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STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPLICATION FOR PERMIT TO CONSTRUCT, OPERATE, MODIFY OR CLOSE A SOLID WASTE MANAGEMENT FACILITY

Please Type or Print

A. GENERAL INFORMATION

1. Type of facility:

Disposal ☐

Class I Landfill	☐	Ash Monofill	☐
Class II Landfill	☐	Asbestos Monofill	☐
Class III Landfill	☐	Industrial Solid Waste	☐
Other	☐		

Volume Reduction ☒

Incinerator	☐	Pulverizer/Shredder	☐
Composting	☐	Compactor/Baling Plant	☐
Materials Recovery	☒	Energy Recovery	☐
Other	☐	Soil thermal treatment facility for non-hazardous petroleum and coal tar contaminated soil.	

2. Type of application:

Construction	☐	Construction/Operation	☒ See Note (1)
Operation	☐	Closure	☐ on page 3

3. Classification of application:

New	☒	Substantial Modification	☐
Renewal	☐	Minor Modification	☐

4. Facility name: RINKER MATERIALS CORPORATION -- MIAMI CEMENT PLANT

5. DEP ID number: AIRS ID: 0250014 County: DADE

6. Facility location (main entrance): 1200 NW 137th AVENUE, MIAMI, FL 33182

7. Location coordinates:

Section: 34 Township: 53 S Range: 39 E

UTMs: Zone 17 558.2 km E 2851.2 km N

Latitude: 25 ° 46 ' 45 " Longitude: 80 ° 25 ' 10 "

8. Applicant name (operating authority): RINKER MATERIALS CORPORATION

Mailing address: 1200 NW 137th AVENUE MIAMI FL 33182
Street or P.O. Box City State ZIP

Contact person: MICHAEL D. VARDEMAN Telephone: (305) 229-2955

Title: CEMENT DIVISION ENVIRONMENTAL MANAGER

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9. Authorized agent/Consultant: [redacted]OGLER & ASSOCIATES

Mailing address: 4014 NW 13th STREET (Street or P.O. Box) GAINESVILLE (City) FL (State) 32609 (Zip)

Contact person: JOHN B. KOOGLER, P.E. Telephone: (352) 377-5822

Title: PROJECT ENGINEER

10. Landowner (if different than applicant): SAME AS ABOVE

Mailing address: NA (Street or P.O. Box) (City) (State) (Zip)

Contact person: NA Telephone: NA

11. Cities, towns and areas to be served: Soils from Florida and possibly out-of-state, contaminated with petroleum products and/or non-hazardous coal tar residue will be thermally processed then blended with other materials to produce raw feed for a Portland cement plant.

12. Population to be served:

Current: NA Five-Year Projection: NA

13. Volume of solid waste to be received: NA yds³/day Note 2,p.3 tons/day NA gallons/day

14. Date site will be ready to be inspected for completion: Presently operating under 62-775 General Permit

15. Estimated life of facility: NA years

16. Estimated costs:

Total Construction: $ NA Closing Costs: $ NA

17. Anticipated construction starting and completion dates:

From: NA To: NA

A. GENERAL INFORMATION

NOTE (1)
2. Type of Application = Construction/Operation

This application is for a Solid Waste Management Facility (SWMF) permit to modify an existing Soil Thermal Treatment Facility. Facility is presently permitted and operating under General Permit SO13-290034 (per 62-775, FAC) and Air Permit AO13-234126. This application is for a SWMF permit under 62-701, FAC, so the facility can process non-hazardous coal tar contaminated soil. Because of this minor modification (no physical change or change in the method of operation), a construction/operation permit is requested.

NOTE (2)
13. Volume of Solid Waste to be Received

Up to 350,400 tons/year of soil with non-hazardous coal tar residue, or up to 350,400 tons/year of soil with petroleum contaminants, or a combination of the two, will be processed annually. The annual tonnages are based on 8760 hours/year of operation (Air Permit AO13-234126 and General Permit SO13-290034), and processing rates of 40 tons/hour.

At no time will the contaminated soil stored onsite exceed the quantity that can be processed during a 90-day period; taking into consideration all permit limits. Presently on-site storage is limited to 86,400 tons of untreated soil.

B. DISPOSAL FACILITY GENERAL INFORMATION

COMMENT: Not Applicable. Facility is designated as a materials recovery/volume reduction facility because all soil is thermally treated prior to use as raw material in the cement manufacturing process.

C. MATERIALS RECOVERY / VOLUME REDUCTION FACILITY GENERAL INFORMATION

1. Provide brief description of materials recovery / volume reduction facility design and operations planned by this application:

   This application will allow the processing of non-hazardous coal tar contaminated soil at an existing, permitted soil thermal treatment facility, equipped with an afterburner. This facility is operating in full compliance under FDEP air operation permit AO13-234126 and FDEP solid waste General Permit SO13-290034, issued per Rule 62-775, FAC.

2. Facility site supervisor: MICHAEL D. VARDEMAN

   Title: CEMENT DIVISION ENVIRONMENTAL MANAGER Telephone: (305) 229-2955

3. Disposal area: Total NA acres; Used NA acres; Available NA acres

4. Security to prevent unauthorized use: Yes ☒ No ☐

5. Site located in: Floodplain ☐ Wetlands ☐ Other ☒ Cement plant site

6. Days of operation: 7 days/week

7. Hours of operation: 24 hours/day

8. Number of operating staff: NA

9. Expected useful life: NA Years

10. Weighing scales used: Yes ☒ No ☐

11. Normal processing rate: NA yd^3/day See p.3 tons/day NA gal/day

12. Maximum processing rate: NA yd^3/day See p.3 tons/day NA gal/day

13. Charge for waste received: Variable

14. Type of facility (check one or more):

Incinerator	☐	Composting	☐
Pulverizer/shredder	☐	Materials recovery	☒
Compactor/baling	☐	Energy recovery	☐
Sludge concentration	☐	Pyrolysis	☐
Other	☐		

15. Material recovered, tons/week:

____	Paper	____	Glass
____	Ferrous metals	____	Non-ferrous metals
____	Aluminum	____	Plastics
X	Other:	Soil for raw feed for cement mfg, see p.3	

16. Energy recovery, in units shown:

NA	High pressure steam, lb/hr	NA	Chilled water, gal/hr
NA	Low pressure steam, lb/hr	NA	Oil, gal/hr
NA	Electricity, kw/hr	NA	Oil, BTU/hr
NA	Gas, ft^3/hr	NA	Gas, BTU/hr
NA	Other:	Thermal treatment requires energy input	

17. Process water management:

Recycled: Yes ☒ No ☐

Treatment method used: Leachate used as slurry water in wet-process cement plant

Discharged to: Surface waters ☐ Underground ☐ Other ☒

Name and Class of receiving water: No discharge of process water, disposal by evaporation

18. Storm Water:

Collected: Yes ☒ No ☐ Type of treatment: Used as slurry water in cement plant

Name and Class of receiving water: Not applicable, see type of treatment

19. MSSW Permit number or status: Not required for this project

20. Final residue produced:

~95 % of normal processing rate

~95 % of maximum processing rate

Disposed of at (Site name): Treated soil & other materials are raw feed for cement mfg.

21. Supplemental fuel used:

Type: See FDEP air permit AO13-234126 Quantity used/hour: See air permit

22. Costs:

Estimated operating costs (material-energy revenue): $ Variable

Total cost/ton: $ Variable Net cost/ton: $ Variable

23. State pollution control bond financing amount: $ NA

24. Estimated amount of tax exemptions that will be requested: $ NA

D. SOLID WASTE MANAGEMENT FACILITY PERMIT GENERAL REQUIREMENTS (62-701.320, FAC)

S	LOCATION	N/A	N/C		
X	Submittal			1.	Six copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320 (5) (a), FAC)
X	Part T			2.	Engineering and/or professional certification (signature, date and seal) provided on the applications and all engineering plans, reports and supporting information for the application; (62-701.320 (6), FAC)
X	Cover Letter			3.	A letter of transmittal to the Department; (62-701.320 (7) (a), FAC)
X	Application			4.	A completed application form dated and signed by the applicant; (62-701.320 (7) (b), FAC)
X	Cover Letter			5.	Permit fee specified in Rule 62-4.050, FAC and Rule 62-701.320 (5) (c), FAC in check or money order, payable to the Department; (62-701.320 (7) (c), FAC)
X	Report			6.	An engineering report addressing the requirements of this rule and with the following format: a cover sheet, text printed on 8½ inch by 11 inch consecutively numbered pages, a table of contents or index, the body of the report and all appendices including an operation plan, contingency plan, illustrative charts and graphs, records or logs of tests and investigations, engineering calculations; (62-701.320 (7) (d), FAC)
		X		7.	Operation Plan; (62-701.320 (7) (e) 1, FAC)
		X		8.	Contingency Plan; (62-701.320 (7) (e) 2, FAC)
				9.	Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD) showing; (62-702.320 (7) (f), FAC)
X	Report				a. A regional map or plan with the project location;
		X			b. A vicinity map or aerial photograph no more than 1 year old;
		X			c. A site plan showing all property boundaries certified by a registered Florida land surveyor;
		X			d. Other necessary details to support the engineering report.
		X		10.	Proof of property ownership or a copy of appropriate agreements between the facility operator and property owner authorizing use of property; (62-701.320 (7) (g), FAC)

S	LOCATION	N/A	N/O	
___	_____	X	___	11. For facilities owned or operated by a county, provide a description of how, if any, the facilities covered in this application will contribute to the county's achievement of recycling goals contained in Section 403.706, FS; (62-701.320 (7) (h), FAC)
___	_____	X	___	12. Provide a history and description of any enforcement actions taken by the Department against the applicant for violations of applicable statutes, rules, orders or permit conditions relating to the operation of any solid waste management facility in this state; (62-701.320 (7) (i), FAC)
___	_____	X	___	13. Proof of publication in a newspaper of general circulation of notice of application for a permit to construct or substantially modify a solid waste management facility; (62-702.320 (8), FAC)
___	_____	X	___	14. Provide a description of how the requirements for airport safety will be achieved including proof of required notices if applicable; (62-701.320 (12), FAC)

E. LANDFILL PERMIT GENERAL REQUIREMENTS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill.

F. GENERAL CRITERIA FOR LANDFILLS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill.

G. LANDFILL CONSTRUCTION REQUIREMENTS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill.

H. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (62-701.41[illegible]AC)

NOTE: Sec. VIII of attached report is Groundwater Monitoring Plan per Rule 62-775, FAC.

S	LOCATION	N/A	N/C		
				1.	Submit a hydrogeological investigation and site report including at least the following information:
X	Attachment 1			a.	Regional and site specific geology and hydrogeology;
X	Attachment 1			b.	Direction and rate of ground water and surface water flow including seasonal variations;
X	Attachment 1			c.	Background quality of ground water and surface water;
X	Attachment 1			d.	Any on-site hydraulic connections between aquifers;
X	Attachment 1			e.	Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill;
X	Attachment 1			f.	Site topography and soil characteristics;
X	Attachment 1			g.	Inventory of all public and private water wells within a one-mile radius of the landfill including well top of casing and bottom elevations, name of owner, age and usage of each well, stratigraphic unit screened, well construction technique and static water level;
X	Attachment 1			h.	Description of topography, soil types and surface water drainage systems;
X	Attachment 1			i.	An inventory of all public and private water wells within one mile of the landfill;
		X		j.	Existing contaminated areas on landfill site.
X	Attachment 1			2.	Report signed, sealed and dated by PE or PG.

I. GEOTECHNICAL INVESTIGATION REQUIREMENTS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill. Prior to treatment, contaminated soil is stored on a permanent floor under a permanent cover, per Rule 62-775, FAC. After treatment, soil is stored in enclosed bins until ultimate use as a raw material in the manufacture of Portland cement.

Also see Application Part H, subparts a, f, and h.

