activities and demobilization of the grouting contractor (the "Demobilization Date").

f. Respondent shall continue providing interim ground water monitoring results from Floridan Aquifer monitoring wells at the frequency and for the parameters and locations described on the Interim Monitoring Schedule, attached hereto and incorporated herein as Exhibit D, until the Monitoring Revisions required under this Order have been incorporated into the Permit. The Department and Respondent may modify the monitoring frequencies, parameters, and locations described on Exhibit D where such changes are mutually agreed upon in writing.

g. Respondent shall provide the Department with a written report summarizing the activities taken to grout and seal the sinkhole described in paragraph 9 of this Order ("Remedial Summary Report"). The Remedial Summary Report shall be prepared by a third-party engineer, licensed to practice in the State of Florida, who shall oversee the activities and shall include, at a minimum, documentation of the activities conducted, water level and water quality results associated with the sinkhole release and follow-up activities, a final determination of the quantity of process water released, as-built drawings showing the completed works, and engineering recommendations, if necessary, for future modifications or other follow-up activities to be conducted for the Facility. The Respondent shall submit the Remedial Summary Report within 60 days of the Demobilization Date.

h. Within 30 days following the Department's approval of the Remedial Summary Report, the Respondent shall submit a proposed modification to the Department for the water quality monitoring and reporting requirements under the Permit ("Monitoring Revisions"). Such proposed Monitoring Revisions shall specify those additional ground water monitoring locations, water quality parameters, and frequencies to be incorporated as part of the ground water monitoring plan requirements under the Permit. The proposed Monitoring Revisions shall provide representative long-term monitoring of ground water quality and hydrogeologic conditions related to the sinkhole collapse and subsequent remediation. Subject

to the provisions of Chapter 120, F.S., the proposed Monitoring Revisions, once approved, shall be incorporated into the Permit monitoring requirements by the Department.

i. All work performed pursuant to this Order shall be under the direct supervision of engineers or geologists, in accordance with their area of practice, licensed in the State of Florida. All reports shall have at least the seal and signature of the supervising engineer or geologist affixed to the report.

15. In addition to the corrective actions specified herein, the Respondent shall also comply with the following provisions as a condition of this Order:

a. In accordance with Rule 62-620.300(3)(a), F.A.C., the Facility, including its phosphogypsum stack systems, shall not be constructed or modified without a wastewater permit. Accordingly, the Respondent shall describe corresponding permitting requirements in each work plan and proposed schedule, to be submitted to EPA, for activities implementing the Approved Plan as described in paragraph 83 of the 7003 Order ("Approved Plan"), where such activities would modify any portion of the Respondent's phosphogypsum stack systems identified herein or create a new or expanded phosphogypsum stack system. The Respondent shall submit a copy of all work plans and schedules for implementation projects as set forth in paragraph 83.d. of the 7003 Order (herein after referred to as "PCS Workplan(s)") under the Approved Plan to the Department at the time such PCS Workplan(s) are submitted to EPA.

b. Within 150 days of EPA's approval of the Approved Plan, the Respondent shall complete and submit to the Department a report for the ZOD (the "ZOD Evaluation Report") specified by the Permit for the Facility to evaluate the predicted condition of the ground water in the surficial aquifer and the predicted effect on surface waters of the State as of the end of the fifty year long-term care period required after closure of the last of Respondent's phosphogypsum stack systems to be operated under the Approved Plan. In addition to the evaluation target time at the end of the long-term care period specified, the ZOD Evaluation Report shall describe such conditions predicted at an interim evaluation target time of twenty years from the projected closure date for the last of Respondent's phosphogypsum stack systems to be operated under the Approved Plan. The evaluation of specific surface waters

located within the existing ZOD shall take into account any wetlands or other surface waters within the horizontal extent of the existing ZOD that may be removed from the wastewater treatment system so as to no longer discharge through an NPDES permitted outfall if that removal is expected to occur prior to the 20 year or 50 year evaluation target times, when such waters would thereby become surface waters of the State. These specific surface waters to be evaluated shall also include those lakes, streams, and wetlands located within the horizontal extent of the existing ZOD as specified by the Permit for the Facility, either existing or to be created in accordance with the Conceptual Reclamation Plan applicable to the Respondent's Facility in accordance with Chapter 62C-16, F.A.C. The ZOD Evaluation Report shall assume the timing and implementation of the Approved Plan and all work or projects committed to by Respondent through actions otherwise undertaken by Respondent pursuant to the 7003 Order or other order enforceable by EPA or the Department. The ZOD Evaluation Report shall be the technical basis for evaluation of the horizontal extent of the permitted ZOD. Approval of the ZOD Evaluation Report shall not constitute modification or approval of the ZOD.

c. If necessary, based on the approval of the ZOD Evaluation Report, Respondent shall submit an application for modification of the Permit to amend the horizontal ZOD where such modification shall propose a horizontal ZOD to the extent that:

- i. a ZOD smaller than the existing ZOD specified by the Permit will afford the necessary protection to the water resources at a cost that is commensurate with the benefits to the public of such protection, and
- ii. the predicted extent of contaminant transport in the surficial aquifer from the Respondent's phosphogypsum stack systems (existing and as provided for in the Approved Plan) is not expected to impair ground waters so as to result in a violation of applicable ground water quality standards beyond the boundary of the proposed ZOD modification; and is expected to prevent exceedances of applicable surface water quality standards in specific wetlands or other surface waters which are, or may become, waters of the State. For the purposes of the ZOD Evaluation Report, applicable ground water and surface

water quality standards shall be those effective under state law at the time this Order becomes effective.

The application for a Permit modification shall also propose any associated changes to the monitoring well locations needed to establish appropriate points of compliance and intermediate ground water monitoring locations.

d. An application for a permit or modification of the Permit as described in a. or c. above shall include a demonstration, in accordance with Rule 62-673.650, F.A.C., for the feature of the phosphogypsum stack system that is proposed to continue operating without a liner (“Demonstration for Unlined Systems”), and which are not scheduled to be closed prior to December 31, 2019, pursuant to the EPA Approved Plan. Based upon the technical information in the ZOD Evaluation Report, such Demonstration of Unlined Systems shall indicate whether or not the phosphogypsum stack system, including any unlined features, is reasonably expected to cause any violation of a Department water quality standard and whether corrective measures or controls may be effectively implemented to prevent ground water violations from seepage from such system at the boundary of either the existing ZOD specified in the Permit or, to the extent more limited, the amended ZOD proposed in the application for Permit modification.

16. Where the Respondent proposes any vertical expansion on an intermediate liner system, a lateral expansion of any portion of the Facility’s existing phosphogypsum stack systems, or continued operation of a feature of an unlined phosphogypsum stack system area that is not scheduled to be closed prior to December 31, 2019, pursuant to the EPA Approved Plan, the Respondent shall complete the following requirements related to a hydrogeologic investigation of subsurface conditions related to and below the areas for any such proposal.

a. Within 30 days of EPA’s approval of a PCS Workplan that includes a vertical or lateral expansion, or that includes continued operation of a feature of a phosphogypsum stack system without a liner that is not scheduled to be closed prior to December 31, 2019, pursuant to the EPA Approved Plan; the Respondent shall submit to the Department a plan to:

i. locate potential zones of weakness, solution cavities, erosion features or other subsurface abnormalities beneath the proposed expansion or continued operation areas that may cause or contribute to a surface cover collapse (i.e., sinkhole), and

ii. evaluate the potential risk of failure beneath the proposed expansion or continued operation areas (the “Hydrogeologic Characterization Plan”).

The Hydrogeologic Characterization Plan shall include a review of historical aerials or other information, a soil boring program, and any other geophysical techniques that may be needed to provide a representative evaluation of the potential risk for subsurface collapse beneath the proposed expansion or continued operation areas within the Respondent’s phosphogypsum stack systems.

b. Where an EPA approved PCS Workplan for a respective phosphogypsum stack system includes operation of any unlined feature, the Hydrogeologic Characterization Plan shall also incorporate an additional demonstration, in accordance with Rule 62-673.650, F.A.C., for the feature of the phosphogypsum stack system that is proposed to continue operating without a liner and for which the demonstration has not been previously provided and approved pursuant to paragraph 15 or otherwise. Such an additional demonstration is not required for any unlined feature for which closing is scheduled to be completed prior to December 31, 2019, pursuant to the EPA Approved Plan.

c. The Hydrogeologic Characterization Plan shall include a timeline for implementation of the plan activities and submittal of a final report as part of the permit application associated with the PCS Workplan at issue. The final report shall include engineering recommendations based on the hydrogeologic and subsurface conditions, including any additional demonstrations as may be required in b. above, and indicate whether the areas are suitable for construction of a vertical or lateral expansion and any engineering provisions that may be required for construction of the proposed vertical or lateral expansion.

17. Every calendar quarter after the effective date of this Order until the Remedial Summary Report is approved hereunder, and continuing once per calendar year thereafter until all actions under this Order have been successfully completed, Respondent shall submit in

writing to the Department a progress summary report containing information concerning the status and progress of projects being completed under this Order, information concerning compliance or noncompliance with the terms of this Order including construction requirements and effluent limitations, and any reasons for noncompliance. These reports shall also include a projection of the work to be performed pursuant to this Order during the 12-month period which will follow the report. Respondent shall submit progress summary reports to the Department within 45 days of the end of each applicable calendar quarter or calendar year reporting period.

18. The requirements of paragraphs 14, 15, 16, and 17 may be incorporated into an EPA Administrative Order on Consent or Consent Decree, or into a Department permit. Final incorporation of such requirements into an order enforceable by the Department, or into a Department permit, shall serve to supercede and satisfy such obligation under this Order, as of the date of such final incorporation.

19. The Respondent shall be responsible for the performance of the corrective actions required herein, including oversight of such actions and any decisions made in the field by the Respondent or its representatives, to ensure such performance of work herein is consistent with the plans, work plans, or submittals approved by the Department pursuant to this Order. In any case where there are substantial deviations from the approved work plan, or where circumstances arise that is an immediate threat to health or the environment, the Respondent shall notify the Department within 24 hours of such discovery and provide a written summary of the deviations or circumstances to the Department within five business days.

20. Within 30 days of the effective date of this Order, Respondent shall pay \$25,000.00 for costs and expenses incurred by the Department during the investigation of this matter and the preparation and tracking of this Order. The Department acknowledges and confirms that the \$25,000.00 shall not be deemed to be a civil penalty.

21. Respondent agrees to pay the Department stipulated penalties in the amount of \$150.00 per day for each and every day Respondent fails to timely comply with any of the requirements of paragraphs 15, 16, and 17 of this Order unless an extension is agreed upon in

writing. Respondent agrees to pay the Department stipulated penalties in the amount of \$1,000.00 per day for each and every day Respondent fails to timely comply with any of the requirements of paragraph 14 of this Order unless an extension is agreed upon in writing. The Department may demand stipulated penalties at any time after violations occur. The Department, in its sole discretion, may waive any stipulated penalties. The decision to waive or not waive stipulated penalties shall not be subject to review under Chapter 120, Fla. Stat., by Respondent. Any such waiver with respect to any violation shall not be construed as a waiver of the Department's rights to stipulated penalties with respect to any other violation. Respondent shall pay stipulated penalties owed within 30 days of the Department's issuance of written demand for payment, and shall do so as further described in paragraphs 22 and 23, below. Nothing in this paragraph shall prevent the Department from filing suit to specifically enforce any terms of this Order. Any stipulated penalties assessed under this paragraph shall be in addition to Department costs agreed to in paragraph 20 of this Order.

22. Respondent shall make all payments required by this Order by cashier's check, corporate check, or money order. Payment instruments shall be made payable to the "Department of Environmental Protection" and shall include both the OGC number assigned to this Order and the notation "Ecosystem Management and Restoration Trust Fund."

23. Except as otherwise provided, all submittals and payments required by this Order shall be sent to:

Wastewater Section, Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590,

and with a copy of submittals other than payments sent to:

Bureau of Mining and Minerals Regulation, Department of Environmental
Protection
2051 East Dirac Drive
Tallahassee, Florida 32312-3760.

24. Respondent shall allow all authorized representatives of the Department access to the Facility and the Property at reasonable times for the purpose of determining compliance with the terms of this Order and the rules and statutes administered by the Department.

25. In the event of a sale or conveyance of the Facility or of the Property upon which the Facility is located, if all of the requirements of this Order have not been fully satisfied, Respondent shall, at least 30 days prior to the sale or conveyance of the Facility or Property, (a) notify the Department of such sale or conveyance, (b) provide the name and address of the purchaser, operator, or person(s) in control of the Facility, and (c) provide a copy of this Order with all attachments to the purchaser, operator, or person(s) in control of the Facility. The sale or conveyance of the Facility or the Property does not relieve Respondent of the obligations imposed in this Order.

26. If any event, including administrative or judicial challenges by third parties unrelated to Respondent, occurs which causes delay or the reasonable likelihood of delay in complying with the requirements of this Order, Respondent shall have the burden of proving the delay was or will be caused by circumstances beyond the reasonable control of Respondent and could not have been or cannot be overcome by Respondent's due diligence. Neither economic circumstances nor the failure of a contractor, subcontractor, materialman, or other agent (collectively referred to as "contractor") to whom responsibility for performance is delegated to meet contractually imposed deadlines shall be considered circumstances beyond the control of Respondent (unless the cause of the contractor's late performance was also beyond the contractor's control). Upon occurrence of an event causing delay, or upon becoming aware of a potential for delay, Respondent shall notify the Department by the next working day and shall, within seven calendar days notify the Department in writing of (a) the anticipated length and cause of the delay, (b) the measures taken or to be taken to prevent or minimize the delay, and (c) the timetable by which Respondent intends to implement these measures. If Respondent demonstrates and the Department agrees that the delay or anticipated delay has been or will be caused by circumstances beyond the reasonable control of Respondent, the time for performance hereunder shall be extended for a period equal to the

agreed delay resulting from such circumstances. The agreement to extend compliance must identify the provision or provisions extended, the new compliance date or dates, and the additional measures Respondent must take to avoid or minimize the delay, if any. Failure of Respondent to comply with the notice requirements of this paragraph in a timely manner constitutes a waiver of Respondent's right to request an extension of time for compliance for those circumstances.

27. The Department, for and in consideration of the complete and timely performance by Respondent of all the obligations agreed to in this Order, hereby conditionally waives its right to seek judicial imposition of damages or civil penalties for the violations described above up to the date of the filing of this Order. This waiver is conditioned upon Respondent's complete compliance with all of the terms of this Order.

28. This Order is a settlement of the Department's civil and administrative authority arising under Florida law to resolve the matters addressed herein. This Order is not a settlement of any criminal liabilities which may arise under Florida law, nor is it a settlement of any violation which may be prosecuted criminally or civilly under federal law. Entry of this Order does not relieve Respondent of the need to comply with applicable federal, state, or local laws, rules, or ordinances.

29. The Department hereby expressly reserves the right to initiate appropriate legal action to address any violations of statutes or rules administered by the Department that are not specifically resolved by this Order. In the event that the Department takes any such legal action, Respondent reserves all its rights and defenses to challenge or respond to such action as provided by applicable law.

30. Respondent is fully aware that a violation of the terms of this Order may subject Respondent to judicial imposition of damages, civil penalties up to \$10,000.00 per day per violation, and criminal penalties.

31. Respondent acknowledges and waives its right to an administrative hearing pursuant to sections 120.569 and 120.57, F.S., on the terms of this Order. Respondent also

acknowledges and waives its right to appeal the terms of this Order pursuant to section 120.68, F.S.

32. No modifications of the terms of this Order will be effective until reduced to writing, executed by both Respondent and the Department, and filed with the clerk of the Department.

33. The terms and conditions set forth in this Order may be enforced in a court of competent jurisdiction pursuant to sections 120.69 and 403.121, F.S. Failure to comply with the terms of this Order constitutes a violation of section 403.161(1)(b), F.S.

34. Unless otherwise specified herein, Respondent has the right to challenge any final agency action by the Department pursuant to Chapter 120, Florida Statutes.

35. This Consent Order is a final order of the Department pursuant to section 120.52(7), F.S., and it is final and effective on the date filed with the Clerk of the Department unless a Petition for Administrative Hearing is filed in accordance with Chapter 120, F.S. Upon the timely filing of a petition, this Consent Order will not be effective until further order of the Department.

36. Respondent shall publish the following notice in a newspaper of daily circulation in Hamilton County, Florida. The notice shall be published one time only within 15 days of the effective date of the Order. Respondent shall provide a certified copy of the published notice to the Department within 10 days of publication.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF CONSENT ORDER

The Department of Environmental Protection (“Department”) gives notice of agency action of entering into a Consent Order with White Springs Agricultural Chemical, Inc. d/b/a PCS Phosphate – White Springs (“PCS”) pursuant to section 120.57(4), Florida Statutes. The Consent Order addresses the unauthorized discharge of process water from fertilizer manufacturing activities at PCS via a sinkhole formation to ground waters of the State. The Consent Order requires PCS to complete remedial activities to seal the sinkhole opening, and to provide long-term monitoring and related follow-up activities to address the unauthorized

discharge of process water. The Consent Order is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department of Environmental Protection, Department Of Environmental Protection, Northeast District, 7825 Baymeadows Way Suite B200, Jacksonville, Florida.

Persons who are not parties to this Consent Order, but whose substantial interests are affected by it, have a right to petition for an administrative hearing under sections 120.569 and 120.57, Florida Statutes. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition concerning this Consent Order means that the Department's final action may be different from the position it has taken in the Consent Order.

The petition for administrative hearing must contain all of the following information:

- a) The OGC Number assigned to this Consent Order;
- b) The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding;
- c) An explanation of how the petitioner's substantial interests will be affected by the Consent Order;
- d) A statement of when and how the petitioner received notice of the Consent Order;
- e) Either a statement of all material facts disputed by the petitioner or a statement that the petitioner does not dispute any material facts;
- f) A statement of the specific facts the petitioner contends warrant reversal or modification of the Consent Order;
- g) A statement of the rules or statutes the petitioner contends require reversal or modification of the Consent Order; and
- h) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Consent Order.

The petition must be filed (received) at the Department's Office of General Counsel, 3900 Commonwealth Boulevard, MS# 35, Tallahassee, Florida 32399-3000 within 21 days of receipt of this notice. A copy of the petition must also be mailed at the time of filing to the District Office at Department Of Environmental Protection, Northeast District, 7825 Baymeadows Way Suite B200, Jacksonville, Florida 32256-7590.

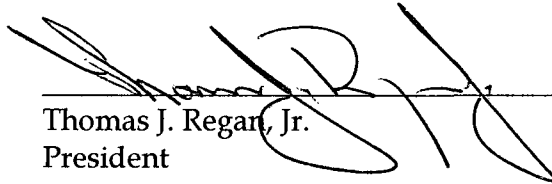
Failure to file a petition within the 21-day period constitutes a person's waiver of the right to request an administrative hearing and to participate as a party to this proceeding under sections 120.569 and 120.57, Florida Statutes. Before the deadline for filing a petition, a person whose substantial interests are affected by this Consent Order may choose to pursue mediation as an alternative remedy under section 120.573, Florida Statutes. Choosing mediation will not adversely affect such person's right to request an administrative hearing if mediation does not result in a settlement. Additional information about mediation is provided in section 120.573, Florida Statutes and Rule 62-110.106(12), Florida Administrative Code.

37. The Respondent may notify the Department of its good faith belief that its obligations under this Consent Order, have been fully satisfied. Upon such notification, the Department shall determine whether the Consent Order has been fully satisfied. If the Department concurs that the Consent Order has been fully satisfied, it will notify the Respondent in writing and close the enforcement file opened in this case. If the Department does not concur, the Department reserves the right to enforce the terms of the Consent Order or to take whatever other actions it deems appropriate.

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38. Rules referenced in this Order are available at
<http://www.dep.state.fl.us/legal/Rules/rulelistnum.htm>.

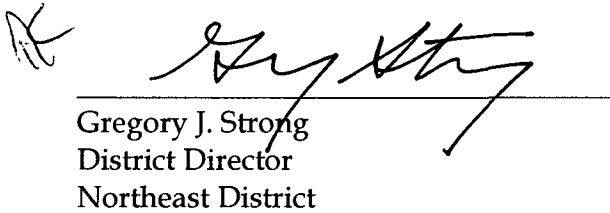
FOR THE RESPONDENT:
White Springs Agricultural Chemicals, Inc., d/b/a/ PCS
Phosphate - White Springs


Thomas J. Regan, Jr.
President

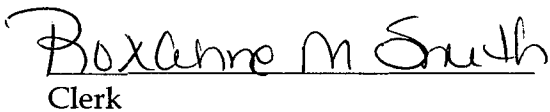
12/18/10
Date

DONE AND ORDERED this 21st day of DECEMBER, 2010, in Duval County, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


Gregory J. Strong
District Director
Northeast District

Filed, on this date, pursuant to section 120.52, F.S., with the designated Department Clerk,
receipt of which is hereby acknowledged.


Clerk

12-21-10
Date

DEP vs. PCS Phosphate - White Springs
Consent Order, OGC No. 10-1878
Page 21

Copies furnished to:

Lea Crandall, Agency Clerk
Mail Station 35

Exhibit A

June 2, 2010, 7003 Order



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 2 2010

Thomas J. Regan, Jr.
President
White Springs Agricultural Chemicals, Inc.
c/o Karin S. Torain, Esq.
Senior Counsel
PCS Administration (USA), Inc.
1101 Skokie Boulevard
Suite 400
Northbrook, IL 60062

SUBJECT: Administrative Order on Consent Pursuant to Section 7003(a) of RCRA
Docket No. RCRA-04-2010-4250
EPA I.D. Nos.: FLD 098 372 360 (Suwannee River Complex)
FLD 000 622 548 (Swift Creek Complex)

Dear Mr. Regan:

Enclosed is the Administrative Order on Consent (Order) entered into by White Springs Agricultural Chemicals, Inc., d/b/a PCS Phosphate – White Springs (PCS), located in White Springs, Florida, and the United States Environmental Protection Agency (EPA), Region 4. This Order became effective on the date of signature by the RCRA Division Director. EPA received no request for a public hearing in this matter. EPA has enclosed comments received during the public comment period for the Order, which occurred from May 3, 2010 to May 20, 2010, as well as EPA's responses to those comments. A copy of the Order and the public comments and EPA's responses will be sent to each commenter.

We appreciate PCS's efforts to negotiate this Order with EPA. If you have any questions, please call Joan Redleaf Durbin, Senior Attorney, at (404) 562-9544.

Sincerely,

G. Alan Farmer, Director
RCRA Division

Enclosures (2):

1. Executed RCRA Section 7003 Order
2. Public comments and EPA responses

cc: Mary Beth Deemer, Jones Day
Tim Bahr, FDEP
Ashwin Patel, FDEP
John Coates, FDEP

Internet Address (URL) • <http://www.epa.gov>

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Enclosure 1

PCS 7003 Administrative Order on Consent

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 4

IN THE MATTER OF: White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate - White Springs Suwannee River Complex State Road 137 White Springs, Florida 32096 EPA ID No. FLD 098 372 360 White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate - White Springs Swift Creek Complex US Highway 41 N White Springs, Florida 32096 EPA ID No. FLD 000 622 548	DOCKET NO. RCRA-04-2010-4250 PROCEEDING UNDER SECTION 7003(a) OF THE RESOURCE CONSERVATION AND RECOVERY ACT, 42 U.S.C. § 6973(a)
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ADMINISTRATIVE ORDER ON CONSENT

I. INTRODUCTION

1. This is an administrative action instituted pursuant to Section 7003(a) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6973(a). This Administrative Order on Consent (Order) is entered into by the United States Environmental Protection Agency (EPA), and White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate - White Springs (PCS or Respondent), a Delaware corporation doing business in the State of Florida. This Order provides for the management of PCS's three phosphogypsum stack systems (PGSSs) to mitigate the long-term risk to human health and the environment in the event of the formation and/or collapse of additional sinkholes as described in Section VII (Order), including any Additional Work that may be required by Section XII of this Order, by Respondent in connection with the facilities located at State Road 137, White Springs, Florida 32096 (Suwannee River Complex), and US Highway 41 N. White Springs, Florida 32096 (Swift Creek Complex). Together, these facilities will be referred to as the "Facilities." Respondent shall finance and perform the work in accordance with the plans, standards, specifications and schedules set forth in this Order or developed by Respondent and approved by EPA pursuant to this Order.

2. EPA has determined that Respondent has contributed or is contributing to the past or present handling, storage, treatment, transportation or disposal of "solid waste and hazardous waste," or constituents of such waste that may present an imminent and substantial endangerment to health or the environment. Specifically, on December 10, 2009, a sinkhole

formed in the Swift Creek Phosphogypsum Stack ("Gypstack") inside Cell #3. According to Respondent's initial calculation, 84 million gallons of process wastewater (pH less than 2 standard units (su)) and solid phosphogypsum were discharged into the Floridan aquifer. Based on data provided by Respondent, EPA has accepted Respondent's assertion that approximately 68 million gallons of process wastewater were discharged through this sinkhole at the time of the collapse.¹ In the course of investigating this sinkhole, EPA identified an additional 22 closed circular depressions within the three separate unlined PGSSs that EPA has determined may be indicative of sinkhole features. As a result, EPA has significant concerns regarding future contamination of the Floridan aquifer. As noted below, in Paragraph 47, the Floridan aquifer is the primary source of drinking water in the local area, the State of Florida and South Georgia. In addition, given the occurrence of the recent sinkhole formations, EPA contends the risk to human health or the environment is further exacerbated by the continued increase in elevation of all three PGSSs to permitted levels, thereby increasing the volume of phosphogypsum and associated porewater that could be released in the event of a future sinkhole formation and/or collapse ('formation/collapse').

3. Respondent's participation in this Order shall not constitute or be construed as an admission of liability. Respondent neither admits nor denies the factual allegations (Section V) and legal conclusions (Section VI) set forth in the Order. The issuance of this Order does not bind EPA to the factual allegations (Section V) set forth in this Order.

4. EPA and Respondent acknowledge that this Order has been negotiated by the parties in good faith and that this Order is fair, reasonable, and in the public interest. Respondent participated in negotiation and agrees to perform, in good faith, those duties set forth in Section VII (Order).

5. Pursuant to Section 7003(a) of RCRA, 42 U.S.C. § 6973(a), EPA has notified the State of Florida of this action.

6. This Order is based upon the Administrative Record compiled by EPA and incorporated herein by reference. The record is available for review at EPA's regional office at 61 Forsyth Street, SW, Atlanta, Georgia 30303. To review the Administrative Record, contact Bethany Russell, South Section, RCRA and OPA Enforcement and Compliance Branch, EPA Region 4, at (404) 562-8542.

II. JURISDICTION

7. This Order is issued to protect public health and/or the environment pursuant to Section 7003 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act ("RCRA"), and further amended by the Hazardous and Solid Waste Amendments of 1984 ("HSWA"), 42 U.S.C. § 6973. Section 7003(a) of RCRA authorizes the Administrator of the EPA to issue an Order whenever the Administrator receives evidence that the past or

¹ Based on PCS's data, it is likely another 13.9 million gallons were released through seepage between the time the sinkhole formed and the cell collapsed. In addition, there will be approximately another 12 million gallons released through seepage from the time the cell collapsed, until the sinkhole is grouted.

present handling, storage, treatment, transportation, or disposal of any solid waste or hazardous waste may present an imminent and substantial endangerment to human health or the environment. The authority to issue this Order has been delegated by the Administrator of EPA to the Regional Administrator, EPA Region 4, by EPA Delegation Nos. 8-22-A and 8-22-C, dated May 11, 1994, and No. 8-23, dated March 6, 1986, and further delegated to the Director, RCRA Division by EPA Regional Delegation No. 8-22-C, dated November 19, 1993, and Nos. 8-22-A and 8-23, TN 67.

8. This Order is issued to PCS, present generator and present operator and owner of the Facilities located in Hamilton County, FL. Respondent agrees to undertake and complete all actions required of it by the terms and conditions of this Order. In any action by EPA and the United States to enforce the terms of this Order, Respondent consents to and agrees not to contest the authority or jurisdiction of the RCRA Division Director to issue or enforce this Order, and agrees not to contest the validity of the Order or its terms and conditions.

III. PARTIES BOUND

9. The provisions of this Order shall apply to and be binding upon Respondent and its officers, employees, agents, successors, and assigns, and shall apply whether or not Respondent's activities in connection with the Facilities have occurred while doing business by any other name, including, but not limited to, White Springs Agricultural Chemicals or PCS Phosphate. Notice of this Order shall be given to any successors in interest prior to transfer of the Facilities or their operations. Action or inaction of any persons, firms, contractors, employees, agents, or corporations acting under, through, or for Respondent shall not excuse any failure of Respondent to fully perform the obligations under this Order.

10. Respondent shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants retained to conduct or monitor any portion of the work performed pursuant to this Order within seven (7) calendar days of the effective date of this Order, or on the date of such retention, and Respondent shall condition all such contracts on compliance with the terms of this Order.

11. Respondent shall give notice to EPA at least thirty (30) calendar days prior to transfer of ownership or operation of the Facilities.

IV. STATEMENT OF PURPOSE

12. The two-fold purpose of this Order is to: (1) require Respondent to develop and implement a plan acceptable to EPA to mitigate the risks posed by the past or present handling, storage, treatment, transportation, or disposal of any solid and/or hazardous waste that may present an imminent and substantial endangerment to human health and/or the environment; and (2) to ensure that the actions contained in the plan and deemed necessary by EPA are designed and implemented to protect human health and/or the environment now and in the future.

13. As described in detail in Section VII (Order), this Order requires Respondent to develop and implement a plan which is acceptable to EPA and which is designed to significantly limit exposure of the formations comprising the Floridan aquifer underlying the PGSSs to contamination by process wastewater. The goals of the plan required by the Order are to mitigate the long-term risk posed by sinkhole formation/collapse by reducing seepage through the PGSSs, reduce the volume of water available for loss to the Floridan aquifer in the event of another sinkhole formation/collapse, and minimize process wastewater loss in event of sinkhole formation/collapse within the cooling pond system.

V. FINDINGS OF FACT

14. Respondent employs approximately 708 personnel at its mining and chemical plant operations in White Springs, Florida. PCS's generator status notifications to the Florida Department of Environmental Protection (FDEP) identify the Swift Creek and Suwannee River Facilities as small quantity generators of hazardous waste in the State of Florida.

15. Both Facilities and Respondent's mining operations are encompassed by a zone of discharge that extends vertically to the bottom of the Hawthorn confining unit that overlays the Floridan aquifer and horizontally over approximately 32,500 acres of Respondent's property.

16. A zone of discharge is a predefined three-dimensional area underlying or surrounding a site and extending to the base of a specifically designated aquifer or aquifers, within which there is an opportunity for the treatment, mixture or dispersion of discharged wastes.

17. The zone of discharge is permitted by industrial wastewater permit no. FL 0000655.

18. A lined PGSS is a system that is underlain by a continuous layer of low permeability synthetic materials and either clay or compacted phosphogypsum that control the vertical and lateral release of waste constituents or leachate from the system. An unlined PGSS is a system that has no underlay of low permeability synthetic materials to control the vertical and lateral release of waste constituents or leachate from the system.

PCS Swift Creek Complex

19. Respondent's Swift Creek Complex's operations include the production of sulfuric acid, phosphoric acid, and black liquid superphosphoric acid (SPA). Additional operations include a PGSS, electrical cogeneration, raw material storage and handling, and product handling and shipping facilities.

20. To produce sulfuric acid, PCS burns molten sulfur to produce sulfur dioxide. The process to produce sulfuric acid is a double absorption process which uses a catalyst and absorption towers. The resultant sulfuric acid is stored as 98% acid.

21. Phosphoric acid is produced using the hemi-hydrate process by digesting phosphate rock with sulfuric acid. The reaction yields dilute phosphoric acid and a hemi-hydrate calcium sulfate that converts to gypsum in a hydration tank. The reaction mixture is filtered to separate gypsum

crystals and other solids from the dilute phosphoric acid. The filtrate, dilute phosphoric acid, is concentrated by evaporation. The filtered solids are referred to as phosphogypsum. The phosphogypsum crystals separated from the reaction mixture are slurried with process wastewater and pumped to the Swift Creek Phosphogypsum Stack ("Swift Creek Gypstack").

22. Process wastewaters generated from the Swift Creek Complex's production of phosphoric acid and SPA contain residual phosphoric acid and are therefore corrosive with a pH of less than 2 and are ultimately discharged to unlined earthen ditches and ponds that are components of the Swift Creek Complex's cooling pond system where the process wastewaters commingle with stormwater and decant (drainage) water from the Swift Creek Gypstack.

23. Together, the Swift Creek Gypstack and its associated cooling pond system make up the Swift Creek Complex's PGSS. The Swift Creek PGSS occupies a total area of approximately 670 acres. The current elevation of the Swift Creek Gypstack is 290 feet, and it is permitted to reach an elevation of 450 feet. The Swift Creek Gypstack accounts for 450 of the 670 acres and is unlined. The associated cooling pond system is unlined and consists of above-grade and below-grade cooling ponds and a return water ditch. To reduce seepage impact from the unlined cooling pond system, Respondent relies on variable natural clay deposits and water level control features. The natural ground surface elevation adjacent to the Swift Creek PGSS varies between 139 feet and 144 feet.

24. The below-grade portion of the cooling pond system includes 75 acres of primary and secondary water treatment ponds or retention ponds that are located immediately north of the phosphogypsum stack and west of the above-grade cooling pond.

25. An above-grade cooling pond of about 120 acres lies northwest of the Swift Creek Complex's chemical plant and gypstack. Construction of the 120-acre above-grade cooling pond began in December 1978 and was completed in October 1979. The minimum crest elevation of the dikes comprising this pond is 158 feet and the maximum design fluid level is 153 feet.

26. The Swift Creek Stack is partially surrounded by a perimeter hydraulic ditch on the north, east, south and southwest sides that provides pressure relief and collection of process wastewater seepage.

27. Data provided by Respondent identifies seven process wastewater storage areas within the Swift Creek PGSS. There are six storage compartments on top of the gypstack: Cells # 1, #2, #3, #4, North Stack Cell, and South Stack Cell. The above-grade cooling pond and the A Canal store process wastewater at the base of the Swift Creek Stack. See Figure 1.

PCS Suwannee River Complex

28. Respondent's Suwannee River Complex's chemical manufacturing operations currently include the production of sulfuric acid, phosphoric acid, monoammonium phosphate (MAP), and green superphosphoric acid (SPA/LoMag). Additional operations include, but are not limited to, two PGSSs, electric cogeneration, raw material storage and handling, wastewater storage and handling, and product handling and shipping.

29. The Suwannee River Complex produces phosphoric acid also using the hemihydrate process. Phosphoric acid is manufactured using the same basic process as that used at the Swift Creek Complex. The gypsum crystals separated from the reaction mixture are slurried with process wastewater and pumped to one of two gypstacks: the Dorr-Oliver Gypstack or the CTC Gypstack.

30. Process wastewaters generated from the Suwannee River Complex's production of phosphoric acid and other products listed in Paragraph 28 contain residual phosphoric acid and are therefore corrosive with a pH of less than 2. These process wastewaters are ultimately discharged to unlined earthen ditches and ponds that are components of the CTC and Dorr-Oliver Gypstacks' cooling pond systems.

31. The CTC Gypstack is located in the northwest corner of the Suwannee River Complex, immediately west and northwest of the chemical plant. The CTC Gypstack is surrounded by a perimeter process wastewater cooling pond system (CTC cooling pond) that includes above- and below-grade components. The CTC cooling pond is on the north, west, and south sides of the CTC Gypstack and has an operational water level that is above the adjacent natural ground surface elevation; the portion of the pond located east of the CTC Gypstack and immediately west of the chemical plant is a below-grade pond. A spillway near the southwest corner of the CTC cooling pond controls the water level in the above-grade pond. According to Respondent, the operating water level in the below-grade pond is maintained below the surrounding natural ground surface.

32. The CTC PGSS is unlined and was placed in operation in 1975 and currently encompasses a total base area of approximately 475 acres, of which 375 acres is occupied by the CTC Gypstack. The highest top elevations of the existing PGSS are between 244 and 268 feet and it is permitted to reach an elevation of 430 feet. The natural ground surface elevation adjacent to the CTC PGSS varies between 125 feet and 130 feet.

33. Data provided by Respondent identifies six process wastewater storage areas atop the CTC Gypstack. The six storage compartments on top of the gypstack are identified as Cells # 2, #2 North, #2 South, #3, #4, #5, and #6. The above-grade and below-grade cooling ponds store process wastewater circling the base of the CTC Gypstack. See Figure 2. To reduce seepage impact from the CTC PGSS, Respondent relies on variable natural clay deposits and water level control features.

34. The Dorr-Oliver PGSS is unlined and was the original phosphogypsum storage area for the Suwannee River Complex and currently encompasses a total area of approximately 370 acres, including approximately 95 acres for the above-grade cooling pond, 200 acres for the gypstack and return water ditches, and approximately 60 acres for the surge pond located immediately southwest of the gypstack. The current elevation of the Dorr-Oliver PGSS is 210 feet, and it is permitted to reach an elevation of 290 feet. To reduce seepage impact from the Dorr-Oliver PGSS, Respondent relies on variable natural clay deposits and water level control

features. The natural ground surface elevation adjacent to the Dorr Oliver PGSS varies from 120 feet to 125 feet.

35. The Dorr-Oliver cooling pond is located southwest of the Dorr-Oliver Gypstack. The perimeter dike has a dike crest elevation of 136 feet and, according to Respondent, is operated with a design freeboard of not less than 4 feet. Process wastewater is pumped into the cooling pond and discharged through a weir board spillway into the Dorr-Oliver surge pond. In 1989, the perimeter dike of the surge pond was raised to a crest elevation of 145 feet.