J. VERTICAL EXPANSION OF LANDFILLS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill.

K. LANDFILL OPERATION REQUIREMENTS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill.

L. WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS (62-701.510, FAC)

S	LOCATION	N/A	N/C	
				NOTE: Sec. VIII of attached report is Groundwater Monitoring Plan per Rule 62-775, FAC
X	Attachment 1			1. Water quality and leachate monitoring plan shall be submitted describing the proposed ground water, surface water and leachate monitoring systems and shall meet at least the following requirements;
X	Attachment 1			a. Based on the information obtained in the hydrogeological investigation and signed, dated and sealed by the PG or PE who prepared it; (62-701.510 (2) (a), FAC)
X	Attachment 1			b. All sampling and analysis preformed by organizations having Department approved Comprehensive Quality Assurance Plans; (62-701.510 (2) (b), FAC)
				c. Ground water monitoring requirements; (62-701.510 (3), FAC)
		X		(1) Detection wells located downgradient from and within 50 feet of disposal units;
X	Attachment 1			(2) Downgradient compliance wells as required;
X	Attachment 1			(3) Background wells screened in all aquifers below the landfill that may be affected by the landfill;
X	Attachment 1			(4) Location information for each monitoring well;
		X		(5) Well spacing no greater than 500 feet apart for downgradient wells and no greater than 1500 feet apart for upgradient wells unless site specific conditions justify alternate well spacings;
X	Attachment 1			(6) Well screen locations properly selected;
		X		(7) Procedures for properly abandoning monitoring wells;
		X		(8) Detailed description of detection sensors if proposed.
				d. Surface water monitoring requirements; (62-701.510 (4), FAC)
X	Attachment 1			(1) Location of and justification for all proposed surface water monitoring points;
X	Attachment 1			(2) Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
		X		e. Leachate sampling locations proposed; (62-701.510 (5), FAC)

S	LOCATION	N/A	N/
X	Attachment 1		
		X	
X	Attachment 1		
X	Attachment 1		
X	Attachment 1		
		X	
X	Attachment 1		
X	Attachment 1		
		X	

f. Routine sampling frequency and requirements; (62-701.510 (6), FAC)

(1) Background ground water and surface water sampling and analysis requirements;

(2) Leachate semi-annual and annual sampling and analysis requirements;

(3) Detection well semi-annual sampling and analysis requirements;

(4) Compliance well sampling and analysis requirements;

(5) Surface water sampling and analysis requirements.

g. Describe procedures for implementing assessment monitoring and corrective action as required; (62-701.510 (7), FAC)

h. Water quality monitoring report requirements; (62-701.510 (9), FAC)

(1) Semi-annual report requirements;

(2) Bi-annual report requirements signed, dated and sealed by PG or PE.

M. SPECIAL WASTE HANDLING REQUIREMENTS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility for processing only non-hazardous petroleum and coal tar contaminated soils. No other wastes are processed by this facility.

N. LANDFILL FINAL CLOSURE REQUIREMENTS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill.

O. CLOSURE PROCEDURES

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill.

P. LONG TERM CARE REQUIREMENTS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill.

Q. FINANCIAL RESPONSIBILITY REQUIREMENTS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill. Soil is thermally processed to produce raw material for production of Portland cement at an on-site cement plant owned by applicant (Rinker Materials Corporation).

R. CLOSURE OF EXISTING LANDFILLS

COMMENT: Not Applicable. Facility is a soil thermal treatment facility -- not a landfill.

S. MATERIALS RECOVERY FACILITY REQUIREMENTS (62-701.700, FAC)

S	LOCATION	N/A	N/C		
___	_____	X	___	1.	Proof of posting a performance bond payable to the Department to cover closing costs, if required; (62-701.700 (4), FAC)
X	REPORT	___	___	2.	Materials recovery facility requirements; (62-701.700, FAC)
X	REPORT	___	___		a. Submit information required in Rule 62-701.320, FAC
X	REPORT	___	___		b. Submit an engineering report including the following:
X	REPORT	___	___		(1) Description of the solid waste proposed to be collected, stored, processed or disposed;
X	REPORT	___	___		(2) Projection with assumptions for waste types and quantities expected in future years;
X	REPORT	___	___		(3) Description of operation and functions of all processing equipment with design criteria and expected performance;
X	REPORT	___	___		(4) Description of flow of solid waste, expected regular facility operations, procedures for start up and shut down, potential safety hazards and control methods including fire protection;
X	REPORT	___	___		(5) Description of loading, unloading, and processing areas;
X	REPORT	___	___		(6) Identification and capacity of temporary on-site storage areas for materials handled and provisions for solid waste and leachate containment;
X	REPORT	___	___		(7) Identification of potential ground water and surface water contamination;
___	_____	X	___		(8) Plan for disposal of unmarketable recyclables and residue and contingencies for waste handling during breakdowns.
					c. Submit the following operational information:
___	_____	X	___		(1) Operation and maintenance manual;
___	_____	X	___		(2) Waste control plan to manage unauthorized wastes;
___	_____	X	___		(3) Contingency plan for emergencies;
___	_____	X	___		(4) Closure plan including the following:
___	_____	___	X		(a) Notification to Department 180 days prior to closure;
___	_____	___	X		(b) Procedures for removal of all waste within 30 days of receipt of final waste;
___	_____	___	X		(c) Completion of closure activities within 180 days of receipt of final waste and notification to the Department that closure is complete.

T. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

A. Applicant

The undersigned applicant or authorized representative of RINKER MATERIALS CORPORATION is aware that statements made in this form and attached information are an application for a Solid Waste Operation Permit from the Florida Department of Environmental Regulation and certifies that the information in this application is true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department. It is understood that the Permit is not transferable, and the Department will be notified prior to the sale or legal transfer of the permitted facility.

James S. Jenkins III
Signature of Applicant or Agent

James Jenkins -- VP of Operations
Name and Title

Date: 1/24/97

Attach a letter of authorization if agent is not a governmental official, owner, or corporate officer.

B. Professional Engineer Registered in Florida or Public Officer as required in Section 403.707 and 403.707 (5), Florida Statutes.

This is to certify that the engineering features of this solid waste management facility have been ~~designed~~/examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgement, this facility, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and rules of the Department. It is agreed that the undersigned will provide the applicant with a set of instructions of proper maintenance and operation of the facility, if required.

Signature

John B. Koogler, Ph.D., P.E. -- Engineer
Name and Title (please type)

12925
Florida Registration Number
(please affix seal)

4014 NW 13th Street
Mailing Address

Gainesville FL 32609
City, State, Zip Code

(352) 377-5822
Telephone Number

Date: 1/28/97

REPORT IN SUPPORT OF APPLICATION FOR A MATERIALS REDUCTION FACILITY (Pursuant to 62-701, F.A.C.)

RINKER MATERIALS CORPORATION
1200 N.W. 137TH AVENUE
MIAMI, FLORIDA

TABLE OF CONTENTS

PROCESS DESCRIPTION

The Rinker Materials Corporation (Rinker) is located at 1200 N.W. 137th Avenue in Miami, Florida. The company manufactures various types of Portland cement at the Miami location for sale and distribution throughout Florida. In conjunction with the cement manufacturing process, Rinker operates a fully permitted thermal soil remediation facility with all of the processed soil being used as a substitute raw material for the production of Portland cement. This fully permitted facility provides an environmentally sound method of processing contaminated materials into cement. EPA has acknowledged the great service that cement kilns have provided in removing contaminated materials from the environment because of their high operating temperatures and long residence times.

This application is for a Solid Waste Material Recovery Facility permit to be issued in accordance with Rule 62-701, F.A.C. The permit is to allow the processing of nonhazardous coal tar contaminated soil at the facility in addition to the hydrocarbon contaminated soil presently being processed in accordance with the requirements of Rule 62-775, F.A.C.

The Florida Department of Environmental Protection (FDEP) has thoroughly reviewed the technical and regulatory feasibility of thermally processing nonhazardous coal tar contaminated soil in Florida and has granted approval to at least two other facilities operating within the state. At facilities presently permitted by FDEP, the coal tar contaminated soil is thermally processed to produce "clean soil" (i.e., soil that can be used

off site as fill materials or other authorized purposes). In the case of the Rinker operation, all thermally processed soil (coal tar contaminated soil and other) will be used as a substitute raw material in the production of Portland cement. This will result in the ultimate disposal of the originally contaminated soil by additional thermal processing and incorporation into a saleable and useable end product.

The cement manufacturing process begins with the quantitative and qualitative processing of raw materials (limestone, rock, sand, bottom ash, slag, etc.) into a high solids slurry. This slurry is then introduced into two 475 foot long rotary kilns for processing to clinker. The slurry remains in the kiln for 3.0-3.5 hours where it is heated, dried and calcined at material temperatures reaching approximately 2750°F. At this temperature, the feed materials fuse into a mineralogical product called clinker. The resulting clinker (approximately 1700 tons per day) is cooled and ground with gypsum and other admixtures to produce Portland cement (approximately 1900 tons per day).

All hydrocarbon contaminated soils that are received by Rinker are first thermally processed to remove the hydrocarbon contaminants and are then consumed completely in the production of Portland cement as a "substitute" for a portion of the raw materials (i.e., limestone, sand, clay). The processed materials are subject to the same raw material processing as the conventional raw materials. On the average, the substitute feed materials represent only about 12 percent of the total raw feed stock to the cement plants.

EXISTING FACILITY

The existing Rinker thermal soil remediation facility and materials substitution procedures are fully permitted by FDEP; as is the cement plant. The thermal processing unit was modified/constructed in 1991 under Air Construction Permit AC13-187599 and is presently operating in fully compliance under Air Operation Permit A013-234126. A copy of this air operating permit, containing a brief description of the processing unit and all operating conditions, is included in Attachment VII.

The soil thermal treatment facility operates under General Permit S013-290034. A copy of this General Permit is included in Attachment VII. This permit was issued in accordance with Rule 62-775, F.A.C., for facilities processing petroleum contaminated soils. The requested solid waste permit will allow the existing permitted facility/ process to be operated as it is currently operated but to accept nonhazardous coal tar contaminated soils in addition to the presently permitted petroleum contaminated soils.

The cement plant (the two kilns and two coolers, five finish mills, 30 silos, two pack houses and the coal system) is permitted and operates under Permit A013-233208.

PROPOSED OPERATIONS

The existing soil thermal treatment facility is permitted to process up to 40 tons per hour of contaminated soil and is permitted to operate 8760

hours per year (Air Permit No. A013-234126 and General Permit S013-290034). It is requested that the Material Recovery Facility permit issued pursuant to this application include the same limits.

With these operating limits, up to 350,400 tons per year of soil contaminated with nonhazardous coal tar residue or petroleum contaminated soil, or a combination of the two (not to exceed 350,400) will be processed. At no time will the contaminated soil stored on site exceed the quantity that can be processed during a 90-day period; taking into consideration all permit conditions. Under current and proposed permit conditions, the on-site storage will be limited to 86,400 tons of unprocessed soil (Rule 62-775, F.A.C.).

A further description of the existing facility is included in Attachments I-IV. The descriptive materials consist of documentation previously provided to FDEP and accepted by the agency as complete applications for the air and general solid waste permits.

ANALYTICAL PROCEDURES

The pre-treatment and post-treatment soil sampling and analysis protocol for the existing thermal soil processing and substitution program is in accordance with Rule 62-775 and an approved Alternative Procedure for portions of this rule addressing post-treatment sampling and analysis. The company has established a Comprehensive Quality Assurance Plan to cover the required sampling and analytical procedures (see Attachment V).

For the post-treatment testing of petroleum contaminated soil, Rinker, in 1991, requested and received approval from FDEP for an alternative to the procedures required by Rule 62-775. A copy of the approval Alternative Procedures is included in Attachment VI.

need a copy

The basis for the Alternative Procedure is that Rinker does not process contaminated soils into "clean soil". All thermally processed contaminated soils are used as substitute raw materials for the production of clinker and ultimately Portland cement. As a result, there are two unique factors that preclude post-treatment exposure to any remaining contaminants in the processed soil. These factors are, (1) all thermally processed soil is subjected to further thermal processing at material temperatures of 2750°F where it is mineralogically converted to clinker, and (2) the processed materials end up as a constituent in Portland cement.

The thermal processing to produce clinker involves heating the raw feed (including the substituted process soil) for 3.0-3.5 hours to material temperatures reaching 2750°F. At this time/temperature exposure, any residual organics in the processed soil will be stripped from the feed material and any inorganics will be physically/chemically bound into clinker.

The resulting Portland cement, when set, physically/chemically binds any residual contaminants into an inert material which precludes any future exposure.

As a result, Rinker is proposing the following pre-treatment and post-treatment testing for nonhazardous coal tar contaminated soil.

Coal Tar Contaminated Soil Analyses

A. Coal tar contaminated soil samples shall be analyzed for the following parameters using the test methods indicated or other methods approved by the Department.

(1)	Total Volatile Organic Aromatics (VOA)	EPA Method 5030/8021 or 5030/8020
(2)	Total Recoverable Petroleum Hydrocarbons	FLA-PRO
(3)	Polynuclear Aromatic Hydrocarbons (PAH)	EPA Method 8100, 8250, 8270 or 8310
(4)	Volatile Organic Halocarbons (VOH)	EPA Method 5030/8021 or 5030/8010
(5)	Total Organic Halides	EPA Method 5050/9020, 5050/9252, 5050/9253
(6)	Metals	
	Arsenic	EPA Method 7060 or 7061
	Barium	EPA Method 7080, 7081 or 6010
	Cadmium	EPA Method 7130, 7131 or 6010
	Chromium	EPA Method 7190, 7191 or 6010
	Lead	EPA Method 7420, 7421 or 6010
	Mercury	EPA Method 7471
	Selenium	EPA Method 7740, 7741 or 6010
	Silver	EPA Method 7760, 7761 or 6010
	Beryllium	EPA Method 7090
(7)	Cyanide (See Condition C)	EPA Method 9010

(8)	Dibenzofurans	EPA Method 8270
(9)	Phenols	EPA Method 8040 or 8270
(10)	TCLP Metals (See Condition E)	
	Arsenic, Barium	EPA Methods 1311/7060, 6010
	Cadmium, Chromium	7130, 7131, 6010, 7190 or 7191
	Lead, Mercury	6010, 7470
	Selenium, Silver	7740, 6010
	Beryllium	1311/7090
(11)	TCLP Benzene (See Condition C)	EPA Method 1311/8020

B. All analytical methods shall have detection levels that are less than or equal to the risk based and leachability based soil cleanup levels as established by FDEP.

C. All thermally treated soil shall be analyzed for the parameters listed in Condition A using the EPA Methods indicated or other methods approved in writing by the Department. Thermally treated soil is not required to be analyzed for TCLP benzene. Thermally treated soil shall be analyzed for cyanide only if cyanide is detected in the soil contaminated with coal tar residue over minimum detection limits.

D. The soil must not be thermally treated if it is classified as hazardous waste. If any soil is suspected of containing a hazardous waste, then screening analyses for other contaminants may include, but are not limited to, the following: volatile organic halogens; corrosivity; reactivity; toxicity characteristic constituents by the

TCLP, which includes metals, pesticides, and additional organics. Soil contaminated with used oil, hydraulic oil, or mineral oil may be a hazardous waste and should be tested using toxicity characteristic, for total organic halides. Excavated soil which is classified as a hazardous waste must be managed as a hazardous waste and treated or disposed of at an approved hazardous waste treatment/disposal facility.

E. TCLP analyses for metals are not required for pretreatment soils if the total concentration (ppm) for each metal does not exceed 20 times the respective TCLP hazardous waste limit (ppm) for the metal (i.e., for Lead the hazardous waste limit is 5 ppm therefore any sample with a total Lead concentration exceeding 100 ppm would require TCLP testing).

Soil Sampling Frequency

A. Pretreatment soil shall be analyzed as required by the preceding condition. The number of composite soil samples for each contamination site shall be in accordance with Table I. Each composite soil sample shall consist of soil samples taken from at least four locations. Each sample shall be collected from locations equally distributed throughout the soil surface area and from a depth of at least six inches below the surface. Sampling procedures are described in the Standard Operating Procedures Manual for Soil Thermal Treatment facilities pursuant to F.A.C. Rule 62-775.300(10).

TABLE I

SOIL SAMPLING FREQUENCY

Amount of Soil		Quantity of Composite Samples
By Volume (cubic yards)	By Weight (tons)	
Less than 100	Less than 140	1
100 to 500	140 to 700	3
500 to 1000	700-1400	5
For each additional 500	For each additional 700	1

B. To demonstrate that the nonhazardous coal tar contaminated soil is adequately processed, Rinker proposes the following protocol. The protocol is patterned after the Alternative Procedure for demonstrating the adequate thermal treatment of petroleum contaminated soil pursuant to Rule 62-775, F.A.C., granted by FDEP on April 1, 1991 (see Attachment VI). It is should be recognized that Rinker is not requesting an Alternative Procedure as Rule 62-701 sets forth no test requirements.

The basis for the following protocol is that the processed contaminated soil is used as a raw material in the production of Portland cement clinker. In this process, the soil passes through a direct fired rotary kiln with a residence time of 3.0-3.5 hours where it is subjected to temperatures of approximately 2750°F and converted to clinker. Furthermore, the processed contaminated soil is limited to only approximately 12 percent of the total raw materials consumed during the production of clinker and approximately 10 percent of the

materials used to produce Portland cement. Rinker proposes the following:

(1) The maximum concentration of metals in the contaminated soil entering the raw materials feed preparation area will be limited to the clean soil criteria limits of Rule 62-775.400(3), F.A.C. In achieving these limits, soil may be blended in accordance with Rule 62-775.400(4), F.A.C. Rinker is of the opinion that by limiting the metals concentration of the processed soils entering the cement manufacturing process to the limits established for "clean soil" (Rule 62-775.400(3)), the metals concentration in the clinker that incorporates the processed soil cannot exceed these same limits.

For post-treatment testing and in accordance with the Alternative Procedure established by FDEP for petroleum contaminated soil, Rinker proposes to sample clinker production every 400 tons or every eight hours, whichever is less. The samples that are collected will be composited on a weekly basis (seven days). Each weekly composite sample will be analyzed for the parameters established by FDEP for other facilities processing coal tar contaminated soils; except that metals will not be analyzed because of the restriction on the metals limits on contaminated soil used in the production of raw feed.

ATTACHMENTS

The attachments hereto further describe the Rinker soil thermal treatment facility including procedures and protocol and the groundwater monitoring plan previously approved by FDEP and currently in FDEP files.

ATTACHMENT I

MATERIAL SUBSTITUTION PROGRAM

Material Substitution Program

Rinker Materials Corporation accepts for processing in its cement kiln operation contaminated soils and waters that have been certified to be non-hazardous. This fully permitted facility provides an environmentally sound method of processing contaminated materials into cement. EPA has acknowledged the great service that kilns have provided in removing contaminated materials from the environment because of their high operating temperatures and long residence times of the gases.

Essentially, a portion of the contaminated materials are substituted for a small percentage of the comparable raw materials normally utilized in the plant operation. These raw mix materials are proportioned and then ground into a slurry which is sent to one of the two operating kilns. The kilns are approximately 475 feet in length and serve as a rotary furnace in bringing the processed slurry to a minimum material temperature of 2750 degrees fahrenheit. At these temperatures, the resulting fusion reaction creates a new material known as clinker which, when added with gypsum, is ground together to make Portland Cement.

Each of the contaminated materials is incorporated into the cement manufacturing process in the following manner:

Contaminated Soils, Waters, and Waste Oils are received by Rinker and delivered to the various phases of the process where similar raw materials are being normally utilized.

1) Soils are combined with the mined limestone rock, sand and fed through the crusher, raw grinding mills and mixed with water for production of kiln feed slurry.

2) Waters are delivered for incorporation into the slurry make up and or reslurring of electrostatic precipitator fines.

3) Waste oils are delivered as straight kiln fuel feed, or in combination with other fuel sources (coal, gas, oil).

All materials received in this operation are precertified by an outside laboratory which tests to insure that they are non-hazardous as regulated under 40 CFR Part 261 and that they do not exceed state mandated limits. Additionally, prior acceptance approval is generally given by the appropriate local county environmental regulatory or state agency.

Material Substitution Qualification Procedure

Before materials can be received by Rinker for inclusion into the Material Substitution Program (MSP), each candidate usually analyzed by the generator for the following parameters.

Contaminated Soils

- 8010
- 8020 and or 8100
- Total Halogens
- Metals - Arsenic, Cadmium, Chromium, Lead, Mercury

Contaminated Water

- 601's
- 602's and or 610's
- Total Halogens
- Metals - Arsenic, Cadmium, Chromium, Lead, Mercury

Waste Oil

- Total Hydrocarbon
- Total Halogens
- Metals - Arsenic, Cadmium, Chromium, Lead, Mercury
- PCB Scan (if Halogens present)
- (If total halogens exceed 1000 PPM; test for 601's)

This analytical information is provided to Rinker by the generator via a "Material Substitution Data Sheet" (See Exhibit #8) In addition, the generator must provide a representative sample of the contaminated material as well as any required county documentation, approvals and or consultant information pertinent to the contaminated material(s).

Once the MSDS and related information is received from the Generator, Rinker reviews the data on each material as to its acceptability into the MSP. Upon approval, the material is assigned a specific Materials Substitution control number. This specific number is used to record and track the material through final disposition and generator notifications.

EXHIBIT 18

RINKER MATERIALS CORP.

MATERIAL SUBSTITUTION DATA SHEET

TE: _____ M.S. NUMBER

s a representative sample provided? YES ☐ NO ☐

BILLING INFORMATION
Company Name _____
Address _____
City _____ State _____ Zip _____
Contact _____ Phone _____

PICK-UP LOCATION
Company Name _____
Address _____
City _____ State _____ Zip _____
Contact _____ Phone _____

MANIFEST INFORMATION
Company Name _____
Address _____
City _____ State _____ Zip _____
Contact _____ Phone _____

GENERATOR INFORMATION
USEPA I.D. NO. _____
Technical Contact _____ Phone _____
Emergency Contact _____ Phone _____
Business Contact _____ Phone _____

General Waste Description _____

EPA Hazardous Waste Code No.(s)

Reason for Classification _____

Type of Process Generating Waste _____

Quantity Generated (Per Month) _____ Frequency of Removal _____

COMPOSITION

CHEMICAL NAME	CHEMICAL FORMULA		RQ	DOT HAZARD CLASS

METAL ANALYSIS

TOTAL DIGESTED METALS (Incineration Only) mg/l

Silver _____
Arsenic _____
Beryllium _____
Cadmium _____
Chromium _____
Copper _____
Mercury _____
Nickle _____
Lead _____
Antimony _____
Selenium _____
Thallium _____
Zinc _____

EP METALS mg/kg Total

Arsenic _____
Barium _____
Cadmium _____
Chromium _____
Lead _____
Mercury _____
Silver _____

Water Reactive Yes ☐ No ☐
Explosive Yes ☐ No ☐
Pyrophoric Yes ☐ No ☐
Shock Sensitive Yes ☐ No ☐

PHYSICAL PROPERTIES

PHYSICAL STATE @ 25°C (68°F)

Powder: Yes ☐ No ☐
Solid: Yes ☐ No ☐
Liquid: Yes ☐ No ☐
Slurry: Yes ☐ No ☐
Sludge: Yes ☐ No ☐
Paste: Yes ☐ No ☐
Multiphase: Yes ☐ No ☐
Free Oil: Yes ☐ No ☐

Floating: _____

PCB _____
% Oil Grease _____
PH _____
Total Petro Hydrocarbon _____

Flash Point _____
Specific Gravity _____
Bulk Density _____
Mod 602 _____

GENERATOR SIGNATURE: DATE

HALOGENS

Chlorine _____ Flouride _____ Bromine _____ Iodine _____

Material Substitution Receiving Procedure

Once the contaminated materials are approved for receipt by Rinker, notification is given to the generator and inbound scheduling is developed.

As part of the delivery procedure each load is accompanied by a Material Substitution Transportation and Receiving Manifest. (See Exhibit #9) or an equivalent. This Manifest is executed by all parties (generator, transporter, facility), and copies are distributed accordingly for record keeping.

In addition to the manifest a weight ticket is created for each load to document the actual amount of materials received. This weight ticket is made part of the permanent record of material receipt.

A daily receiving report is produced at the end of each business day to account for all Material Substitution receiving activity and recorded storage areas. (See Exhibit #12).

EXHIBIT #9

RINKER MATERIALS CORP.

MATERIALS SUBSTITUTION
Transportation & Receiving Manifest

DOCUMENT NO. _____

GENERATOR			TRANSPORTER			RECEIVING FACILITY		
COMPANY NAME			COMPANY NAME			COMPANY NAME		
ADDRESS			ADDRESS			ADDRESS		
CITY	ST.	ZIP CODE	CITY	ST.	ZIP CODE	CITY	ST.	ZIP CODE
TELEPHONE			TELEPHONE			TELEPHONE		
CONTACT:			CONTACT:			CONTACT:		
I.D. NO.:			I.D. NO.:			I.D. NO.:		
CUST. P.O.			M.S. NO.:					

INFORMATION					REMARKS
MATERIAL DESCRIPTION AND DOT SHIPPING NAME	CLASS	DOT ID UN# NA#	QUANT-VOLUME	CONTAIN-ER	

GENERATOR

This is to certify that the above named material is properly classified, described, packaged, marked and labeled and are in proper condition for transporting according to the applicable regulations of the U.S. Department of Transportation, Environmental Protection Agency and contains no toxic or hazardous substances that would cause oily waste to be classified as a characteristic or listed hazardous waste.

AUTHORIZED SIGNATURE (press hard - 5 copies)

TITLE | DATE OF SHIPMENT

TRANSPORTER

This is to certify the acceptance of the above material in the amounts and descriptions given and in proper condition for transport to be delivered to the treatment facility.

AUTHORIZED SIGNATURE (press hard - 5 copies)

TITLE | DATE OF SHIPMENT

TREATMENT FACILITY

This is to certify the acceptance of the above named material in the amounts and descriptions given from the named transporter for treatment, storage disposal or recycling.