36. A spillway structure located near the northwest corner of the surge pond discharges process wastewater into a perimeter return water ditch that parallels the west wall of the Dorr-Oliver Gypstack.

37. Two lime sludge dredge ponds are located on top of hydraulically-placed tailings deposits from mining operations used to reinforce the south wall dike of the Dorr-Oliver surge pond. These elevated ponds were previously used to settle lime sludge sediments dredged from two below-grade lime treatment ponds located on the west side of the Dorr-Oliver surge pond. Those settling ponds are no longer active.

38. Data provided by Respondent identifies four process wastewater storage areas atop the Dorr-Oliver Gypstack. The four storage compartments on top of the gypstack are identified as Cell # 1 East, #1 West, #1 Center and #3. The above-grade and below-grade cooling ponds store process wastewater circling the base of the Dorr-Oliver Gypstack. See Figure 3. Phosphogypsum that meets EPA's standards for agricultural use is sold from the Dorr-Oliver gypstack.

Brief Regulatory History of Phosphogypsum Stack Systems in Florida

39. In January 1993, Florida's Environmental Regulation Commission adopted Rules governing the construction, operation, closure, and post-closure of Phosphogypsum Stack Systems, which rules are now promulgated under Chapter 62-673, Florida Administrative Code (F.A.C.), Phosphogypsum Management.

40. Among other requirements, the Rules prohibited disposal of phosphogypsum and process wastewater in unlined stack systems after March 25, 2001. Under the Rules, an exemption from the mandatory closure provision could be granted if the owner of the PGSS could demonstrate that the PGSS was either not causing violations of water quality standards beyond its permitted zone of discharge prior to March 25, 1993 and was not expected to cause violations after that date, or the owner implemented corrective measures to remediate any existing contamination where such measures would result in compliance with all water quality standards by March 25, 2001.

PCS's Demonstration

41. In 1996, on behalf of PCS, Ardaman & Associates submitted a demonstration to the FDEP, seeking an exemption from the lining requirements for unlined phosphogypsum stack systems. On October 16, 1996, FDEP followed up with a Supplemental Information Request

requesting clarification and additional documentation from Respondent to support Respondent's demonstration.

42. Ardaman & Associates prepared the response to FDEP's request on behalf of PCS. In a letter dated May 21, 1998, from Ardaman & Associates to PCS, Ardaman stated that "[t]his submittal has been prepared to support PCS Phosphate's phosphogypsum stack systems exemption request [from lining requirements]. The request for exemption is made under 'Scenario A' of the Rule...[t]hat the phosphogypsum stack system is not causing and is not reasonably expected to cause a violation of water quality beyond its permitted Zone of Discharge." Ardaman partially based this exemption request on a conclusion that "[t]he potential for sinkhole development at the two complexes is extremely low."

Environmental Background

43. On September 10, 2008, EPA and Respondent entered into a consent agreement issued pursuant to Section 3013 of RCRA (Section 3013 Order). This Section 3013 Order requires Respondent to monitor and/or sample groundwater, soil, sediment and surface waters to determine any environmental impacts from its operations.

44. According to a Sampling and Analysis Report by Ardaman & Associates submitted to EPA and FDEP on behalf of Respondent pursuant to its Section 3013 Order, the major watersheds in Hamilton County are the Swift, Roaring, Hunter, and Rocky Creeks. These watersheds drain to the Suwannee River. The Swift Creek Complex is located in the headwaters of the Swift Creek watershed, while the Suwannee River Complex is located in the headwaters of the Hunter and Swift Creek watersheds.

45. The groundwater underlying the Facilities consists of the surficial aquifer and the Floridan aquifer.

46. The surficial aquifer is not used as a drinking water source within the 32,500 acre ZOD, but is used for some private well drinking sources within a 2 mile radius off-site.

47. The Floridan aquifer is the primary source of drinking water in the local area, the State of Florida and South Georgia. The Floridan aquifer supplies freshwater to wells at depths of up to 1,000 feet below ground surface.

Sinkhole Formation

48. While most of Florida is prone to sinkhole formation due to its underlying thick, solution-weathered carbonate deposits, the formation and/or collapse of sinkholes may be accelerated by the existence of a phosphogypsum stack system, thereby increasing susceptibility of the aquifer to contamination from process wastewater/surface water infiltration.

49. At least two factors that increase or accelerate the risk of sinkhole formation/collapse within the PGSSs include: (1) the lack of an engineered physical barrier coupled with the lack of

a fully intact confining layer at the PGSSs, and (2) the increased hydraulic head in the surficial aquifer beneath an unlined stack that increases the hydraulic gradient between the surficial aquifer and the underlying Floridan aquifer.

50. In May 2007, a sinkhole formed on the northwest side of the CTC Gypstack, releasing at least 2 million gallons of process wastewater entrained with phosphogypsum into the Floridan aquifer. Respondent contends that no impacts were noted within the Floridan aquifer, however, EPA asserts that the monitoring well network at that time was insufficient to characterize, adequately quantify, or fully detect existing impacts to the Floridan aquifer.

51. Prior to an April 2009, meeting with Respondent, EPA requested that Respondent identify contingency plans for process wastewater releases from possible cell collapses for all three PGSSs. EPA stated that these collapses could occur as a result of sinkhole activity.

52. During the meeting among EPA, FDEP, and Respondent on April 21-22, 2009, EPA, in conjunction with FDEP, informed Respondent that the 1998 demonstration to FDEP did not present an accurate risk of sinkhole formation/collapse, and that the sinkhole formation/collapse risk at both Facilities was much higher than that calculated by Respondent. As a result of these determinations, EPA requested that Respondent strongly consider synthetic lining of its Swift Creek Gypstack, and synthetic lining or permanent closure of all or portions of its Dorr-Oliver and/or CTC Gypstacks.

53. During the April 21-22, 2009, meeting, in response to EPA's request for contingency plans for process wastewater releases, Respondent provided data indicating that process wastewater releases from all three PGSSs might not be contained by the available nearby storage volume of the potential receiving bodies. Of the 27 potential wastewater release scenarios evaluated, at least ten scenarios involved the release of significant volumes of process wastewater from the PGSS to the surrounding plant area, public highway or railroad. In addition, Respondent did not provide data regarding the potential for a cascading failure scenario, where collapse of a particular wastewater holding area could be linked to the collapse of other receiving cells.

54. On December 10, 2009, a sinkhole collapsed in the Swift Creek Gypstack inside Cell #3, releasing approximately 68 million gallons of process wastewater and phosphogypsum into the Floridan aquifer.

55. Based on the formation of a second sinkhole within a three year timeframe, EPA reviewed aerial photographs from 1937, 1947 (Suwannee River only), 1954 and 1966, and 1972 prior to the construction of the PGSSs and noted closed circular depressions that may be indicative of sinkhole features beneath each of the PGSSs. Thirteen such features are identified beneath the Swift Creek PGSS, seven under the CTC PGSS and three beneath the Dorr-Oliver PGSS. Respondent disagrees that the presence of closed circular depressions are always indicative of sinkhole features.

56. Respondent has since recharacterized and increased the sinkhole potential beneath the PGSSs at its Facilities.

57. Given the incidence of a second sinkhole within three years, as well as the existence of the closed circular depressions that may be indicative of sinkhole features, EPA has concluded that there is a significant risk of future potential sinkhole formation/collapse beneath the PGSSs at the Facilities.

58. Following the December 10, 2009, sinkhole collapse, Respondent immediately activated production wells and increased the draw-down on the Floridan aquifer by pumping in excess of 5,000 gallons of water per minute from the aquifer. Over time, the increased pumping rates will enable Respondent to recapture a significant portion of the release, including seepage occurring before and after the sinkhole collapse, out of the aquifer, for consumption in its production or mining operations; or treatment as necessary, or discharge of the recovered process wastewater through PCS's permitted National Pollutant Discharge Elimination System (NPDES) outfalls.

59. Based on a review of the groundwater modeling conducted by Respondent and the results of Respondent's groundwater sampling and monitoring efforts, EPA cannot conclude that the entire volume of process wastewater and phosphogypsum released through the sinkhole can be captured. EPA contends that the contamination may have migrated horizontally and vertically through underground pathways, and it is unlikely that all contaminants can be captured by the PCS production wells.

60. As stated in Paragraph 15 above, Respondent's vertical zone of discharge extends to the bottom of the Hawthorn confining unit situated above the Floridan aquifer.

61. Release of constituents above the Maximum Contaminant Levels (MCLs) to the Floridan aquifer is a violation of Chapter 62-520, F.A.C.

62. In addition to the low pH of the process wastewater, the following constituents, among others, are reasonably likely to be found within process wastewater or phosphogypsum: phosphate, fluoride, cadmium, chromium, arsenic, zinc, mercury, lead, cobalt, molybdenum, nickel, selenium, radium-226, uranium-238, vanadium, antimony, thallium, sodium, sulfate, chloride, copper, beryllium, gross alpha and beta radiation.

63. Since the sinkhole formation, monitoring wells have been sampled primarily for parameters such as sodium, sulfate, and fluoride that are well-known indicator species for identification of phosphogypsum and process wastewater contamination. Between December 10, 2009, and February 11, 2010, sampling of PCS's South Deep Well (SDW) (see figure 4) has indicated concentrations of parameters identified in Table 1 that are greater than the secondary drinking water standards for those parameters. Although the Facilities are not subject to the secondary drinking water standards, the comparison is instructive to demonstrate levels of contamination. In summary, in at least 35 instances, the samples have been higher than the secondary drinking water standard for sulfate, in 39 instances pH levels have been lower in the samples, and in 39 instances, fluoride levels have been higher in the samples. It is possible that

PCS may have exceeded primary drinking water standards for some of the constituents identified in Paragraph 62, including arsenic, cadmium, chromium and fluoride, but this cannot be determined due to the location and depths of the monitoring wells. The health effects of select constituents for which primary drinking water standards may have been exceeded are described in Paragraph 64.

Table 1. SDW Samples Comparison to Secondary Drinking Water Standard.

Date / Time	Parameter	pH	Sulfate	Fluoride
	MCL	6.5-8.5	250 mg/L	2 mg/L
Map Code:	C-SDW	C-SDW	C-SDW	C-SDW
12/15/09			264.7	
12/17/09			254.2	2.10
12/18/09				2.50
12/19/09		6.47		2.70
12/20/09		6.38		2.82
12/21/09		6.41		2.83
12/22/09		6.37	276.8	2.77
12/23/09		6.38		2.74
12/24/09		6.39	288.0	3.03
12/25/09		6.32		2.80
12/26/09		6.31		3.01
12/27/09		6.43		2.70
12/28/09		6.40	277.6	2.34
12/29/09		6.29	321.2	
12/30/09		6.24	300.0	2.50
12/31/09		6.37	312.4	2.67
1/1/10		6.17	309.2	2.83
1/2/10		6.37	286.8	2.79
1/3/10		6.20	301.0	
1/4/10				2.56
1/5/10		6.29	268.0	2.47
1/6/10		6.45		2.49
1/7/10				2.50
1/8/10		6.33	256.3	2.42
1/9/10		6.35	299.6	2.43
1/10/10				2.62
1/11/10		6.33	293.0	2.24
1/12/10		6.25	281.0	2.37
1/13/10			263.0	
1/14/10				2.44
1/15/10		6.35	270.0	2.29
1/16/10		6.41	289.6	2.30
1/17/10			299.0	2.26
1/18/10				2.40
1/19/10		6.42	310.0	2.34
1/20/10		6.45	272.0	2.41
1/21/10		6.34	269.0	2.31

Date / Time	Parameter	pH	Sulfate	Fluoride
	MCL	6.5-8.5	250 mg/L	2 mg/L
1/24/10		6.43	289.0	2.15
1/25/10		6.44	288.8	2.29
1/26/10		6.44	268.0	2.09
1/27/10		6.47	319.0	2.09
1/28/10		6.31		
1/29/10			281.0	
1/30/10		6.48		
2/1/10		6.36	281.0	2.08
2/2/10		6.48		
2/3/10		6.37	299.0	
2/4/10		6.47		
2/7/10		6.4	265.0	
2/9/10			299.0	
2/11/10			301.0	

On January 6, 2010, Respondent sampled the SDW. Analytical data from this sampling did not reveal levels above the primary drinking water standards for arsenic, barium, cadmium, chromium, copper, lead, selenium, silver, or mercury.

64. The following descriptions and health effects were obtained from the Agency for Toxic Substances and Disease Registry (ATSDR):

1. Arsenic is a naturally occurring element. Acute (short-term) high-level inhalation exposure to arsenic dust or fumes has resulted in gastrointestinal effects (nausea, diarrhea, abdominal pain); central and peripheral nervous system disorders have occurred in workers acutely exposed to inorganic arsenic. Chronic (long-term) inhalation exposure to inorganic arsenic in humans is associated with irritation of the skin and mucous membranes. Chronic oral exposure has resulted in gastrointestinal effects, anemia, peripheral neuropathy, skin lesions, hyperpigmentation, and liver or kidney damage in humans. Inorganic arsenic exposure in humans, by the inhalation route, has been shown to be strongly associated with lung cancer, while ingestion of inorganic arsenic in humans has been linked to a form of skin cancer and also to bladder, liver, and lung cancer. EPA has classified inorganic arsenic as a Group A, human carcinogen.

2. Cadmium is a soft silver-white metal that is usually found in combination with other elements. The acute (short-term) effects of cadmium in humans through inhalation exposure consist mainly of effects on the lung, such as pulmonary irritation. Chronic (long-term) inhalation or oral exposure to cadmium leads to a build-up of cadmium in the kidneys that can cause kidney disease. Cadmium has been shown to be a developmental toxicant in animals, resulting in fetal malformations and other effects, but no conclusive evidence exists in humans. An association between cadmium exposure and an increased risk of lung cancer has been reported from human studies, but these studies are inconclusive due to confounding factors. Animal studies have demonstrated an increase in lung cancer from long-term inhalation exposure to cadmium. EPA has classified cadmium as a Group B1, probable human carcinogen.

3. Chromium occurs in the environment primarily in two valence states, trivalent chromium (Cr III) and hexavalent chromium (Cr VI). Exposure may occur from natural or industrial sources of chromium. Chromium (III) is much less toxic than chromium (VI). The respiratory tract is also the major target organ for chromium (III) toxicity, similar to chromium (VI). Chromium (III) is an essential element in humans. The body can detoxify some amount of chromium (VI) to chromium (III). The respiratory tract is the major target organ for chromium (VI) toxicity, for acute (short-term) and chronic (long-term) inhalation exposures. Shortness of breath, coughing, and wheezing were reported from a case of acute exposure to chromium (VI), while perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, and other respiratory effects have been noted from chronic exposure. Human studies have clearly established that inhaled chromium (VI) is a human carcinogen, resulting in an increased risk of lung cancer. Animal studies have shown chromium (VI) to cause lung tumors via inhalation exposure.

4. Selenium is a naturally occurring substance that is toxic at high concentrations but is also a nutritionally essential element. Hydrogen selenide is the most acutely toxic selenium compound. Acute (short-term) exposure to elemental selenium, hydrogen selenide, and selenium dioxide by inhalation results primarily in respiratory effects, such as irritation of the mucous membranes, pulmonary edema, severe bronchitis, and bronchial pneumonia. Epidemiological studies of humans chronically (long-term) exposed to high levels of selenium in food and water have reported discoloration of the skin, pathological deformation and loss of nails, loss of hair, excessive tooth decay and discoloration, lack of mental alertness, and listlessness. Epidemiological studies have reported an inverse association between selenium levels in the blood and cancer occurrence and animal studies have reported that selenium supplementation, as sodium selenate, sodium selenite, and organic forms of selenium, results in a reduced incidence of several tumor types. The only selenium compound that has been shown to be carcinogenic in animals is selenium sulfide, which resulted in an increase in liver tumors from oral exposure. EPA has classified elemental selenium as a Group D, not classifiable as to human carcinogenicity, and selenium sulfide as a Group B2, probable human carcinogen.

5. Sulfate is a substance that occurs naturally in drinking water. Health concerns regarding sulfate in drinking water have been raised because of reports that diarrhea may be associated with the ingestion of water containing high levels of sulfate. Of particular concern are groups within the general population that may be at greater risk from the laxative effects of sulfate when they experience an abrupt change from drinking water with low sulfate concentrations to drinking water with high sulfate concentrations. Neither EPA nor FDEP provide a primary MCL for sulfate in drinking water; however, EPA provides a Secondary MCL of 250 mg/l that is not federally enforceable, and is based on taste considerations. During February 2003, EPA published an "advisory" that "provides an analysis of the current health hazard information and an evaluation of available data on the organoleptic (i.e. taste and odor) problems associated with sulfate-contaminated water, because organoleptic problems will affect consumer acceptance of water sources." The "Advisory" recommends reducing sulfate concentrations in drinking water to or below 250 mg/l to address taste considerations. It also recommends a maximum sulfate concentration in drinking water of 500 mg/l to prevent/avoid health based acute effects (absence of laxative effects). This value depends on the absence of other osmotically active materials in drinking water which could lower the sulfate associated with a laxative effect.

6. Phosphoric acid is a corrosive liquid. Phosphoric acid may be harmful by inhalation, ingestion, or skin absorption. It is destructive to tissue of the mucous membranes and upper respiratory tract, eyes and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Target Organ(S): Liver,

Blood, Bone Marrow. This information can be found at <http://www.sino-phos.com/images/MSDS%20of%20Phosphoric%20Acid.pdf>.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

65. RCRA Section 7003(a), 42 U.S.C. § 6973(a), specifies that when EPA receives evidence that the past or present handling, storage, treatment, transportation, or disposal of any solid waste or hazardous waste may present an imminent and substantial endangerment to human health or the environment, EPA may issue an order against "any person" who has contributed or is contributing to such handling, storage, treatment, transportation, or disposal of the solid waste or hazardous waste. "Any person" includes any past or present generator, past or present transporter, or past or present owner or operator.

66. Respondent is a "person" within the meaning of RCRA Section 1004(15), 42 U.S.C. § 6903(15).

67. Respondent is the "owner" and "operator" of "facilities" located at State Road 137, White Springs, Florida 32096 (Suwannee River Complex), and US Highway 41 N. White Springs, Florida 32096 (Swift Creek Complex), as those terms are defined in 40 C.F.R. § 260.10.

68. Section 1004(27) of RCRA, 42 U.S.C. § 6903(27) defines the term "solid waste" to mean "any garbage, refuse . . . and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations . . ."

69. Section 1004(5) of RCRA, 42 U.S.C. § 6903(5), defines the term "hazardous waste" to mean: a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

(A) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

(B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

70. Pursuant to EPA regulation, a solid waste is a hazardous waste if it is not excluded from regulation as a hazardous waste under 40 C.F.R. § 261.4(b) and it exhibits any of the characteristics of hazardous waste identified in Subpart C of 40 C.F.R. Part 261, or it is listed in Subpart D of 40 C.F.R. Part 261.

71. Characteristic hazardous wastes are assigned "D" codes in 40 C.F.R. Part 261, Subpart C depending on the specific hazardous characteristic that the waste exhibits. A hazardous waste with a pH of less than or equal to 2.0 or greater than or equal to 12.5 exhibits the characteristic of corrosivity and is assigned the D002 hazardous waste code pursuant to 40 C.F.R. § 261.22.

72. Certain solid wastes from the extraction, beneficiation, and processing of ores and minerals are excluded from the definition of hazardous wastes pursuant to 40 C.F.R. § 261.4(b)(7), the "Bevill Exemption."

73. For a mineral processing solid waste to be excluded from being a hazardous waste under the Bevill Exemption, it must fall into one of the twenty specific categories of excluded wastes listed at 40 C.F.R. § 261.4(b)(7)(ii).

74. The Bevill Exemption applies to only two wastes generated from phosphoric acid mineral processing operations: "(p)hosphogypsum from phosphoric acid production," 40 C.F.R. § 261.4(b)(7)(ii)(D); and "process wastewater from phosphoric acid production." 40 C.F.R. § 261.4(b)(7)(ii)(P).

75. When Bevill-exempt phosphogypsum and process wastewater from phosphoric acid production are mixed with hazardous non-exempt wastes, if the resulting mixture continues to exhibit a hazardous characteristic of the non-exempt waste, then the entire mixture is a hazardous waste pursuant to the Bevill Mixture Rule, promulgated at 40 C.F.R. § 261.3(a)(2)(i).

76. EPA contends that Respondent's process wastewater released after the sinkhole formation on December 10, 2009, contained both Bevill-exempt and non-Bevill-exempt wastewater and was corrosive (pH less than 2 su) and, is therefore, a D002 "hazardous" waste in addition to being a solid waste.

77. Section 1004(3) of RCRA, 42 U.S.C. § 6903(3), defines the term "disposal" to mean "the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters."

78. As a result of the sinkhole collapse on December 10, 2009, PCS has disposed of approximately 68 million gallons of process wastewater and phosphogypsum into the Floridan aquifer.² Over time, PCS's plant production wells will recapture a significant portion of the process wastewater released.

79. EPA has nonetheless determined that the potential exists for an imminent and substantial endangerment to human health and the environment resulting from PCS's disposal of approximately 68 million gallons of process wastewater and phosphogypsum into the Floridan aquifer, the primary source of drinking water for the local area.³ In addition, EPA has concluded that there is a significant risk of additional sinkhole formations/collapses across the three PGSSs,

² As noted earlier, in footnote 1, based on PCS's data, it is likely another 13.9 million gallons were released through seepage between the time the sinkhole formed and the cell collapsed. In addition, there will be approximately another 12 million gallons released through seepage from the time the cell collapsed, until the sinkhole is grouted.

³ As noted in footnotes 1 and 2, based on PCS's data, it is likely another 13.9 million gallons were released through seepage between the time the sinkhole formed and the cell collapsed. In addition, there will be approximately another 12 million gallons released through seepage from the time the cell collapsed, until the sinkhole is grouted.

and therefore, because of the likelihood of another release of a large volume of solid and/or hazardous waste from all PGSSs, the PGSSs may present an imminent and substantial endangerment to human health and the environment. Finally, the continued increase in elevation of all three PGSSs increases the volume of phosphogypsum and associated porewater that could be released in the event of any future sinkhole formation/collapse, and therefore presents an imminent and substantial endangerment to human health and the environment.

80. Based upon the foregoing Findings of Fact, and after consideration of the Administrative Record, and pursuant to Section 7003 of RCRA, 42 U.S.C. § 6973, EPA made the following determinations:

- a. The wastes at Respondent's Facilities are "solid wastes" within the meaning of Section 1004(27) of RCRA 42 U.S.C. § 6903(27) and/or "hazardous wastes" within the meaning of Section 1004(5) of RCRA, 42 U.S.C. § 6903(5);
- b. The conditions described in the Findings of Fact constitute evidence that Respondent's past and present handling, storage, treatment, transportation and/or disposal of solid and/or hazardous wastes at the Facilities may present an imminent and substantial endangerment to human health and/or the environment within the meaning of Section 7003 of RCRA, 42 U.S.C. § 6973; and
- c. The work required of the Respondent by this Order is necessary to protect human health and the environment from the solid and hazardous wastes at the Facilities.

VII. ORDER

81. EPA has determined that active measures are necessary to reduce exposure of the limestone and aquifer systems underlying the PGSSs to contamination by process wastewater. While grouting sinkholes after formation will mitigate the short-term threat to the environment, long-term risk can be mitigated by taking active measures designed to reduce the volume of water available for loss in the event of additional sinkhole formation/collapse.

82. As a result of the above Findings of Fact and Conclusions of Law and Determinations, and pursuant to the authority in Section 7003 of RCRA, 42 U.S.C. § 6973, EPA has determined that the activities required by this Order are necessary to protect human health and/or the environment; thus, EPA hereby orders Respondent to perform the work specified in Paragraph 83 of the Order below. The plan developed by Respondent, as required by this Order, must meet the goals of reducing seepage through the PGSSs to mitigate the risk of future sinkhole formation/collapse, reducing the PGSS watershed with the intent of optimizing process wastewater inventory and management, and minimizing loss in event of sinkhole formation/collapse in the cooling pond system.

83. Respondent shall analyze, evaluate and develop a plan consisting of a series of projects which are designed to accomplish the purposes articulated in Section IV and specifically address, without limitation: (A) installation of intermediate liners at and/or closure of the Swift Creek

Gypstack, the Dorr-Oliver Gypstack, and the CTC Gypstack; (B) significant reduction of the PGSS watershed with the intent of optimizing process wastewater inventory and management; and (C) significant reduction of process wastewater loss from the cooling ponds in the event of a sinkhole. Phased evaluation and development of the plan must occur within the following timeframes:

- a. Within 30 days of the Effective Date of this Order, Respondent shall submit a list of all options being evaluated by Respondent. Each option shall address all three PCS PGSSs, and shall evaluate plan selection factors such as cost, water balance and stack stability, but need not include an implementation schedule or sequencing of individual projects within each option. Respondent shall include an option for lining the Swift Creek Gypstack System, the CTC Gypstack System and the Dorr-Oliver Gypstack System within 5 years or as soon as possible; and
- b. Within 45 days of EPA's receipt of Respondent's options list (pursuant to Paragraph 83 (a)), EPA shall concur with one or more options and provide concurrence of the options to Respondent in compliance with Section X (Approvals); and
- c. By December 31, 2010, or such later date as agreed to by EPA, Respondent shall complete an internal feasibility study of each option with which EPA has concurred, and shall submit a proposed plan for Respondent's preferred option that contains a series of projects and a proposed schedule for implementing the projects identified in the preferred option; and
- d. Within sixty (60) days of EPA's approval of a proposed plan (which following approval will be referred to as the "Approved Plan"), Respondent shall submit a proposed workplan and a proposed schedule (which will identify permitting requirements and other Florida or other third-party approvals and timeframes, if any) for implementing the first project specified in the Approved Plan. Workplans and schedules for future projects shall be submitted six (6) months prior to the scheduled start date of the project at issue. The projects identified in the Approved Plan shall be completed within the following timeframes: either (1) on or before the expiration of 60 months following EPA's approval of the Approved Plan, or (2) a later date when shown to be as soon as possible.

84. All work performed pursuant to this Order shall be under the direction and supervision of Facility personnel, a Professional Engineer, or a contractor or consultant with the technical expertise sufficient to adequately perform all aspects of the work for which it is responsible.

VIII. GENERAL PROVISIONS

85. All plans and documents submitted under any section of this Order shall, upon approval by EPA, be incorporated by reference into this Order as if set forth fully herein.

86. Respondent has designated a Project Coordinator, as identified below. EPA Region 4 has designated a Project Coordinator, as identified below. The EPA Project Coordinator will be EPA's designated representative for the Facilities. Respondent's Project Coordinator will be Respondent's designated representative for the Facilities. All communications between Respondent and EPA, and all documents, reports, approvals, and other correspondence concerning the activities performed pursuant to this Order, shall be directed to the Project Coordinator.

The EPA Project Coordinator is:

Bethany Russell
South Enforcement and Compliance Section
RCRA and OPA Enforcement and Compliance Branch
RCRA Division
U.S. EPA, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303
russell.bethany@epa.gov
Office: (404) 562-8542

Respondent's Project Coordinator is:

Stanley W. Posey
Manager, Environmental Affairs
White Springs Agricultural Chemicals, Inc.,
d/b/a PCS Phosphate - White Springs
PO Box 300
15843 SE 78th Street
White Springs, Florida 32096
sPosey@pcsphosphate.com
Office: (386) 397-8304
Fax: (386) 397-8390
Cell: (386) 397-0524

EPA will provide written notice to the Respondent of any change in the EPA Region 4 Project Coordinator for the Facilities.

87. Respondent shall provide written notice within ten (10) calendar days to EPA prior to changing its Project Coordinator.

IX. SUBMITTALS

88. Unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Order in accordance with Section IX, Submittals, they shall be made electronically, unless otherwise requested by EPA, to the EPA Region 4 Project Coordinator identified in Paragraph 86 and/or to other addressees she or he designates, unless otherwise specified by EPA. Each submittal shall include reference to the docket number as shown on the first page of this Order.

89. Unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Order in accordance with Section IX, Submittals, they shall be made electronically, unless otherwise requested by FDEP, and addressed as follows:

Tim J. Bahr, Administrator
Hazardous Waste Regulation Section M.S. 4560
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Phone: 850-245-8790
Email: tim.bahr@dep.state.fl.us

John A. Coates, P.E., Chief
Bureau of Mining and Minerals Regulation
Department of Environmental Protection
Division of Water Resource Management
2051 East Dirac Drive
Tallahassee, Florida 32312
Phone: 850-488-8217
Email: john.coates@dep.state.fl.us

90. Any report, work plan, notice, or other document submitted by Respondent pursuant to this Order which makes any representation concerning Respondent's compliance or noncompliance with any requirement of this Order shall be certified by a responsible officer of Respondent. For purposes of this Order a "responsible officer" shall mean a president, secretary, treasurer, or vice president in charge of a principal business function, or any other person who performs or has been duly delegated similar policy or decision-making functions.

91. The certification required by Paragraph 90 above, shall be in the following form:

"I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to evaluate the information submitted. I certify that the information contained in or accompanying this submittal is true, accurate, and complete. As to those identified portion(s) of this submittal for which I cannot personally verify the accuracy, I certify that this submittal and all attachments were prepared in accordance with procedures designed to assure that

qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

92. The certification shall also include the name, title, date, and signature of the person or persons completing the certification.

X. EPA APPROVALS

93. EPA will provide Respondent with its written approval, approval with conditions and/or modifications, or disapproval for any inventory list, work plan, report (except progress reports), specification, or schedule submitted pursuant to or required by this Order.

94. Respondent shall revise any inventory list, work plan, report, specification, or schedule in accordance with EPA's written comments within thirty (30) calendar days of Respondent's receipt of EPA's written comments unless EPA has specified an alternative due date, in which case Respondent shall submit to EPA any revised inventory list, work plan, report, specification, or schedule in accordance with the due date specified by EPA. Revised submittals are also subject to EPA approval, approval with conditions and/or modifications, or disapproval. Any revised submittal that is not approved or is not approved with conditions and/or modifications is considered noncompliant with the terms of this Order.

95. Upon receipt of EPA's written approval, Respondent shall commence work and implement any approved work plan in accordance with the schedule and provisions contained therein. If no schedule is contained in an approved work plan, then Respondent shall commence work and implementation of the work plan within fifteen (15) calendar days of receipt of EPA's written approval of the work plan.

96. Any EPA-approved or EPA-approved with conditions and/or modifications inventory list, report, work plan, specification, or schedule shall be incorporated by reference into this Order as if set forth fully herein. Prior to EPA's written approval, no inventory list, work plan, report, specification, or schedule shall be construed as approved and final. Oral advice, suggestions, or comments given by EPA representatives will not constitute an official approval, nor shall any oral approval or oral assurance of approval be considered binding.

97. Noncompliance with any requirements of this Order, including: reports, work plans, specifications, schedules, and attachments approved by EPA pursuant to this Order shall be considered a violation of the requirements of this Order and shall subject Respondent to the statutory penalty provisions and enforcement actions pursuant to Section 7003(b) of RCRA, 42 U.S.C. § 6973(b), and any other applicable sanctions, including the stipulated penalties provisions agreed to in Paragraphs 125-135 of this Order.

98. Any changes or modifications proposed by Respondent to the EPA-approved workplans and timetables required by this Order must be approved or may be modified and approved by EPA prior to implementation.

XI. EMERGENCY ACTION

99. In the event that Respondent identifies a threat to health or the environment at any time during the implementation of this Order which warrants more immediate action than pursuant to any workplan or other requirement of this Order, or warrants action before an otherwise applicable workplan is approved, Respondent shall provide oral notification to the EPA Project Coordinator within twenty-four (24) hours of discovery and notify both EPA and the State in writing within ten (10) calendar days of such discovery, summarizing the nature, immediacy, and magnitude of such threat(s).

100. Proper notification, as required in this Section, does not relieve Respondent of any other notification responsibility Respondent may have under any other law, including, but not limited to, Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, or Section 304 of the Emergency Planning and Community Right to Know Act, as amended.

101. If EPA determines that immediate action is required, the EPA Project Coordinator may orally authorize and require Respondent to take actions to abate the threat prior to approval of any workplan or in addition to a workplan after approval.

102. If EPA or any other federal, state, or local agency identifies such a threat at the Facilities or at any locations encompassed by this Order at any time during implementation of this Order, EPA will notify Respondent orally and in writing. If EPA determines that immediate action is required, the EPA Project Coordinator may orally authorize and require Respondent to take actions to abate the threat prior to approval of a plan or in addition to a plan after approval.

103. If EPA determines that activities undertaken by Respondent pursuant to this Order, whether in compliance or non-compliance with the Order, have caused or may cause a release of a solid or hazardous waste, or may pose an imminent and substantial endangerment to human health and/or the environment, EPA may direct Respondent in writing to stop further implementation of this Order, or a portion of this Order, for such period of time as may be necessary to abate any such release or endangerment and/or undertake any action which EPA determines to be necessary.

104. Any requirements made pursuant to this Section shall be immediately incorporated into this Order by reference and are immediately enforceable.

XII. ADDITIONAL WORK

105. EPA may determine or Respondent may propose that certain tasks, including investigatory work or procedure/methodology modifications, are necessary in addition to or in lieu of the tasks included in Paragraph 83 of this Order to meet the purposes set forth in this Order. If EPA determines that Respondent shall perform additional work, EPA will specify in writing the basis for its determination that the additional work is necessary. Within thirty (30) calendar days after the receipt of such determination, Respondent shall have the opportunity to meet or confer with EPA to discuss the additional work. If required by EPA, Respondent shall submit for EPA approval a work plan for the additional work. Such work plan shall be submitted within thirty (30) calendar days of receipt of EPA's determination that additional work is necessary, within thirty (30) calendar days of the date of the meeting or conference, if any, between EPA and Respondent to discuss the additional work, or according to an alternative schedule established by EPA, whichever is later. Upon approval of a work plan, Respondent shall implement such work plan in accordance with the schedule and provisions contained therein.

XIII. QUALITY ASSURANCE

106. Where applicable, Respondent/Contractor for Respondent performing sampling and analyses shall comply with the applicable requirements of Chapter 62-160, F.A.C., Quality Assurance. Upon submission of each workplan required by Paragraph 83 (Order), Respondent shall include a section, specific to that workplan, for quality assurance/quality control and, if applicable, chain of custody procedures for all study and/or construction activities. All quality assurance/quality control procedures must adhere to all requirements of Chapter 62-671 through 62-673, F.A.C. Any deviations from the approved workplans must be approved by EPA prior to implementation; must be documented, including reasons for the deviations; and must be reported in the applicable report.

107. The names, addresses, and telephone numbers of those performing work or sampling pursuant to the specified workplan (including the primary contractor and sub-contractors), and analytical laboratories that Respondent proposes to use must be specified in the applicable workplans.

108. Where applicable, workplans required under this Order shall include data quality objectives for each data collection activity to ensure that data of known and appropriate quality are obtained and that data are sufficient to support their intended use(s).

109. Respondent shall monitor to ensure that high quality data are obtained by those performing work or sampling, including consultants or contract laboratories. Where applicable, Respondent shall ensure that laboratories used by Respondent for analyses perform such analyses according to Chapter 62-160, F.A.C., Quality Assurance.

XIV. SAMPLING AND DATA/DOCUMENT AVAILABILITY

110. Specific to each work plan submitted pursuant to Paragraph 83, Respondent shall include a section that identifies any sampling or tests necessary to ensure conformance with the Quality Assurance or data quality objectives of that workplan.

111. Notwithstanding any other provisions of this Order, EPA retains all of its information gathering and inspection authorities and rights, including the right to bring enforcement actions related thereto, under RCRA, CERCLA, and any other applicable statutes or regulations.

112. Each workplan submitted by Respondent shall identify timeframes for implementation and will provide for notification to EPA and FDEP in writing at least fourteen (14) calendar days before implementation of the work specified in the workplan. If Respondent believes it must commence emergency field activities without delay, Respondent may seek emergency telephone authorization from the EPA Project Coordinator or, if the EPA Project Coordinator is unavailable, his or her immediate supervisor, to commence such activities immediately. If applicable, at the request of EPA, Respondent shall provide, or allow EPA or its authorized representative to take split or duplicate samples of any samples collected by Respondent pursuant to this Order. Similarly, at the request of Respondent, EPA shall allow Respondent or its authorized representative(s) to take split or duplicate samples of all samples collected by EPA under this Order.

113. Respondent may assert a confidentiality claim covering all or part of any information submitted to EPA pursuant to this Order. Any assertion of confidentiality must be accompanied by information that satisfies the items listed in 40 C.F.R. § 2.204(e)(4) or such claim shall be deemed waived. Information determined by EPA to be confidential will be given the protection specified in 40 C.F.R. Part 2. If no such confidentiality claim accompanies the information when it is submitted to EPA, the information may be made available to the public by EPA without further notice to Respondent. EPA will not accept any confidentiality claim with regard to any physical or analytical data.

XV. ACCESS

114. EPA, its contractors, employees, and/or any EPA representative(s) are authorized to enter and freely move about all property at the Facilities pursuant to this Order for the purposes of, inter alia, interviewing facility personnel and contractors; inspecting records, operating logs, and contracts related to the Facilities; reviewing the progress of the Respondent in carrying out the terms of this Order; conducting such tests, sampling, or monitoring as EPA or its Project Coordinators deem necessary; using a camera, sound recording, or other documentary type equipment; and verifying the reports and data submitted to EPA by the Respondent. Respondent shall provide EPA and its representatives access to the Facilities at all reasonable times and, subject to Paragraph 115 below, to any other property to which access is required for implementation of this Order. Respondent shall permit such persons to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and

monitoring data, that pertain to work undertaken pursuant to this Order and that are within the possession or under the control of Respondent or its contractors or consultants.