AUTHORIZED SIGNATURE (press hard - 5 copies)

TITLE | DATE OF SHIPMENT

DISPATCH INFO:

DRIVER: Sched. Arrive

TRUCK: Sched. Arrive

GROSS TARE

NET

SPECIAL INST.

BILLING:

COMPANY NAME

ADDRESS

CITY | ST | ZIP CODE

TELEPHONE

DISCREPANCY INFO:

EMERGENCY AND SPILL ASSISTANCE Call:

WHITE - Generator (Last) GREEN - Receiving PINK - Generator (First) GOLDENROD - Transporter's Copy YELLOW - Equipment

MATERIAL SUBSTITUTION PROGRAM

DAILY RECEIVING REPORT

Generator	M.S. No.	Material	Transporter	Quantity Tons/Gallons	Destination (Storage)	Comments

EXHIBIT #17

Each transport or hauling vehicle is escorted to the assigned storage are, off loaded, and returned to the scalehouse where all paper work (manifests, weight tickets, etc) are finalized and distributed to all parties.

However, prior to the material being off loaded at the particular assigned storage area samples are obtained and material is segregated until Quality Control confirms that the material is as previously approved.

The following analysis is performed and recorded.

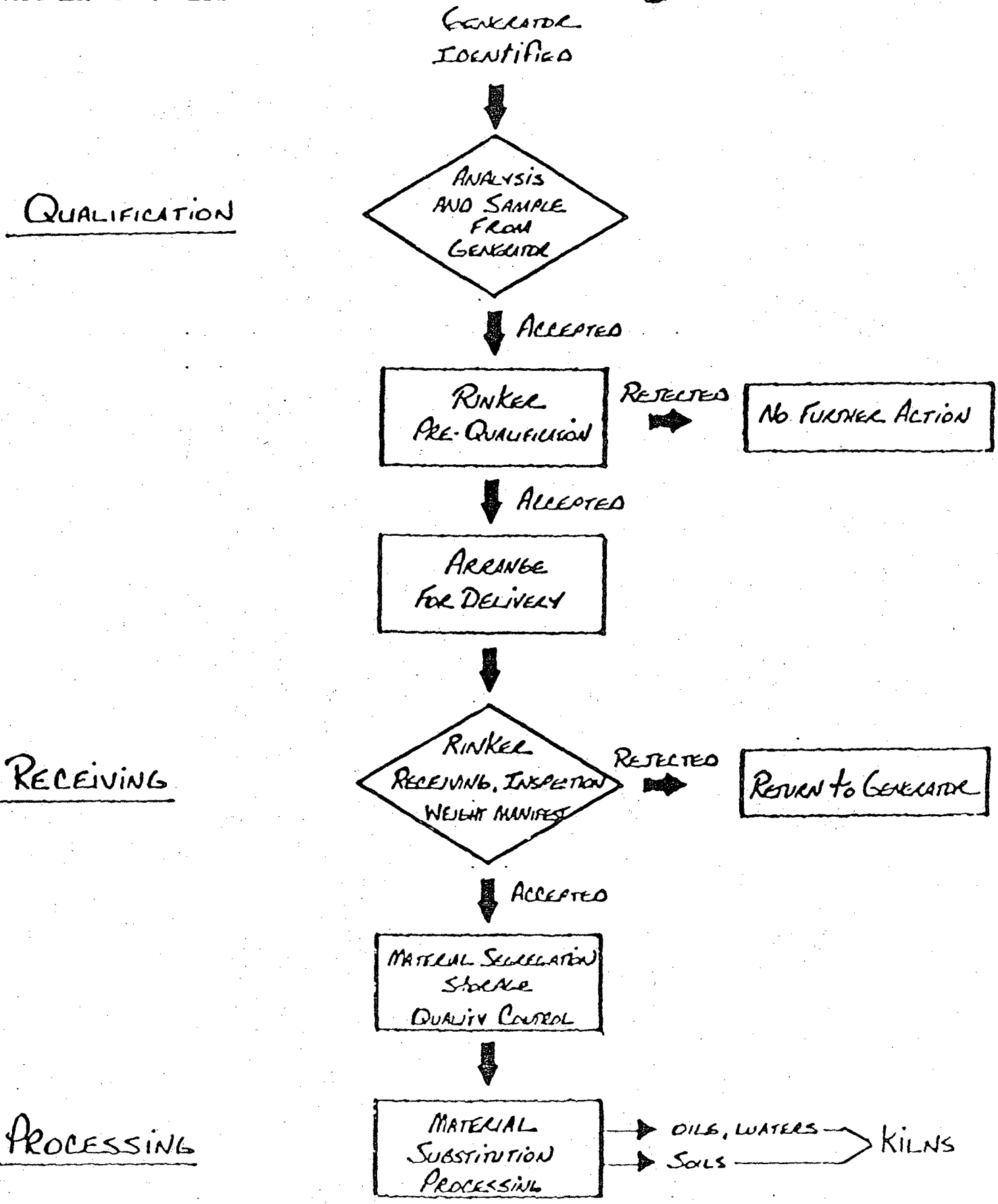
1. Waste Oil - BTU's,
   % Water
   Dexsil Kit PCB's
   Total Halogens
   Total Metals
   Arsenic
   Cadmium
   Chromium
   Lead

2. Waste Water - Total VOA
   Chloride

3. Soils/Solids - Total Halogens
   Total Metals
   Arsenic
   Cadmium
   Chromium
   Lead

Once Quality Control confirms the material is specification for permitted use criteria, the material(s) are released for Materials Substitution Processing

QUALITY CONTROL



PCB CONTAMINATED SOILS

Rinker is providing the following notice of intent in compliance with Rule 17-775.410(6)

Rinker intends to treat low levels of PCB contaminated soils in compliance with Rule 17-775, General Permit No. SO13-195017 and Air permit number AO 13-234126 (attached).

The descriptions below address the questions required by this notice.

1. Describe the types of finished product line for which the soil will be used following treatment.

All of the PCB soils after treatment will be included in the portland cement manufacturing process.

2. A sample of the record keeping forms for PCB analytical information, tracking the PCB contaminated soil which the facility accepts, and record keeping the type of finished product line for which the soil contaminated with PCB,s is used shall be attached.

Rinker utilizes the Florida Department of Environmental Protection Untreated Soil Reporting Form and Treated Soil Reporting form to meet the above requirements.

3. A narrative description should be provided of the procedure which will be followed to separately handle and stockpile the PCB contaminated soil both before and after treatment. It must be demonstrated that the facility has adequate storage facilities to accommodate the separate handling of PCB contaminated soil, both before and after thermal treatment.

To prevent the intrusion of the weather element, a pre-treatment soils storage area consists of a steel building erected to enclose a concrete walled 110 foot by 306 foot monolithic (12 inch thick) reinforced concrete slab. This building is open on one side allowing access for handling equipment and truck entry and egress along any point of the open face.

The size and easy access of this facility allows Rinker to easily segregate low level PCB contaminated soils from other contaminated materials within the building. This is also accomplished thru scheduling of materials receipts to insure the adequacy of space available. Screening and any sizing of these materials will also be processed independently of any other materials on site.

When screened and sized these materials will be moved to the feed area for the thermal desorber for treatment. They will be processed independently of any other materials. After treatment these soils will be used in the cement manufacturing process as raw materials and will in fact be passed thru a second pyroprocessing operation when converted to clinker.

4. Soil sampling and analysis.

Rinker Materials will require the generator of low level PCB contaminated soils to precertify these materials thru the sampling and analysis requirements specified in 17-775.410. Rinker will accept these materials only after the provisions are met.

5. Alternate procedure.

Rinker will continue to comply with the existing approved alternate procedure dated April 1, 1991.

DRUMMED MATERIALS

Rinker is handling drummed materials in the following manner. These petroleum contaminated materials are of the same nature and type as those received in bulk. The pre-certification is the same for drummed materials as for bulk materials. When properly approved for receipt and received these materials are emptied within our 110 foot by 306 foot materials storage building for standard processing.

When emptied these drums are moved by flatbed truck (owned and operated by Rinker Materials) to our pressure washing facility. At this totally self contained facility the drums have residual petroleum contaminated materials removed. Then depending on the condition of the drum one of two things happens. If undamaged, the drums are transported to a steel drum facility (currently Southern Steel Drum). If damaged the drum is crushed and transported to a scrap steel recycling facility (currently Miami Iron and Metal Scrap).

The residual contaminated materials collected in this facility are utilized in our process. Contaminated soils are moved to the soils storage building for processing. Water and oil are moved to our oily water system for inclusion in the kiln process and oil is moved into our oil system to be fuel for our kilns.

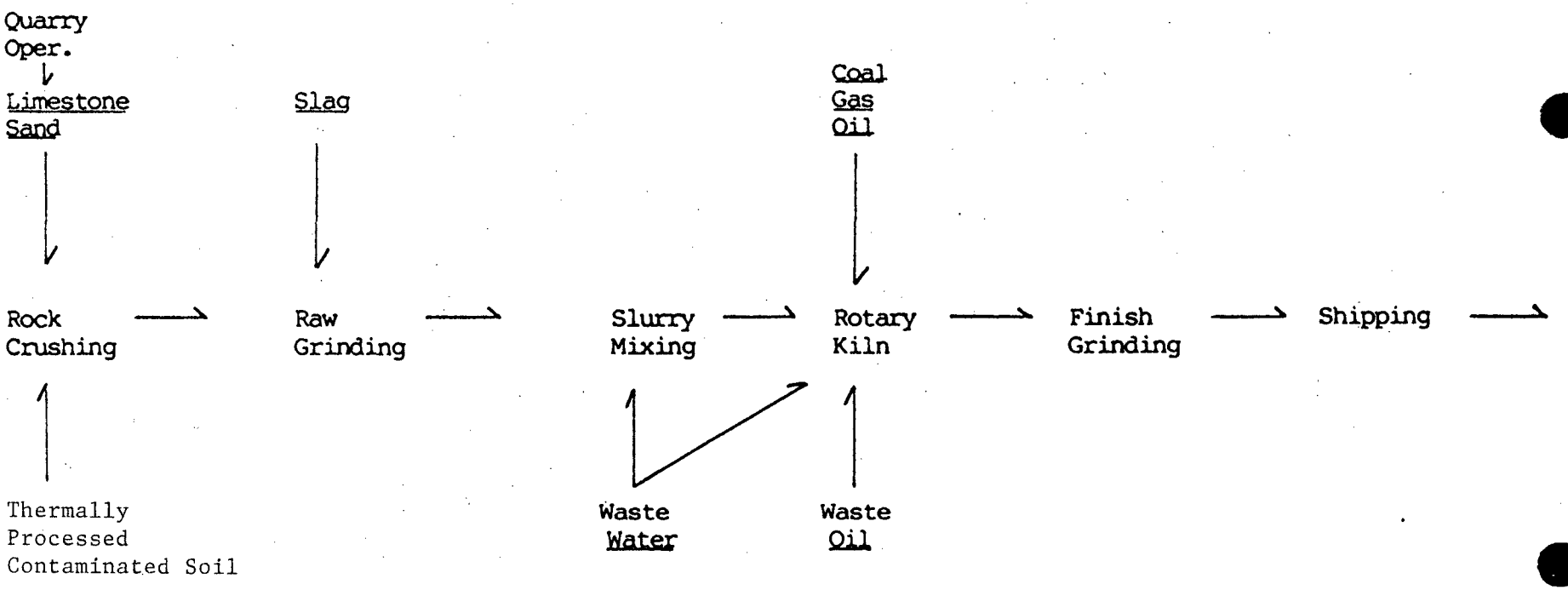
The self contained cleaning facility was constructed and went into operation in September 1987. This facility was constructed with an integral secondary containment system located underneath the main building to contain any leakage from the primary facility should it ever occur, with a monitoring well included. This monitoring well has a sample visually checked monthly. A sample will be tested for VOC's. This reclaim system for pressure cleaning operations is located with a roofed building including two collection pits, an aeration/settling pit, oil/water separator, and a 2000 gallon aboveground recycled water tank. With sloped floor and collection bins all materials stay within the facility until properly moved for recycling into our process.