115. To the extent that work being performed pursuant to this Order must be done on property not owned by Respondent, Respondent shall use its best efforts to obtain site access agreements necessary to complete work required by this Order from the present owner(s) of such property within forty-five (45) calendar days of approval of any workplan for which site access is required. Best efforts as used in this Paragraph shall include, at a minimum, a certified letter from Respondent to the present owner(s) of such property requesting access agreement(s) to permit Respondent and EPA and its authorized representatives access to such property and the offer of payment of reasonable sums of money in consideration of granting such access. Any such access agreements shall be incorporated by reference into this Order and shall provide for access by EPA and its representatives. Respondent shall insure that EPA's Project Coordinator has a copy of any such access agreements. In the event that agreements for access are not obtained within forty-five (45) calendar days of approval of any workplan for which access is required, or of the date that the need for access became known to Respondent, Respondent shall notify EPA in writing within ten (10) calendar days thereafter of both the efforts undertaken to obtain access and the failure to obtain such agreements. EPA may, at its discretion, assist Respondent in obtaining access. In the event EPA obtains access, Respondent shall undertake EPA-approved work on such property. The Respondent shall indemnify EPA as provided in Section XXIV, below, for any and all claims arising from activities on such property.

116. Nothing in this Section limits or otherwise affects EPA's right of access and entry pursuant to applicable law, including RCRA and CERCLA.

117. Nothing in this Section shall be construed to limit or otherwise affect Respondent's liability and obligation to perform corrective measures, notwithstanding the lack of access.

XVI. RECORD PRESERVATION

118. Respondent shall retain, during the pendency of this Order and for a minimum of six (6) years after its termination, all data, records, and documents now in its possession or control or which come into its possession or the possession of its divisions, officers, directors, employees, agents, contractors, successors, and assigns which relate in any way to this Order. Subsequent to the termination of the aforementioned six (6) year period, Respondent shall provide written notification to EPA sixty (60) calendar days prior to the destruction of any data, records, or documents that relate in any way to this Order or its implementation. At EPA's request, Respondent shall then make such records available to EPA for inspection and/or EPA's retention or shall provide copies of any such records to EPA prior to discarding. Such written notification shall reference the effective date, caption, and docket number of this Order and shall be addressed to:

Larry Lamberth, Chief
South Enforcement and Compliance Section
RCRA and OPA Enforcement and Compliance Branch
RCRA Division
U.S. EPA, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

119. Within ten (10) calendar days of the effective date of this Order, or at the time of retaining or employing any agent, consultant, or contractor for the purpose of carrying out the terms of this Order, Respondent shall enter into an agreement with any such agents, consultants, or contractors whereby such agents, consultants, or contractors will be required to provide Respondent a copy of all documents produced pursuant to this Order.

120. All documents pertaining to this Order shall be stored in a designated area as determined by the Respondent in a centralized location to afford ease of access by EPA or its representatives.

121. All data, information, and records pertaining to, created for, or maintained by Respondent in connection with this Order shall be made available to EPA upon request. All employees of Respondent and all persons, including contractors and subcontractors, who engage in activity under this Order shall be made available to and shall cooperate with EPA if information is sought.

XVII. DISPUTE RESOLUTION

122. Any disputes concerning deliverables required under this Order, excluding any final agency action issued by EPA, shall be raised to EPA within 15 days after receiving comments on the deliverable. Disputes will be resolved as follows: EPA and Respondent shall expeditiously and informally attempt to resolve any disagreements concerning the performance of the Work. The Project Coordinators shall first confer in an effort to resolve the dispute. If the Project Coordinators are unable to informally resolve the dispute within 14 days, Respondent shall notify EPA in writing of its objections. The Respondent's written objections shall define the dispute and state the basis of Respondent's objections. EPA and Respondent then have an additional 14 days to reach agreement. If an agreement is not reached within 14 days, Respondent may request a determination by EPA Region 4's RCRA Division Director. The Division Director's determination is EPA's final decision. Respondent shall proceed in accordance with EPA's final decision regarding the matter in dispute, regardless of whether Respondent agrees with the decision. If Respondent does not agree to perform or does not actually perform the Work in accordance with EPA's final decision, EPA reserves the right in its sole discretion to conduct the work itself, to seek reimbursement from Respondent, to seek enforcement of the decision, to seek stipulated penalties, and/or to seek any other appropriate relief. The validity of this Order may not be subjected to judicial review until such time as the United States goes to court to enforce this Order.

123. If EPA and Respondent reach agreement on a dispute at any stage, the agreement shall be set forth in writing, and shall upon signature of EPA and Respondent, be incorporated into and become an enforceable part of this Order.

124. The existence of a dispute and EPA's consideration of matters placed in dispute shall not excuse, toll, or suspend any compliance obligation or deadline required pursuant to the Order during the pendency of the dispute resolution process except as agreed by EPA in writing. The invocation of dispute resolution does not stay stipulated penalties under this Order, unless the delay is a result of EPA's failure to timely issue a written resolution of the dispute.

XVIII. DELAY IN PERFORMANCE/PENALTIES

125. Stipulated Penalties: Respondent shall be liable for stipulated penalties in the amounts set forth in this Section any time that Respondent fails to comply with any requirement of this Order applicable to it, unless a Force Majeure has occurred as defined in Section XIX (Force Majeure) and EPA has approved the extension of a deadline as required by Section XIX (Force Majeure). Compliance by Respondent shall include completion of an activity or any matter under this Order in a manner acceptable to EPA, and within the specified time schedules approved under this Order.

126. Unless there has been a written modification of a schedule herein by EPA, or the Force Majeure provisions of this Order are invoked, in the event Respondent fails to meet any schedule or requirement contained in this Order applicable to it, as originally issued or as subsequently modified by EPA, including inadequate or late submittals, EPA may assess a stipulated penalty and the Respondent shall pay, upon written notification by EPA that a stipulated penalty is due and owing, a stipulated penalty as follows:

Period of Failure to Comply	Penalty Per Violation Per Day
Days 1-15	\$ 1,500.00
Days 16-30	\$ 3,000.00
Over 30 days	\$ 5,000.00

127. Stipulated Penalties under this Section shall be paid within thirty (30) days after Respondent's receipt of written notification that stipulated penalties are due and owing from EPA. Such Stipulated Penalties shall be paid by cashier's check, certified check, company check, by electronic funds transfer (EFT), or by Automated Clearhouse (ACH) (also known as REX or remittance express). If paying by check, the check shall be payable to: **Treasurer, United States of America**, and the facility name and docket number for this matter shall be referenced on the face of the check. If Respondent sends payment by the United States Postal Service, the payment shall be addressed to:

United States Environmental Protection Agency
Fines and Penalties
Cincinnati Finance Center
P.O. Box 979077
St. Louis, Missouri 63197-9000

If the Respondent sends payment by non-United States Postal express mail delivery, the payment shall be sent to:

United States Bank
Government Lockbox 979077
United States Environmental Protection Agency
Fines and Penalties
1005 Convention Plaza
SL-MO-C2-GL
St. Louis, Missouri 63101
(314) 418-1028

If paying by EFT, the Respondent shall transfer the payment to:

Federal Reserve Bank of New York
ABA: 021030004
Account Number: 68010727
SWIFT address: FRNYUS33
33 Liberty Street
New York, New York 10045
Field Tag 4200 of the Fedwire message should read:
"D 68010727 Environmental Protection Agency"

If paying by ACH, the Respondent shall remit payment to:

PNC Bank
ABA: 051036706
Account Number: 310006
CTX Format Transaction Code 22 – checking
United States Environmental Protection Agency
808 17th Street, N.W.
Washington, D.C. 20074
Contact: Jesse White, (301) 887-6548

128. Docket No. RCRA-04-2010-4250 should be clearly typed on the check to ensure proper credit. Respondent shall send simultaneous notices of such payments, including copies of the certified check, company check, electronic funds transfer, or cashier's check to the following:

Regional Hearing Clerk
United States Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303-8909

And to:

Larry L. Lamberth, Chief
South Section, RCRA and OPA Enforcement and Compliance Branch
RCRA Division
United States Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303-8909

129. Respondent may dispute EPA's assessment of stipulated penalties by invoking the dispute resolution procedures under Section XVII (Dispute Resolution) unless the matter has already been in dispute resolution. Penalties shall accrue but need not be paid during the dispute resolution period. If the Respondent does not prevail upon resolution, all penalties shall be due to EPA within 30 days of resolution of the dispute. If the Respondent prevails upon resolution, no penalties shall be paid.

130. Neither the invocation of dispute resolution nor the payment of penalties shall alter in any way Respondent's obligation to comply with the terms and conditions of this Order.

131. If EPA does not receive payment within 30 days of the due date, interest will accrue on the amount due from the due date per annum through the date of payment at the current annual rate prescribed and published by the Secretary of the Treasury, pursuant to 31 U.S.C. § 3717, in the Federal Register and the Treasury Fiscal Requirements Annual Bulletin.

132. If the payment is overdue, EPA will also impose a late-payment handling charge of \$15.00, with an additional delinquent notice charge of \$15.00 for each subsequent 30-day period over which an unpaid balance remains. A penalty of 6% per annum will be assessed on any unpaid penalty amount not paid within 90 or more days of Respondent's receipt of the notification of non-compliance.

133. The Stipulated Penalties set forth in this Section do not preclude EPA from pursuing any other remedies or sanctions which may be available to EPA by reason of Respondent's failure to comply with any of the requirements of this Order.

134. No payments under this Section shall be deducted for federal tax purposes.

135. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Order.

136. Statutory Penalties. Violation of any provision of this Order may subject Respondent to statutory penalties of seven thousand five hundred dollars (\$ 7,500.00) per violation per day. The assessment of penalties is provided for in Section 7003(b) of RCRA, 42 U.S.C. § 6973(b). However, every four years adjustments to the penalty amount are required by the Federal Civil Penalties Inflation Adjustment Act of 1990, as amended by the Debt Collection Improvement Act of 1996. 28 U.S.C. § 2461. Should Respondent violate this Order or any portion hereof, EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, or other applicable authorities, and/or may seek judicial enforcement of this Order or penalties pursuant to Section 7003 of RCRA, 42 U.S.C. § 6973.

XIX. FORCE MAJEURE

137. Respondent shall perform all requirements under this Order with the time limits established under this Order, unless the performance is delayed by a force majeure. For purposes of this Order, a force majeure is defined as any event arising from causes beyond the anticipation or control of the Respondent, including but not limited to acts of nature (*e.g.*, greater than 100 year rain events, floods, hurricanes) and acts of people (*e.g.*, riots, strikes, wars, terrorism), directive, or industry wide request by any government or governmental authority or government rule, that delays or prevents performance of any obligation under this Order despite Respondent's best efforts to fulfill the obligation. Force majeure does not include financial inability to complete the Work or increased cost of performance or any changes in Respondent's business or economic circumstances.

138. If any event occurs or has occurred that may delay the performance of any obligation under this Order, whether or not caused by a force majeure event, Respondent shall notify EPA within 48 hours of when the Respondent knew or should have known that the event might cause a delay. Such notice shall: identify the event causing the delay, or anticipated to cause delay, and the anticipated duration of the delay; provide Respondent's rationale for attributing such delay to a force majeure event; state the measures taken or to be taken to prevent or minimize the delay; estimate the timetable for implementation of those measures; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health or the environment. Respondent shall undertake best efforts to avoid and minimize the delay. Failure to comply with the notice provision of this action shall waive any claim of force majeure by the Respondent. Respondent shall be deemed to have notice of any circumstances of which its contractors had or should have had notice.

139. If EPA determines that a delay in performance or anticipated delay of a requirement under this Order is or was attributable to a force majeure, then the time period for performance of that requirement will be extended as deemed necessary by EPA. If EPA determines that the delay or anticipated delay has been or will be caused by a force majeure, then EPA will notify Respondent, in writing, of the length of the extension, if any, for performance of such obligations affected by the force majeure. Any such extensions shall not alter Respondent's obligation to perform or complete other tasks required by the Order which are not directly affected by the force majeure.

140. If EPA disagrees with Respondent's assertion of a force majeure, then Respondent may elect to invoke the dispute resolution provision, and shall follow the procedures set forth in Section XVII (Dispute Resolution). In any such proceeding, Respondent shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Respondent complied with the requirements of this Section. If Respondent satisfies this burden, then the time for performance of such obligation will be extended by EPA for such time as is necessary to complete such obligation as determined by EPA.

XX. RESERVATION OF RIGHTS

141. EPA expressly reserves all rights and defenses that it may have, including the rights both to disapprove work performed by Respondent pursuant to this Order and to request that Respondent performs tasks in addition to those stated in the Order (Section VII) above.

142. EPA hereby reserves all of its statutory and regulatory powers, authorities, rights, and remedies, both legal and equitable, which may pertain to Respondent's failure to comply with any of the requirements of this Order, including without limitation the assessment of penalties under Section 7003(b) of RCRA, 42 U.S.C. § 6973(b). This Order shall not be construed as a covenant not to sue, release, waive, or limit any rights, remedies, powers, and/or authorities, civil or criminal, which EPA has under RCRA, CERCLA, or any other statutory, regulatory, or common law authority of the United States. Nothing in this Order shall diminish, impair, or otherwise adversely affect the authority of EPA to enforce the provisions of this Order.

143. This Order shall not limit or otherwise preclude EPA from taking additional enforcement action pursuant to the RCRA, or any other available legal authority, should EPA determine that such action is warranted and necessary to protect human health and the environment.

144. EPA reserves the right to perform any portion of the work set forth herein, or any additional site characterization, feasibility study, and/or remedial work, as it deems necessary to protect human health and/or the environment.

145. If EPA determines that activities in compliance or noncompliance with this Order have caused or may cause a release of hazardous waste or hazardous constituents or may pose a threat to human health and/or the environment, or if EPA determines that Respondent is not capable of undertaking any of the work ordered, EPA may order Respondent to stop further implementation of this Order for such period of time as EPA determines to be necessary to abate any such release or threat and/or to undertake any additional corrective measure.

146. This Order is not intended to be nor shall it be construed as a permit. Approval of any work plan does not constitute a warranty or representation that the work plans will achieve the required cleanup or performance standards. Compliance by Respondent with the terms of this Order shall not relieve Respondent of its obligations to comply with RCRA or any other

applicable local, state, or federal laws and regulations, including but not limited to, its obligation to obtain and/or comply with any permit issued under RCRA or any other applicable local, state, or federal laws or regulations; nor is this Order intended to be, nor shall this Order be construed to be, a ruling or determination on, or of, any issue related to any local, State, or federal permit.

XXI. OTHER CLAIMS

147. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action, demand, or defense in law or equity against any person, firm, partnership, or corporation for any liability it may have arising out of, or relating in any way to, the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous wastes or pollutants or contaminants found at, taken to, or taken or migrating from the Facilities.

148. By issuance of this Order, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. The United States or EPA shall not be deemed a party to any contract entered into by the Respondent or its directors, officers, employees, agents, successors, trustees, receivers, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Order.

149. The Parties shall bear their own costs and attorney fees.

150. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive or other appropriate relief relating to the Facilities, Respondent shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been raised in the present matter.

XXII. OTHER APPLICABLE LAWS

151. All actions required to be taken pursuant to this Order shall be undertaken in accordance with the requirements of all applicable local, State, and federal laws and regulations. Respondent shall obtain or cause its representatives to obtain all permits and approvals necessary under such laws and regulations to perform work pursuant to this Order and shall submit timely applications and requests for any such permits and approvals.

XXIII. FINANCIAL ASSURANCE

152. In order to ensure the full and final completion of the Work to be performed under this Order, Respondent shall demonstrate proof of Financial Assurance in accordance with Chapter 62-673, F.A.C. (hereinafter "Financial Assurance").

153. Financial Assurance will be provided to address any Work in the Approved Plan for which proof of Financial Assurance has not otherwise been established.

154. Respondent shall submit an original copy of any documents required by this Section to Bob Stewart, (404) 562-8886, at Stewart.RobertG@epa.gov for review, pursuant to Section X (EPA Approvals).

155. Respondent's inability to demonstrate proof of Financial Assurance for completion of the Work shall in no way excuse performance of any other requirements of this Order, including, without limitation, Respondent's obligation to complete the Work in strict accordance with the terms of this Order.

156. Release of Financial Assurance. Respondent may submit a written request to the Director, RCRA Division, EPA Region 4, that EPA release Respondent from the requirement to maintain financial assurance under this Section at such time as EPA has provided written notice, pursuant to Section XXX (Termination and Satisfaction) that Respondent has demonstrated that all the terms of this Order have been addressed to the satisfaction of EPA. The Director, RCRA Division, shall notify the Respondent in writing that Respondent is released from all financial assurance obligations under this Order.

XXIV. INDEMNIFICATION

157. Respondent shall indemnify and save and hold harmless EPA, its agents, and employees from any and all claims or causes of action arising solely from, or on account of, acts or omissions of Respondent or its officers, employees, agents, independent contractors, receivers, trustees, and/or assigns in carrying out activities required by this Order. This indemnification shall not be construed in any way as affecting or limiting the rights or obligations of Respondent, EPA, or the United States under their various contracts.

XXV. SUBSEQUENT MODIFICATION

158. Except for Modification of a work plan by EPA, this Order may only be modified by mutual agreement of EPA and Respondent. Any agreed modifications shall be in writing, shall be signed by the parties, shall have as their effective date the date on which they are signed by EPA, and shall be incorporated into this Order.

159. No informal advice, guidance, suggestion, or comment by EPA regarding reports, plans, specifications, schedules, or any other writing submitted by Respondent shall relieve Respondent of its obligation to obtain such formal approval as may be required by this Order, and to comply with all requirements of this Order unless it is formally modified. Any deliverables, plans, technical memoranda, reports, specifications, schedules and attachments required by this Order are, upon approval by EPA, incorporated into this Order.

XXVI. SEVERABILITY

160. If any provision or authority of this Order, or the application of this Order to any party or circumstance, is held by any judicial or administrative authority to be invalid, the application of

such provisions to other parties or circumstances and the remainder of the Order shall remain in force and shall not be affected thereby.

XXVII. SURVIVABILITY/PERMIT INTEGRATION

161. A Consent Decree may be entered into between PCS and the United States, or a permit issued under State or federal law may be issued to the Facilities incorporating the requirements of this Order.

162. Any requirements of this Order shall not terminate upon the entry of a Consent Decree or issuance of a State or federal permit or permit modification, unless all Order requirements are expressly incorporated by the requirements in the Consent Decree or permit or all provisions of this Order have been fully complied with to the EPA's satisfaction as per Section XXX (Termination and Satisfaction) of this Order.

XXVIII. PUBLIC COMMENT ON THIS ORDER

163. Final acceptance by EPA of this Order shall be subject to Section 7003(d) of RCRA, 42 U.S.C. § 6973(d), which requires EPA to provide notice, opportunity for a public meeting and a reasonable opportunity to comment on the proposed settlement. After consideration of any comments submitted during a public comment period of not less than 15 days (may be extended by EPA) held pursuant to Section 7003(d) of RCRA, EPA may withhold consent to all or part of this Order if comments received disclose facts or considerations which indicate that this Order is inappropriate, improper, or inadequate.

164. EPA will provide the public with an opportunity to review and comment on the work required under the Order. In the event significant interest is expressed during the public comment period, a public meeting may be held to facilitate community participation. After consideration is given to the public's comment on the proposed corrective measures, EPA will develop the Final Decision and Response to Comments (RTC) to document the selected corrective measure(s), EPA's justification for such selection, and response to the public's comment. Additional public involvement may be necessary, based on Respondent's specific circumstances.

165. Following the public comment period, EPA may require Respondent to perform additional work. If EPA requires such, the revised Order will be subject to public review and comment.

XXIX. EFFECTIVE DATE OF ORDER

166. This Order becomes effective upon EPA's signature, after the close of the public comment period and EPA's consideration of any comments submitted pursuant to the public comment period.

167. Respondent's obligation to perform the work will begin on the Effective Date of this Order.

XXX. TERMINATION AND SATISFACTION

168. The provisions of this Order, with the exception of the Record Preservation Section, shall be deemed satisfied upon Respondent's receipt of written notice from EPA that Respondent has demonstrated, to the satisfaction of EPA, that the terms of this Order, including any additional tasks determined by EPA to be required pursuant to this Order or any continuing obligation or promises, have been satisfactorily completed.

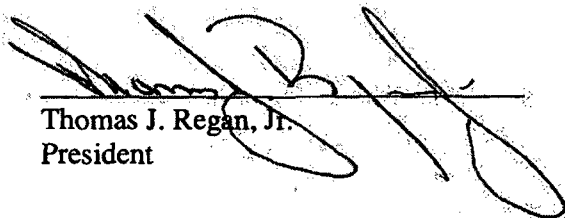
XXXI. SIGNATURES

WHITE SPRINGS AGRICULTURAL CHEMICALS, INC., d/b/a/ PCS PHOSPHATE –
WHITE SPRINGS

Date:

April 27, 2010

By:

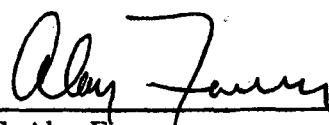

Thomas J. Regan, Jr.
President

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4

Date:

June 2, 2010

By:


G. Alan Farmer
Director
RCRA Division

CERTIFICATE OF SERVICE

I hereby certify that I have caused a copy of the foregoing RCRA 7003 Order, DOCKET NO. RCRA-04-2010-4250, to be served upon the persons designated below on the date below, by causing said copies to be deposited in the U.S. Mail, First Class (Certified Mail, Return Receipt Requested, postage prepaid), at Atlanta, Georgia, in envelopes addressed to:

Karin S. Torain
Senior Counsel
PCS Administration (USA), Inc.
Suite 400
1101 Skokie Boulevard
Northbrook, Illinois 60062
T: 847-849-4291
F: 847-849-4663
kstorain@potashcorp.com

I have further caused the original and one copy of the RCRA 7003 and the Certificate of Service to be filed with Joan Redleaf Durbin, Senior Attorney, United States Environmental Protection Agency, Region 4, 61 Forsyth Street, SW, Atlanta, Georgia, 30303, on the date specified below.

This is said person's last known address to subscriber.

Dated this _____ day of _____, 2010.

Office Automation Assistant
RCRA Enforcement and Compliance Branch
RCRA Division

FIGURE 1

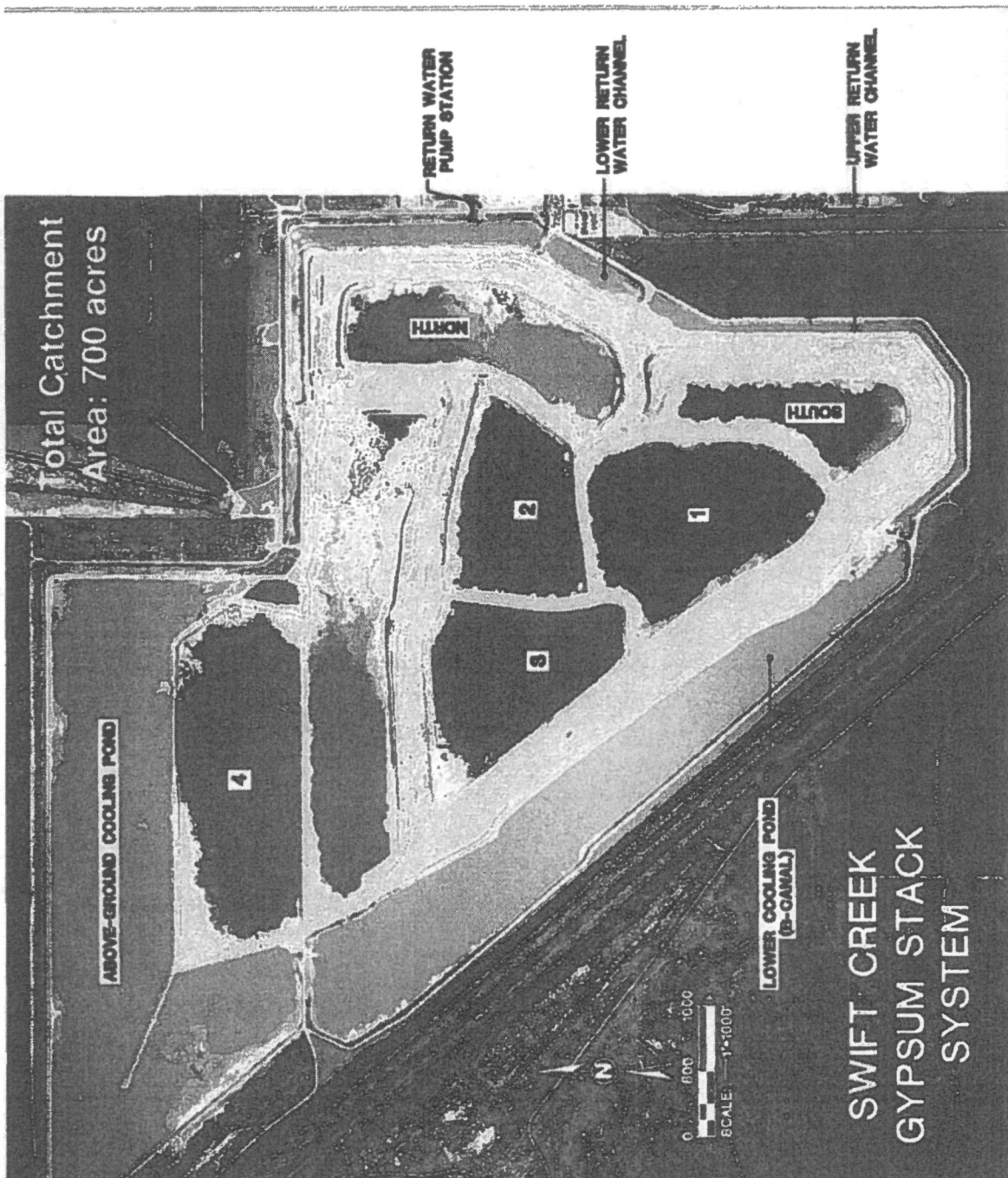


FIGURE 2

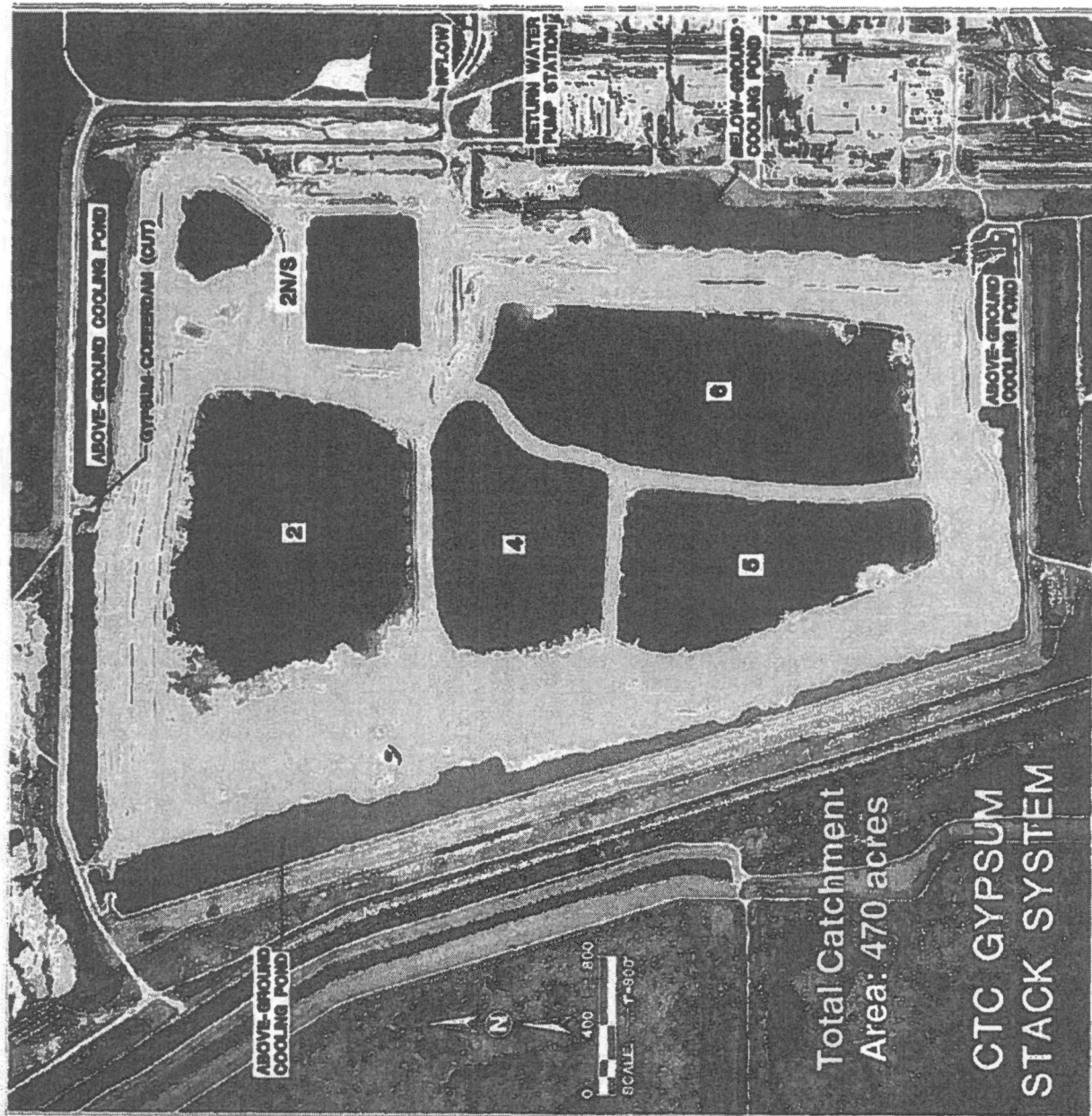


FIGURE 3

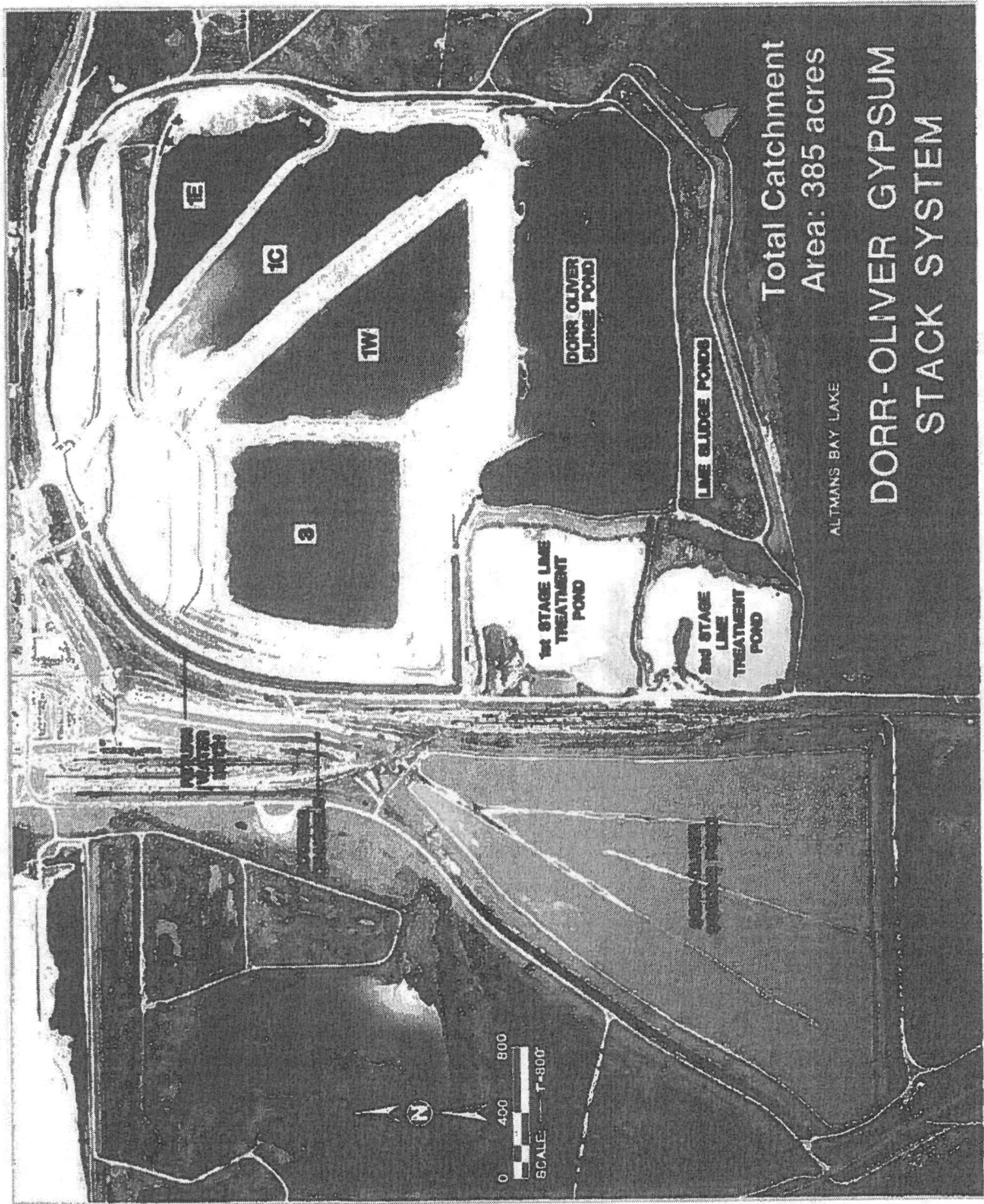


FIGURE 4

Enclosure 2

PCS 7003 Public Comments and EPA Responses



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 2 2010

Ms. Kristi Patel
via email/pdf to:
kristipatel@comcast.net

Dear Ms. Patel:

The United States Environmental Protection Agency, Region 4 (EPA) received your written comment email dated May 13, 2010. Your letter was submitted to EPA during the May 3, 2010 to May 20, 2010, public comment period on EPA's proposed Resource Conservation and Recovery Act (RCRA) Section 7003 Imminent Hazard Order on consent to be issued to PCS Phosphate – White Springs, located in White Springs, Florida.

EPA appreciates your concerns, and clarifies that the purpose of this Order is to address issues related to sinkhole formation beneath the three phosphogypsum stacks and cooling ponds at PCS's two White Springs chemical complexes. Enclosed, please find the final executed EPA RCRA Section 7003 Order that became effective on the date of signature by the EPA Region 4 RCRA Division Director. As PCS performs the analyses and implements the work required by the Order, EPA will keep you and the rest of the community apprised of its progress.

Please feel free to contact me at (404) 562-8542, or Joan Redleaf Durbin, the attorney assigned to this case, at (404) 562-9544 if you have further questions in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Bethany Russell", is written over a horizontal line.

Bethany Russell
Environmental Scientist

Enclosure

cc: Karin S. Torain, PCS Administration (USA)
Tim Bahr, FDEP
Ashwin Patel, FDEP
John Coates, FDEP

Re: PCS
kristipatel
to:
Bethany Russell
05/13/2010 11:20 AM
Show Details

History: This message has been forwarded.
Ms. Russell,

Pursuant to the action of EPA Region 4 contained in this email, I would like to state the following:

It appears quite logically and indicated by science that we, the citizens of ; the regulatory environmental departments of ; and the legislative decision-making body of THE STATE OF FLORIDA, have been historically amiss re. the OBJECTIVE collection and application of scientific data to provide up-to-date best assurances to public and environmental health.

We have relied on industry generated/information as a monopoly to make regulatory decisions due to fiscal limitations of state budgets....which are also impacted by this industry lobby.

I formally request..that AT THIS TIME, we not only respond to this potentially catastrophic incident with future impacts upon existing process...but that we justifiably respond to this impact with SOLID RE-CONSIDERATION RE. the present permitting requirements based on archaic science which would not meet twenty-first century peer review apart from the contracted scientists and professionals associated with this industry, where bias and desirable outcome is intrinsic and lacking any objectivity that the CONSTITUENTS of this state of Florida/SHAREHOLDERS (who have not historically been represented in this venue/nor understand the technological implications) should and would require had they been adequately informed by PUBLIC SERVANTS.

I quote Lisa Jackson EPA Administrator regarding regulation of toxic substances in water in Time Magazine April 12, 2001, "The only fix is to change this law or modernize it, says EPA Administrator Lisa Jackson."

To further state and endorse this point from Scientific Professional Community from this same article re. industries over-reaching influence upon regulatory data it was stated that FDA's response to a scientific report was..."that report was criticized by the agency's own review board for relying almost exclusively on industry-funded studies."

We rely on industry self reporting and contracted scientific professionals in our determining of impact. The 83 million gallons of contaminated water did not specify gypsum stack loss in pounds nor with the other stacks showing impediments which show mass loss...the historical loss of solids into aquifer before complete sink hole blows out is not a consideration.

We continue to "add on" materials which patch up the scientific indication of loss. There is not an "objective" scientist on this planet who would or could suggest that due to the karst geological make-up of this states' strata that ANY..land could support the weight of these historically permitted edifices.

Please duly note this as a citizen response. There should be more objections stated however moratorium is suggested to concerted RE-EVALUATE present regulatory process.

Please further note that the 1978 Severance Tax and Inception of Florida Phosphate Research Institute was solely and independently written by Phosphate Industry through lobbyists. That practice is absolutely meeting criteria of corruption in legislative process as outlined in GOVERNMENT ACCOUNTABILITY PROJECT.

This was again blatantly noted in the 2008 Expedited Summary Process, that was again written and languaged

by a Phosphate Lobbyist. This is NOT twenty-first century business as usual and I strongly urge in light of the growing concern prioritized for our natural resources that higher Administrative Personnel along with Law Process consider this opportunity for long needed change.

Thank you,

Kristi L. Patel

<http://www.epa.gov/region4/waste/rcra/PublicNotices.htm>

Bethany Russell, Environmental Scientist
South Enforcement and Compliance Section
RCRA/OPA Enforcement and Compliance Branch
U.S. E.P.A. - Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth St, SW
10th floor
Atlanta, GA 30303
Office: 404-562-8542
Cell: 678-641-5003

PRIVILEGED AND CONFIDENTIAL - FOIA EXEMPT - DO NOT RELEASE

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 2 2010

Mrs. Xenia Harris
14827 SE 87th Street
White Springs, Florida 32096

Dear Mrs. Harris:

The United States Environmental Protection Agency, Region 4 (EPA) received your written comment email dated May 12, 2010. Your comment was submitted to EPA during the May 3, 2010 to May 20, 2010, public comment period on EPA's proposed Resource Conservation and Recovery Act (RCRA) Section 7003 Imminent Hazard Order on consent to be issued to PCS Phosphate – White Springs, located in White Springs, Florida.

In your letter, you reference concern about both your and your son's drinking water wells, as your homes are located downgradient from PCS's Swift Creek Chemical Complex, where the sinkhole occurred. EPA appreciates your concern and referred your request for well testing to the Florida Department of Health in White Springs. To clarify, the purpose of the Order is to address issues related to sinkhole formation beneath the three phosphogypsum stacks and cooling ponds at PCS's two White Springs chemical complexes. It is EPA's intent that in addition to addressing sinkhole formation, groundwater quality will be determined in and around the chemical complexes through PCS's ongoing groundwater monitoring, the investigations that will be necessary for PCS to implement the work required by this Order, and through continued groundwater, surface water, soil, and sediment investigations being performed by PCS pursuant to an EPA RCRA Section 3013 Monitoring, Analysis, and Testing Consent Order.

Enclosed, please find the final executed EPA RCRA Section 7003 Order that became effective on the date of signature by the EPA Region 4 RCRA Division Director. As PCS performs the analyses and implements the work required by the Order, EPA will keep you and the rest of the community apprised of its progress.

Please feel free to contact me at (404) 562-8542, or Joan Redleaf Durbin, the attorney assigned to this case, at (404) 562-9544 if you have further questions in this matter.

Sincerely,

Bethany Russell
Environmental Scientist

Enclosure

cc: Karin S. Torain, PCS Administration (USA)
Tim Bahr, FDEP
Ashwin Patel, FDEP
John Coates, FDEP

Internet Address (URL) • <http://www.epa.gov>

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Concerned about our drinking water
JD Harris to: Bethany Russell

05/12/2010 08:33 AM

History: This message has been forwarded.

Hi Bethany

We are concerned about our drinking water, it is full of an orange residue and it turned my fingernails orange. We are told that it is rust, but it is from a 200' deep well. A lot of our surrounding neighbors have the same problem. (needs to be tested)

Also, Swift Creek is close by and about a year ago it went dry for a short while and we heard that PCS had diverted it for some reason. Should they be able to do this?

Thank you for your help in this issue. It is so good to have someone to bring these concerns to.

Xenia Harris
14827 SE 87th St
White Springs, FL 32096

(386) 855-4979

Jason Harris
14816 SE 87th St
White Springs, FL 32096
repairmanjason@gmail.com

(386) 855-4976

✓



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 2 2010

Mr. Dock Glawson
114 Ocmulgee Springs Drive
Macon, Georgia 31211

Dear Mr. Glawson:

The United States Environmental Protection Agency, Region 4 (EPA) received your written comment letter dated May 20, 2010. Your letter was submitted to EPA during the May 3, 2010 to May 20, 2010, public comment period on EPA's proposed Resource Conservation and Recovery Act (RCRA) Section 7003 Imminent Hazard Order on consent to be issued to PCS Phosphate – White Springs (PCS), located in White Springs, Florida.

In your letter and in phone conversations, you referenced concern about groundwater contamination, both in the surficial and Floridan aquifers, and request that EPA or PCS perform sampling at the ten (10) drinking water wells within your property. EPA understands that you own a hunting and fishing operation known as Bienville Plantation which is located within the PCS Hamilton County Mine area. Although the direct purpose of the Order is to address issues related to sinkhole formation beneath the three phosphogypsum stacks and cooling ponds at PCS's two White Springs chemical complexes, it is EPA's intent that in addition to addressing sinkhole formation, groundwater quality will be determined in and around the chemical complexes through PCS's ongoing groundwater monitoring, the investigations that will be necessary for PCS to implement the work required by this Order, and through continued groundwater, surface water, soil, and sediment investigations being performed by PCS pursuant to an EPA RCRA Section 3013 Monitoring, Analysis, and Testing Consent Order.

Enclosed, please find the final executed EPA RCRA Section 7003 Order that became effective on the date of signature by the EPA Region 4 RCRA Division Director. As PCS performs the analyses and implements the work required by the Order, EPA will keep you and the rest of the community apprised of its progress.

Please feel free to contact me at (404) 562-8542, or Joan Redleaf Durbin, the attorney assigned to this case, at (404) 562-9544 if you have further questions in this matter.

Sincerely,

Bethany Russell
Environmental Scientist

Enclosure

cc: Karin S. Torain, PCS Administration (USA)
Tim Bahr, FDEP
Ashwin Patel, FDEP
John Coates, FDEP

Internet Address (URL) • <http://www.epa.gov>

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Bethany Russell
South Enforcement and Compliance Section
RCRA & OPA Enforcement and Compliance Section
RCRA Division
U.S. EPA, Region 4
61 Forsyth Street, SW
Atlanta GA. 30303

May 20, 2010

**RE: RESPONSE TO - ADMINISTRATIVE ORDER ON CONSENT
EPA ID NO. FLD 098 372 360**

Dear Ms. Russell,

I am writing to inform you of the unique nature of our ongoing business operations within the PCS phosphate mining operation in Hamilton County Florida so that you will be aware of our activities in connection with your ongoing investigation. Our operations involve significant amount of human, wildlife, and recreational activity within the mine boundary compared to almost any other phosphate mining and processing operation in the country. Our activities, described below, require that water quality support recreation and environmental standards consistent with Federal and Florida law.

Glawson Investments has owned 14,000+ acres within the PCS Hamilton County mine since 1990. Since 1996, Glawson Investments has operated a well known hunting and fishing operation called Bienville Plantation (hereinafter referred to as BP). Glawson Investments and PCS operate their respective businesses within the mine boundary subject to an Operating Agreement that is intended to provide for reasonable cooperation and minimize impacts to each parties' operations. Currently, BP has ten (10) deep water wells used for either drinking, food consumption, and/or recreational purposes located within or adjacent to PCS mine boundary. As you suggested, BP will make available for testing of all these wells at your earliest convenience. Of the 14,000 + acres, BP has approximately 2,500+/- acres of either reclaimed or un-reclaimed water-bodies. Since the initial gypsum stack failure in May 2007, BP has had approximately 5,318 guest lodging nights in cabins located on one these of the reclaimed lakes known as Lake Purvis (www.bienville.com/pages/lodging/pictures/index.php). BP also has had over 25,043 activities/man days located within the PCS mine boundary during that period. The activities include breakfast, lunch, dinner, guided fishing, etc. In addition to those activities BP also has unguided fishing and duck hunting trips by members on many of these water-bodies. Based on my initial review of the member's usage we average approximately 18 boats a week with two guests per boat. From May 2007 to May 2010 this equates to 5,616 man days on those water-bodies. Many of the fishing members keep bream, crappie and catfish for human consumption, and the duck hunters keep the harvested ducks for human consumption.

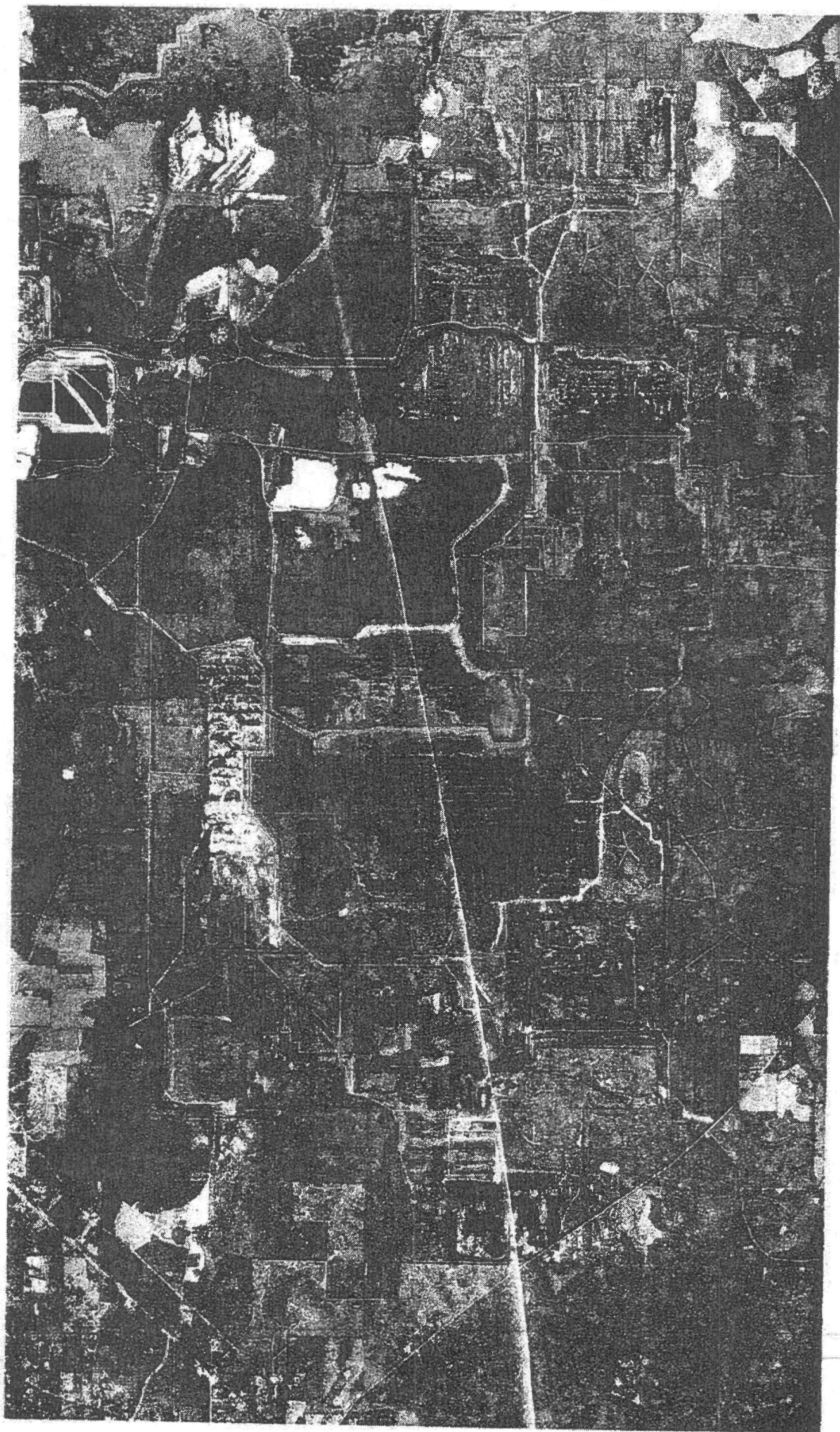
In connection with our business operations over the past several years we have retained consultants from time to time to test and evaluate the water quality of Lake Purvis and certain other BP lakes. These consultants have included a biologist, limnologist, environmental engineers, and a water resources engineer, two of which are former bureau chiefs of the FDEP Bureau of Mines and Reclamation. My understanding from our consultants is that in the first quarter of 2009, Lake Purvis, which is a reclaimed and released lake, failed to meet World Health Organization standards for recreational waters due to excessive algal blooms. The cause has been the source of some dispute between BP and PCS. In any event, I understand that the FDEP has

made you aware of the Consent Order under which PCS is currently operating under with respect to the dredging and restoration of a portion of Lake Purvis. It is our hope that this will help restore water quality to that lake, absent some additional negative influence from other sources such as contaminated ground water.

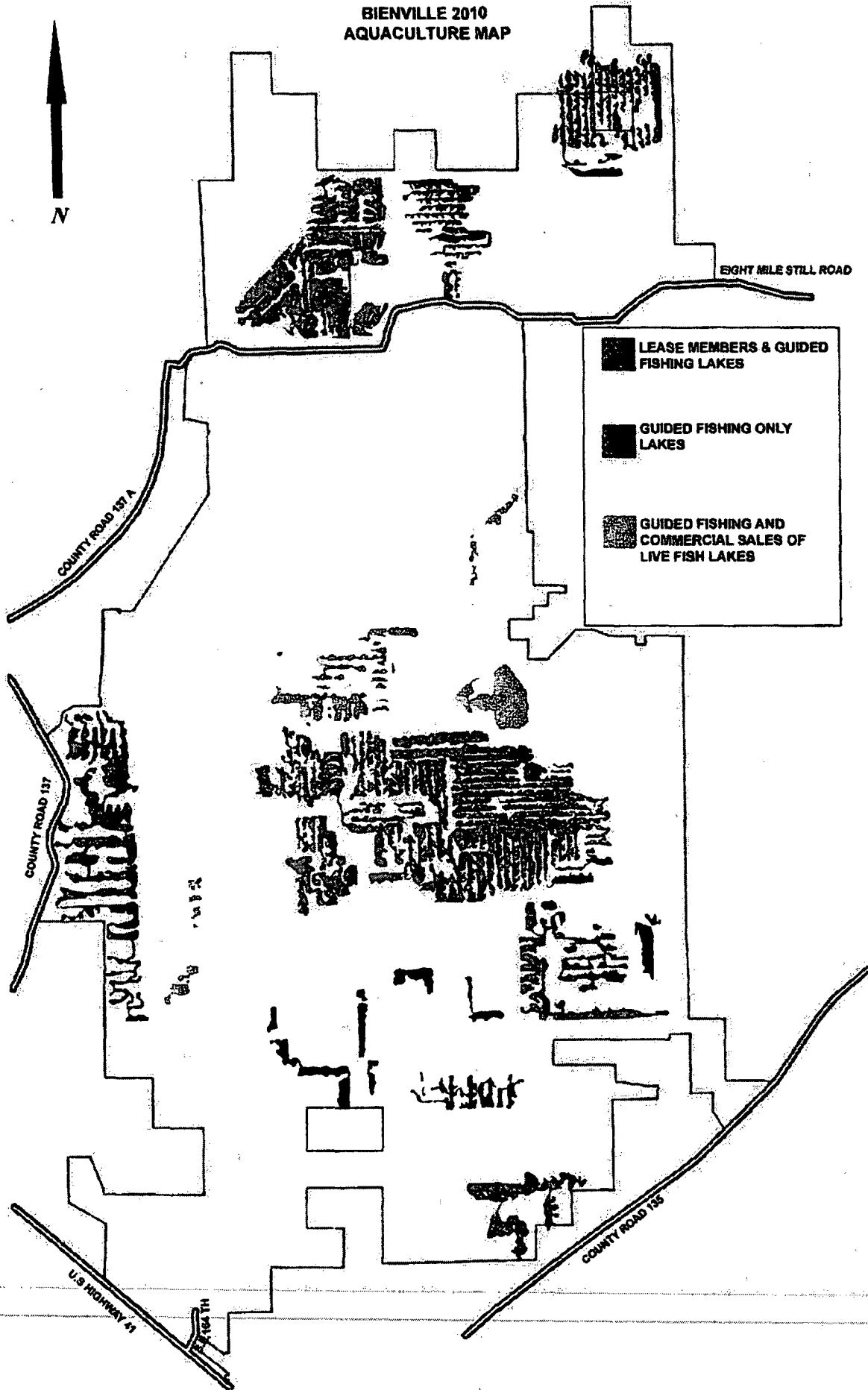
Through my personal observations, and based upon onsite inspections with the FDEP and PCS staff, it appears that the majority of our water-bodies are predominately ground-water influenced most of the time. For example, during a recent FDEP quarterly inspection I attended with PCS representative Cameron Lynch and Matt Wilson of the FDEP, we observed the actual significance of the ground water influence. Specifically, we inspected the dredging operation in an area known as PCS-HC-SC (23) (also known as South Lake Purvis) being conducted in connection with the Consent Order between PCS and the FDEP. Each of us noticed how evident the ground water influence was on this 3 acre area. It was as if someone had turned on a large water hose on the side of the bank within the shoreline. Ground water was literally just pouring into this 3 acre area. Later that evening I returned to find that the dredging contractor had the area completely drained. When I returned the next morning this same 3 acre area was more than half-way recharged through groundwater. The recharging of this area could only be coming from the ground-water since this area was completely isolated at the inlet and outlet as required by the Consent Order between the FDEP and PCS. This type of recharge of ground water occurrence continues regularly throughout the dredging operation to the north in SR-8 (Lake Purvis). Other water-bodies on BP lands within the mine boundary affected by ground water include Low Bush Bay (165+ acres), and Lake Bienville (650+ acres), which are future settling areas but currently are not used for that purpose. These lakes maintain consistent water levels even though there is no direct inlet flow into them. These lakes are designated by PCS as SR-SP(7) and SR-8715 for use as future clay settling areas but they have not been used to date for that purpose. I have attached an aerial of the 14,000 plus acres and a map highlighting all the water-bodies within our property boundary for your convenience.

Because of the substantial amount of human and wildlife activity on BP lands within the PCS mine boundary and the obvious ground water influence on those lands, I think it may be wise for the EPA to determine the actual directional flows and lateral movements of the surficial aquifer within the mine boundary and to conduct regular and intensive testing of the drinking wells and water-bodies in excess of 10 plus acres until such time that the potential impacts on the environment, if any, has been fully determined. I believe the testing water should include: (i) measurement of radiological levels, (ii) arsenic, (iii) phosphate, (iv) nitrogen, (v) PH, (vi) Cadmium, (vii) Chromium, (viii) Sulfate, and (ix) Fluoride. BP will cooperate with the EPA, and PCS in connection with any such testing. While BP hopes that any impacts will be minimal, I would like to have the testing so that I may have reassurance given our ongoing operations and the potential exposure to our guests, employees and the wildlife in the area. Thank you for your efforts.

Sincerely,
Dock Glawson
478-960-6885



BIENVILLE 2010
AQUACULTURE MAP





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 2 2010

Mr. Steven A. Suty
1986 Lake Chase Lane
Jonesboro, Georgia 30236

Dear Mr. Suty:

The United States Environmental Protection Agency, Region 4 (EPA) received your written comment letter dated May 19, 2010. Your letter was submitted to EPA during the May 3, 2010 to May 20, 2010, public comment period on EPA's proposed Resource Conservation and Recovery Act (RCRA) Section 7003 Imminent Hazard Order on consent to be issued to PCS Phosphate – White Springs (PCS), located in White Springs, Florida.

In your letter, you reference concern for damage to the Floridan aquifer, the need to prevent reoccurrence, the need to line cooling ponds, and community reservations about water quality issues. EPA appreciates your concerns and clarifies that the purpose of this Order is to address issues related to sinkhole formation beneath the three phosphogypsum stacks and cooling ponds at PCS's two White Springs chemical complexes. It is EPA's intent that in addition to addressing sinkhole formation, groundwater quality will be determined in and around the chemical complexes through PCS's ongoing groundwater monitoring, the investigations that will be necessary for PCS to implement the work required by this Order, and through continued groundwater, surface water, soil, and sediment investigations being performed by PCS pursuant to a RCRA Section 3013 Monitoring, Analysis, and Testing Consent Order.

Enclosed, please find the final executed EPA RCRA Section 7003 Order that became effective on the date of signature by the EPA Region 4 RCRA Division Director. As PCS performs the analyses and implements the work required by the Order, EPA will keep you and the rest of the community apprised of its progress.

Please feel free to contact me at (404) 562-8542, or Joan Redleaf Durbin, the attorney assigned to this case, at (404) 562-9544 if you have further questions in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Bethany Russell", is written over a horizontal line.

Bethany Russell
Environmental Scientist

Enclosure

cc: Karin S. Torain, PCS Administration (USA)
Tim Bahr, FDEP
Ashwin Patel, FDEP
John Coates, FDEP

Internet Address (URL) • <http://www.epa.gov>

Bethany Russell
US EPA, Region 4
RCRA Division-ROECB
61 Forsyth Street, SW, 10th Floor
Atlanta, Ga 30303

May 19, 2010

Re: Comments on PCS Phosphate- White Springs, Fla
Dec 10, 2009 Gypsum stack sink hole/ discharge

Dear Ms Russell,

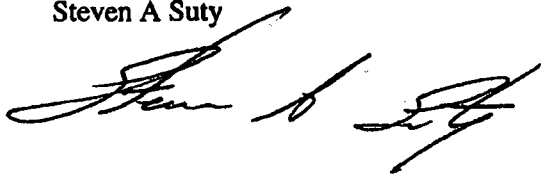
Per our phone conversation Mon May 17, 2010 I told you I had just received a copy of the fact sheet sent out to residences in Hamilton County, Fla, but lack a copy of order and administrative record for review. Your help in being able to review same by E-mail was most appreciated.

The gypstack sink hole collapse was an unfortunate event both for the company and community, much like the Gulf oil platform spill in the news today, It was only a matter of time and circumstances. I am pleased with the EPA viewpoint, that the discharge presents a substantial endangerment to human health and the environment. It's hard to gauge how much the Florida aquifer was denatured as a result. There are many components of the discharge which individually are problem sum, many are carcinogenetic. This is of a personal concern to me, having just recently lost my wife of 35yrs to cancer. We had both worked for the company under Oxy ownership

The need to prevent reoccurrence is recognized only after the fact, the continued wet handling of phosgyp will have an inherent risk going forward. Consideration should be given to dry handling phosgyp material. Liners for the cooling ponds should be required.

The long term effect on the community cannot be gauged. I will always have reservations about the water quality issues. I suspect most of the area residents will also. Well monitoring and reporting should be provided for property owners, as should water purification equipment as required.

Yours truly,
Steven A Suty





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 2 2010

Reverend Rosemarie Copeland
16498 Collins St
White Springs, Florida 32096

Dear Reverend Copeland:

The United States Environmental Protection Agency, Region 4 (EPA) received your written comment letter dated May 6, 2010. Your letter was submitted to EPA during the May 3, 2010 to May 20, 2010, public comment period on EPA's proposed Resource Conservation and Recovery Act (RCRA) Section 7003 Imminent Hazard Order on consent to be issued to PCS Phosphate – White Springs (PCS), located in White Springs, Florida.

In your letter, you reference concern for air pollution control and potential impacts to the springs in White Springs. EPA appreciates your concerns and clarifies that the purpose of this Order is to address issues related to sinkhole formation beneath the three phosphogypsum stacks and cooling ponds at PCS's two White Springs chemical complexes.

Enclosed, please find the final executed EPA RCRA Section 7003 Order that became effective on the date of signature by the EPA Region 4 RCRA Division Director. As PCS performs the analyses and implements the work required by the Order, EPA will keep you and the rest of the community apprised of its progress.

Please feel free to contact me at (404) 562-8542, or Joan Redleaf Durbin, the attorney assigned to this case, at (404) 562-9544 if you have further questions in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Bethany Russell", is written over a horizontal line.

Bethany Russell
Environmental Scientist

Enclosure

cc: Karin S. Torain, PCS Administration (USA)
Tim Bahr, FDEP
Ashwin Patel, FDEP
John Coates, FDEP

May 6, 2010

Dear Bethany Russell

That PCS plant stinks
literally. I must roll up my
window - in my car because the
stunk burns my nostrils.

It is very dangerous.
Our area is #1 in cancer
and many people have
various forms of cancer. Especially
those who have lived here for
a long time.

It is bad on air pollution.
too (Hamilton County) is #1 one in air pollution.

Please investigate this:
we heard horror stories
of men bleeding from
their noses & quietly died
later - after 20 years of
working at the Meers PCS, dying of cancer.

PCS has also died
up the 22 springs that
White Springs had &
the Spring House ^{there} has been
dry rivers since they built
this sewage. Thank you

Capt W Copelan

386 -

296-0888

Exhibit B

December 15, 2010, Monitoring Well Plan

Coates, John

From: Coates, John
Sent: Friday, December 17, 2010 8:48 AM
To: Stan Posey (sposey@pcsphosphate.com)
Cc: Meyers, Alissa; Davis, John; Brown, Drew S.; Kallemeyn, Thomas; AlNahdy, Khalid; Patel, Ashwin; Bahr, Tim; Long, Melissa M.; Bethany Russell (Russell.Bethany@epamail.epa.gov); John Kroske (Kroske.John@epamail.epa.gov); 'Redleaf-Durbin.Joan@epamail.epa.gov'; Kathryn Caballero (Caballero.Kathryn@epamail.epa.gov); Bill Preston (bill@wprestonpa.com); Garlanger, John; 'KSTorain@Potashcorp.com'; Mary Beth Deemer
Subject: RE: FDEP/PCS CO - Monitoring Well Plan (Approval)
Attachments: New Monitoring Well Locations 13Dec10.jpg; MC-1S Design.pdf; MC-1D Design.pdf

Stan,

Thank you for PCS' submittal of this December 15 revision for the proposed monitoring well locations west of the Swift Creek Gypstack. This proposal revises the prior July 22, 2010, well location proposal to the Department. I sincerely appreciate your time and efforts reviewing the monitoring options with the Department.

Based on this submittal, the proposed well installations are approved contingent on the following conditions:

- Once successfully installed and developed, PCS shall use these additional wells to monitor the ground water quality and potentiometric surface in the Floridan Aquifer west of the Swift Creek phosphogypsum stack system.;
- The proposed wells shall be included in the Intermediate PCS well monitoring group as last approved by the Department on May 14, 2010.; and
- PCS shall mobilize the drilling equipment and crew to the site for installation of this set of proposed Intermediate monitoring wells within 30 days of this approval.

Thank you again for your time and effort developing this plan. If there are any questions on this approval, please let me know.

Sincerely,

John

John A. Coates, P.E.
Deputy Director
Florida DEP, Division of Water Resource Management
Office: (850) 488-8217
Fax: (850) 412-0714

-----Original Message-----

From: sPosey@pcsphosphate.com [mailto:sPosey@pcsphosphate.com]
Sent: Wednesday, December 15, 2010 9:38 PM
To: Coates, John
Cc: Meyers, Alissa; Bill Preston; John Garlanger; KSTorain@Potashcorp.com; Mary Beth Deemer
Subject: FDEP/PCS CO - Monitoring Well Plan

John:

Following our discussion this morning and to supplement PCS's previous submittals of maps and other information for the Monitoring Well Plan contemplated by paragraph 14.a. of the proposed Consent Order between PCS and DEP, we are submitting the following by this email:

1. Proposed Locations of Additional Monitoring Wells.

PCS proposes to have installed three additional monitoring wells for the Floridan aquifer. At the locations shown on the attached, we would install Upper Floridan wells at both locations and a Middle Floridan well at the southern location only.
(See attached file: New Monitoring Well Locations 13Dec10.jpg)

2. Proposed Well Designs.

The Upper Floridan well design would be generally as shown on the attached design for MC-1S, except that the total depth would be approximately 240 feet below ground surface, cased to approximately 200 feet below ground surface, and with the addition of a permanently installed pump for sampling purposes only and a tube for measurement of water levels.
(See attached file: MC-1S Design.pdf)

The Middle Floridan well design would be generally as shown on the attached design for MC-1D, with the addition of a permanently installed pump for sampling purposes only and a tube for measurement of water levels.

(See attached file: MC-1D Design.pdf)

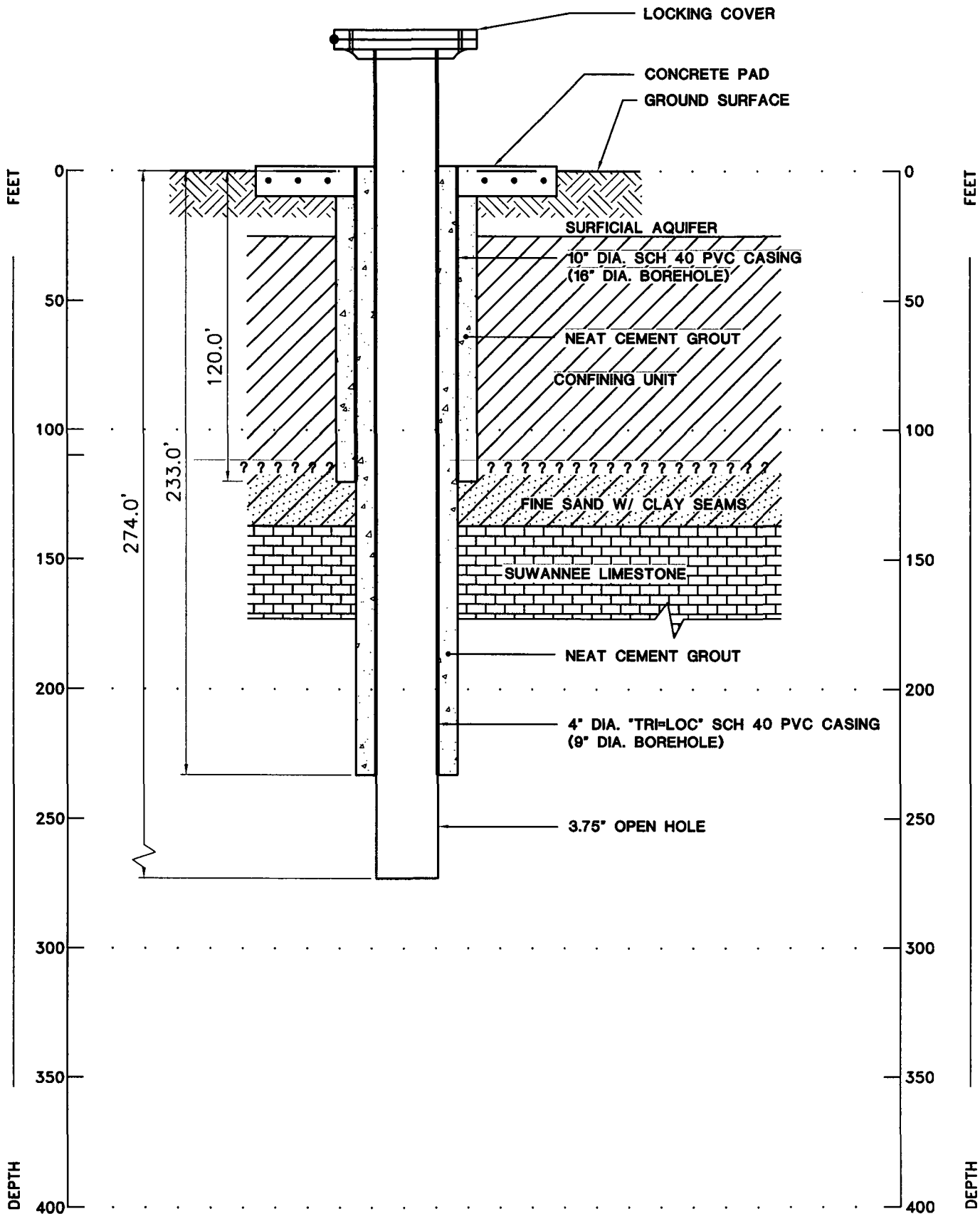
Please let me know if you have any questions regarding these locations or designs.

Stan

Stanley W. Posey
Manager, Environmental Affairs
PCS Phosphate -- White Springs
Office: 386 397 8304 Fax: 386 397 8390
Cell: 386 397 0524



T:\Corporate\06\06-230A\06230A01.dwg 6/08/2010 4:28:52 PM, scott.stevenson



**MC-1S UPPER FLORIDAN AQUIFER WELL
SWIFT CREEK CHEMICAL COMPLEX**

NOT TO SCALE

PROJECT: 06-230A	PROJECTION: FLORIDA EAST STATEPLANE
PREPARED: 03/23/10	HORIZONTAL DATUM: NAD83
PREPARED BY: CS	REVISION: 01



Ardaman & Associates, Inc.
Geotechnical, Environmental and
Materials Consultants

**PCS PHOSPHATE WHITE SPRINGS
HAMILTON COUNTY, FLORIDA**

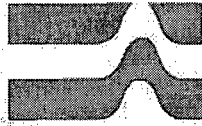
**FIGURE NO.
1**

Exhibit C

October 5, 2010, Grouting Plan
and
December 8, 2010, Grouting Remediation Schedule

**Proposed Action Plan for
Remediation of Sinkhole in Sedimentation Pond 3
(Grouting Plan)
Swift Creek Phosphogypsum Stack
Swift Creek Chemical Plant**

**White Springs Agricultural Chemicals, Inc., dba
PCS Phosphate – White Springs
Hamilton County, Florida**



Ardaman & Associates, Inc.

OFFICES

Orlando, 8008 S. Orange Avenue, Orlando, Florida 32809, Phone (407) 855-3860
Alexandria, 3609 Mac Lee Drive, Alexandria, Louisiana 71302 Phone (318) 443-2888
Bartow, 1525 Centennial Drive, Bartow, Florida 33830, Phone (863) 533-0858
Baton Rouge, 316 Highlandia Drive, Baton Rouge, Louisiana 70884, Phone (225) 752-4790
Cocoa, 1300 N. Cocoa Blvd., Cocoa, Florida 32922, Phone (321) 632-2503
Fort Myers, 9970 Bavaria Road, Fort Myers, Florida 33913, Phone (239) 768-6600
Miami, 2608 W. 84th Street, Hialeah, Florida 33016, Phone (305) 825-2683
Monroe, 1122 Hayes Street, West Monroe, Louisiana 71292, Phone (318) 387-4103
New Orleans, 1305 Distributors Row, Suite I, Jefferson, Louisiana 70123, Phone (504) 835-2593
Port Charlotte, 740 Tamiami Trail, Unit 3, Port Charlotte, Florida 33954, Phone (941) 624-3393
Port St. Lucie, 460 Concourse Place NW, Unit 1, Port St. Lucie, Florida 34986, Phone (772) 878-0072
Sarasota, 78 Sarasota Center Blvd., Sarasota, Florida 34240, Phone (941) 922-3526
Shreveport, 7222 Greenwood Road, Shreveport, Louisiana 71119, Phone (318) 636-3673
Tallahassee, 3175 West Tharpe Street, Tallahassee, Florida 32303, Phone (850) 576-6131
Tampa, 3925 Coconut Palm Drive, Suite 115, Tampa, Florida 33619, Phone (813) 620-3389
West Palm Beach, 2200 North Florida Mango Road, Suite 101, West Palm Beach, Florida 33409, Phone (561) 687-8200

MEMBERS:

A.S.F.E.

American Concrete Institute
American Society for Testing and Materials
Florida Institute of Consulting Engineers

Contents

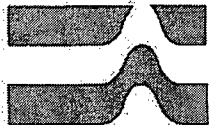
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7	Grouting Angles and Depths
8	Grout Hole Locations – Elevation 0 Feet, NGVD
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12	Location of Sinkhole and Installed Piezometers
13	NW-SE Piezometer Section (Facing Northeast)
14	NE-SW Piezometer Section (Facing Northwest)

List of Attachments

Attachment	Title
1	Preliminary Grout Mix Design
2	Piezometer Installation Details
3	Project Schedule



Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

October 5, 2010
File Number 09-13-0277B

White Springs Agricultural Chemicals, Inc., dba
PCS Phosphate - White Springs
Post Office Box 300
White Springs, Florida 32096

Attention: Mr. Stan Posey - Manager, Environmental Affairs

Subject: Proposed Action Plan for Remediation of Sinkhole in Sedimentation Pond 3 (Grouting Plan), Swift Creek Phosphogypsum Stack, Swift Creek Chemical Complex, White Springs Agricultural Chemicals, Inc., dba PCS Phosphate - White Springs ("PCS"), Hamilton County, Florida

Gentlemen:

As requested, Ardaman & Associates, Inc., has prepared this report summarizing the proposed plan of action for remediating the sinkhole that developed on the west side of the divider dike that separates Sedimentation Pond 2 and Pond 3 on top of the Swift Creek Phosphogypsum Stack at the PCS facility in Hamilton County, Florida in early December 2009. As discussed in greater detail below, the proposed remediation will consist of high pressure grouting of the subsurface cavity infill materials with a low permeability cementitious grout that will mechanically stabilize the existing infill and re-establish the natural ground confining unit separating the surficial and Floridan aquifer systems at the site location. Completion of a successful grouting and sealing program will be documented by field monitoring of sealed piezometers set in the surficial aquifer and more pervious layers in the upper portion of the confining bedclay formation to confirm that the existing cone of depression in the surficial aquifer in the immediate vicinity of the cavity recovers to background levels as the grouting operations proceed. After grouting operations are complete, the surface cavity, for safety reasons, will be infilled with slurried gypsum. Additional piezometers will then be installed on the stabilized fill directly over the center of the cavity to further confirm that an adequate seal has been achieved.