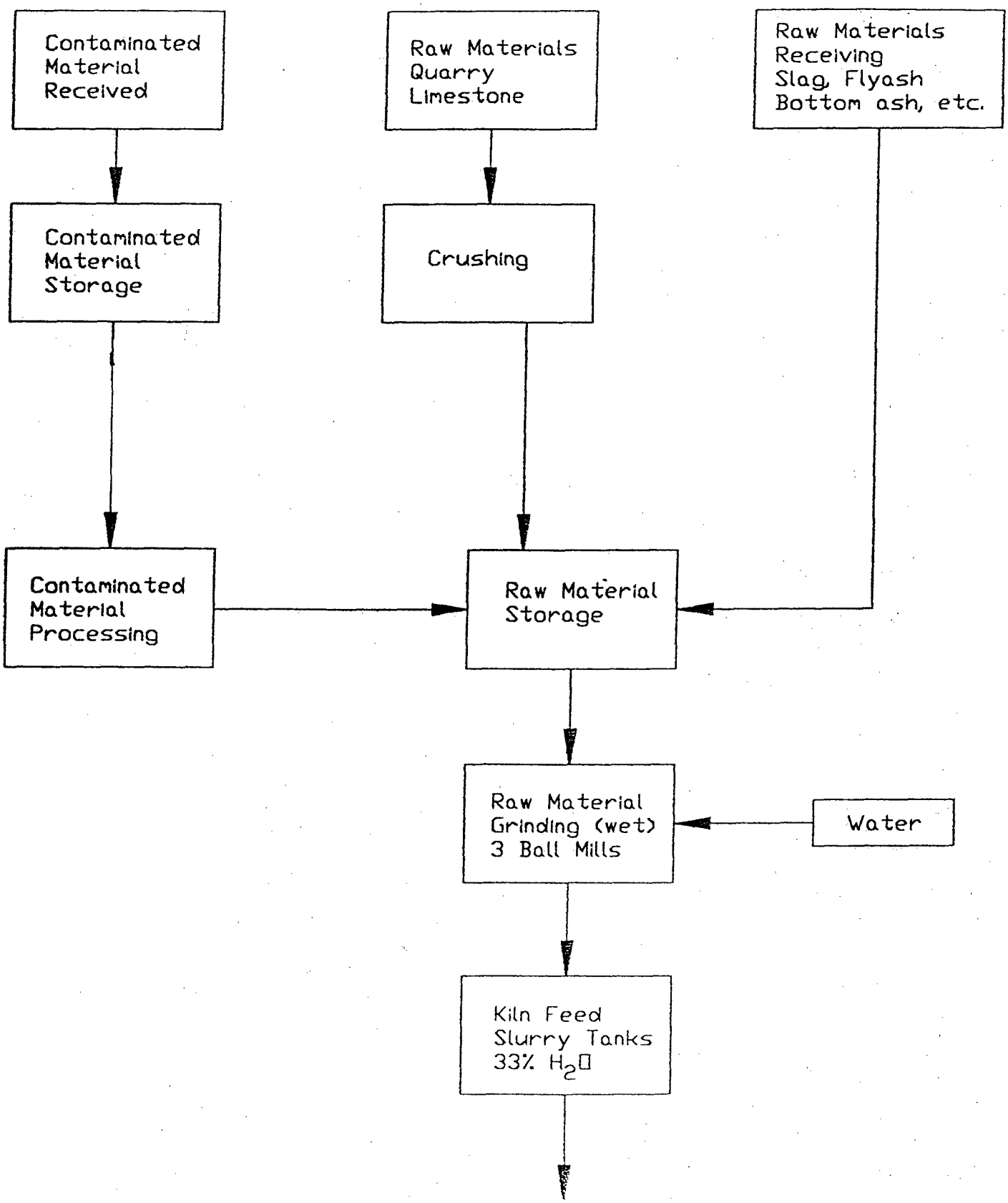
Attached are copies of the original construction prints and certificate of completion of construction. This facility is currently listed on our Dade County IW2-0289-93.

ATTACHMENT II

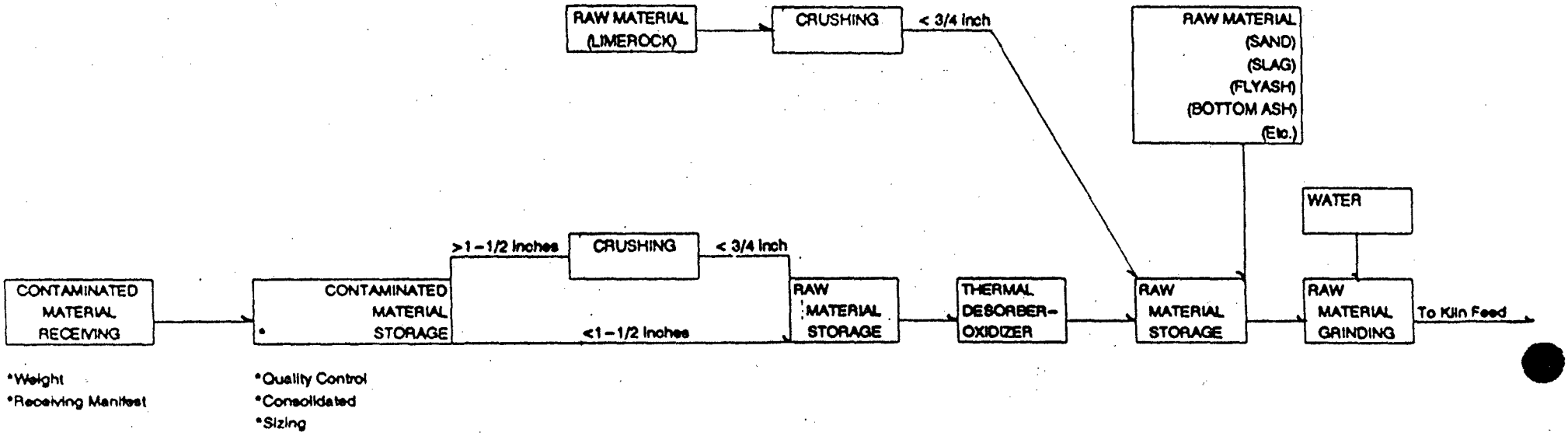
PROCESS FLOW DIAGRAMS

RAW MATERIAL FLOW DIAGRAM

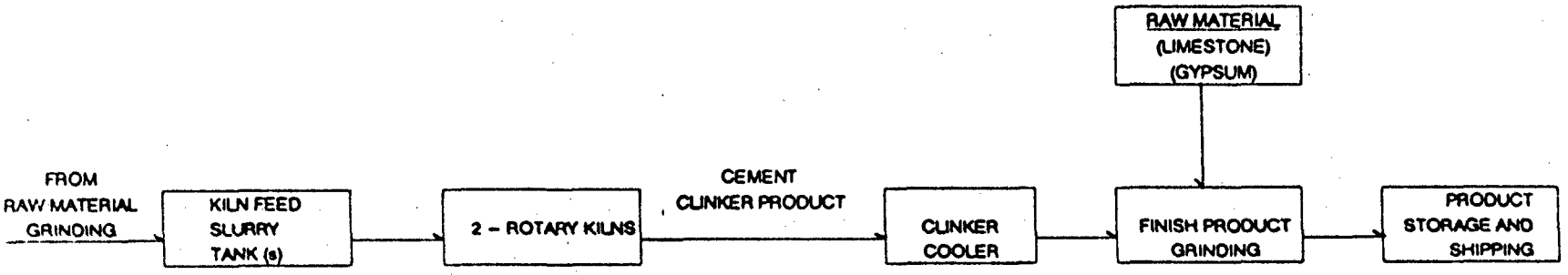



Contaminated Material Received
Raw Materials Quarry Limestone
Raw Materials Receiving Slag, Flyash Bottom ash, etc.
Contaminated Material Storage
Crushing
Contaminated Material Processing
Raw Material Storage
Raw Material Grinding (wet) 3 Ball Mills
Water
Kiln Feed Slurry Tanks 33% H_2O

PROCESS FLOW DIAGRAM



PROCESS FLOW DIAGRAM



*Product Exit Temp – ± 2800 F

*Product Retention – 3 hr min.

*Physical & Chemical Transition

ATTACHMENT III

PRE-TREATMENT AND POST-TREATMENT SOILS
STORAGE AREA DESIGN

Pre-Treatment and Post-Treatment Soils Storage Area Design

To prevent the intrusion of the weather element, a pre-treatment soils storage area will consist of a steel building erected to enclose a concrete walled 110 foot by 306 foot monolithic (12 inch thick) reinforced concrete slab.

The enclosed building will be open at one side to allow for handling equipment and trucking entry and egress.

The concrete slab (floor) is sloped to allow for leachate drainage to an internal sump adjacent to an an above floor grade vertical leachate tank. All leachate will be prevented from entering into the groundwater or surface waters where contaminated soils are stored.

As leachate is created and accumulated in the pad sump, leachate will be removed via pump and transferred to an adjacent 2,000 gallon tank located outside the soil storage building.

As the need arises, the leachate tank will be pumped out by a licensed waste oil transporter and transferred to Rinker oily water process tank where the leachate will be feed directly to the kilns as slurry make up water for clinker product.

All debris and non-soils items that have been separated during the soils screening operation (i.e. pipe, rebar, plastic, etc.) will be deposited in covered container provided by Industrial Waste Service for deposition in a local land fill.

Material Substitution Storage and Receiving Facilities

Each type of material that is received into the Material Substitution Program is off-loaded according to the particular characteristics of the material.

Soils: Soils are off-loaded onto our covered 110 foot x 306 foot seamless concrete pad.

The pad is constructed to contain and direct all free liquids to a concrete sump. All sump liquids are collected and pumped into an adjacent secondarily contained tank. These liquids are ultimately transfered to Waste Water feed tankage for kiln introduction.

Waste Oils: All waste oils are off-loaded via the pumphouse located at our major tank farm.
These waste oil materials are directed either straight to oil storage (600,000 gallon tank) (Storage Site B) or to one or more of our four (4) separation tanks located at the major tank farm (Storage Site D).

Upon the accumulation of sufficient volume, waste oil is transfered to the fuel feed day tank (Storage Site F) for consumption in the kilns.

Waste Water: Contaminated waters are off-loaded into the major tank farm or into two, 20,000 gallon water feed tanks located adjacent to the kilns. (Storage Site E).
Waters that enter the tank farm are transfered to one or more of the 4 - 25,000 gallon tanks (Storage Site D) or to the 600,000 gallon storage tanks (Storage Site C).

Once sufficient volume of water is accumulated in the tank farm, transfer is made to the water feed tanks (Storage Site E).

All tankage used for contaminated waters and waste oils are secondarily contained to a minimum of 130% of capacity of the largest tank within the tankage area.

All tankage is inspected daily for structural integrity, tightness of fittings along with associated supply piping. Any problems discovered are corrected immediately or the facility (tank and piping) is taken out of service until corrective action can be taken. (PM reports are issued weekly)

Truck off-loading containment areas have been constructed for the water feed tanks and similar off-loading containment areas are planned for the pumphouse area (Main Tank Farm) and fuel feed day tank area.

LEACHATE COLLECTION SYSTEM

Rinker is requesting a modification to our general permit to move the leachate collection system currently located inside the Southeast corner of our Materials storage building. This system will be relocated outside the building, approximately fifteen feet from the southeast corner of the slag and abutted to the main building slab. The tank will be downsized to a 2000 gallon tank (previously utilized at the temporary soils storage pad) and located within a concrete containment system built to contain 130% of the size of the tank. This the piping from the material storage building to the tank/containment system will be constructed of double walled piping. These details are outlined on the attached construction print.

The purpose for this request is based on two reasons. Since this system went into operation in February 1992 Rinker has had no occasion to put contaminated waters into this tank. This is after two wet seasons. This tank when the building is empty is difficult to operate around with the loaders in the building. The tank is difficult to inspect and keep clear when inventory levels increase within the building.

By relocating the tank outside we will not have problems with equipment working around the tank, inventories encroaching on the tank, and inspections will be much more readily made.

If it ever becomes necessary to put waters into this tank Rinker would still utilize them in our process as described in the original permit.

NAME OF COMPANY: Rinker Materials Corporation

RAW MATERIALS STORAGE

Name	Quantity Container Size	Type (acids, solvents, etc.)
Storage "A"	1-110'x306'x12" Concrete Pad	Contaminated Soils
Storage "B"	1 - 600,000 Gallon AG- Tank	Waste Oils/Waste Water
Storage "C"	1 - 600,000 Gallon AG- Tank	Waste Waters/Waste Oil
Storage "D" - Tank #1	1 - 25,000 Gallon AG- Tank	Waste Water/Waste Oil
Storage "D" - Tank #2	1- 25,000 Gallon AG- Tank	Waste Water/Waste Oil
Storage "D" - Tank #3	1 - 25,000 Gallon AG - Tank	Waste Water/Waste Oil
Storage "D" - Tank #4	1 - 25,000 Gallon AG - Tank	Waste Water/Waste Oil
Storage "E" -Tank #1	1 - 20,000 Gallon AG - Tank	Oily Water
Storage "E" - Tank #2	1 - 20,000 Gallon AG - Tank	Oily Water
Storage "F"	1 - 30,000 Gallon AG Tank	Waste Oils
Storage "H" - (Building) 900'x100'	1 - 100,000 Tons	Sand, Limerock, Slag, Coal Gypsum, Clinker, Contaminated Soils

ATTACHMENT IV

SOILS SIZE REDUCTION METHOD

SOILS SIZE REDUCTION METHOD

All contaminated materials received by Rinker Materials Corporation for inclusion into the Material Substitution Program are first weighed (per load) and delivered to the storage area for quality control, consolidation and sizing.