Background Information

Figures 1 and 2 show the approximate location of the Swift Creek sinkhole and position of the surface cavity relative to the divider dike between Sedimentation Pond 2 and Pond 3. An initial field exploration program and assessment of the sinkhole was undertaken during the inclusive period of December 15, 2009 through May 12, 2010. The initial assessment included drilling vertical test borings (TH-1 through TH-3) at the approximate locations shown on Figure 3 to define and document the subsurface soil stratigraphy and geologic features in the immediate vicinity of the sinkhole and angled test borings (A-1 through E-3) into the natural ground formation directly beneath the sinkhole surface expression to better define and document the shape and dimension of the subterranean cavity or erosional feature that breached the underlying confining unit. The results of that assessment are summarized in an Ardaman & Associates, Inc. (Ardaman) report titled: "Preliminary Assessment of Sinkhole in Sedimentation Pond 3, Swift Creek Phosphogypsum Stack, Swift Creek Chemical Plant, White Springs Agricultural Chemicals, Inc., dba, PCS Phosphate-White Springs, Hamilton County, Florida",

dated June 17, 2010, a copy of which was sent to the Florida Department of Environmental Protection. The following key elements noted in that report include some of the following:

- The recovered core samples indicate that the subsurface cavity is primarily filled with hard cemented gypsum blocks and limestone of limited size, as well as overburden sands and/or soft gypsum washed away by the drilling fluid.
- A few rod drops occurred during drilling, the longest being 53 feet. These drops indicate either an open void or very soft infill material.
- Water was standing in the surface cavity soon after collapse, with a surveyed elevation of 228.18 feet on December 30, 2009. Subsequent soundings conducted on January 27, 2010 and March 23, 2010 indicated ponded water levels of approximately 212 feet and 200 feet, respectively. Since that time, the water level in the cavity has increased to an elevation of approximately 258 feet. The ponded water level in the surface cavity confirms that the breach in the confining unit remains partially plugged with gypsum and overburden infill materials.
- The approximate shape of the subsurface cavity between elevations +280 and -60 feet, NGVD, is shown on the three-dimensional illustrations provided herein as Figures 4 and 5. Angled borings were generally directed between Elevations 70 and 10 feet; as such, the uppermost portion of the cavity is not well defined. It is believed to have a dome-type shape starting at Elevation 195 feet, ballooning to a diameter of roughly 120 feet across at Elevation 130 feet. Elevation 130 feet approximately marks the bottom of the gypsum stack and the top of the cast overburden/sand layer; the cavity is believed to neck down at this point to a nominal diameter of about 50 to 60 feet at the top of the confining layer (Elevation 90). Also with a diameter of 50 to 60 feet, Elevation 70 marks the upper limit of the well-defined section of the cavity. Roughly circular at this level, the size of the cavity decreases with depth to a diameter of about 15 to 20 feet near Elevation 10. The cavity also changes shape throughout this region, becoming elliptical down to Elevation 30 feet, and then returning to a circular cross-section at Elevation 10 feet. The "necking down" aspect of the cavity geometry is important; it provides an area to create a mechanically stable plug and allow future grouting operations to re-establish the confining unit.
- As shown in Figure 6, the confining unit (Hawthorn formation) from the base of the surficial soils to the top of the Suwannee limestone formation consists of various layers of highly consolidated clay and phosphatic sand layers, with occasional layers of limestone and sandstone. The clayey layers in the lower portion of the Hawthorn formation act as confining beds separating the surficial deposits from the Floridan aquifer. Of particular interest relative to defining the confining bed are relatively low permeability layered systems of green clay and clayey sand that were encountered in both of the deep vertical test borings (i.e., TH-1 and TH-2) between elevation 80 feet and elevation 20 feet (NGVD). Although the elevation and thickness of this layer varies somewhat in each test boring, the clay and clayey sand layers appear to be continuous in the vicinity of the sinkhole and make up the major confining unit between the surficial and Floridan aquifer systems throughout the PCS property.

Proposed Grouting Plan

Based on the results of the initial exploratory work discussed above, the shape of the subsurface cavity and the verified presence of a continuous clayey confining unit in the bedrock/bedclay formation will allow the cavity to be remediated (i.e., sealed) using conventional high pressure grouting techniques. Recommended procedures for grouting and sealing the breach in the confining unit, including performance monitoring, are discussed below.

The well-developed procedure for grouting this type of feature is to grout the cavity in stages starting from the perimeter, working inward and upward from the base of the cavity to a predetermined elevation above the identified confining unit. However, if a large cavity or soft gypsum is encountered within the gypsum stack, flowable grout will be introduced at these elevations to fill and stabilize large voids; and to compact and solidify any soft material prior to grouting and sealing the throat of the solution channel in the confining unit.

Since the number of exploratory borings performed during the initial assessment was limited, angled core borings drilled in the process of setting all grout casings will be surveyed to further define and refine the shape of the subterranean cavity as the work progresses. The axial alignment of each borehole will be surveyed in advance of grouting to verify that the grout casing is in the correct position within the cavity and to confirm and document the presence and integrity of previously placed grout layers.

The core borings and grout casing set at the deepest locations will be positioned at the steepest angles to the vertical, providing both the shortest path to the throat and lower elevations as well as enabling the grouting operations to tie the sides of the cavity into the weathered structure of the surrounding limerock formation. The upstage method of grouting will be used, wherein high pressure grout is injected into the cavity while gradually extracting the casing in increments, using either rotation of the drill casing, high frequency vibrations, or mechanical jacking techniques to release the casing from any surrounding grout. High pressure, fracture grouting techniques will be used within the identified limits of the cavity, with lower pressure conventional grouting techniques used in the natural ground soils outside the limits of the cavity.

Figure 7 conceptually illustrates the progression of the proposed grouting operations. As noted, core borings and grout casings will be installed primarily from the five working Pads (A, B, C, D and E). These borings will be drilled at angles ranging from about 25 to 45 degrees from vertical, with total borehole lengths varying from about 290 to 360 feet on Pads A and B and from 230 to 310 feet on Pads C, D and E. The proposed order of grouting will generally proceed as follows:

1. Initial emphasis will be on grouting and providing a mechanical plug in the base or throat of the cavity in the underlying limestone formation that will stabilize the overlying gypsum infill materials during subsequent grouting operations in the upper portion of the cavity. Low slump grout will be introduced using relatively low grout pressure. The mechanical plug will be established between the approximate elevation range of -10 to +20 feet (NGVD), where core recovery was on average less than 50-percent and the materials are comprised primarily of gravel and cobble sized overburden and gypsum pieces with a few larger blocks of gypsum. It is possible that large voids and/or zones of unstable material will be encountered when drilling through the upper dome portion of the cavity within the gypsum stack. This is highly undesirable because the drill rods and grout casings need support

from the surrounding material. If need be, flowable grout may be used to fill the voids and stabilize soft material in the upper cavity (above Elevation 100 feet NGVD) before grouting the breach in the confining layer.

2. The upper portion of the limestone formation up to approximately Elevation +20 feet (NGVD) and the intermediate zone between the top of the limestone formation and the base of the more clayey confining units in the Hawthorne Formation (near Elevation +50 feet, NGVD) will then be grouted using similar procedures, with emphasis on compaction and mechanical stabilization of the cavity infill materials below the overlying confining unit. Average core recovery within the elevation range of +20 to +50 feet (NGVD) was on the order of 40 percent.
3. Major emphasis will then be placed on high pressure grouting and sealing the area where the clay confining unit is missing in the approximate elevation range of +50 to +80 feet (NGVD), which includes the green clay and clayey sand layers that are most likely the least permeable members of the confining unit. High pressure grouting techniques will be utilized throughout this zone with the objective of hydraulically fracturing the softer infill materials, allowing the low permeability grout mix to migrate around and totally encapsulate the denser and blocky gypsum infill to re-establish the continuity and integrity of the confining layer.
4. Flowable grout will be utilized above elevation +100 feet (NGVD) to fill and stabilize large voids; and to compact and solidify any soft material.

The approximate borehole locations and expected grout coverage assuming a 15-foot grout spread around the centerline alignment of each borehole (a conservative estimate based on our previous sinkhole remediation experience) for various target elevations are presented in Figures 8 through 11. These figures also display the estimated shape of the cavity at particular elevations, illustrating proposed grout patterns that fully encapsulate the lateral limits of the cavity at that particular depth and location. The number and location of grout holes will be varied as needed to adjust for actual grout spreads and/or variations in the cavity geometry determined as the work progresses.

Although the approximate geometry of the cavity has been fairly well defined by the exploratory borings, further definition and refinement of the exact cavity geometry will be obtained from additional core borings drilled to set the various grout casings. Due to the natural tendency for the angled borings to dip or deflect with depth from the original surface alignment, the actual drilling angle and direction will be measured in the borehole casing prior to grouting using a Maxibore directional survey device. The measured angle of dip in the test borings typically increases (steepens) by 2 to 3 degrees from the original surface inclination depending on the angle of the boring and the stiffness of the casing and drilling materials used. The lateral alignment or bearing of the casing can also be deflected due to variations in material density or hardness or due to the natural tendency for the hole to drift, under certain conditions, toward the direction of rotation of the drill head. The measured inclination and alignment data for each borehole will be used to determine and document the exact point of intersection (entrance and exit points) with the cavity wall. The surface alignment of subsequent boreholes will be adjusted as needed to enable the target grout locations to be achieved with a higher degree of accuracy.

Grout Mix Design

Ardaman has completed a laboratory grout mix design program to develop a non-reactive, low permeability and mechanically stable grout that will stand up to the high pressures and groundwater environment anticipated at the Swift Creek sinkhole site. The grout mix design criteria and laboratory test result of the various trial mixes are provided in the summary report presented in Attachment 1 of this report. The proposed grout mix contains 71% non-reactive fine aggregate, 19% Type II cement, 9% Class F fly ash and 1% bentonite added as 4.7% solids content slurry. RHEOBUILD 1000 super plasticizer will be added to the grout mix as needed to achieve the target slump of 9 to 10 inches. As noted in Attachment 1, the proposed grout mix design has laboratory measured 28-day hydraulic conductivities in the range of 8×10^{-10} to 3×10^{-9} cm/sec, which is less than the target value of 10^{-7} cm/sec. The laboratory measured 28-day unconfined compressive strength test results are in the range of 2100 to 2700 psi, which is greater than the specified target minimum value of 500 to 1000 psi.

A series of field trial grout mixes will be made using the standard grout mix design prior to initiating production grouting to confirm that the field mixed grouts are consistent with the laboratory mixed materials. Adjustments to the field mixing procedures and proportions will be made as necessary to achieve the desired grout characteristics. It is anticipated that up to 3,000 cubic yards of grout may be required to remediate the subterranean erosion cavity between elevations -10 and +90 feet (NGVD). Furthermore, as much as 18,000 cubic yards of flowable grout fill may be required in the dome-shaped feature above Elevation +100 feet (NGVD). A flowable fill grout composition of 71% PCS tailings sand fine aggregate, 9% Portland cement, 19% SEC fly ash (cement/fly ash ratio of 0.5), and 1% HYDROGEL 125 bentonite was found to have substantial bleed resistance and resistant to mass loss and segregation during placement under water.

Field Confirmation of Grouting Operations

Ardaman & Associates, Inc., will have a geotechnical engineer and support personnel onsite at all times to observe and confirm that all drilling and grouting operations are completed in accordance with the project specifications. A geologist or experienced driller will be assigned to each drill rig to oversee all coring operations, including verification of the drill rig alignment and borehole angle, visual classification of all recovered core samples, identification of the cavity entry and exit points, confirmation that grout casing is set properly and to specified depth, observation of the Maxibore downhole survey needed to document borehole alignment, proper drilling techniques, etc. An engineer will observe and direct all grouting operations undertaken by the contractor, including confirmation that the required grout pressures and flow volumes are achieved at each grout position and controlled extraction of the grout casing to the next grout position, observe and confirm that the overall performance of the grouting equipment, techniques and operations are consistent with the design objective. The engineer will be supported by field inspectors and technicians, including concrete materials specialists that will provide quality control sampling and testing of all raw materials used in the field grout mix, continuous observation of all batch plant operations to confirm proper mix proportions and mixing techniques, sampling and testing of the completed grout mixes at the discharge of the batch plant, transfer of the completed grout to the high pressure grout pump, proper operation and calibration of the grout pump and associated pressure gages and flow recording equipment, etc. A final engineering summary report will be issued to document the results of all field and

laboratory materials testing and observations to document that all grouting operations were completed in accordance with the intent of the project specifications.

Grout spreads and distribution within the grouted cavity will be confirmed by the recovery of core samples from subsequent boring locations. Undisturbed wire-line core samples of the grouted infill materials will also be obtained from completed portions of the cavity for visual inspection and laboratory materials testing to document compliance with the project specifications. All recovered core samples will be visually classified in the field in accordance with the Unified Soil Classification System, placed in plastic core boxes and transported to Ardaman's Orlando laboratory for additional visual classification and/or testing, as required. Samples of the grouted infill materials within the cavity will be recovered during drilling through any previously placed grout locations. The recovered samples will be tested in our laboratory for unconfined compressive strength and hydraulic conductivity to confirm and document the effectiveness of grouting operations.

The effectiveness of the grout seal will also be confirmed through the use of sealed piezometers set in the surficial aquifer and more pervious layers in the upper portion of the confining bedclay formation to confirm that the existing depression in the surficial aquifer in the immediate vicinity of the cavity recovers to background levels as the grouting operations proceed. To establish background conditions both in the immediate vicinity of the cavity and in areas unaffected by the sinkhole, Ardaman installed two series of sealed piezometers into the foundation soils at locations shown in Figure 12. One series gives a cross-section across the cavity in a southwest-northeast plane, while the other series cuts the sinkhole in a southeast-northwest plane. With the exception of P-1 and P-2 groups, each piezometer station consists of one surficial aquifer piezometer set in the unconsolidated natural ground soils (matrix) located directly above the top of the bedclay or bedrock layer. Groups P-1 and P-2 each consist of three active piezometers, each with one in the gypsum stack and one within the cast overburden and natural phosphate sand, but above the clayey confining layer. The third piezometer of group P-1 sits within the clayey confining layer, while group P-2's third piezometer takes readings from the Floridan aquifer. Details regarding the installed piezometers are provided in Attachment 2.

As noted, leakage through the existing breach in the confining layer typically causes a cone of depression or drop in water levels within the immediate vicinity of the sinkhole cavity. This phenomenon was confirmed by the first readings taken from the installed piezometers. Readings from 6/9/2010 to present show that the water levels have risen with time, although not up to background levels. This indicates that the infill material has partially plugged the sinkhole. Ardaman expects the depressed water level in the immediate vicinity of the cavity to return to background levels after fully sealing the cavity with grout.

It is anticipated that additional piezometers will also be installed directly over the top of the grouted cavity once the open surface collapse feature has been infilled and stabilized. From a safety and practicality standpoint, a gypsum slurry is the best way to infill the surface feature after grouting operations are complete and the cavity is sealed. Vehicular traffic over the top of the sinkhole area should be restricted after grouting and backfill operations are complete.

QC/QA Procedure During and After Implementation

Grout Spread and Grout Coverage

Grout spread and coverage will be monitored by identifying zones of hardened concrete encountered at depth intervals during coring. Grout originated from prior grouting operations at adjacent grout holes should be intimately bonded to the gypsum blocks (and/or natural formation) within the erosion cavity.

Grout Spread

A design grout spread distance of 15 feet was selected based on our experience with remediation of other sinkholes. This assumption was used in order to conservatively plan the number and location of grout holes needed to provide adequate coverage where the extent of the erosion cavity was largest, i.e., between Elevation 30 and 90 feet, NGVD, designated as Levels II and III. As the coring operation progresses, the spread will be verified by analyzing the core hole data assuming that the grout encountered in any given core hole originated from the then nearest pre-existing grout injection hole, and that the grout traveled along the shortest path (i.e., horizontally). Grout spread distances shall be continuously evaluated and updated as the grouting program and coring operations progress.

The concrete coverage at each Level will be evaluated using the original design spread distance and the actual measured spread distance to confirm that adequate coverage is provided at each target level.

Grout Take

The estimated grout take, based on results of the preliminary field exploration program, will be regularly updated while the remedial plan of action is being implemented. Quantities of concrete grout injected into the erosion cavity in the confining unit and above the confining unit at each of the grout holes will be recorded.

Based on the piezometer water levels, it appears that the throat and some of the void spaces in the erosion cavity in the confining unit was temporarily sealed by collapsed material by mid-July 2010 when piezometric water levels experienced a significant rise. However, the grouting program will target the throat within the erosion cavity in the confining with high pressure grout injection until the grout takes are dramatically diminished and a more permanent plug is established. Flowable grout injection will introduce a relatively large quantity of grout at and above elevation +100 feet (NGVD), within the uppermost erosion cavity in the gypsum, that will fill any remaining large voids and compact and solidify soft material.

Engineering Properties of Injected Grout

Quality Control

A series of field trial grout mixes will be made using the standard grout mix prior to initiating production grouting to: (i) compare the characteristics (i.e., slump versus w/c ratio, bleed resistance, resistance to segregation, admixture dosage to achieve target slump of 9 to 10 inches, 28-day hydraulic conductivity and 28-day unconfined compressive strength) of the field mixed grouts with those measured on the laboratory mixed grouts; and (ii) adjust the procedure

for field mixing of the dry materials (fine aggregate, fly ash and cement), bentonite slurry and super plasticizer to achieve grout characteristics satisfying the design criteria.

As part of the quality control during grout injection operations, slump tests will be performed on every load to measure the initial slump and determine the admixture dosage to achieve the target slump of 9 to 10 inches. Sets of concrete grout cylinder samples will be obtained, at a frequency of one set for every 100 cubic yards of grout, for laboratory testing. Laboratory testing will include unconfined compression and permeability tests performed on molded cylinder samples of grout. The unconfined compression tests shall be performed in general accordance with ASTM Standard D 2938 on 3-inch diameter by 6-inch high wet cured samples sheared at a constant rate of strain of 0.5 to 1% per minute. The permeability tests shall be performed in general accordance with ASTM Standard D 5084 on 2-inch diameter by 4-inch high wet cured samples using an isotropic effective consolidation stress of 15 psi and back-pressure of 175 psi. Specimens shall be tested after curing times of 3, 7, 14 or 28 days.

Quality Assurance

Intact grout core samples will be collected from core holes to determine the unconfined compressive strength and hydraulic conductivity of the injected grout. At minimum, one compressive strength test and one hydraulic conductivity test will be performed on samples from each core hole.

Unconfined compression tests will be performed in general accordance with ASTM Standard D 2938 at a constant rate of strain of 0.5 to 1% per minute typically on 2 to 4-inch diameter core samples trimmed to a length to diameter ratio of 2 to 1.

All grout samples must exceed the specified minimum 28-day unconfined compressive strength of 500 to 1,000 psi after 28 days of curing.

Permeability tests will be performed on 2 to 4-inch diameter intact grout samples in general accordance with ASTM Standard D 5084 using an isotropic effective consolidation stress of 15 psi and back-pressure of 175 psi.

Grout samples shall display 28-day hydraulic conductivity less than the specified maximum 28-day hydraulic conductivity of 10^{-7} cm/sec for cylinder mold samples and 10^{-6} cm/sec for core samples.

Recommended Monitoring Program

Ardaman has installed two series of sealed piezometers into the foundation soils. One series gives a cross-section across the breach in a southwest-northeast plane, while the other series cuts the breach in a southeast-northwest plane. With the exception of P-1 and P-2 groups, each piezometer station consists of one surficial aquifer piezometer set in the unconsolidated natural ground soils (matrix) located directly above the top of the bedclay or bedrock layer. Groups P-1 and P-2 each consist of three active piezometers, each with one in the gypsum stack and one within the cast overburden and/or natural phosphate sand, but above the clayey confining layer. The third piezometer of group P-1 sits within the clayey confining layer, while group P-2's third piezometer takes readings from the Floridan aquifer. In addition, two observation "standpipe" wells have also been installed. It is recommended that data from all

observation wells and piezometers continue to be collected and evaluated on a daily basis during implementation and on a weekly basis thereafter.

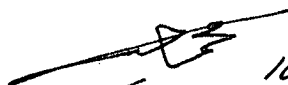
Moreover, PCS's groundwater monitoring program has been expanded to include daily sampling and analysis of designated intermediate aquifer and Floridan aquifer monitor wells for indicator parameters. It is recommended that data from the designated wells continue to be collected and evaluated on a daily basis during implementation and quarterly thereafter.

Project Schedule

Earthwork operations in the area of the grout mix plant site (north wall of Compartment 3) and work pad locations (lower cofferdam and upper divider dike) started in early September and are currently still underway. Grout plant mobilization is scheduled for mid October with a projected grout hole production start date of November 1, 2010. It is estimated that approximately three (3) grout holes will be completed each week. The current schedule indicates structural grouting of lower throat (Grout Zone I on Figure 7) followed by flowable fill grouting of the erosion dome feature. See project schedule (Attachment 3) for details regarding individual activities/milestones required to complete the remediation process.

We trust that this summary of the proposed remediation action plan meets your immediate needs and we look forward to working with you on this project going forward. If you have any questions or comments, please contact the undersigned or our Mr. Brian Runkles, who has been involved with all of the site assessment and remediation planning completed to date.

Very truly yours,
ARDAMAN & ASSOCIATES, INC.
Certificate of Authorization No. 5950

 10/05/2010

Mohamad Al-hawaree, P.E.
Senior Project Manager



Bill E. Jackson, P.E.
Principal Engineer

 10/5/10

John E. Garlanger, Ph.D., P.E.
Senior Consultant
Florida License No. 19782

MH/BEJ/JEG/ed



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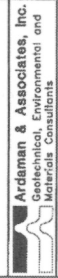
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TOPOGRAPHIC SURVEY BASED
ON AERIAL PHOTOGRAPH
DATED DECEMBER 30, 2009.

5-FOOT CONTOUR INTERVAL



SITE LOCATION PLAN



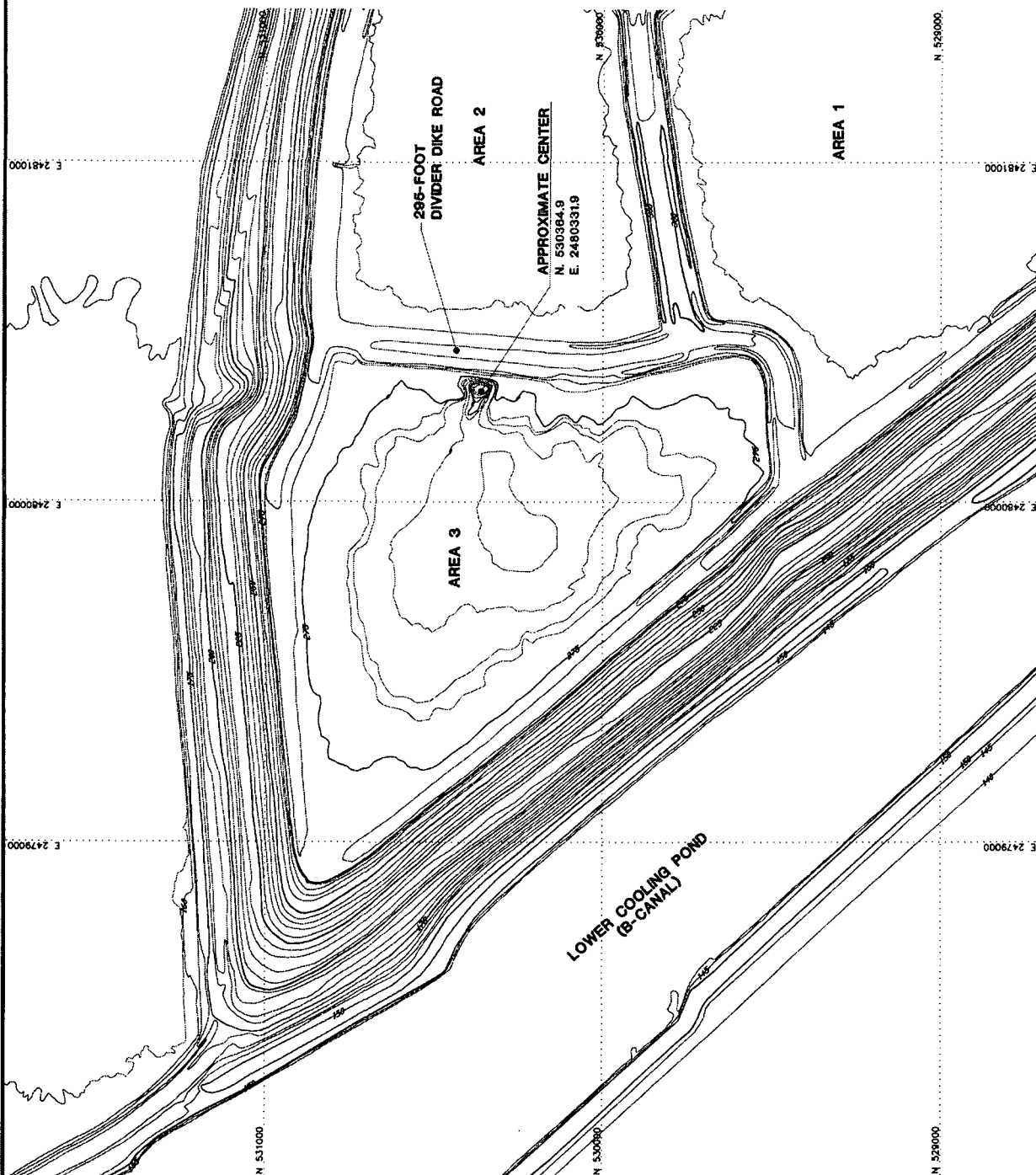
Ardaman & Associates, Inc.
Geotechnical, Environmental and
Materials Consultants
PROPOSED REMEDIATION ACTION PLAN
SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

DRAWN BY: BTW | CHECKED BY: BDB | DATE: 03/02/10
FILE NO: 09-277 | APPROVED BY: [Signature] | FIGURE 1



0 150 300
SCALE - 1"=300'

TOPOGRAPHIC SURVEY BASED
ON AERIAL PHOTOGRAPH
DATED DECEMBER 30, 2009.
6-FOOT CONTOUR INTERVAL



**SITE LOCATION PLAN SHOWN
ON TOPOGRAPHIC MAP**

Ardaman & Associates, Inc.
Geotechnical, Environmental and
Remediation Consultants

PROPOSED REMEDIATION ACTION PLAN

SWIFT CREEK GYPSUM STACK
PC8 PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

DRAWN BY: ME
CHECKED BY: BDR
DATE: 05/08/10
FILE NO.: 08-277
APPROVED BY: [Signature]
FIGURE: 2



0 30 60
SCALE: 1"=80'

AERIAL PHOTOGRAPH
DATED DECEMBER 30, 2009.

LEGEND

- TH-1 VERTICAL TEST BORING
PERFORMED DURING INITIAL
SITE ASSESSMENT
- A-1, A-3, ETC.
ANGLE TEST BORING DRILLED
INTO FOUNDATION SOILS
BENEATH SURFACE COLLAPSE

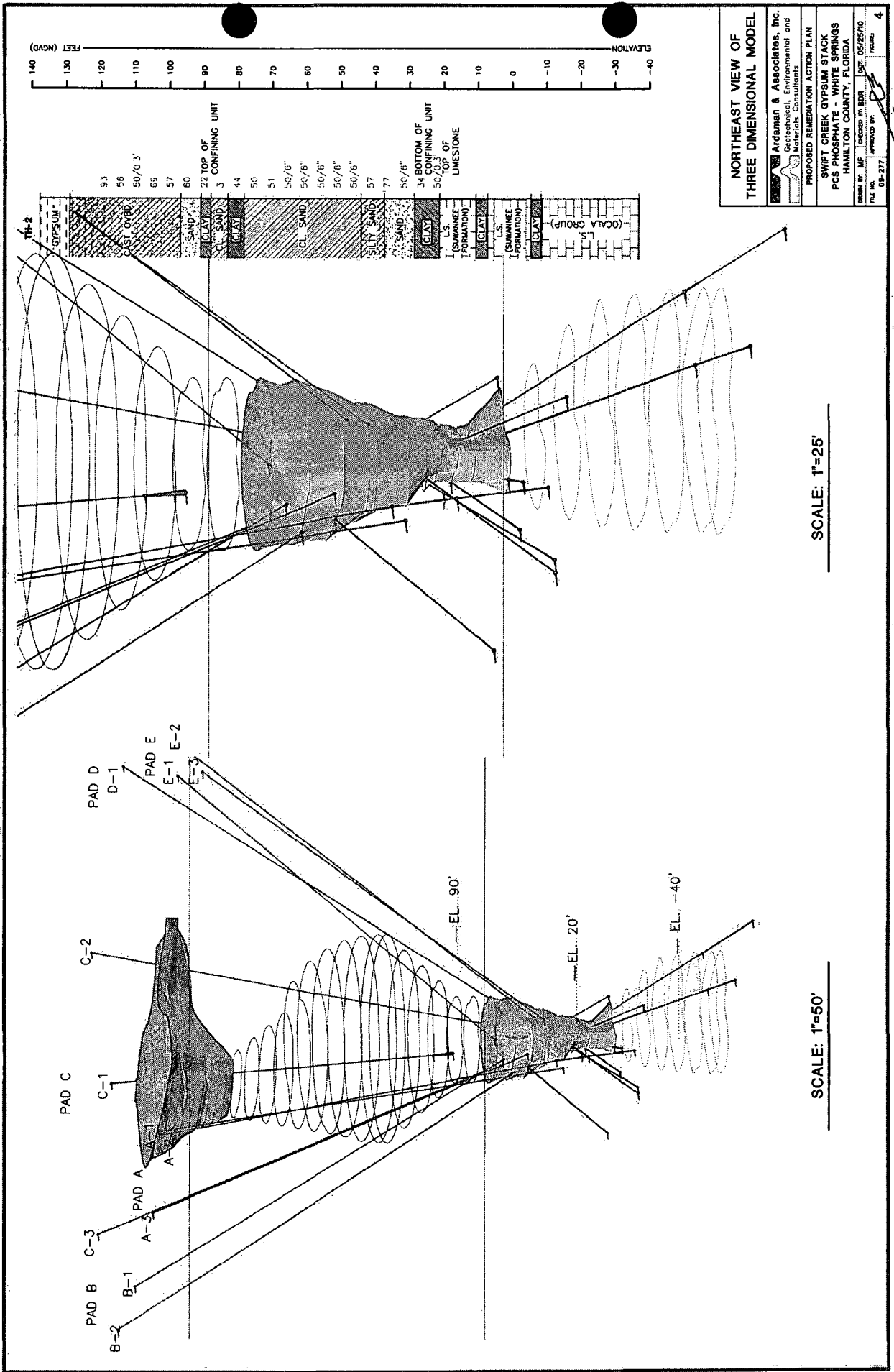
Ardaman & Associates, Inc.
Geotechnical, Environmental and
Materials Consultants

PROPOSED REMEDIATION ACTION PLAN
SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

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CHECKED BY: BDR
DATE: 05/08/10
FILE NO.: 09-277
REVISION: 3

SITE LOCATION PLAN SHOWN
ON AERIAL PHOTOGRAPH





**NORTHEAST VIEW OF
THREE DIMENSIONAL MODEL**

Ardayan & Associates, Inc.
Geotechnical Engineering and
Materials Consultants

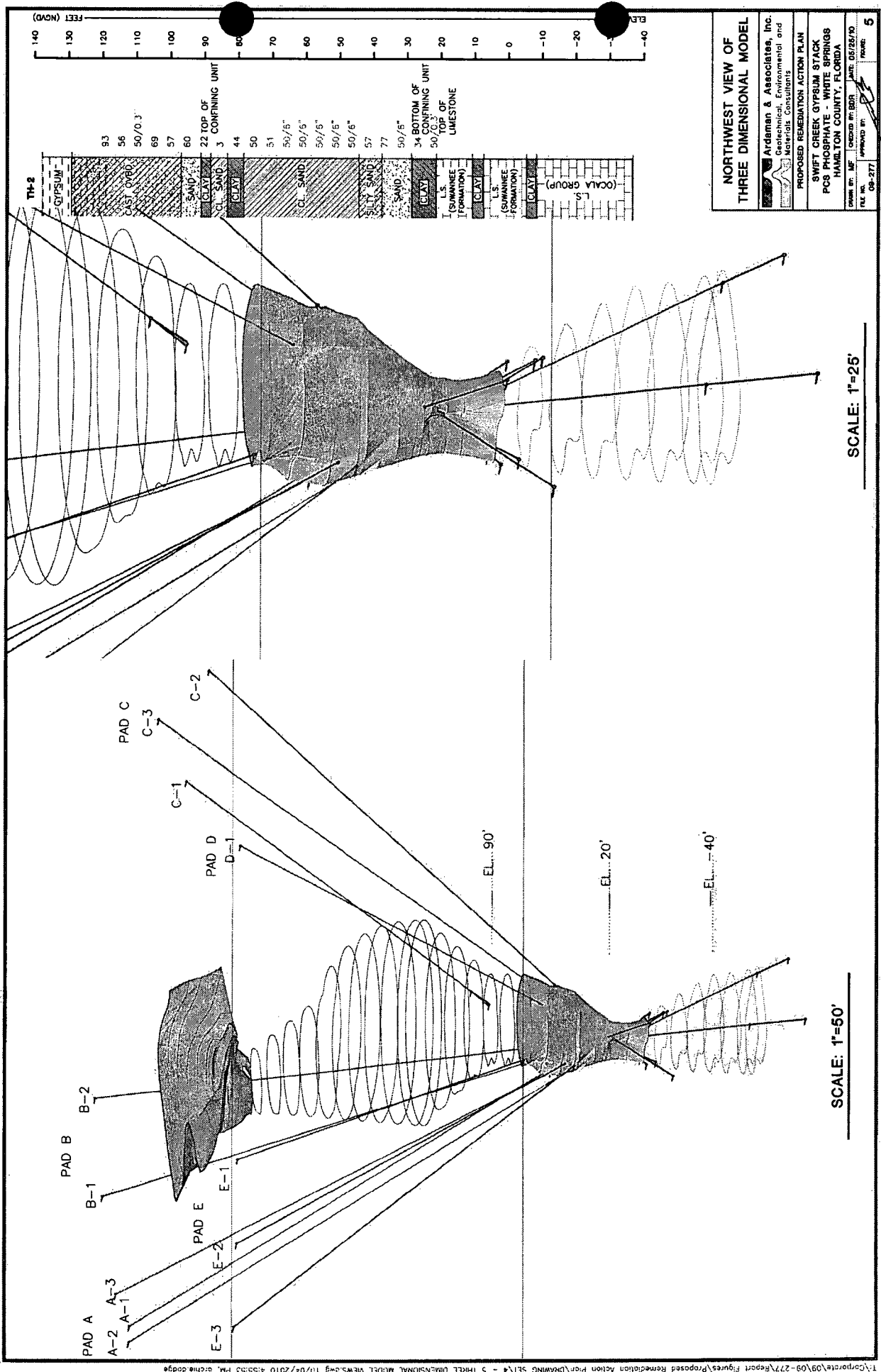
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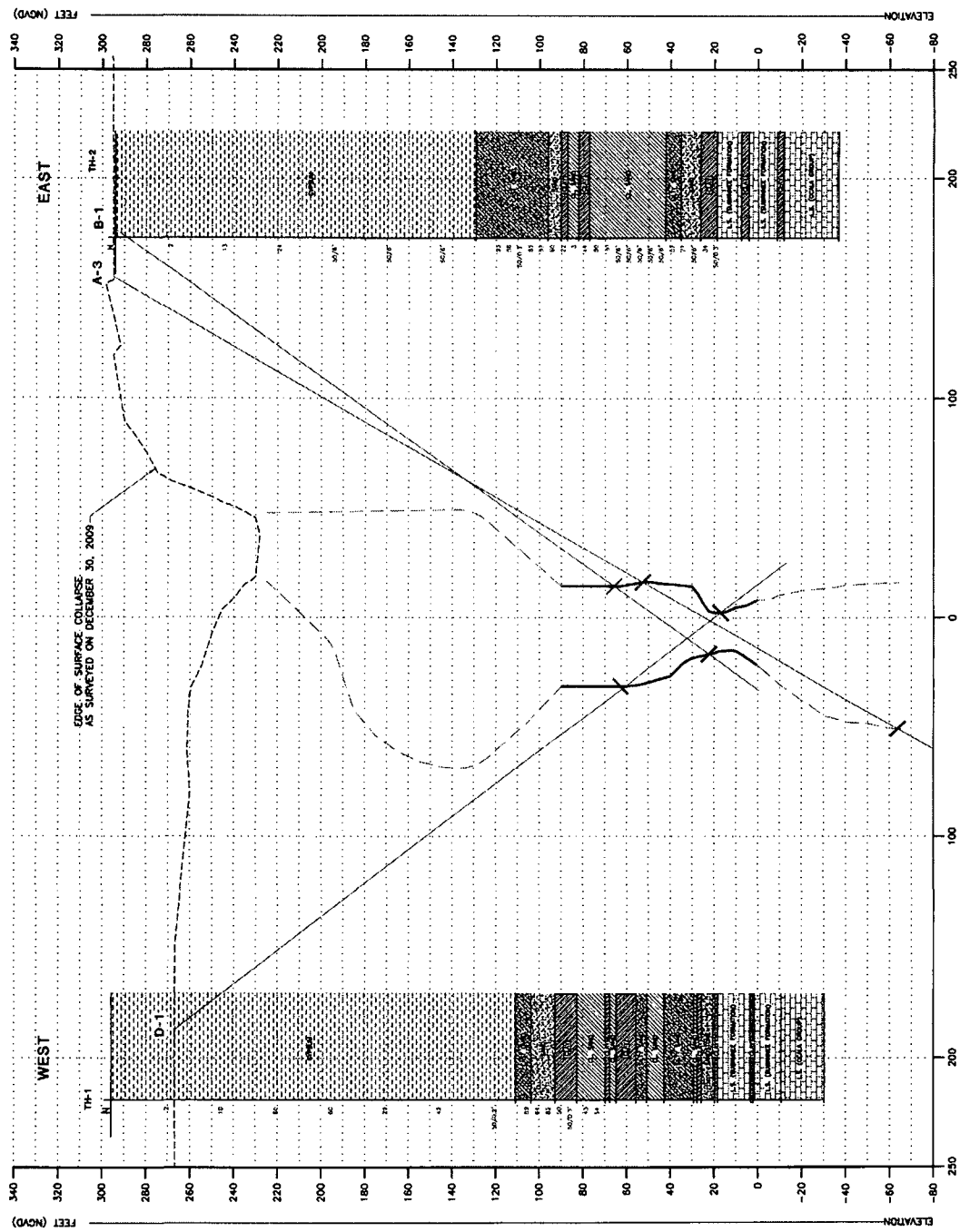
SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