The initial sizing is accomplished by processing all contaminated materials through a Power Screen mark II power grid. This equipment provides for sizing of equal to and less than 1-1/2 inches.

All material equal to and less than 1-1/2 inches is segregated from the screening operation via a stacker belt and transferred to the Raw Materials Storage building for further processing.

All material greater than 1-1/2 inches is segregated from the screening operation via a stacker belt and transferred to the jaw crusher and hammer mill (impactor) for further size reduction.

Material leaving this crushing cycle (less than 3 inches) is deposited into the Raw Material Storage building for further processing.

As cement production demands, the dry raw materials are transferred from storage (including the presized contaminated material) and introduced into one of four raw material grinding mills.

These mills reduce a blend of dry raw materials and water to a homogeneous slurry that can be pumped for kiln introduction and subsequent thermal processing.

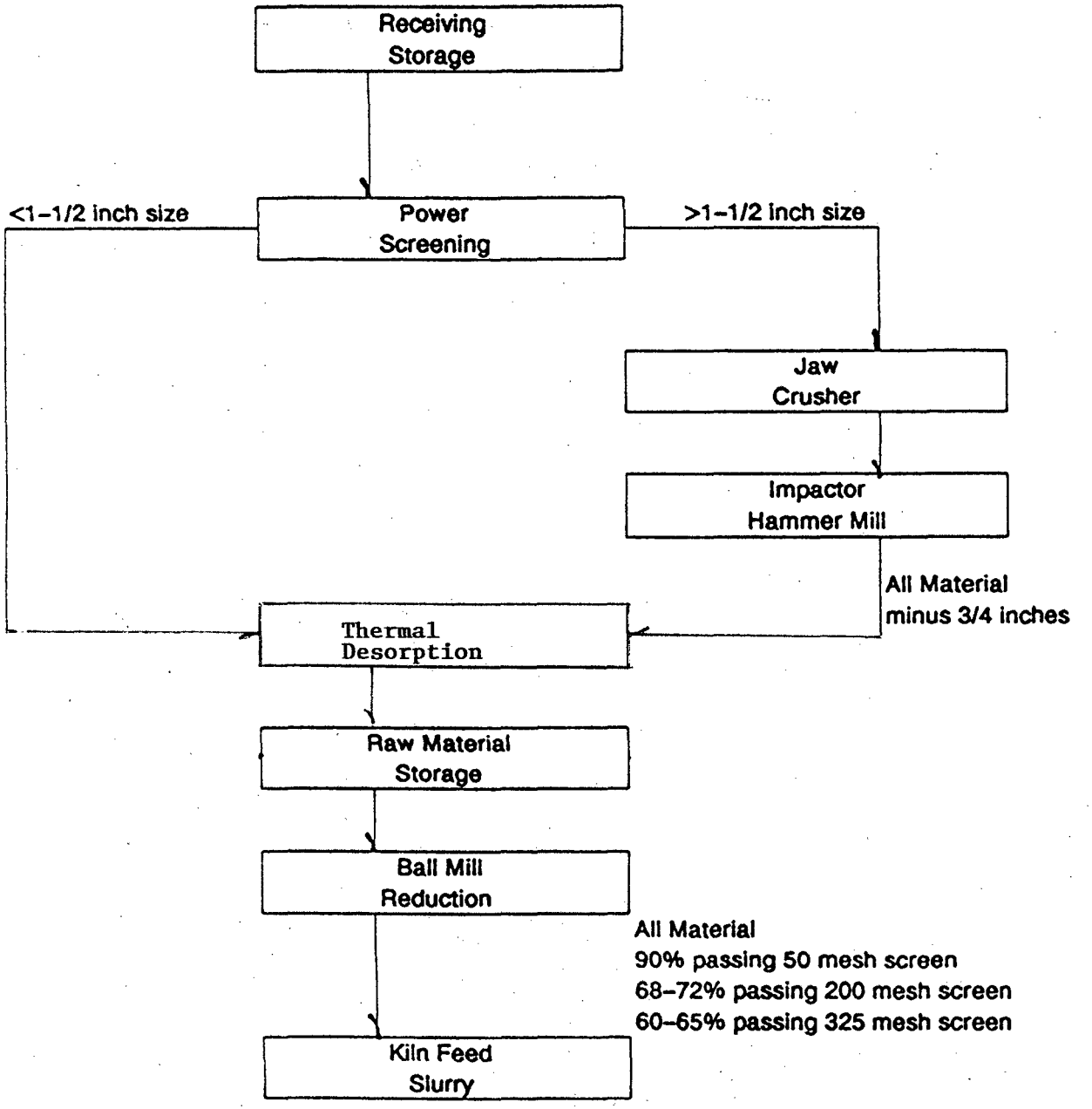
The slurried material has the following physical characteristics:

Moisture: ± 30%

Particle size: 90% passing 50 mesh screen
68 - 72% passing 200 mesh screen
60 - 65% passing 325 mesh screen

(Please note attached flow diagram)

SIZE REDUCTION METHOD
(FLOW DIAGRAM)



ATTACHMENT V

COMPREHENSIVE QUALITY ASSURANCE PLAN STATEMENT

COMPREHENSIVE QUALITY ASSURANCE PLAN (CQAP) - STATEMENT

A. Pre-treatment Analysis

Rinker Materials Corporation requires that all petroleum contaminated soils presented for Material Substitution (thermal treatment) be analyzed according to the stated requirements in 17-775.410 section (3) and be certified by a laboratory with an approved Comprehensive Quality Assurance Plan (see exhibit B).

No material will be accepted prior to receipt of analysis, laboratory certification and screening by Rinker to assure compliance with all permitting criteria.

The analytical results for untreated petroleum contaminated soils received by Rinker are to be reported via DER form 17-775.900 (2).

B. Post-treatment Analysis

Rinker Materials Corporation will provide post-treatment analysis as set forth in the applicable section (s) of 17-775.400 and 17-775.410 and in compliance the "Alternate Procedure" approved by Florida Department of Environmental Regulation, Division of Waste Management dated April 1, 1991 and registered as File No. AP- STTF001 (See Attached).

These analyses will be performed by an outside laboratory with an approved F.D.E.R. Quality Assurance Plan. Certification of the analytical results shall be documented by means of a Quality Assurance Certification. (see exhibit B).

1. Clinker Production Sampling Procedure

A. Based upon the "Approval of Alternate Procedure" issued by FDER, Division of Waste Management dated April 1, 1991 and registered as file No. AP- STTF001 , Rinker will adhere to the following sampling procedure.

a. "As an alternate procedure for F.A.C. Rule 17-775.410(5), sample clinker production every 400 tons or every eight hours whichever is less and composite these samples on a weekly basis (7 days), and sample the clinker for the parameters and levels identified in F.A.C. Rule 17-775.400."

b. Each subsample sample will be obtained from within the product stream continuously exiting the clinker cooler (clinker temperature 400°F plus) using a steel boat with dimension of approximately 8 inches long by 4 inches wide by 2 inches deep.

c. Each subsample sample will be placed in a appropriately sized clean stainless steel container, cooled to a temperature sufficient to allow covering with lid and immediately delivered to a large wide-mouthed stainless steel container covered with foil and lid and placed in a refrigerator and kept at 4^0C.

d. Equal size subsample will be added to the container at the rate of every 400 tons or every eight hours which ever is less and kept at 4^0C.

e. When all subsamples have been taken (weekly-7 days) entire sample will be placed into a stainless steel tray, lightly mixed, and split using a Humboldt Model H-3985 spliter to obtain a 1 quart representative sample.

f. A Representative Sample (1 quart) will then be placed in a container supplied by the subcontract laboratory, put in Ice and sent for analysis.

g. Each sample presented for subcontract laboratory analysis will be accompanied with field records documenting the following information.

*Date of Subsample
*Time of Subsample
*Site of Subsample
*Volume of Subsample
*Subsample identification number
*Name(s) of sampler(s)
*Start date for sample compositing
*Composite sample identification number
*Date composite sample provided to subcontract laboratory
*Copy of laboratory chain of custody

Rinker Materials Corporation will utilize VOC Analytical Inc. 877 NW 61 Street, Fort Lauderdale, Florida 33309 with Generic A QA Plan #900376G for post treatment analysis set forth in the applicable section(s) of 17-775.400 and 17-775.410. (See attached FDER, Quality Assurance Section Approval).

The results for post treatment analysis are to be reported via DER form 17-775.900 (3).

C. Monitor Well Sampling Frequency and Analysis

All sampling and analysis specified in the "Groundwater Monitoring Plan" will be performed by Groundwater Specialists Inc., 3003 South Congress Avenue, Suite 1C, Palm Springs, Florida 33461 and in compliance with their approved Quality Assurance Plan, Generic C QA Plan - 880557G (See attached FDER Quality Assurance Approval).

EXHIBIT B

QUALITY ASSURANCE CERTIFICATION

Pursuant to the requirements set forth in FDER's chapter 17-775,

_____ herewith submit
(laboratory)

analytical results for _____
(material)

from _____ and represented by _____
(site) (number of samples)

and referenced as lab number/date _____.

All sampling and analysis were performed according to all the applicable parameters of 17-775.410 "Soil Sampling and Analysis".

Laboratory Name _____

Address _____

_____

Comprehensive Quality Assurance Plan (CQAP) No. _____

Authorized Laboratory Signature _____

Date _____

NOTE: Please provide a copy of the Quality Assurance Plan approval letter issued by Florida Department of Environmental Regulation, Quality Assurance Section.

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Lawton Chiles, Governor Carol M. Browner, Secretary

January 22, 1991

Larry Korn
V.O.C. Analytical, Inc.
877 N.W. 61st Street
Ft. Lauderdale, Fl 33309

SUBJECT: Quality Assurance Review; V.O.C. Analytical, Inc.
Generic A QA Plan #900376G
Revision 1;

Dear Mr. Korn:

The subject document, received on January 11, 1991, has been reviewed and is approved-pending minor revisions for analytical work only. Before sampling activities, including field analytical work, can be performed appropriate revisions will have to be submitted and approved. Further detail on the status of this plan is explained in the enclosed guidance document (DER QAS #90-03) and enclosed review comments.

As further revisions are necessary, the revised pages must be resubmitted. If you have any questions concerning this matter, please call (904) 488-2796.

Sincerely,

for Sylvia S. Labie, QA Officer
Quality Assurance Section

SSL/ART/art

Attachments (8): DER QAS #90-03 (Explanation of Status)
annotated QAP pages
review sheets
Section 6 of Rev 0 review comments
DER QAS #89-04, 89-06, 90-04 and 90-05

cc: Andrew R. Tintle

ANALYTICAL

March 27, 1991

Dave Marple
Rinker Materials Corp.
P.O. Box 650679
Miami, Florida 33165

RE: V.O.C. Analytical Q.A. Plan # 900376G

Dear Mr. Marple:

Pursuant to our phone conversation the other day, I am enclosing a copy of the approval letter sent by the FDER.

V.O.C. Analytical's QA Plan was submitted in August of 1990 as a generic plan per Sylvia Labie's instructions. Since that time the requirements have changed in the QA department of the FDER. Therefore V.O.C. Analytical is revising section six which addresses sampling of different matrices and decontamination. This section will be approved officially within the next couple of weeks and we will forward a complete copy to you at that time.

In December of 1990 I spoke to Sylvia Labie about sampling prior to the official approval, and she told me that with documentation (EPA Region IV Sampling Protocol) V.O.C. Analytical can indeed sample all matrices.

Field personnel at V.O.C. Analytical have over five years of sampling experience and have in the past trained county employees in this discipline. All sampling protocol is followed to the letter and documented in field notebooks for regulatory review and admissible in a court of law. We would welcome an inspection of our facility in Fort Lauderdale by the State or County Regulatory Agencies at their convenience.

If you have any questions or need any additional information please call me at (305) 938-8823.

Sincerely,
V.O.C. ANALYTICAL, INC.

Lawrence J. Korn

rinkerqa

877 N.W. 61 Street, Suite 202 - Ft. Lauderdale, FL 33309 - (305) 938-8823 - Fax (305) 938-8900

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

October 29, 1990

William Kelly
Groundwater Specialists, Inc.
3003 South Congress Ave.
Suite 1C
Palm Springs, FL 33461

SUBJECT: Quality Assurance Review;880557G-Groundwater Specialists, Inc. Generic C QA Plan; Revision 10 to Approved Document;

Dear Mr. Kelly:

The amendments to your approved Generic QA Plan, received on September 26, 1990, have been reviewed and approved. The amendments have been incorporated into the document.