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CHECKED BY: BDR
DATE: 05/25/10
FILE NO: 09-277
APPROVED BY: [Signature]
FIGURE: 4

SCALE: 1"=25'

SCALE: 1"=50'





E-W CROSS SECTION (FACING NORTH)

Arduan & Associates, Inc.
Civil, Environmental and Materials Consultants

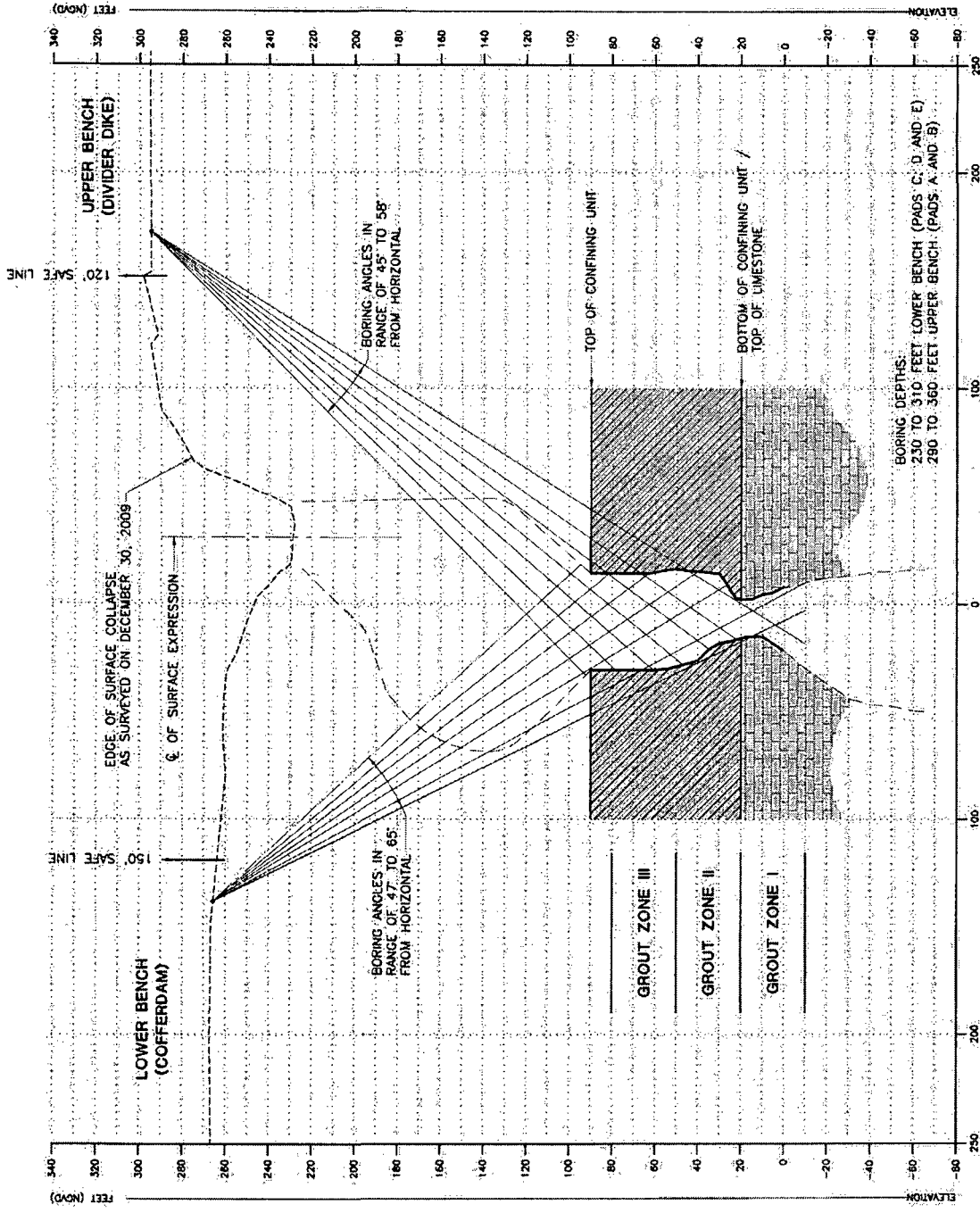
PROPOSED REMEDIATION ACTION PLAN

SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

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Checked by: BDR
Date: 05/28/10

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Approved by: [Signature]
Date: 06/01/10

6



E-W CROSS SECTION (FACING NORTH)

SCALE: 1" = 50'

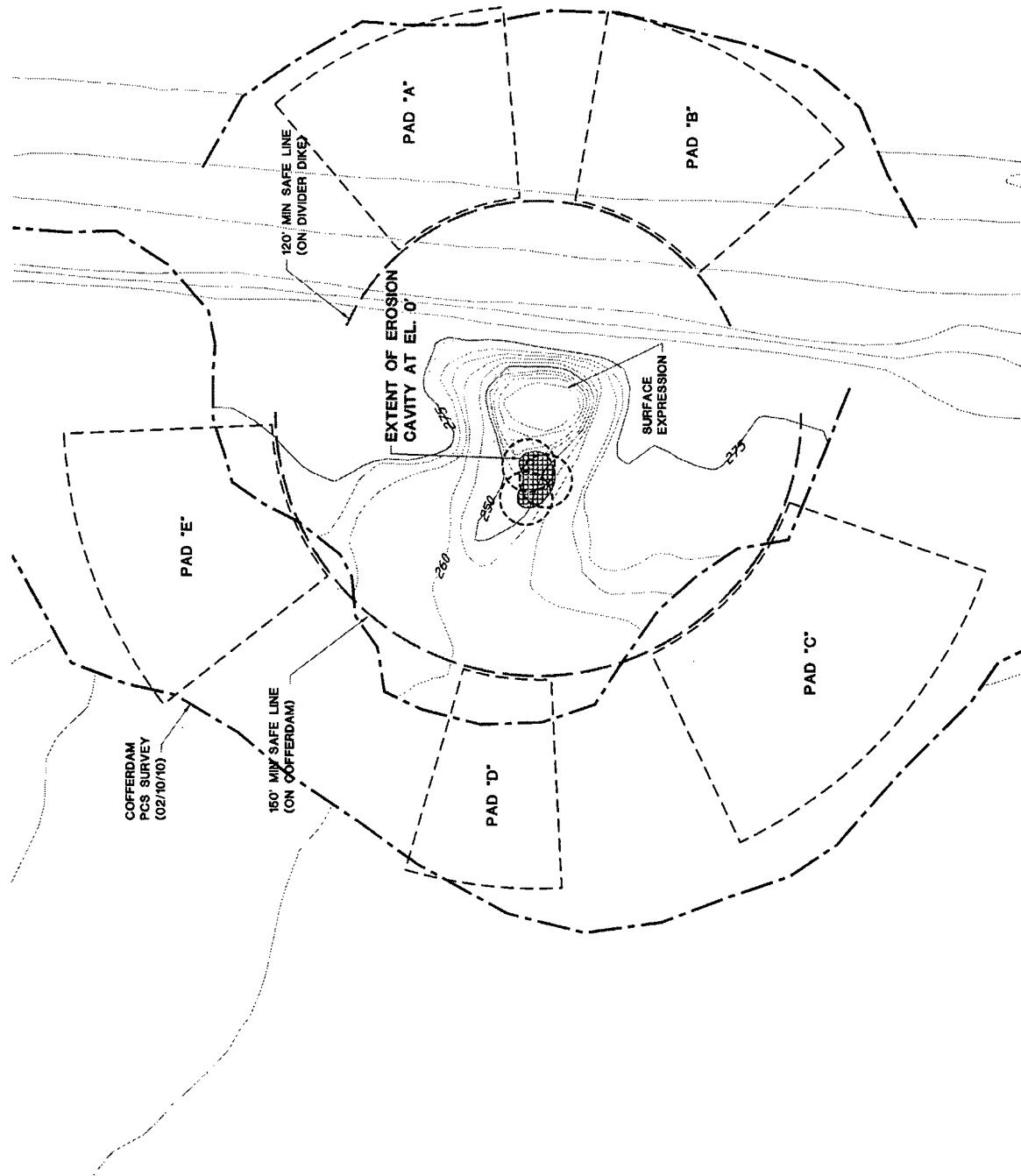
GROUTING ANGLES AND DEPTHS	
 Ardaman & Associates, Inc. Geotechnical Engineering and Material Construction	
PROPOSED REMEDIATION ACTION PLAN	
SWIFT CREEK GYPSUM STACK	
PCS PHOSPHATE - WHITE SPRINGS	
HAMILTON COUNTY, FLORIDA	
DESIGN BY: MF	CHECKED BY: EDR
DATE: 05/25/10	DATE: 05/25/10
FILE NO.: 09-277	APPENDIX: 7



0 30 60
SCALE: 1"=60'

TOPOGRAPHIC SURVEY BASED
ON AERIAL PHOTOGRAPH
DATED DECEMBER 30, 2009
AND PCS SURVEY
DATED FEBRUARY 10, 2010.

6-FOOT CONTOUR INTERVAL



GROUT HOLE LOCATIONS ELEVATION 0 FEET, NGVD

Ardaman & Associates, Inc.
Geotechnical, Environmental, and
Soils Consultants

PROPOSED REMEDIATION ACTION PLAN

SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

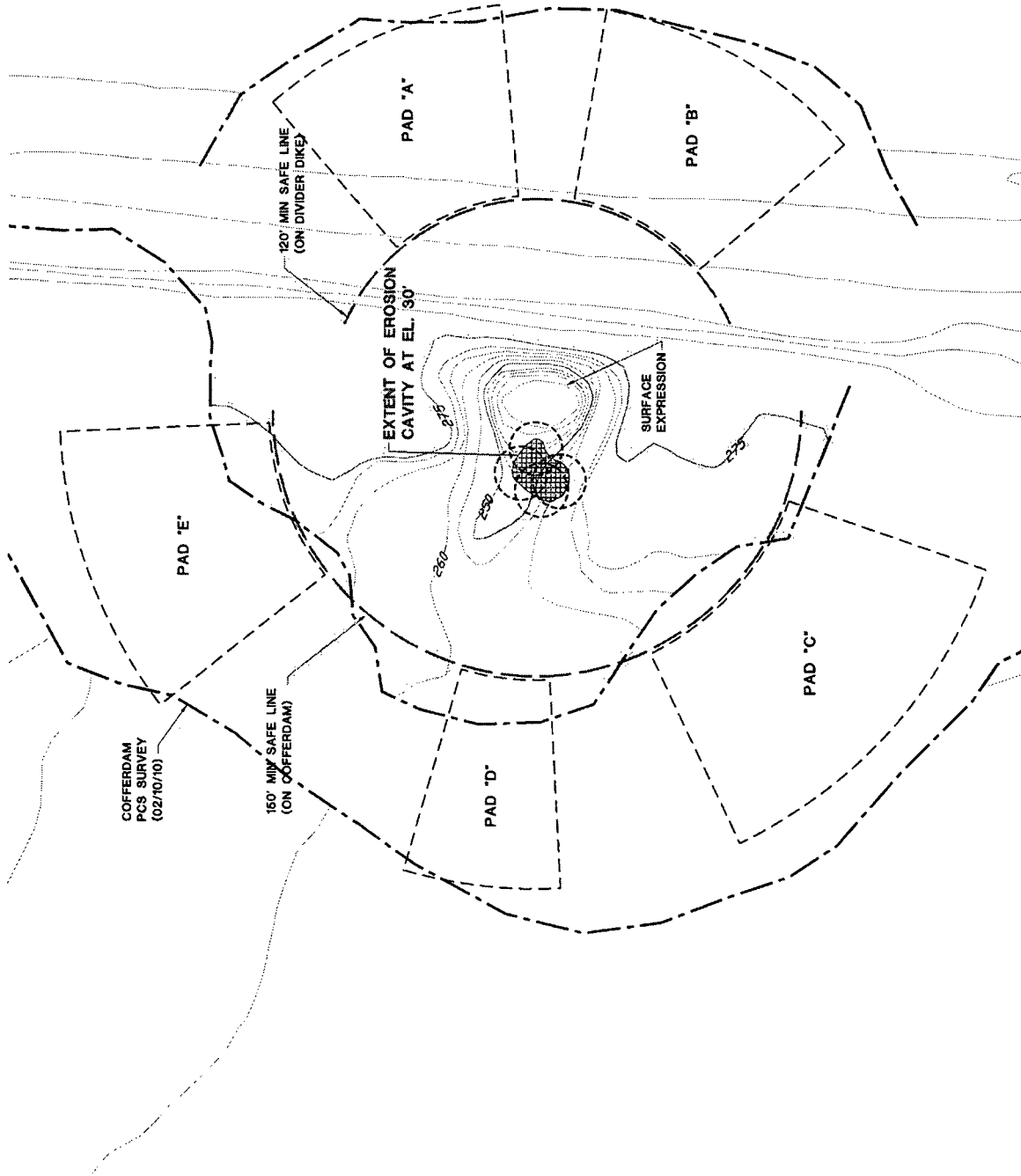
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CHECKED BY: BJR
DATE: 05/28/10
FILE NO.: 09-271
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PAGE: 8



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SCALE: 1"=60'

TOPOGRAPHIC SURVEY BASED
ON AERIAL PHOTOGRAPHY
DATED DECEMBER 30, 2009
AND PCS SURVEY
DATED FEBRUARY 10, 2010.

5-FOOT CONTOUR INTERVAL



GROUT HOLE LOCATIONS ELEVATION 30 FEET, NGVD

Ardaman & Associates, Inc.
Geotechnical, Environmental and
Surveying Consultants

PROPOSED REMEDIATION ACTION PLAN

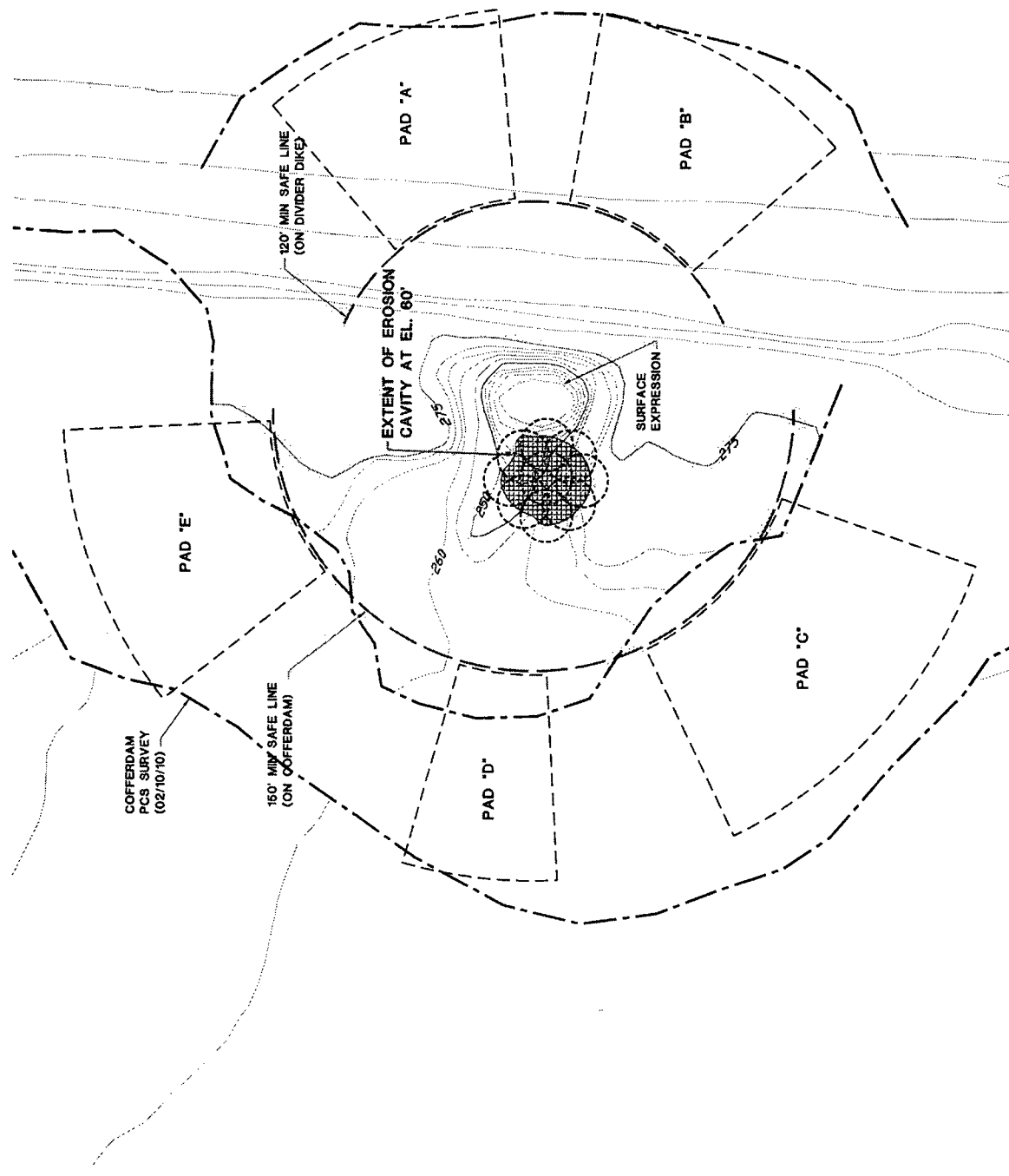
SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

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DATE: 05/28/10
FILE NO.: 09-277
APPROVED BY:
FIGURE: 8



0 30 60
SCALE: 1"=60'

TOPOGRAPHIC SURVEY BASED
ON AERIAL PHOTOGRAPH
DATED DECEMBER 30, 2008
AND PCS SURVEY
DATED FEBRUARY 10, 2010.
5-FOOT CONTOUR INTERVAL



GROUT HOLE LOCATIONS ELEVATION 60 FEET, NGVD

Ardaman & Associates, Inc.
Geotechnical Engineering and
Construction Management and
Materials Consultants
PROPOSED REMEDIATION ACTION PLAN

SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

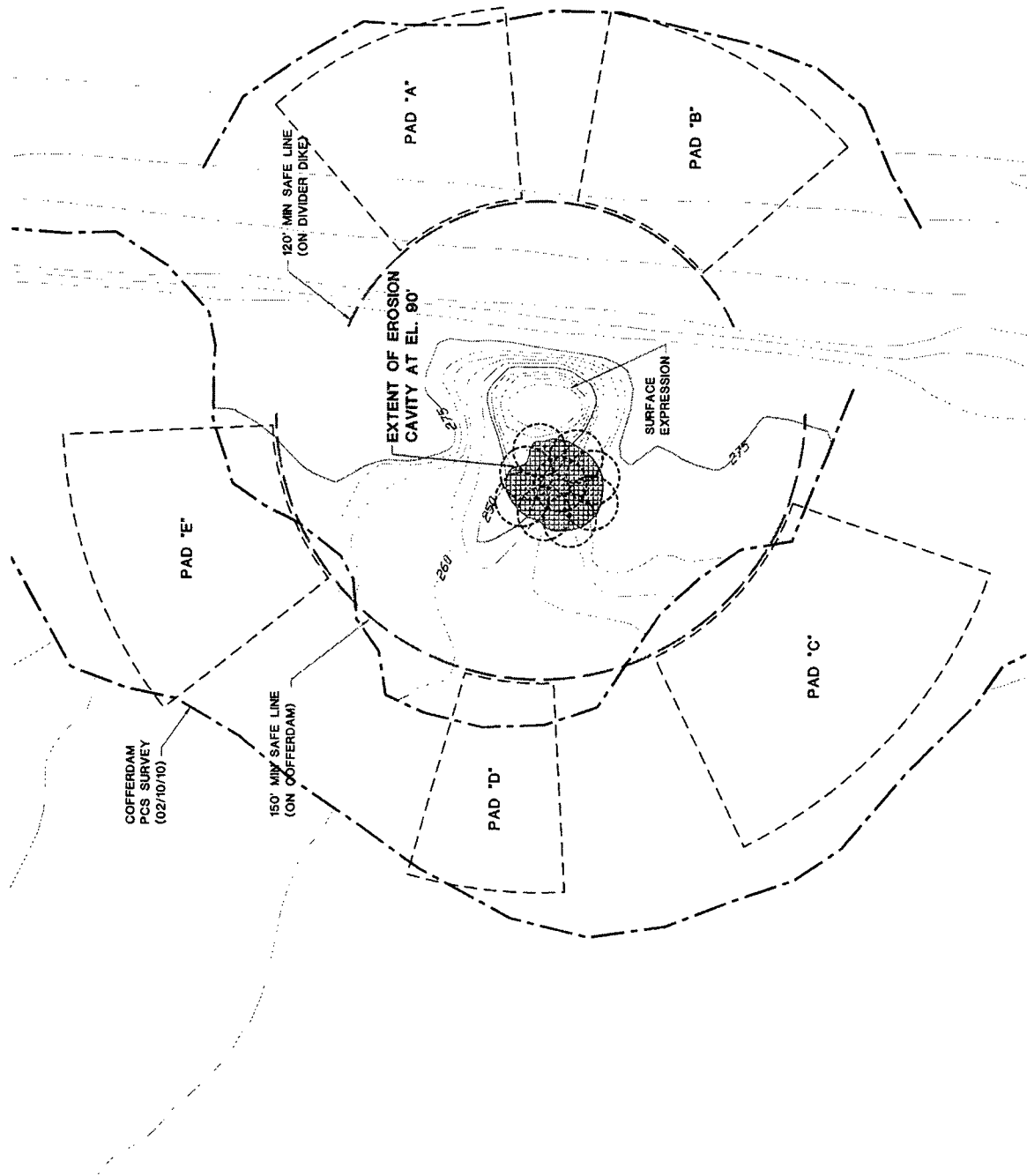
DRAWN BY: MF
CHECKED BY: BDR
DATE: 05/28/10
FILE NO: CS-277
APPROVED BY: [Signature]
REVISION: 1C



0 30 60
SCALE: 1"=60'

TOPOGRAPHIC SURVEY BASED
ON AERIAL PHOTOGRAPH
DATED DECEMBER 30, 2009
AND PCS SURVEY
DATED FEBRUARY 10, 2010.

5-FOOT CONTOUR INTERVAL



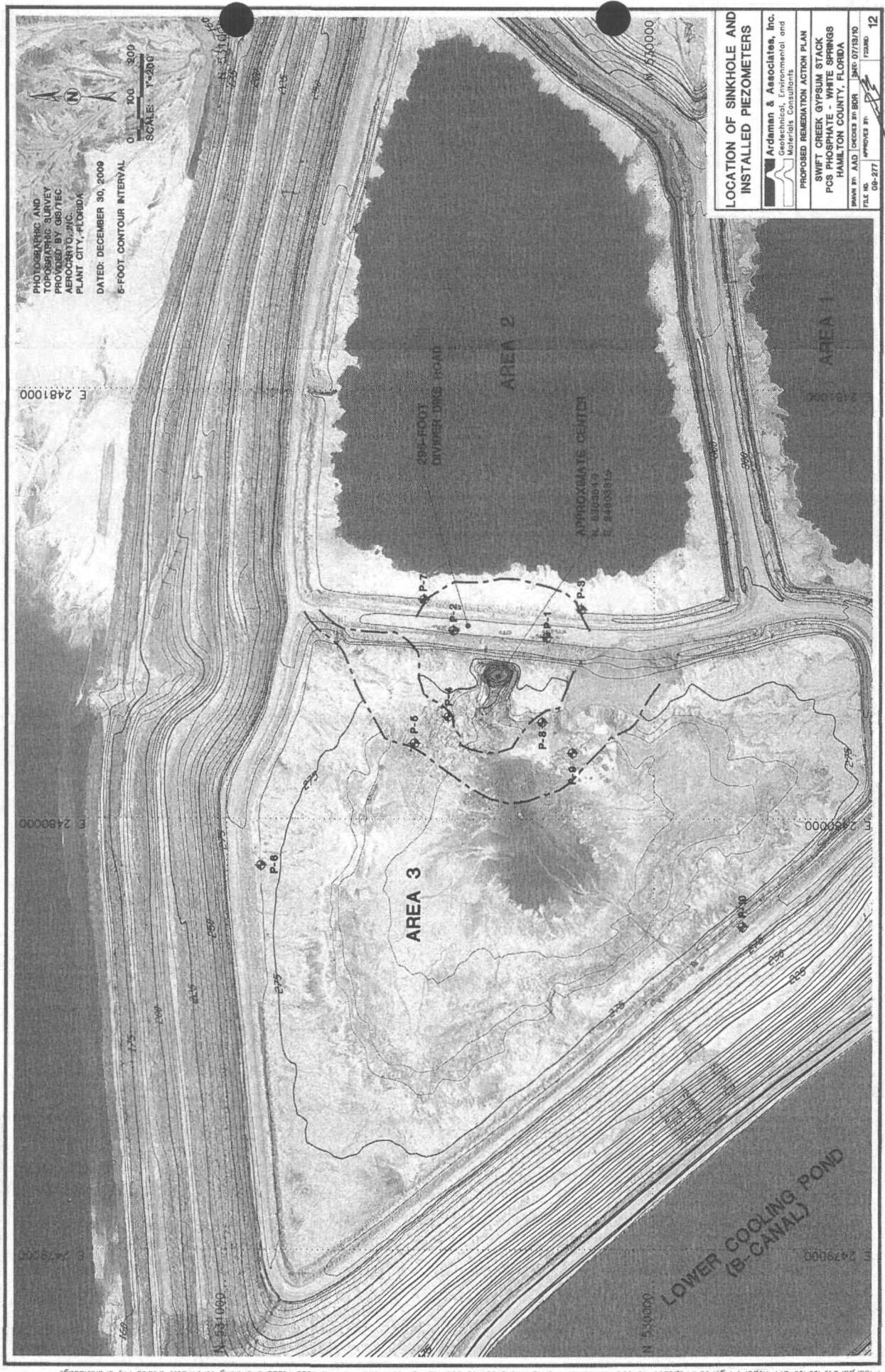
GROUT HOLE LOCATIONS ELEVATION 90 FEET, NGVD

Ardaman & Associates, Inc.
Geotechnical, Environmental and
Construction Services
10000 SW 15th Avenue, Suite 200
Miami, FL 33155
Tel: 305.444.1111
Fax: 305.444.1112
www.ardaman.com

PROPOSED REMEDIATION ACTION PLAN

SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

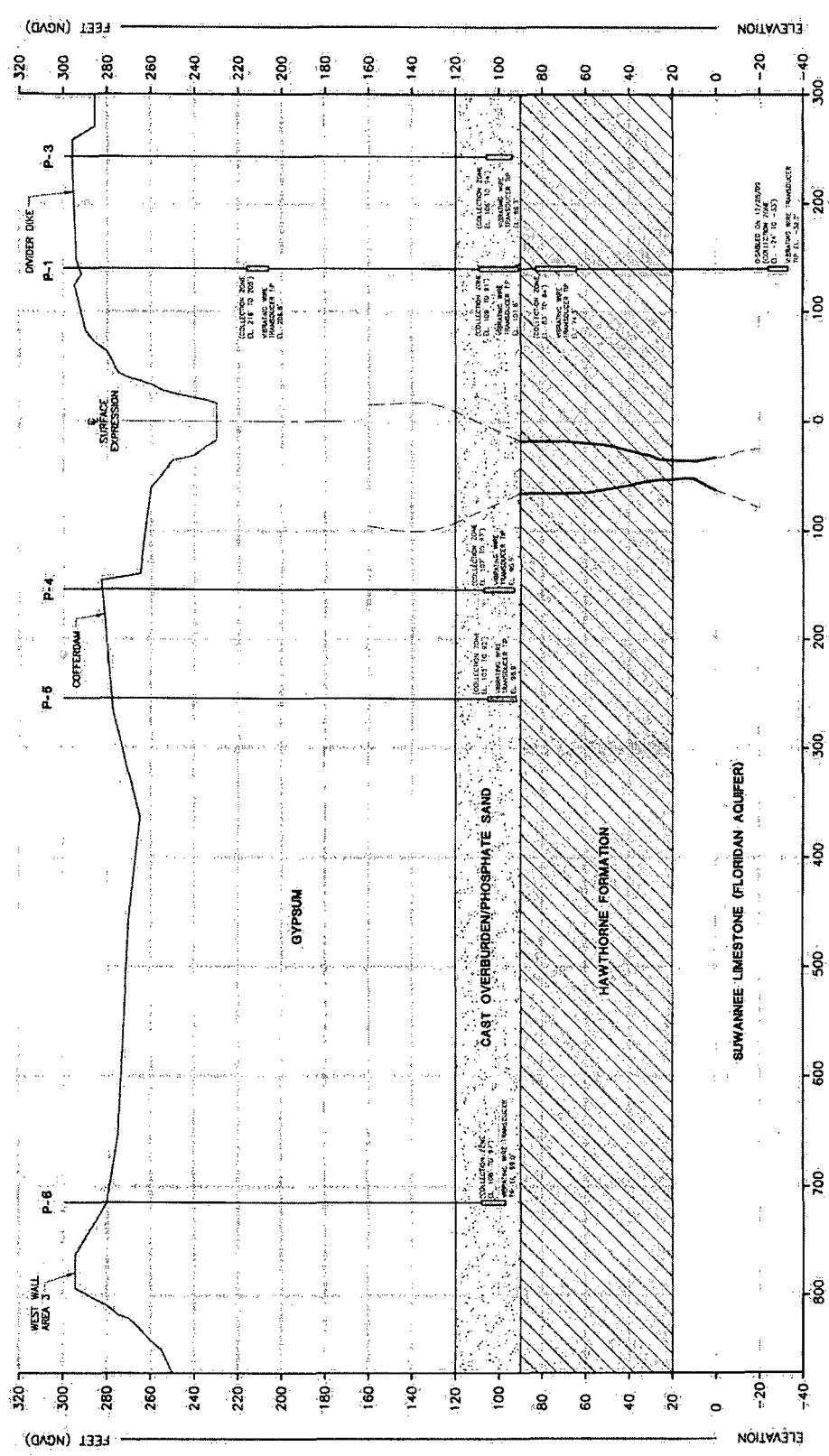
DATE: 05/28/10
DRAWN BY: JMF
CHECKED BY: BDR
APPROVED BY: [Signature]
FILE NO: 06-277
FIGURE: 11



PHOTOGRAPHIC AND
TOPOGRAPHIC SURVEY
PROVIDED BY GIS/TEC
AEROCARTO, INC.
PLANT CITY, FLORIDA
DATED: DECEMBER 30, 2009
6-FOOT CONTOUR INTERVAL

LOCATION OF SINKHOLE AND INSTALLED PIEZOMETERS

Ardaman & Associates, Inc.
Geotechnical, Environmental and
Materials Consultants
PROPOSED REMEDIATION ACTION PLAN
SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA
DRAWN BY: AAD CHECKED BY: BDR DATE: 07/13/10
FILE NO. 09-277 APPROVED BY: [Signature]
12



CROSS SECTION

VERTICAL SCALE: 1" = 50'
HORIZONTAL SCALE: 1" = 100'

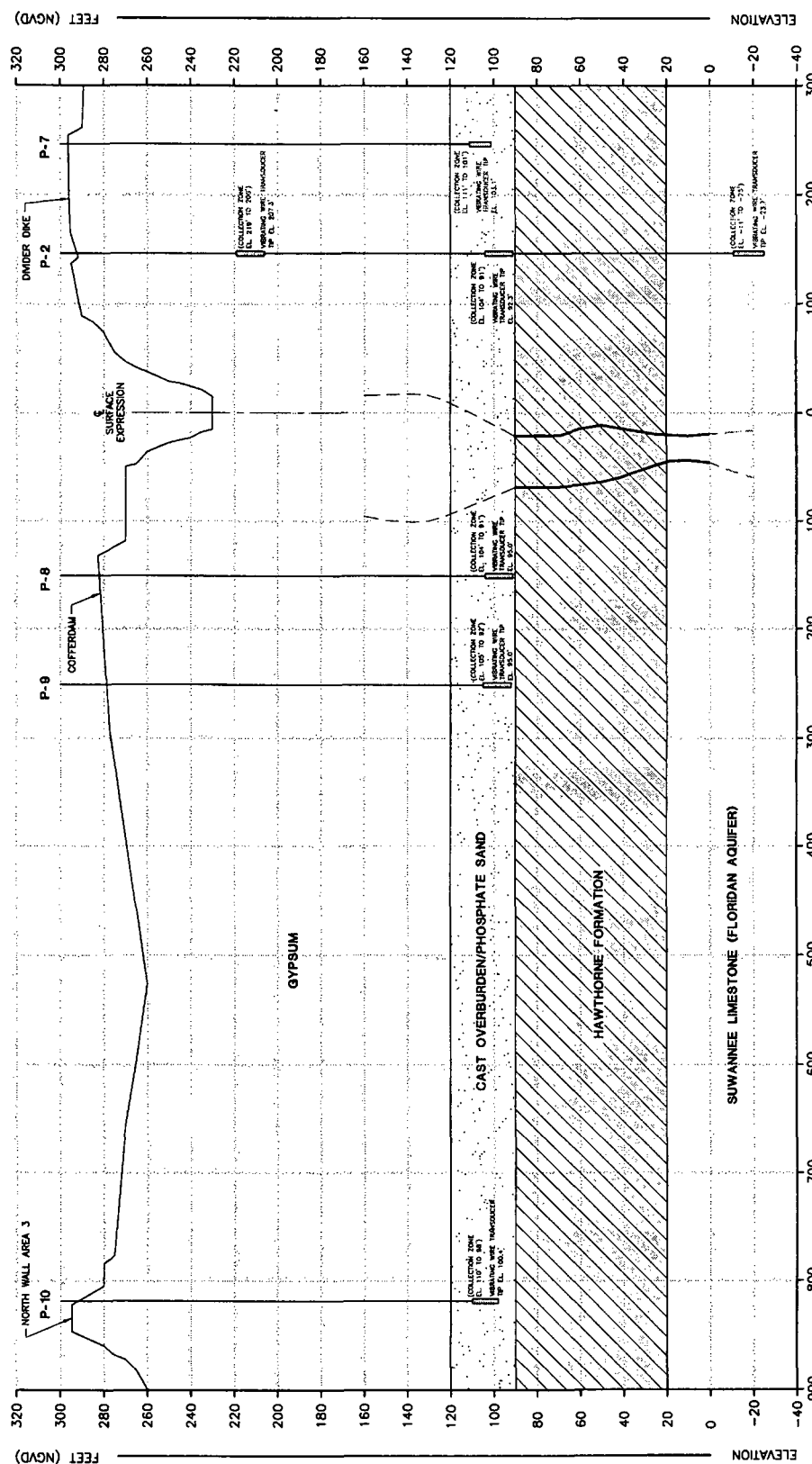
NW-SE PIEZOMETER SECTION (FACING NE)

Arduan & Associates, Inc.
Geotechnical, Environmental and Remediation Consultants

PROPOSED REMEDIATION ACTION PLAN

SWIFT CREEK GYPSUM STACK
PCS PHOSPHATE - WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

OWNER: RDC : CHECKED BY: BDR : DATE: 7/12/10
FILE NO.: 08-277 : APPROVED BY: [Signature] : PAGE: 13



CROSS SECTION

VERTICAL SCALE: 1" = 50'

HORIZONTAL SCALE: 1" = 100'

NE-SW PIEZOMETER SECTION (FACING NW)

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

PROPOSED REMEDIATION ACTION PLAN

SWIFT CREEK GYPSUM STACK
POST-REMEDIATION WHITE SPRINGS
HAMILTON COUNTY, FLORIDA

Drawn by: RDC | Checked by: BDR | Date: 7/12/10
File No: Q-277 | Approved by: [Signature] | Page: 14

Attachment 1
GROUT MIX DESIGN

MEMORANDUM

To: Mohamad Al-hawaree
cc: Bill Jackson
John Garlanger
From: Brian Runkles
Subject: PCS Grout Mix Design (Swift Creek Gypsum Stack)
Date: October 1, 2010
File Number: 09-13-0277B

The following is a summary of information for the PCS Swift Creek gypsum stack grout mix. The materials and trial mix proportions are based on grout mix designs similar to mixes used on previous remediation projects most notably CTC and New Wales south gypsum stacks.

The mix design is based on providing a cement-based grout that can produce a target slump of 9 to 10 inches when treated with super plasticizer and meeting the following performance criteria:

1. 28-day unconfined compressive strength on the order of 500 to 1,000 psi (higher strengths are acceptable);
2. 28-day hydraulic conductivity of less than 10^{-7} cm/sec;
3. substantial bleed resistance (or resistance to "sand blocking" during pumping) as evidenced by a retained exfiltrate under a pressure of 150 psi greater than 33% after the initial 2 minutes of a 20 minute test; and
4. resistant to mass loss and segregation during placement under water as evidenced by good performance in a ball drop test (fair to good performance may be accepted if all other criteria are satisfied).

(1) MATERIALS

The material components for the laboratory prepared grout mix are presented below.

Material	Product	Percent [dry wt. basis]	Typical w_c [%]
Fine Aggregate	Conrad-Yelvington Distributors - Shorter Sand [Alabama]	71	1 - 3
	PCS White Springs Tailings Sand		3 - 4
Cement (Type II)	CEMEX Type I/II	19	dry
Fly Ash (Class F)	Stanton Energy Center Non-Ammoniated [SEC Unit 1] Dark gray; pH = 4.0; LOI = 2.4%	9	<0.1
Bentonite	Wyo-Ben, Inc. HYDROGEL125 [Added as slurry at S = 4.7%; Marsh Funnel viscosity = 40-43 seconds]	1	10
Water	PCS White Springs Source Water [pH = 7.5-8.0; TDS = 660-800 mg/l; Total Hardness = 460-500 mg/l (as CaCO ₃); G = 930-3360 μ mhos/cm]	As required	
Super plasticizer	BASF RHEOBUILD 1000	As needed	

The grout mix contains 71% fine aggregate, 19% Type II cement, 9% Class F fly ash (cement/fly ash ratio ~2) and 1% bentonite added as 4.8% solids content slurry. Prior grout testing performed by Ardaman indicated that a cement to fly ash ratio higher than about 2:1 can cause the grout mix to perform poorly in the ball drop test, result in higher hydraulic conductivities, and display less bleed-resistance. A maximum cement to fly ash ratio of 2:1, therefore, was maintained for the grout mix, and ratios greater than 2:1 were not investigated.