Your Generic (Comprehensive) QA Plan will need to be revised to comply with required information as outlined in the new Manual for Preparing QA Plans (DER-QA-001/90, sent under separate cover). These revisions need to be submitted as soon as possible after January 1, 1990. Although the new format is not required yet, it may be easier to revise your Generic (Comprehensive) QA Plan in the new format, since the required information is organized differently. We strongly suggest following the new format to allow for a smooth transition to current QA policies.

Your cooperation is appreciated in maintaining your QA Plan to reflect current field sampling operations and our QA requirements.

Sincerely,

Sylvia S. Labie, QA Officer
Quality Assurance Section

SSL/KNS/kns

cc: Kent Smith

ATTACHMENT VI

ALTERNATIVE PROCEDURE

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Lawton Chiles, Governor
Carol M. Browner, Secretary

April 4, 1991

Mr. Michael D. Vardeman
Rinker Materials Corporation
Portland Cement Corporation
P.O. Box 650679
Miami, FL 33265-0679

Re: Approval of Alternate Procedures
Rinker Materials Corporation
File No. AP-STTF001

Dear Mr. Vardeman:

The Department has reviewed your March 8, 1991, request for approval of alternate procedures for the Rinker facility located at 1200 N.W. 137th Avenue, Miami. Enclosed is the executed copy of the Approval of Alternate Procedures. If you have any questions regarding this approval, please contact me at 904/488-0190.

Sincerely,

Donald R. Ehlenbeck, P.E.
Bureau of Waste Cleanup

DRE/wb

enclosure

cc: Alex Padva - DER/West Palm Beach
Paul Wierzbicki - DER/West Palm Beach

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

IN RE: File No. AP-STTF001
Rinker Materials Corporation)
Request Pursuant to Florida)
Administrative Code Rule 17-775.500)

APPROVAL OF ALTERNATE PROCEDURES

This cause comes before me upon receipt of a request by Rinker Materials Corporation for the approval of alternate procedures and requirements for the Rinker facility located at 1200 N.W. 137th Avenue, Miami, pursuant to Florida Administrative Code (F.A.C.) Rule 17-775.500. A Copy of the request is attached as Exhibit A.

FINDINGS OF FACT

1. The applicant requests that exceptions be granted for compliance with F.A.C. Rule 17-775.400(1),(2),(3),(4) that requires soil which has been treated by a soil thermal treatment facility to meet certain cleanup levels to be classified as clean soil, and F.A.C. Rule 17-775.410(5) which requires sampling and analysis of soil following thermal treatment for every eight hours of operation or each 400 tons of soil.

2. The applicant does not process contaminated soil into "clean soil", rather the contaminated soils are used entirely as raw materials for the production of clinker/portland cement, and the applicant proposes to do the following:

a. In the process of clinker production, use contaminated soil as raw material which is processed through direct fired rotary kilns for three to three and a half hours and is

converted to clinker with a kiln exit temperature of approximately 2750 °F.

b. Use the contaminated soil as approximately 12 percent of the total raw materials consumed in the production of clinker and approximately 10 percent of the portland cement produced.

c. Limit the maximum concentrations of metals in contaminated soil entering the raw materials feed process to the clean soil criteria of F.A.C. Rule 17-775.400(4).

d. As an alternate procedure for F.A.C. Rule 17-775.410(5), sample clinker production every 400 tons or every eight hours whichever is less and composite these samples on a weekly basis (7 days), and sample the clinker for the parameters and levels identified in F.A.C. Rule 17-775.400.

3. The applicant contends that this request satisfies the criteria for approval of an alternate procedure and requirements as set forth in F.A.C. Rule 17-775.500, and has provided laboratory analysis as Exhibit A to its request to demonstrate that clinker meets the criteria for clean soil.

Based on the information provided by the applicant, the Department finds that the applicant's plan will provide environmental protection substantially equivalent to that provided by compliance with the requirements established in Florida Administrative Code Rule 17-775.400(1),(2),(3),(4) and 17-775.410(5).

CONCLUSIONS OF LAW

Florida Administrative Rule 17-775.500 authorizes the approval

by the Secretary or her designee of alternate procedures and requirements concerning the regulation of soil thermal treatment facilities.

The Department concludes that the applicant has adequately demonstrated that the proposed alternate procedure provides a substantially equivalent degree of protection for the lands, surface waters, and ground waters of the State as the established requirement and that the alternate procedure is at least as effective as the established requirements.

Upon consideration of the foregoing it is therefore ORDERED that Rinker Materials Corporation's request for an alternate procedure and requirement is GRANTED.

Persons whose substantial interests are affected by the above proposed action have a right, pursuant to Section 120.57, F.S., to petition for an administrative determination (hearing) on the proposed action. The petition must contain the information set forth below and must be filed (received) in the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 21 days of publication of this notice. A copy of the Petition must also be mailed at the time of filing to Rinker Materials Corporation at the address indicated above. Failure to file a petition within the 21 days constitutes a waiver of any right such person has to an administrative determination (hearing) pursuant to Section 120.57, F.S.

The petition shall contain the following information: (a) The name, address, and telephone number of each petitioner; the

Department's identification number and the county in which the subject matter or activity is located; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the subject agency proposed action have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 21 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only

be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

When the Order is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes by filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road. Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal, accompanied by the applicable filing fees, with the appropriate District Court of Appeal. The Notice of Appeal must be file within 30 days from the date the Final Order is filed with the clerk of the Department.

DONE AND ORDERED this 1ST day of April, 1991 in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

R G Wilkins

Richard G. Wilkins, Director
Division of Waste Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rinker Materials

March 8, 1991

Mr. John M. Ruddell, Bureau Chief
Bureau of Waste Cleanup
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Rinker Materials Corporation
1200 N.W. 137th Avenue
Miami, FL 33182

P.O. Box 650679
Miami, FL 33265-0679

Facsimile (305) 223-5403
Telephone (305) 221-7645

RE: Alternate Procedure To Chapter 17-775 FAC
"Soil Thermal Treatment Facilities"

Dear Mr. Ruddell:

This letter is to present a request to the Department for approval of alternate procedures as outlined under Chapter 17-775.500 Florida Administrative Code (FAC) Approval of Alternate Procedure. Approval of the alternate procedures would allow Rinker Materials Corporation (RMC) to fully comply with the intent of the "clean fill" requirement of Chapter 17-775 FAC while maintaining optimum cement production, quality products, and the protection of the environment.

To provide some background, Rinker Materials Corporation (RMC) located at 1200 NW 137 Avenue, Miami, Florida manufacturers various types of portland cement at the Miami location for sales and distribution throughout the State of Florida.

The production process begins with the quantitative and qualitative processing of raw materials (limestone, rock, sand, bottom ash, slag etc.) into a high solids slurry. This slurry is then introduced into two 475 foot rotary kilns. The slurry remains in the kilns for 3 to 3-1/2 hours where it is heated, dried and calcined at a material temperature of approximately 2750 degrees F.

At this temperature of fusion a mineralogical product called clinker is produced. The resulting clinker (approximately 1700 tons per day) is cooled and ground with gypsum and other special property admixtures to produce the product known as portland cement (approximately 1900 tons per day).

All petroleum contaminated soils that are received by Rinker are consumed completely into our production operation as "substitute" for a portion of the like raw materials (ie: limerock, sand) and is subject to the same raw material processing at the onset of the production process.

On the average petroleum contaminated soils represent only about 12% of the raw material feed stock when compared to the yearly production of portland cement.

Due to the specific nature of our manufacturing process we are seeking relief from the criteria set forth in 17-775.400 FAC "Criteria For Clean Soil" all Sections and 17-775.410 FAC "Soil Sampling And Analysis" Section (5). We believe that this relief is justified due to the manner in which petroleum contaminated soils are incorporated as production raw materials and due to the fact that Rinker does not treat soils for utilization as "clean fill."

I have enclosed RMC's alternate proposal in the same format outlined in Chapter 17-775.500 FAC. If necessary, we welcome the opportunity to meet with you to discuss RMC's alternate request. Otherwise, should you have any questions, call me at (305) 221-7645.

Sincerely,

Michael D. Vardeman
Manager, Material Substitution

MDV:lg

cc: Mr. Paul Wiersbicki, Waste Cleanup Supervisor
DER - West Palm Beach
Mr. Don Ellenbeck
DER - Tallahassee

REQUEST FOR APPROVAL OF ALTERNATE PROCEDURES

UNDER CHAPTER 17-775.500 FAC

Chapter 17-775.500 FAC

(2) (a) - Rinker Materials Corporation 1200 NW 137 Avenue
Miami, Florida 33182

(2) (b) - Rinker Materials Corporation is requesting exemption from Chapter 17-775.400 FAC "Criteria For Clean Soils" Section (1)(2)(3)(4) and Chapter 17-775.410 FAC "Soil Sampling and Analysis" Section (5).

(2) (c) - The basis for the exemption to 17-775.400 FAC (1)(2)(3)(4) are as follows:

1. Rinker Materials does not process petroleum contaminated soils into "clean fill." All petroleum contaminated soils are used entirely as raw materials for the production of clinker/portland cement.

2. In the process of clinker production, all raw materials (slurried) are processed through direct fired rotary kilns for 3 to 3-1/2 hours and are converted to clinker with a kiln exit temperature of approx. 2750°F.

3. The testing of composite sampling from clinker production (Exhibit A) demonstrates that clinker composition does not approach the upper values set for "clean soils." In fact, all sample reports document levels of concerned contaminants to be below 25% of the maximum values set for classification as "clean soil."

The basis for the exemption to 17-775.410 FAC (5) are as follows:

1. Rinker Materials does not process petroleum contaminated soils into "clean fill." All petroleum contaminated soils are used entirely as raw materials for the production of clinker/portland cement.

2. In the process of clinker production, all raw materials (slurried) are processed through direct fired rotary kilns for 3 to 3-1/2 hours and are converted to clinker with a kiln exit temperature of approx. 2750°F.

3. The testing of composite sampling from clinker production (Exhibit A) demonstrate that clinker composition does not approach the upper values set for "clean soils." In fact, all sample reports document levels of concerned contaminants to be below 25% of the maximum values set for classification as "clean soil."

4. Clinker production at Rinker is a continuous, 7 days per week, 24 hours per day and is maintained at a rate of approximately 1700 tons per day (24 hr.).

5. Contaminated soils represent only about 12% of the total raw materials consumed to make clinker and only about 10% of the portland cement produced.

(2) (d) - As an alternate procedure for 17-775.400 FAC "Criteria For Clean Soils" Section (1)(2)(3)(4), Rinker proposes the use of the maximum concentration (not to exceed) as stated in Table I of 17-775.400 FAC as the maximum concentration allowed for soils entering the raw materials feed process.

As an alternate procedure for 17-775.410 FAC "Soil Sampling and Analysis" Section (5), Rinker proposes sampling clinker production every 400 tons or every eight hours whichever is less and composite these samples on a weekly basis (7 days). Each weekly composite sample would then be analyzed for parameters identified in Rule 17-775.400 FAC (1)(2) and (4) and reported accordingly.

(2) (e) - As it relates to the alternate procedure for 17-775.400 FAC (1)(2)(3)(4), we feel that by limiting soils entering the cement manufacturing proces to the maximum allowable concentration for "clean soil" (Table I) clinker production incorporating contaminated soils as raw material can not exceed those same "clean soil" standards.

This alternate procedure would comply with the intent of Chapter 17-775 FAC to safeguard against added environmental contamination and or the spread of environmental contamination. (See Exhibit A)

As it relates to the alternate procedure for 17-775.410 FAC (5), Rinker feels that due to the high volume of clinker production and the relatively small percentage of raw material feed represented by contaminated soils, the sampling called for in 17-775.410 FAC (5) would be excessive based upon the actual analytical influences that contaminated soils could have on overall clinker analysis (See Exhibit A).