In order to prepare trial grout mixes, Conrad Yelvington Distributors, Inc. (CYDI) was requested to provide fine aggregate from the Martin Marietta Materials mine in Shorter, Alabama. The Martin Marietta Shorter sand was the fine aggregates used in the 2007 CTC stack grout mix. The fine aggregate provided is poorly-graded, coarse to fine silica sand (Uniformity Coefficient, $C_u \sim 2.8$ and Coefficient of Curvature, $C_c \sim 0.8$). When compared side-by-side, the 2007 CTC grout mix aggregate is very similar in color and particle-size distribution to that which was recently provided by Conrad Yelvington. PCS White Springs also provided fine aggregate in the form of sand tailings for potential use in flowable fill and/or non-structural grout. The tailing sand provided by PCS is a poorly-graded, fine silica sand (Uniformity Coefficient, $C_u \sim 2.0$ and Coefficient of Curvature, $C_c \sim 0.86$). Particle-size distribution curves for the Shorter sand and PCS tailings sand fine aggregates are shown on Figure 1. Close-up photographs of the fine aggregates are shown on Figure 2.

Orlando Utilities Commission Stanton Energy Center (SEC) was requested to provide Class F fly ash for preparing the trial grout mixes. Two types of fly ash are produced by SEC, ammoniated (SEC/A) with pH~12 and non-ammoniated (SEC/NA) with pH~4.4. The availability of each type fly ash depends on the utilization schedule of the FGD scrubbers at the plant, which apparently can vary with time depending on operating conditions at the plant. Although both ash types were provided for the CTC stack grout mix, we were only provided with non ammoniated fly ash and as such the ammoniated ash was not considered for the trial mixes discussed herein. The particle-size distribution of the SEC "Unit 1" fly ash is shown on Figure 1. The gradation of the fly ash was similar, but slightly finer, than the fly ash used for the CTC gypsum stack trial grout mixes.

Wyo-Ben, Inc. HYDROGEL 125 bentonite, the same product used for the CTC grout mix, was used for preparing bentonite slurry. The dry bentonite powder had a moisture content of approximately 10 percent. The liquid limit and plasticity index equaled 562 and 533, respectively. The bentonite was mixed with site well water using a high-shear mixer to produce bentonite slurry with a solids content of 4.7 percent on a dry wt. basis (one 50 lb bag of bentonite per 109 gallons (907 lb) of water). The corresponding solids content based on the total weight of the bentonite (i.e., neglecting the 10 percent moisture content of the bentonite) is 5.2 percent.

BASF RHEOBUILD 1000 super plasticizer (water-reducing admixture) was used with good success in the CTC grout mix to produce high slump grout. This product is still commercially available and as such was selected for preparing the trial grout mixes. The manufacturer recommends a dosage range of 10 to 25 fluid ounces per 100 lb of cementitious material to achieve slumps in the range of 8 to 11 inches.

Constituents of the mixes were blended in a 30-quart Hobart mixer. The fine aggregate was placed in the mixer first, followed by the cementitious materials (fly ash and cement), and then thoroughly dry mixed for 2 minutes. The bentonite slurry was then added to the mixture over a

1 minute period while mixing to achieve the desired water/cementitious material ratio. The RHEOBUILD 1000 admixture, when used, was then added to the mixture. The standardized grout mixing procedure then consisted of mixing for 2 more minutes, resting for 3 minutes, and then mixing again for 2 minutes.

(2) LABORATORY TRIAL GROUT MIXES

The following trial grout mixes were made in the laboratory using the selected materials.

1. Standard Grout Mix: 71% Shorter sand fine aggregate, 19% Portland cement, 9% SEC fly ash (cement/fly ash ratio ~2), and 1% HYDROGEL 125 bentonite. A total of three (3) mixes were made with water/cementitious material ratios of 0.68 to 0.75. The initial slump, prior to adding super plasticizer, varied from 5 3/4 inches to 9 inches.
2. Alternate Grout Mix: 71% PCS sand tailings fine aggregate, 19% Portland cement, 9% SEC fly ash (cement/fly ash ratio ~2), and 1% HYDROGEL 125 bentonite. A total of three (3) mixes were made with water/cementitious material ratios of 0.80 to 0.90. The initial slump, prior to adding super plasticizer, varied from 3 1/2 inches to 6 3/4 inches.

The slump versus water/cementitious material (i.e., cement and fly ash) ratio for the "standard Shorter sand aggregate mix" and "alternate PCS tailings sand aggregate grout mix" are presented on Figure 3. As shown, slumps of 5 3/4 to 9 inches and 3 1/2 to 6 3/4 inches were achieved by the standard and alternate grout mixes, respectively, at water/cementitious material ratios of 0.68 to 0.75 and 0.8 to 0.9 with good mixing (i.e., in a Hobart mixer). With less efficient mixing, the slump at a given water/cementitious material ratio generally would be expected to decrease slightly (perhaps about 1 inch).

The results of the ball drop and exfiltration tests versus slump for the grout mixes prior to adding plasticizer are shown on Figure 4. The standard Shorter sand grout mix did not satisfy the exfiltrate criteria; however, the alternate PCS tailings sand grout mix exceed exfiltrate criteria over the slump test range of 3 1/2 to 7 inches. Ball drop performance was good for both grout mixes for all slumps over the test range of 3 1/2 to 9 inches.

RHEOBUILD 1000 super plasticizer was added to grout mixes with initial slumps of 3 1/2 inches to 9 inches at dosages of 0.35 to 0.8 gallons per cubic yard of cementitious material to produce a target slump of 9 to 10 inches (see Figure 5). The test results are presented below:

Grout Mix	w/c ratio	Initial			with RHEOBUILD 1000 Super Plasticizer			
		Slump (inch)	Ball Drop	Er (%)	(gal/cy)	Slump (inch)	Ball Drop	Er (%)
Standard CDYI Shorter sand	0.68	5 3/4	G	24	0.40	9 3/4	G	42
	0.72	7 3/4	G	20	0.35	10 3/4	G	40
	0.75	9	G	39	0.35	10 1/4	G	36
Alternate PCS tailings sand	0.80	3 1/2	G	49	0.80	9	G	56
	0.85	5 1/4	G	44	0.40	9	G	56
	0.90	6 3/4	G	54	0.55	10	G	60

The bleed resistance of each grout mix with super plasticizer and slumps of 9 to 10³/₄ inches satisfies the design criteria for retained exfiltrate of greater than 33 percent. Ball drop performance was good for each grout mix with super plasticizer.

The results of unconfined compression and permeability tests performed on the grout mixes are shown on Figures 6 and 7. The unconfined compressive strengths of the grout mixes were stronger than the design criteria of a 28-day unconfined compressive strength, on the order of 500 to 1,000 psi, with 28-day unconfined compressive strengths for the Shorter sand mixes and PCS tailings sand mixes of 2100 to 2700 psi and 1500 to 2200 psi, respectively (Figure 6). The hydraulic conductivities of the grout mixes were in compliance with the design criteria of less than 10⁻⁷ cm/sec, with 28-day hydraulic conductivities of 8x10⁻¹⁰ to 3x10⁻⁹ cm/sec (Figure 7).

(3) HIGH FLY ASH FLOWABLE FILL GROUT MIX

A series of grout mixes were made by varying the cement/fly ash ratios and total cementitious material contents while holding the fine aggregate and bentonite constituents relatively constant. A total of four (4) mix trials were conducted at cement/fly ash ratios of 0.13 to 1.0 and total cementitious material contents of 20 to 28 percent on a dry weight basis. Through the process of optimization, a final grout composition of 71% PCS tailings sand fine aggregate, 9% Portland cement, 19% SEC fly ash (cement/fly ash ratio of 0.5), and 1% HYDROGEL 125 bentonite was found to have substantial bleed resistance as evidenced by a retained exfiltrate under a pressure of 150 psi greater than 33% after the initial 2 minutes of a 20 minute test and resistant to mass loss and segregation during placement under water as evidenced by good performance in a ball drop test.

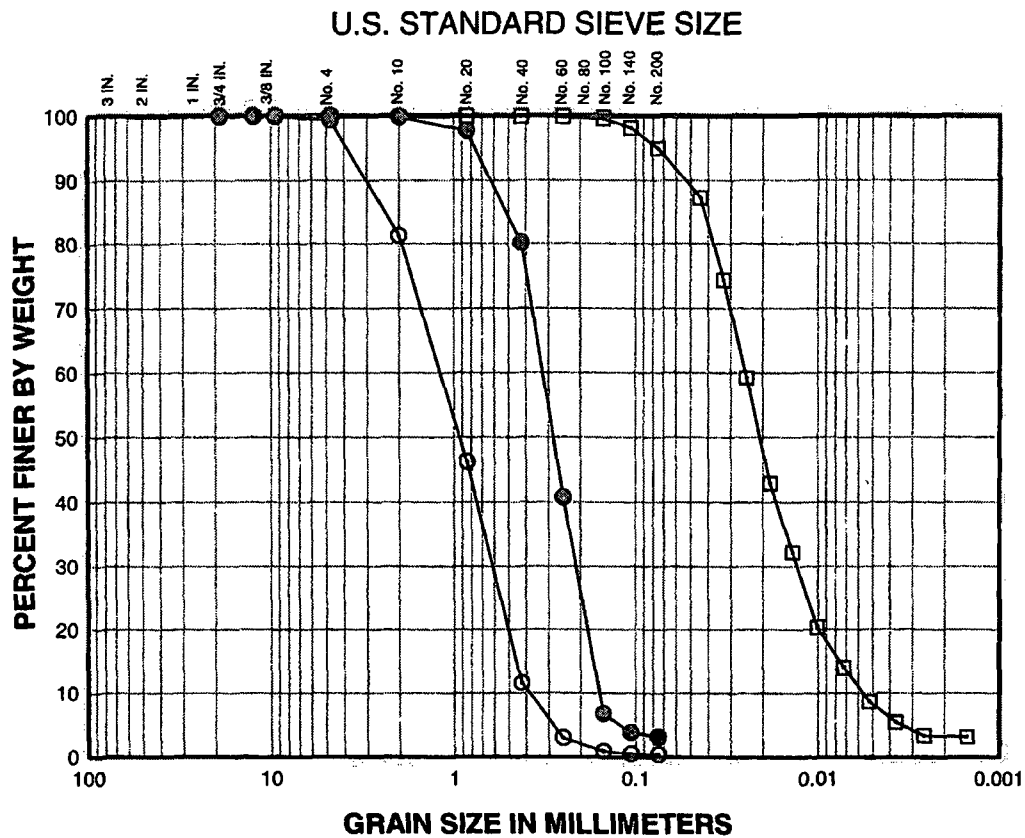
(4) TRIAL GROUT MIXES FINDINGS

Based on the performance of the laboratory trial grout mixes, both the standard Shorter sand aggregate and alternate PCS tailings sand aggregate grout mix can produce grout at the target slump of 9 to 10 inches with plasticizer satisfying performance criteria. Although both mix designs satisfy performance criteria, the Shorter sand aggregate grout mix should be used for production grouting with the alternate PCS tailings sand aggregate grout mix used as a back-up in the event of material shortages and for the flowable grout fill. The flowable grout fill mix design can produce a grout at a target slump of 9 to 10 inches while satisfying the performance criteria outlined in Section (3) of this memorandum.

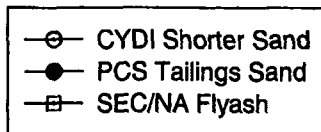
(5) FIELD TRIAL GROUT MIXES

A series of field trial grout mixes should be made using the standard grout mix prior to initiating production grouting to: (i) compare the field and laboratory characteristics (i.e., slump versus w/c ratio, bleed resistance, resistance to segregation, admixture dosage to achieve target slump of 9 to 10 inches, 28-day hydraulic conductivity and 28-day unconfined compressive strength); and (ii) adjust the procedure for field mixing of the dry materials (fine aggregate, fly ash and cement), bentonite slurry and super plasticizer to achieve grout characteristics satisfying the design criteria.

AGGREGATE AND FLYASH PARTICLE-SIZE DISTRIBUTIONS

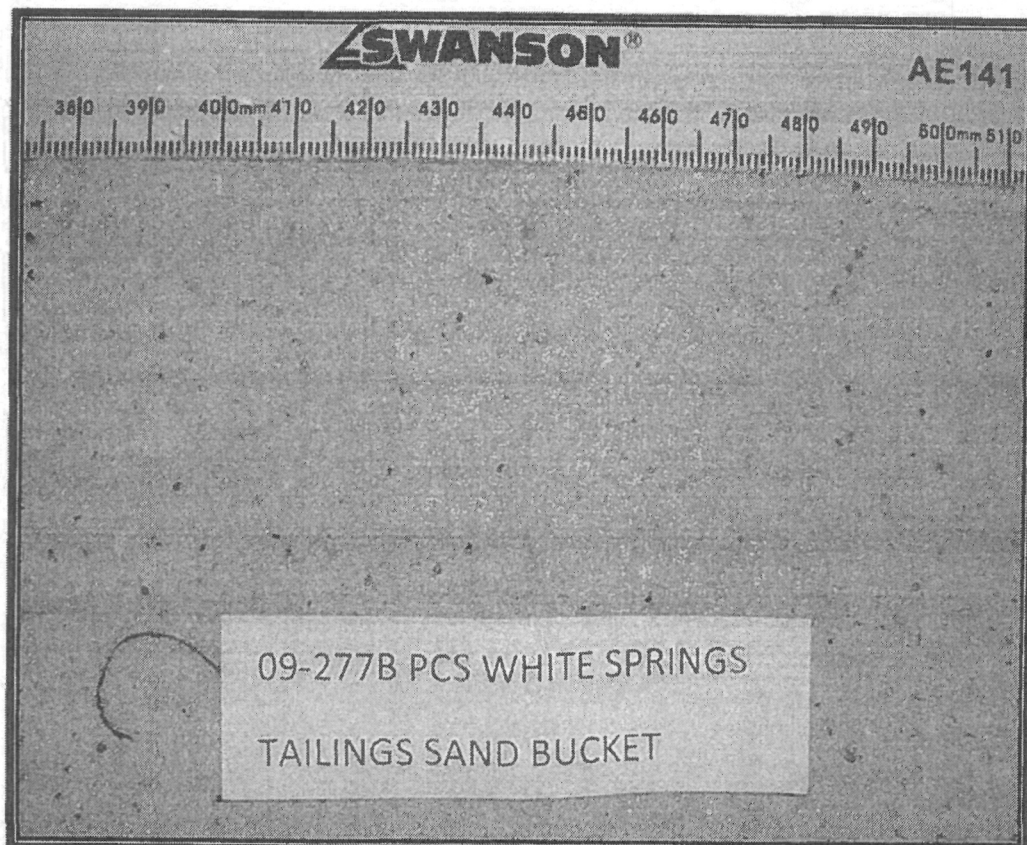
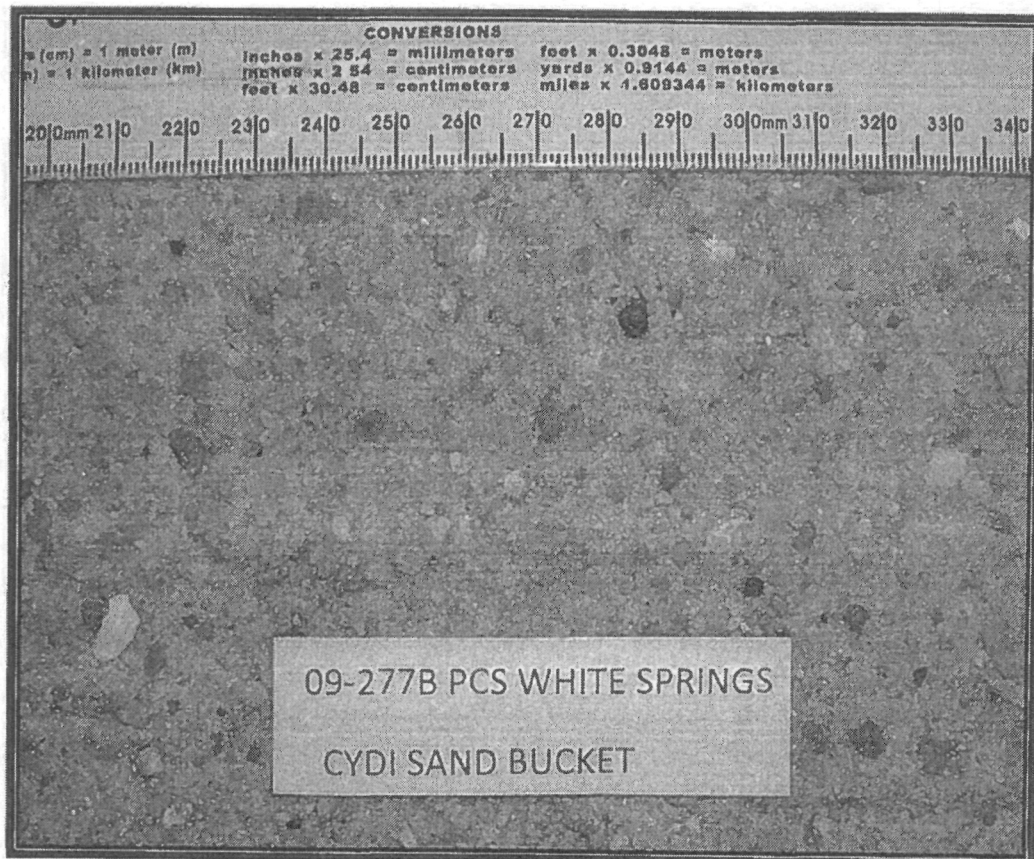


GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

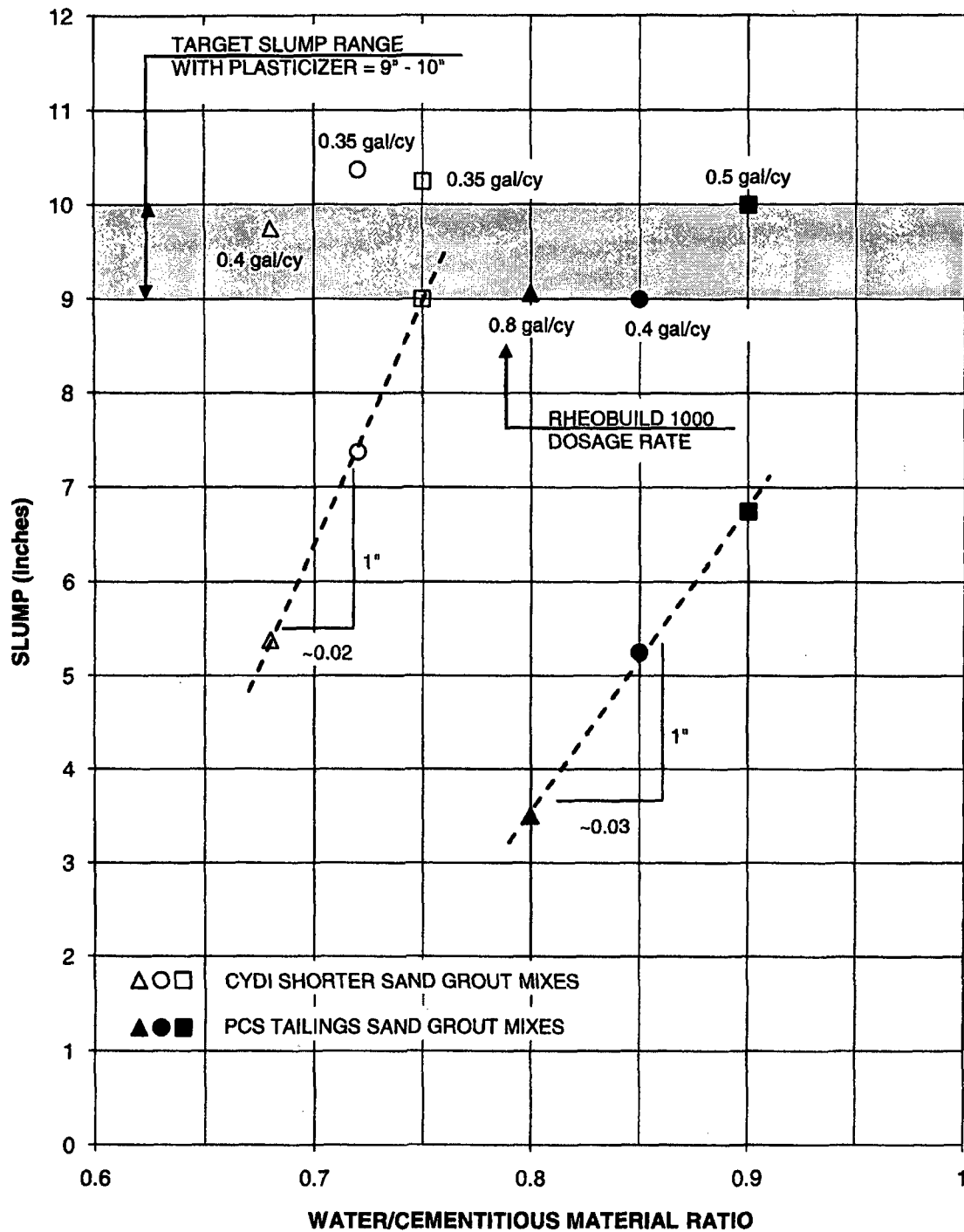


Sample	D ₁₀ (mm)	D ₃₀ (mm)	D ₆₀ (mm)	Uniformity Coefficient, C _u	Coefficient of Gradation, C _c	% Passing No. 200 Sieve	Visual Classification
CYDI	0.38	0.61	1.18	3.1	0.83	0.3	dull yellowish brown coarse to fine sand (SP)
PCS	0.16	0.21	0.32	2.0	0.86	3.2	light gray fine tailings sand, trace phosphate (SP)

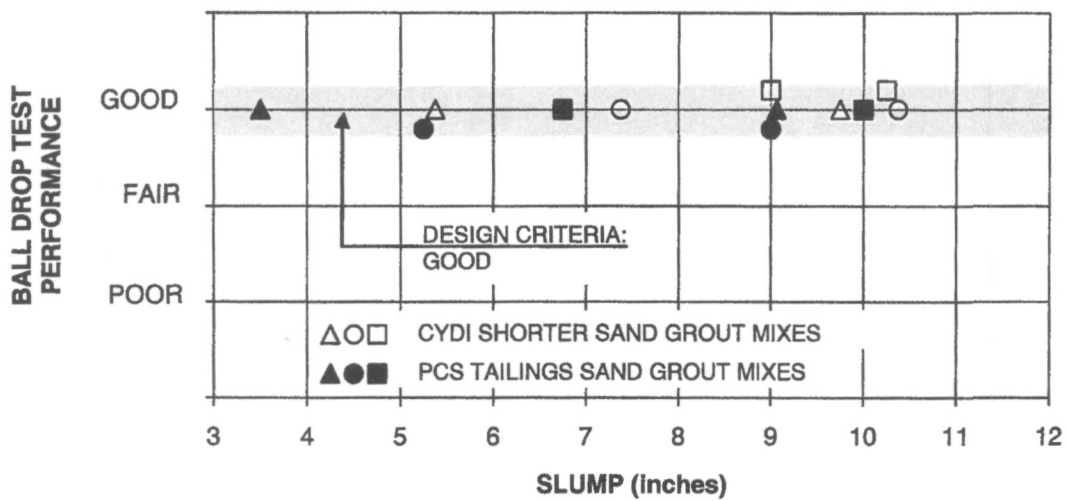
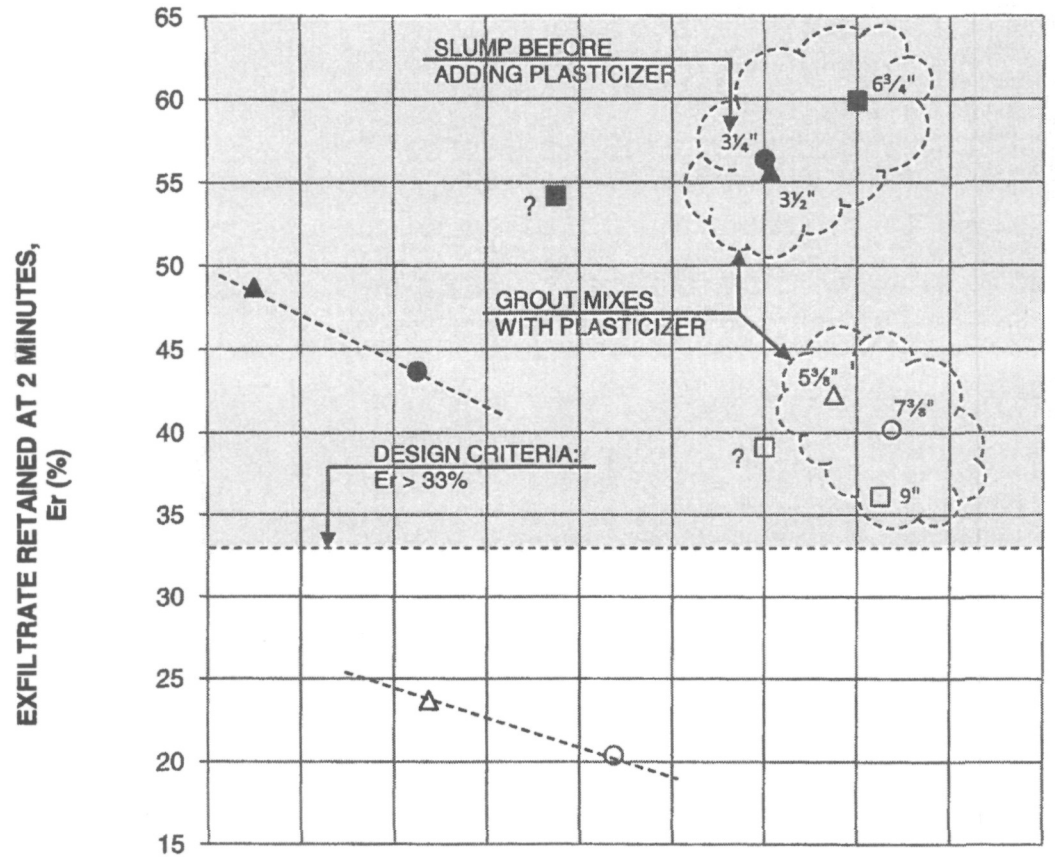
PHOTOGRAPHICAL COMPARISON OF FINE AGGREGATE



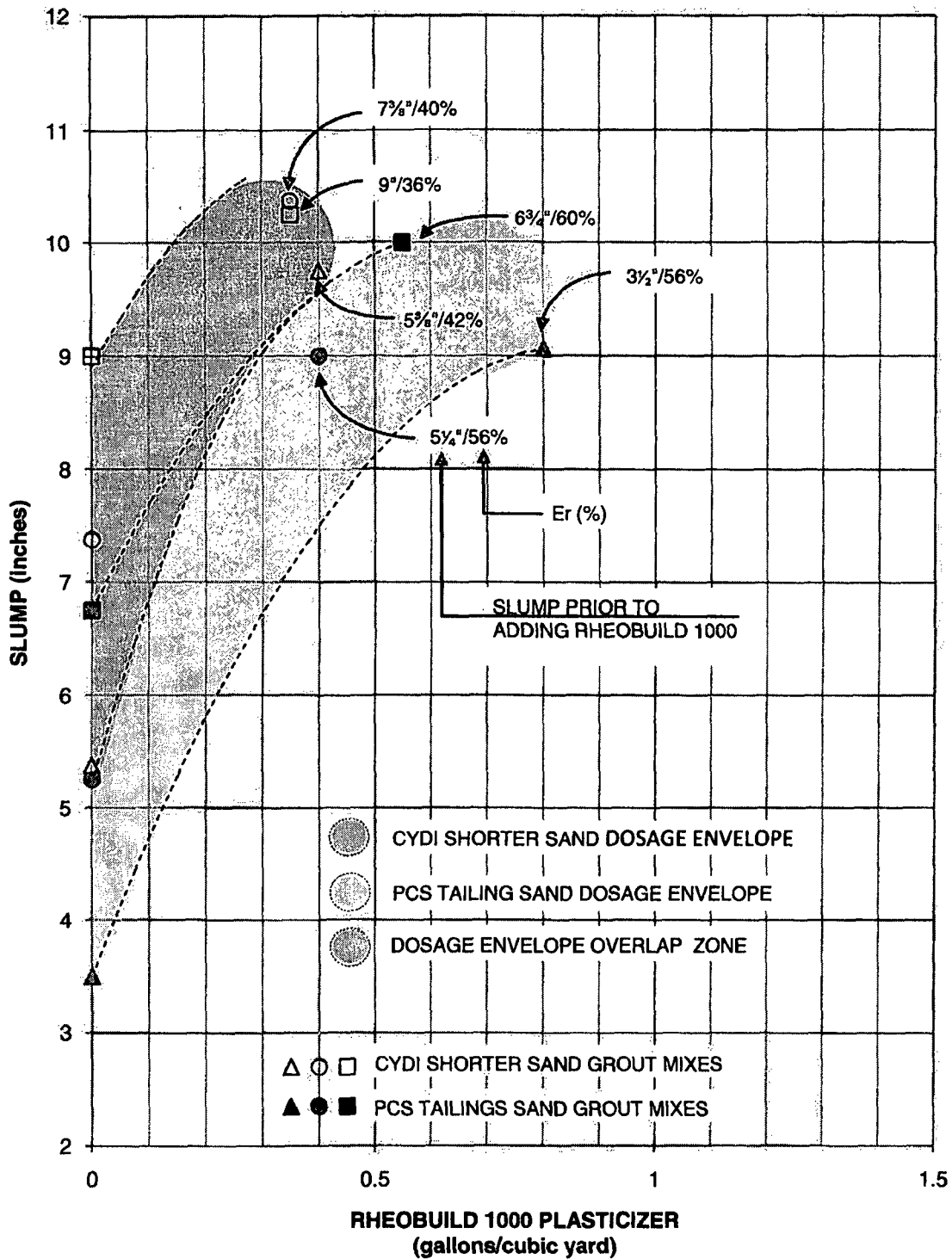
SLUMP VS. WATER/CEMENTITIOUS MATERIAL RATIO



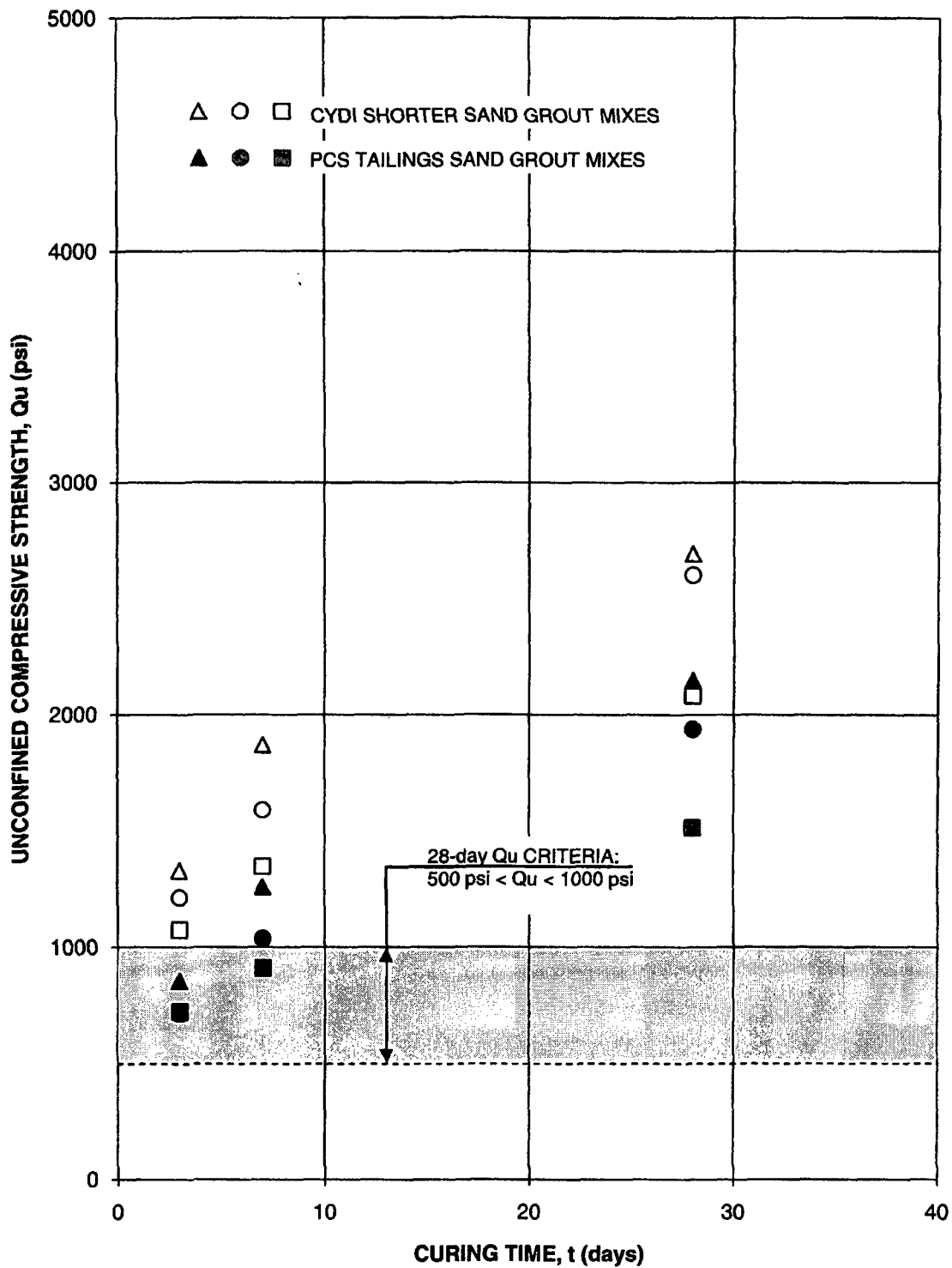
EXFILTRATION AND BALL DROP PERFORMANCE VS. SLUMP



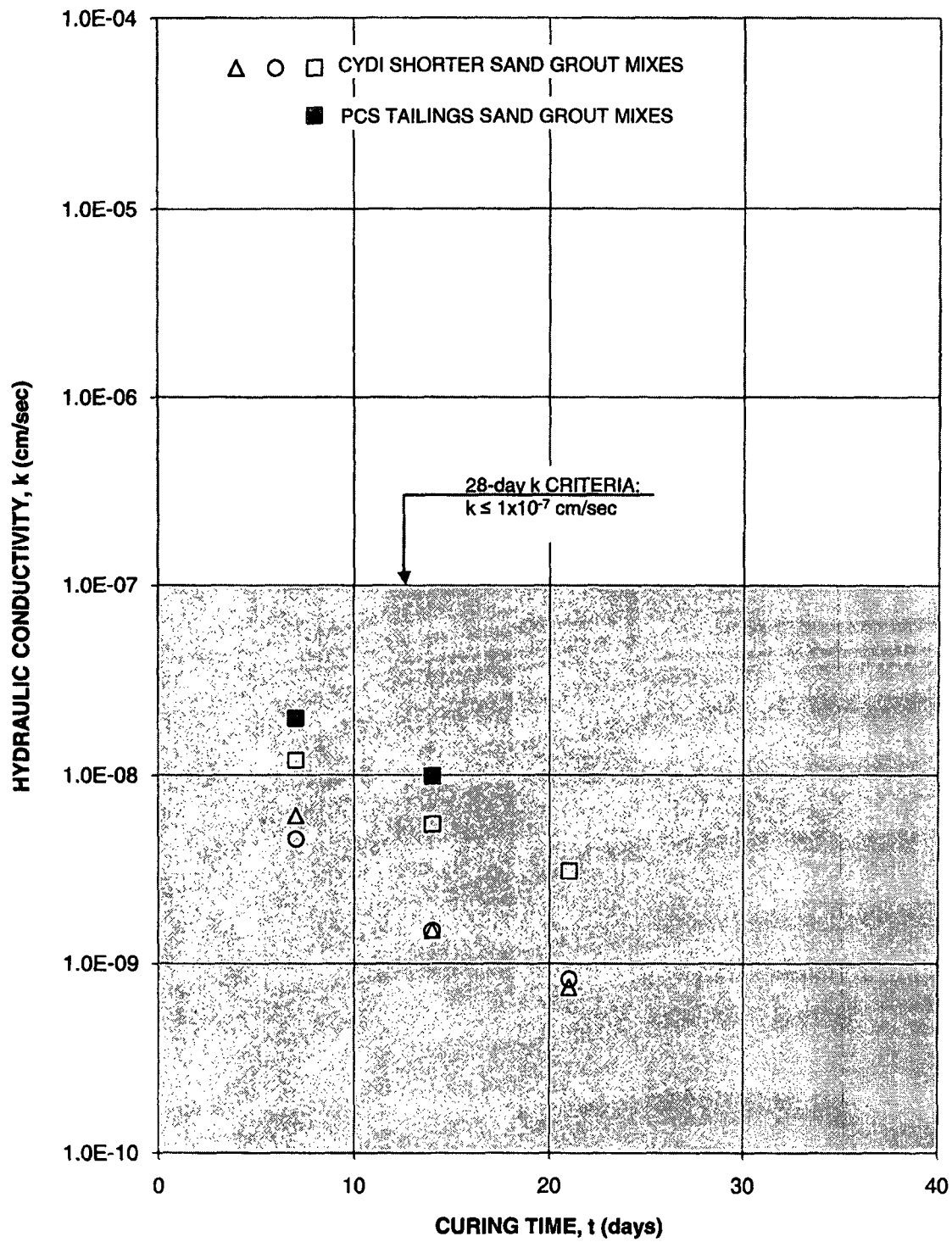
SLUMP VS. RHEOBUILD 1000 PLASTICIZER ADDITION



UNCONFINED COMPRESSIVE STRENGTH VS. CURING TIME FOR GROUT MIXES WITH PLASTICIZER



HYDRAULIC CONDUCTIVITY VS. CURING TIME FOR GROUT MIXES WITH PLASTICIZER

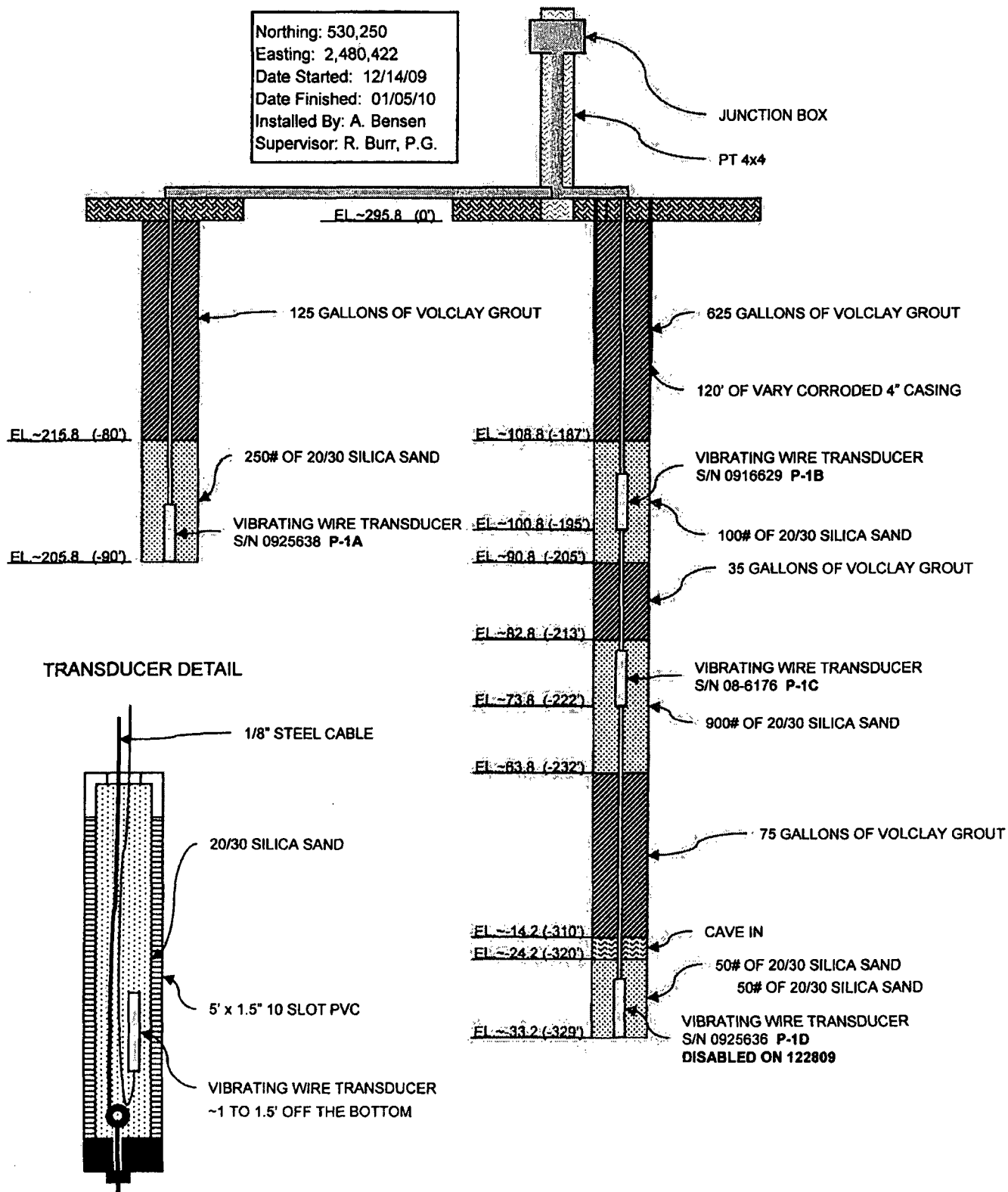


Attachment 2

PIEZOMETER INSTALLATION DETAILS

P-1 GROUP PIEZOMETERS

Northing: 530,250
 Easting: 2,480,422
 Date Started: 12/14/09
 Date Finished: 01/05/10
 Installed By: A. Bensen
 Supervisor: R. Burr, P.G.



Northings: 530,468
Easting: 2,480,438
Date Started: 12/22/09
Date Finished: 01/05/10
Installed By: A. Bensen
Supervisor: R. Burr, P.G.

Northings: 530,468
Easting: 2,480,438
Date Started: 12/22/09
Date Finished: 01/05/10
Installed By: A. Bensen
Supervisor: R. Burr, P.G.

PT 4x4

EL.~294.3 (0')

**75 GALLONS OF
VOLCLAY GROUT**

EL ~219.3 (-75')

175# OF 20/30
SILICA SAND

EL. ~206.3 (-88')

EL.~201.3 (-93")

VIBRATING WIRE
TRANSDUCER
S/N 0925637 P-2A

150 GALLONS OF VOLCLAY GROUT

EL. ~ -104.3 (-190')

200# OF 20/30
SILICA SAND

El. ~91.3 (-203')

VIBRATING WIRE
TRANSDUCER
S/N 0916628 P-2B

1100 GALLONS OF VOLCLAY GROUT

5' x 1.5" SLOTTED PVC USED TO TAG GROUT
STUCK IN BOREHOLE AT -205' AND GROUTED
IN PLACE

EL-10.7 (305)

50# OF 20/30 SILICA SAND AND
FORMATION CLAY AND SAND CAVE IN

EL-2471-319

VIBRATING WIRE TRANSDUCER
S/N 0925639 P-2D

NOMINAL 4" BOREHOLE

**1/8" STEEL
CABLE**

20/30 SILICA SAND

5' x 1.5" 10 SLOT PVC

VIBRATING WIRE TRANSDUCER
~1 TO 1.5' OFF THE BOTTOM

File No.: 09-277

P-3 PIEZOMETER

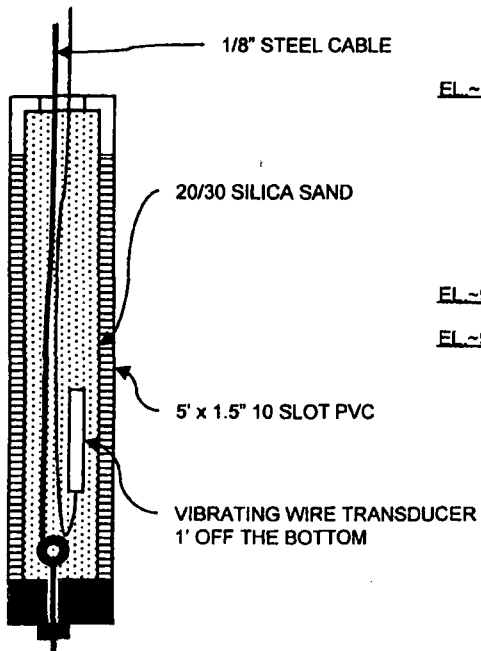
Northing: 530,170.14
 Easting: 2,480,486.66
 Date Started: 5/19/10
 Date Finished: 5/20/10
 Installed By: M. Brackins
 Supervisor: R. Burr, P.G.

EL. ~295.3 (0')

JUNCTION BOX AND
 SURGE PROTECTOR
 PT 4x4

200 GALLONS OF HIGH SOLIDS
 BENTONITE GROUT

TRANSDUCER DETAIL



EL. ~106.1 (-189.2')

125# OF 20/30 SILICA SAND

VIBRATING WIRE TRANSDUCER
 IN A PVC SCREEN S/N 0939449 P3

EL. ~95.3 (-200')

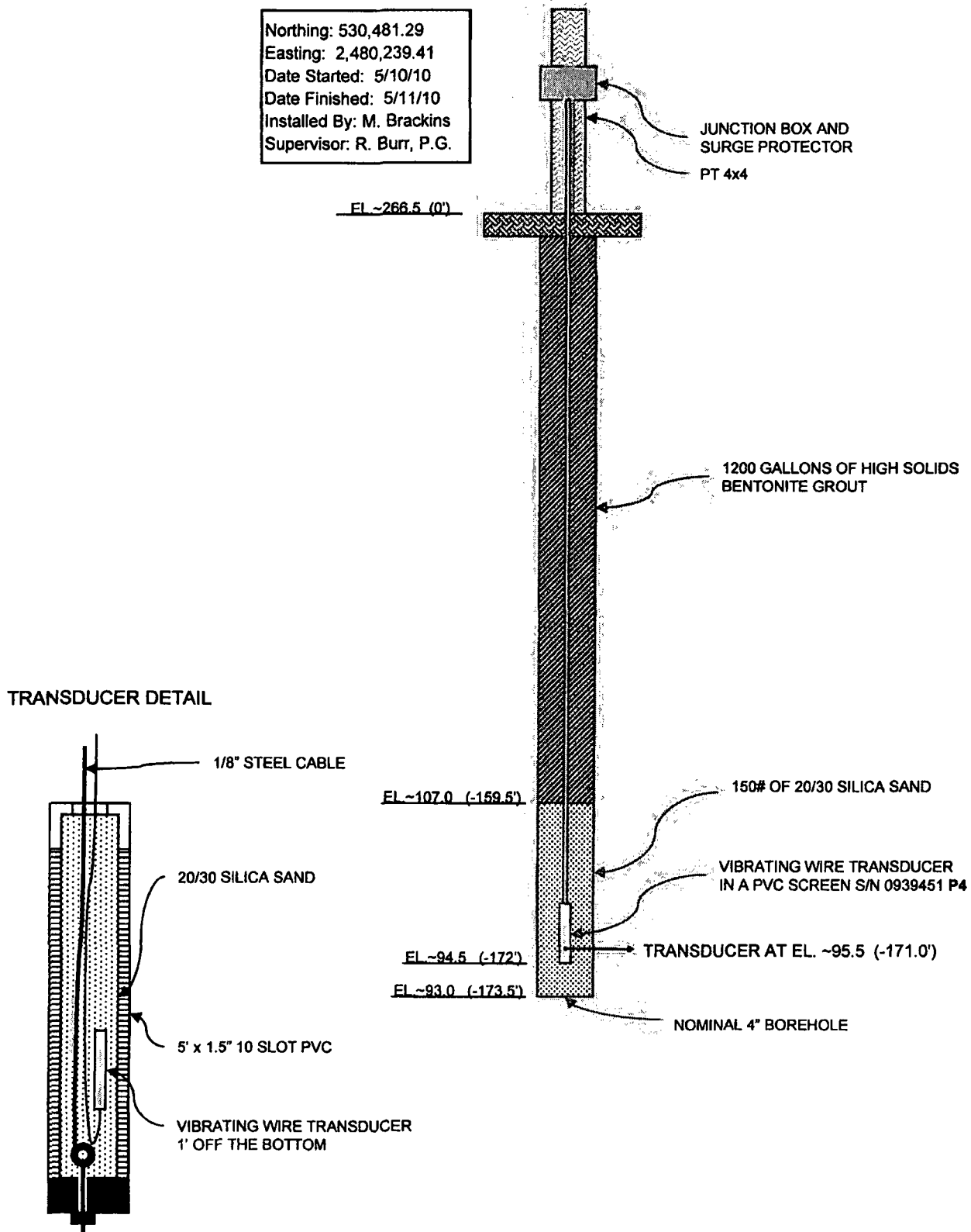
TRANSDUCER AT EL. ~96.3 (-199')

EL. ~94.3 (-201')

NOMINAL 4" BOREHOLE

P-4 PIEZOMETER

Northing: 530,481.29
Easting: 2,480,239.41
Date Started: 5/10/10
Date Finished: 5/11/10
Installed By: M. Brackins
Supervisor: R. Burr, P.G.



P-5 PIEZOMETER

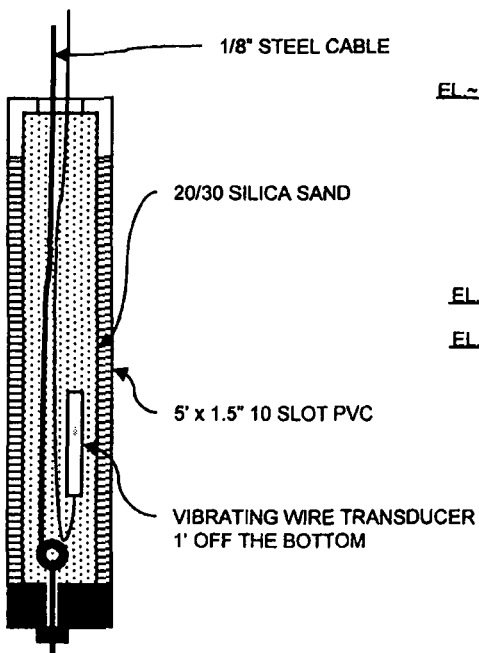
Northing: 530,559.56
Easting: 2,480,177.22
Date Started: 5/12/10
Date Finished: 5/13/10
Installed By: M. Brackins
Supervisor: R. Burr, P.G.

EL ~266.4 (0')

JUNCTION BOX AND
SURGE PROTECTOR
PT 4x4

600 GALLONS OF HIGH SOLIDS
BENTONITE GROUT

TRANSDUCER DETAIL



EL ~104.9 (-161.5')

175# OF 20/30 SILICA SAND

VIBRATING WIRE TRANSDUCER
IN A PVC SCREEN S/N 0939450 P5

EL ~95.9 (-170.5')

TRANSDUCER AT EL. ~96.9 (-169.5')

EL ~92 (-174.4')

NOMINAL 4" BOREHOLE

Northing: 530,919.93
Easting: 2,479,888.32
Date Started: 5/26/10
Date Finished: 5/28/10
Installed By: M. Brackins
Supervisor: R. Burr, P.G.

Northing: 530,919.93
Easting: 2,479,888.32
Date Started: 5/26/10
Date Finished: 5/28/10
Installed By: M. Brackins
Supervisor: R. Burr, P.G.

EL.~278.0 (0')

TRANSDUCER DETAIL

EL.~108.0 (-170.0')

20/30 SILICA SAND

EL.~98.0 (-180')

EL.~97.0 (-181')

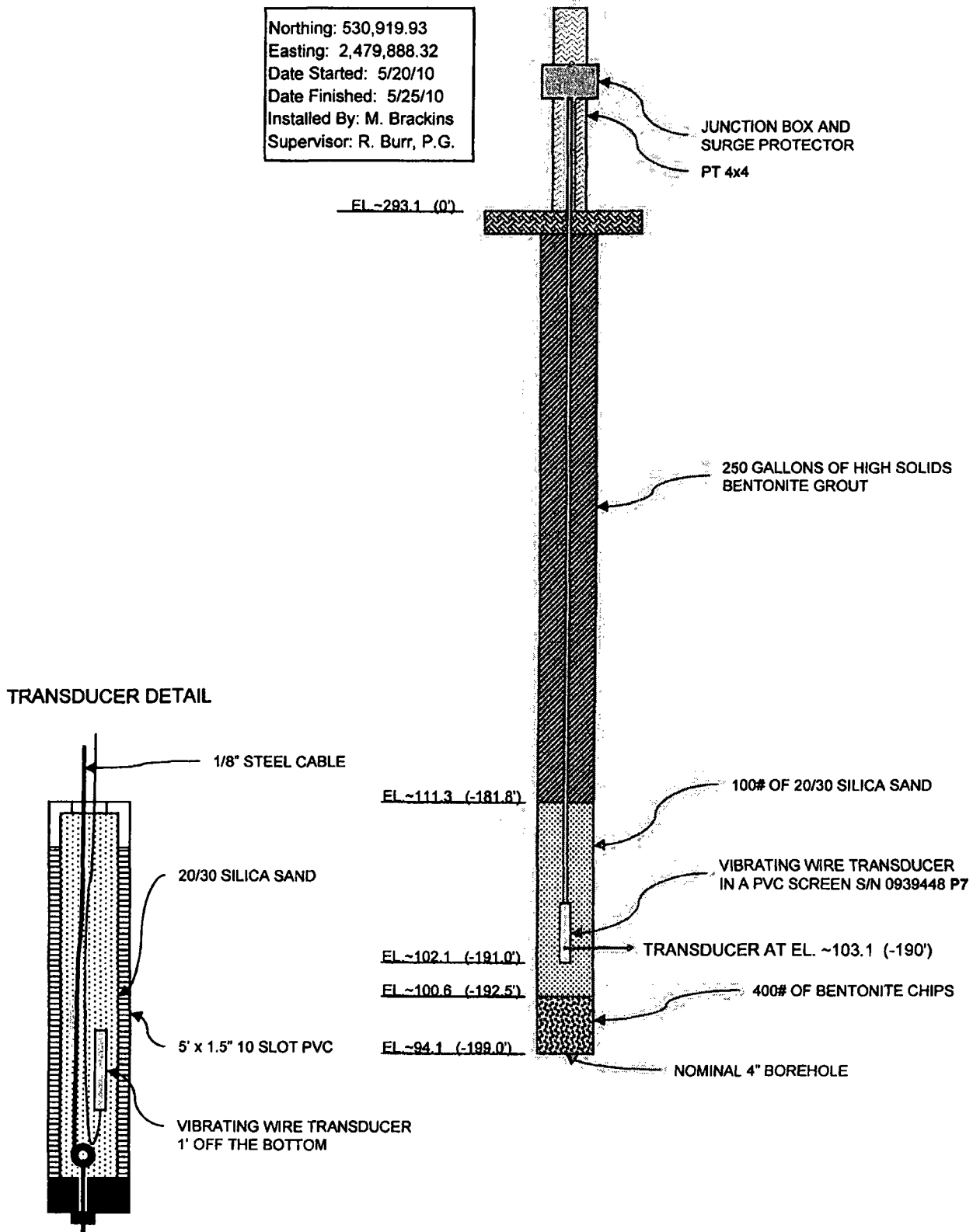
5' x 1.5" 10 SLOT PVC

NOMINAL 4" BOREHOLE

VIBRATING WIRE TRANSDUCER
1' OFF THE BOTTOM

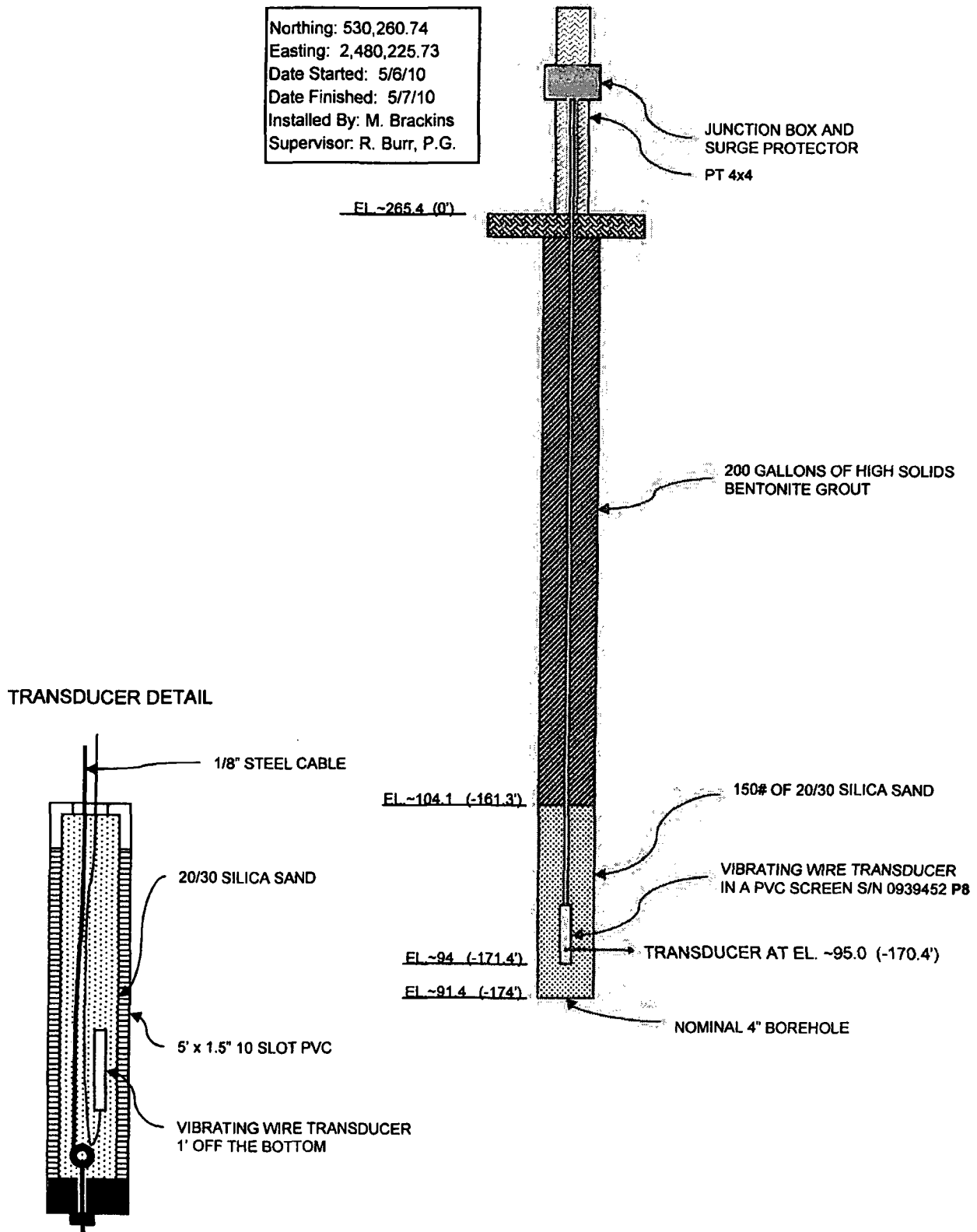
P-7 PIEZOMETER

Northing: 530,919.93
Easting: 2,479,888.32
Date Started: 5/20/10
Date Finished: 5/25/10
Installed By: M. Brackins
Supervisor: R. Burr, P.G.



P-8 PIEZOMETER

Northing: 530,260.74
 Easting: 2,480,225.73
 Date Started: 5/6/10
 Date Finished: 5/7/10
 Installed By: M. Brackins
 Supervisor: R. Burr, P.G.



P-9 PIEZOMETER

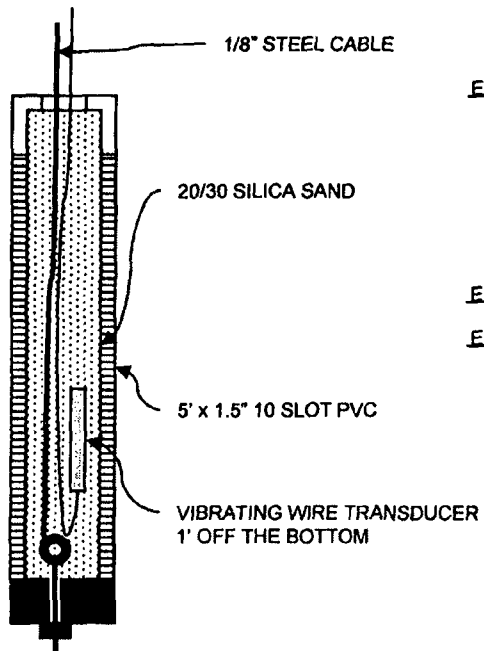
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 Easting: 2,480,154.34
 Date Started: 5/4/10
 Date Finished: 5/5/10
 Installed By: M. Brackins
 Supervisor: R. Burr, P.G.

EL. ~266.0 (0')

JUNCTION BOX AND
 SURGE PROTECTOR
 PT 4x4

200 GALLONS OF HIGH SOLIDS
 BENTONITE GROUT

TRANSDUCER DETAIL



EL. ~105 (-161')

250# OF 20/30 SILICA SAND

VIBRATING WIRE TRANSDUCER
 IN A PVC SCREEN S/N 0916627 P9

EL. ~94 (-172')

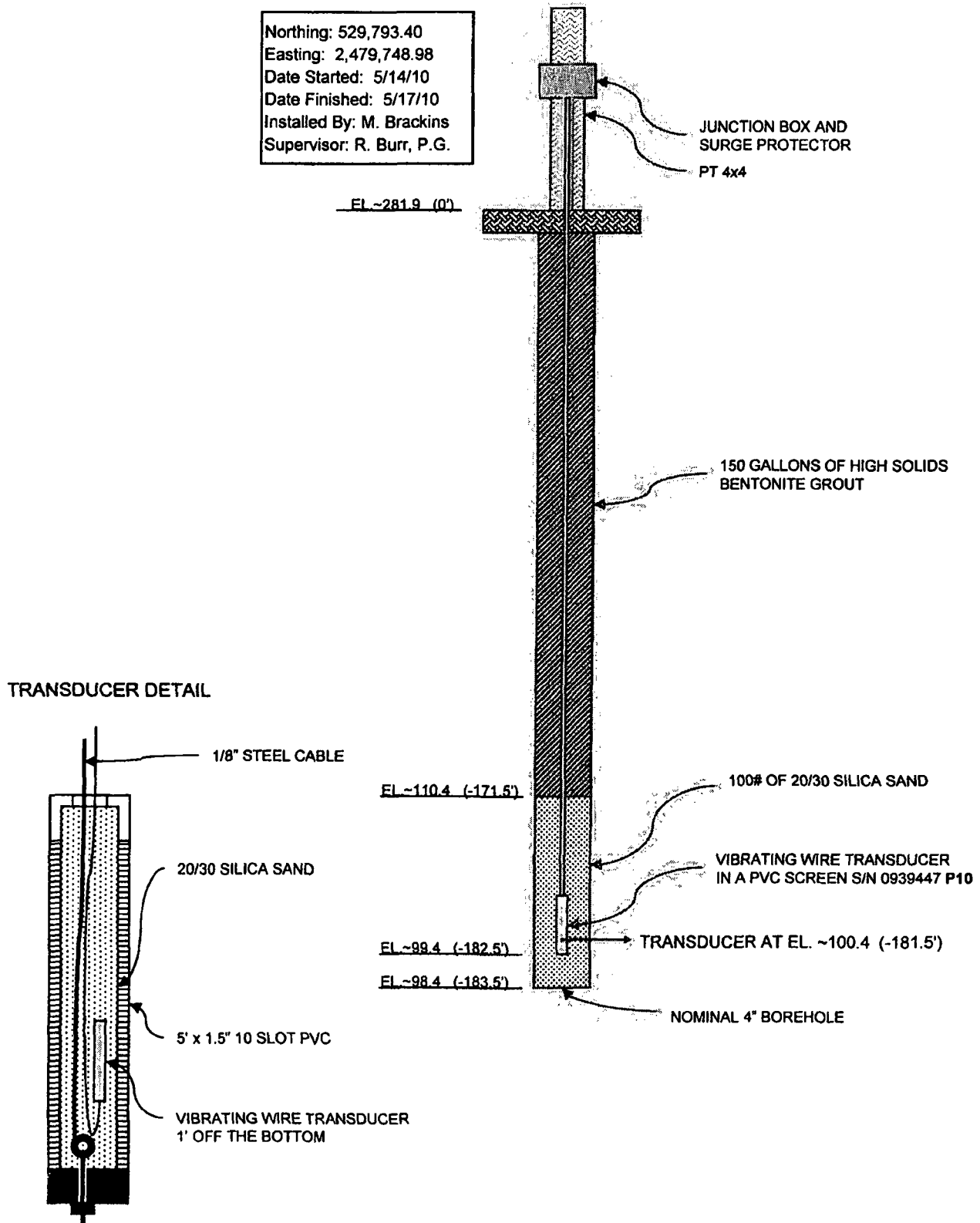
TRANSDUCER AT EL. ~95.0 (-171.0')

EL. ~92 (-174')

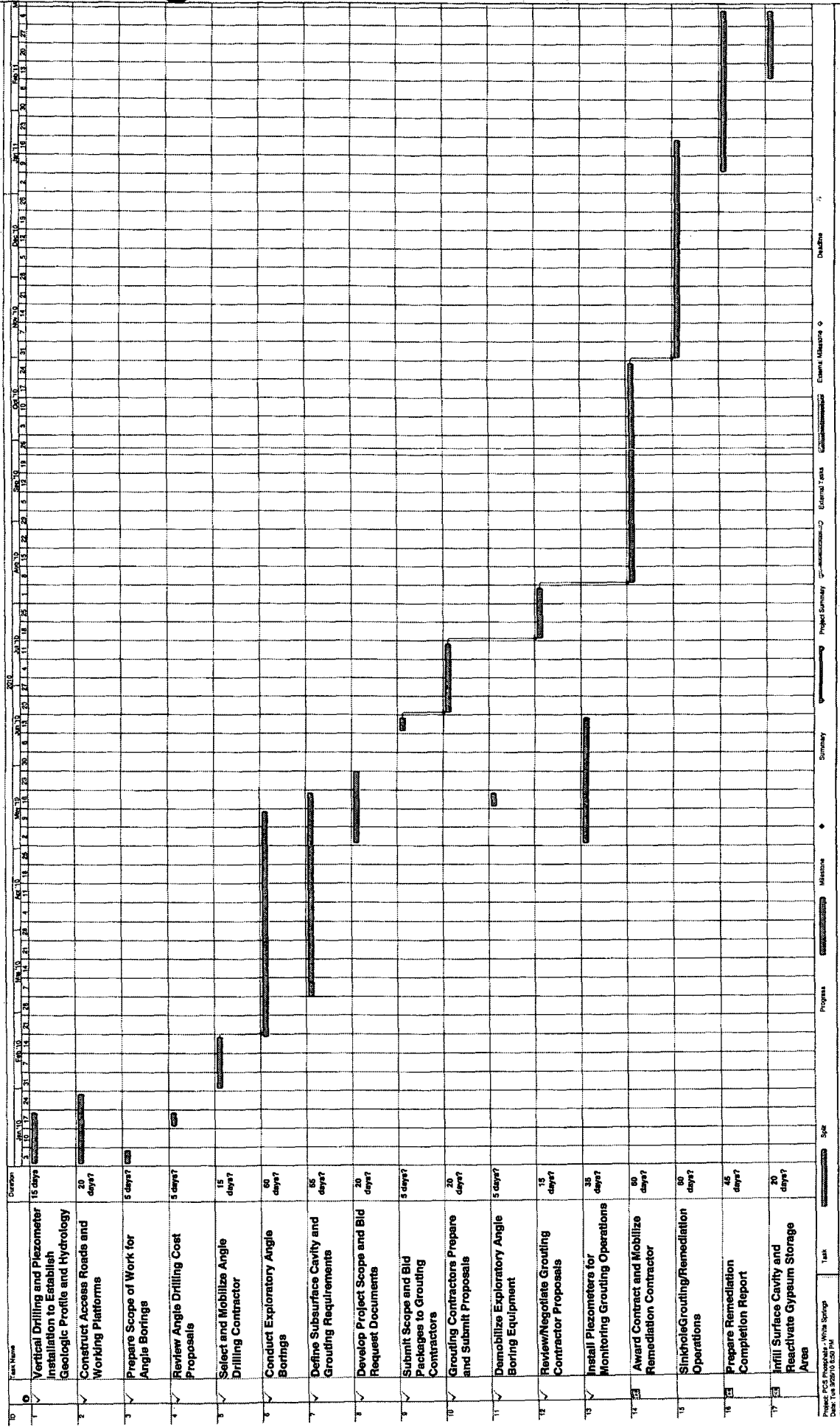
NOMINAL 4" BOREHOLE

P-10 PIEZOMETER

Northing: 529,793.40
Easting: 2,479,748.98
Date Started: 5/14/10
Date Finished: 5/17/10
Installed By: M. Brackins
Supervisor: R. Burr, P.G.



Attachment 3
PROJECT SCHEDULE



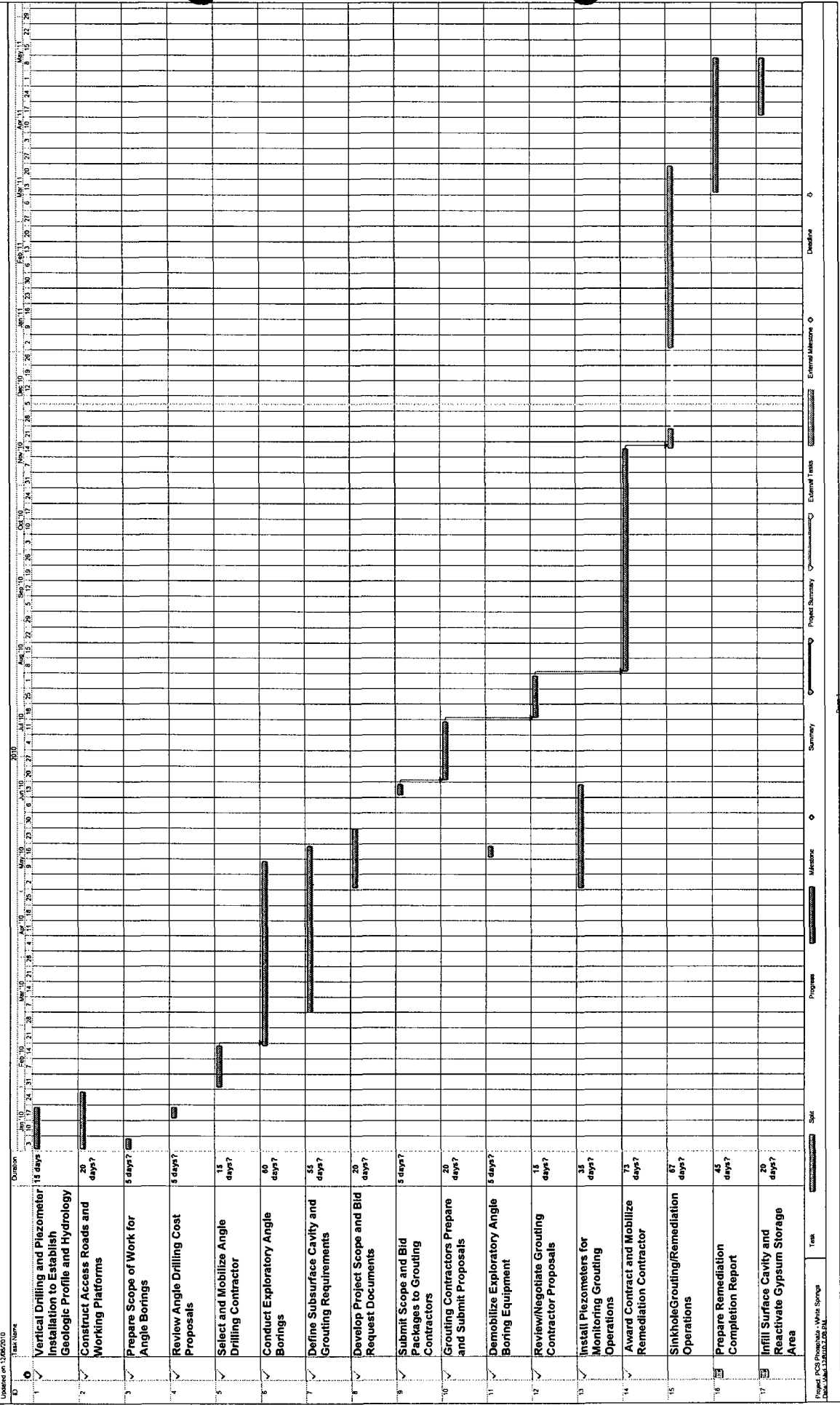


Exhibit D

May 14, 2010, Interim Monitoring Schedule

DEP Revised Monitoring Frequencies - Beginning On or After May 24, 2010
J.Coates, revised February 26, 2010, May 14, 2010

PCS Well Monitoring Group / Parameters		Current	PCS 5/12/10 Proposed	DEP Revised Frequency ⁴
<u>External ⁵</u>				
	Screen ¹	Daily	Mon. & Thu.	Monday (or first regular business day of week) ³
	PCS-Lab ²	Mon. & Thu.	Mon. & Thu.	Monday (or first regular business day of week) ³
<u>Intermediate</u>				
	Screen	Daily	Mon. & Thu.	Daily
	PCS-Lab	5 days/week (Mon. - Fri.)	Mon. & Thu.	Monday (or first regular business day of week) ³
<u>Internal</u>				
	Screen	Daily	Daily	Daily
	PCS-Lab	Daily	Daily	Daily

Notes:

¹ - Screen parameters are: 1.) conductivity and 2.) pH

² - PCS-Lab parameters are: 1.) sodium, 2.) sulfate, 3.) flouride, 4.) and phosphorus

³ - At least once per weekly period

⁴ - If any of the screening results indicate a concern (e.g., abnormal results), PCS should be prepared to collect a PCS-lab sample for confirmation and same day reporting to the Department; as well as following up with sampling and NELAC analytical lab results if warranted based on the PCS-lab confirmation results.

⁵ - The Morgan Farm well may be dropped from the External Network as of May 24, 2010.



Floridan Aquifer Monitoring
PCS Phosphate - White Springs
Swift Creek Chemical Complex

- Plant/Internal Network
- External Network
- Intermediate Network

March 1, 2010 swp
Photo Date: December 28, 2009