Client #:18
Client Name:Rinker Materials
Address: P.O. BOX 650679
MIAMI, FL 33165

Page 2 of 2
Date:01/10/91
Log#: 126-2

Sample Description: Clinkers/CLK-12/25/90

Label:CLK-12/25/90
Date Sampled: 12/27/90
Date Received:12/27/90
Collected By: Your Rep

Parameter	Result	Units	Method	Detection Limit	Extr. Date	Anal. Date	Analyst
Total VOA	BDL ✓	mg/kg	5030/8021	0.125	12/28/90	12/31/90	GP
TRPH	BDL ✓	mg/kg	9073	0.2	01/08/91	01/09/91	EP
Total Cadmium	2.2 55	mg/kg	3050/7090	1.0	12/28/90	12/31/90	JG
Total Lead	BDL 77	mg/kg	3050/7420	1.0	12/28/90	01/05/91	JG
Total Selenium	7.1 165	mg/kg	3050/7741	1.0	12/28/90	01/10/91	GW
Total Arsenic	4.9 55	mg/kg	3050/7061	1.0	12/28/90	01/10/91	GW
Total Chromium	68 275	mg/kg	3050/7190	1.0	12/28/90	01/05/91	JG
Total Mercury	BDL 17	mg/kg	3050/7471	0.1	12/28/90	01/02/91	GW
Total Silver	4.0 165	mg/kg	3050/7760	1.0	12/28/90	01/10/91	JG
Total Barium	9.2 2750	mg/kg	3050/7080	1.0	12/28/90	01/02/91	GW
TCLP Cadmium	BDL 1	mg/l	1311/7090	0.005	12/28/90	12/31/90	JG
TCLP Lead	BDL 5	mg/l	1311/7420	0.005	12/28/90	01/05/91	JG
TCLP Selenium 1/100	0.07 1	mg/l	1311/7741	0.002	12/28/90	01/10/91	GW
TCLP Arsenic 1/100	0.05 5	mg/l	1311/7061	0.002	12/28/90	01/10/91	GW
TCLP Chromium	0.53 5	mg/l	1311/7190	0.005	12/28/90	01/05/91	JG
TCLP Mercury	BDL .2	mg/l	1311/7471	0.001	12/28/90	01/02/91	GW
TCLP Silver	BDL 5	mg/l	1311/7760	0.005	12/28/90	01/10/91	JG
TCLP Barium 1/20	0.5 100	mg/l	1311/7080	0.01	12/28/90	01/02/91	GW

* BDL = Below Detection Limits
All analyses were performed using EPA, ASTM, USGS, or Standard Methods.

Respectfully Submitted,

Jeffrey S. Glass
Laboratory Director
V.O.C. Analytical Inc.

EXHIBIT A

Client #:18
Client Name:Rinker Materials
Address: P.O. BOX 650679
MIAMI, FL 33165

Page 2 of 3
Date:2/06/91
Log#: 164-2

Sample Description: Clinkers/CLK-1/14/91

Label:CLK-1/14/91
Date Sampled: 1/14/91
Date Received:1/18/91
Collected By: Your Rep

Parameter	Result	Units	Method	Detection Limit	Extr. Date	Anal. Date	Analyst
Total VOA	BDL	mg/kg	5030/8021	0.125	1/19/91	1/19/91	GP
TRPH	BDL	mg/kg	9073	0.2	1/23/91	1/25/91	AC
Total Cadmium	BDL	mg/kg	3050/7090	1.0	1/19/91	1/24/91	JG
Total Lead	1.2	mg/kg	3050/7420	1.0	1/19/91	1/23/91	JG
Total Selenium	BDL	mg/kg	3050/7741	1.0	1/19/91	1/27/91	JG
Total Arsenic	BDL	mg/kg	3050/7061	1.0	1/19/91	1/27/91	JG
Total Chromium	29	mg/kg	3050/7190	1.0	1/19/91	1/26/91	JG
Total Mercury	BDL	mg/kg	3050/7471	0.1	1/19/91	1/27/91	JG
Total Silver	4.0	mg/kg	3050/7760	1.0	1/19/91	1/26/91	JG
Total Barium	72.1	mg/kg	3050/7080	1.0	1/19/91	1/26/91	JG
TCLP Cadmium	BDL	mg/l	1311/7090	0.1	1/19/91	1/24/91	JG
TCLP Lead	BDL	mg/l	1311/7420	0.1	1/19/91	1/23/91	JG
TCLP Selenium	BDL	mg/l	1311/7741	0.002	1/19/91	1/27/91	JG
TCLP Arsenic	BDL	mg/l	1311/7061	0.002	1/19/91	1/27/91	JG
TCLP Chromium	BDL	mg/l	1311/7190	0.1	1/19/91	1/26/91	JG
TCLP Mercury	BDL	mg/l	1311/7471	0.001	1/19/91	1/27/91	JG
TCLP Silver	BDL	mg/l	1311/7760	0.1	1/19/91	1/26/91	JG
TCLP Barium	1.75	mg/l	1311/7080	0.1	1/19/91	1/26/91	JG

* BDL = Below Detection Limits
All analyses were performed using EPA, ASTM, USGS, or Standard Methods.

Respectfully Submitted,

Jeffrey S. Glass
Laboratory Director
V.O.C. Analytical Inc.

EXHIBIT A

Client #:18
Client Name:Rinker Materials
Address: P.O. BOX 650679
MIAMI, FL 33165

Date: 2/26/91
Log#: 217-02

Sample Description: Clinkers CLK 2/7/91

Label:CLK 2/7/91
Date Sampled: 2/7/91
Date Received: 2/22/91
Collected By: Your Rep

Parameter	Result	Units	Method	Detection Limit	Extr. Date	Anal. Date	Analyst
Total VOA	BDL	mg/kg	5030/8021	0.125	2/22/91	2/24/91	GP
TRPH	BDL	mg/kg	9073	0.2	2/23/91	2/25/91	AC
Total Cadmium	BDL	mg/kg	3050/7090	1.0	2/22/91	2/23/91	JG
Total Lead	1.0	mg/kg	3050/7420	1.0	2/22/91	2/23/91	JG
Total Selenium	BDL	mg/kg	3050/7741	0.1	2/22/91	2/23/91	JG
Total Arsenic	4.6	mg/kg	3050/7061	1.0	2/22/91	2/23/91	JG
Total Chromium	25.0	mg/kg	3050/7190	1.0	2/22/91	2/23/91	JG
Total Mercury	BDL	mg/kg	3050/7471	0.1	2/22/91	2/23/91	JG
Total Silver	6.5	mg/kg	3050/7760	1.0	2/22/91	2/23/91	JG
Total Barium	118	mg/kg	3050/7080	1.0	2/22/91	2/23/91	JG
TCLP Cadmium	BDL	mg/l	1311/7090	0.1	2/22/91	2/23/91	JG
TCLP Lead	BDL	mg/l	1311/7420	0.1	2/22/91	2/23/91	JG
TCLP Selenium	BDL	mg/l	1311/7741	0.1	2/22/91	2/23/91	JG
TCLP Arsenic	BDL	mg/l	1311/7061	0.1	2/22/91	2/23/91	JG
TCLP Chromium	BDL	mg/l	1311/7190	0.1	2/22/91	2/23/91	JG
TCLP Mercury	BDL	mg/l	1311/7471	0.001	2/22/91	2/23/91	JG
TCLP Silver	BDL	mg/l	1311/7760	0.1	2/22/91	2/23/91	JG
TCLP Barium	1.27	mg/l	1311/7080	0.1	2/22/91	2/23/91	JG

* BDL = Below Detection Limits
All analyses were performed using EPA, ASTM, USGS, or Standard Methods.

Respectfully Submitted,

Jeffrey S. Glass
Laboratory Director
W.O.C. Analytical Inc.

ATTACHMENT VII

PERMITS

Department of Environmental Protection

Lawton Chiles
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Virginia B. Wetherell
Secretary

JUN 28 1996

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. James S Jenkins, III
Rinker Materials Corporation
P.O. Box 24635
West Palm Beach, FL 33416

General Permit No. SO13-290034
County: Dade
Project: To Construct/Operate a Soil Thermal Treatment Facility
Expiration Date: June 7, 2001

Dear Mr. Jenkins,

This letter acknowledges receipt of your notice requesting the use of a General Permit. Based upon the representation submitted to the Department, this project appears to qualify for the operation of a soil thermal treatment facility located at 1200 Norhtwest 137th Avenue, Miami, Dade County, Florida, 33182.

This facility shall be operated in accordance with the applicable paragraphs set forth in Florida Administrative Code Rule 62-775.

This General Permit is subject to the General Conditions of Florida Administrative Code Rule 62-4.510 through 62-4.540 (see attached).

If you need further information, please contact Lee Martin at (561) 681-6676 or myself at (561) 681-6677 or after hours at (904) 413-9911 for emergencies.

Sincerely,

Paul Alan Wierzbicki, P.G.
Waste Cleanup Supervisor

cc: T. Conrardy, DEP/BWC, Tallahassee
Z. Kulakowski, DEP/BWC, Tallahassee
M. Vardeman, Rinker Materials, Miami
I. Goldman, DEP/Air, West Palm Beach
R. Johns, DERM, Miami
West Palm Beach DEP files

Florida Department of Environmental Regulation
Southeast District • 1900 S. Congress Ave., Suite A • West Palm Beach, Florida 33406
Lawton Chiles, Governor
Carol M. Browner, Secretary

APR 17 1991

RECEIVED APR 19 1991

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. James S. Jenkins, III
Vice President, Cement Operations
Rinker Materials Corporation
Post Office Box 24635
West Palm Beach, FL 33416

GMS I.D. No.: 5013P03669
General Permit No.: S013-195017
County: Dade
Project: To Construct/Operate a Soil Thermal Treatment facility
Expiration Date: April 4, 1996

Dear Mr. Jenkins:

This letter acknowledges receipt of your notice requesting the use of a General Permit. Based upon the representation submitted to the Department, this project appears to qualify for the operation of a soil thermal treatment facility located at 1200 Northwest 137th Avenue, Miami, Dade County, Florida 33182.

His facility shall be operated in accordance with the applicable paragraphs set forth in Florida Administrative Code Rules 17-775.

This General Permit is subject to the General Conditions of Florida Administrative Code Rules 17-4.510 through 17-4.540, F.A.C. (see backside).

If you need further information, please call Mr. Paul Wierzbicki, P.G., at telephone number 407/433-2650 or after hours 904/488-1320 for an emergency.

Sincerely,

J. Scott Benyon
Deputy Assistant Secretary

JSB:paw/28
cc: Mr. John Ruddell, Bureau of Waste Cleanup, DER, Tallahassee
Mr. Don Ehlenbeck, P.E., Bureau of Waste Cleanup, DER, Tallahassee
Mr. Chris McGuire, Esq., Office of General Counsel, DER, Tallahassee
Ms. Zoe Kulakowski, P.G., Bureau of Waste Cleanup, DER, Tallahassee
Mr. William E. Voshell, Rinker Materials Corporation
Mr. I. Goldman, P.E., Air Section, DER, West Palm Beach
Mara Austin, Metro-Dade Environmental Resources Management
West Palm Beach DER files

17-4.540 General Conditions for All General Permits.

(1) The terms, conditions, requirements, limitations, and restrictions set forth in this Part are "general permit conditions" and are binding upon the permittee. The conditions are enforceable under Chapter 403, F.S.

(2) The general permit is valid only for the specific activity indicated. Any deviation from the specified activity and the conditions for undertaking that activity shall constitute a violation of the permit. The permittee is placed on notice that violation of the permit may result in suspension or revocation of the permittee's use of the general permit and may cause the Department to begin legal proceedings.

(3) The general permit does not convey any vested rights or any exclusive privileges. It does not authorize any injury to public or private property nor any invasion of personal rights. It does not authorize any infringement of federal, state or local laws or regulations. It does not eliminate the necessity for obtaining any other federal, state or local permits that may be required, or allow the permittee to violate any more stringent standards established by federal or local law.

(4) The general permit does not relieve the permittee from liability and penalties when the construction or operation of the permitted activity causes harm or injury to human health or welfare; causes harm or injury to animal, plant or aquatic life; or causes harm or injury to property. It does not allow the permittee to cause pollution in contravention of Florida Statutes and Department rules.

(5) The general permit conveys no title to land or water, nor does it constitute State recognition or acknowledgement of title. It does not constitute authority for reclamation of submerged lands. Only the Board of Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

(6) No general permit shall authorize the use of state owned land without the prior consent of the Board of Trustees of the Internal Improvement Trust Fund pursuant to Section 253.77, F.S.

(7) The general permit may be modified, suspended or revoked in accordance with Chapter 120, Florida Statutes, if the Secretary determines that there has been a violation of any of the terms or conditions of the permit, there has been a violation of state water quality standards or state air quality standards, or the permittee has submitted false, incomplete or inaccurate data or information.

(8) The general permit shall not be transferred to a third party except pursuant to Fla. Admin. Code Rule 17-4.120.

(9) The general permit authorizes construction and where applicable operation of the permitted facility.

(10) The permittee agrees in using the general permit to make every reasonable effort to conduct the specific activity or construction authorized by the general permit in a manner that will minimize any adverse effects on adjacent property or on public use of the adjacent property, where applicable, and on the environment, including fish, wildlife, natural resources of the area, water quality or air quality.

(11) The permittee agrees in using the general permit to allow a duly authorized representative of the Department access to the permitted facility or activity at reasonable times to inspect and test upon presentation of credentials or other documents as may be required by law to determine compliance with the permit and the Department rules.

(12) The permittee agrees to maintain any permitted facility, or activity in good condition and in accordance with the plans submitted to the department under Rule 17-4.530(1).

(13) A permittee's use of a general permit is limited to five years. However, the permittee may request continued use of the general permit by notifying the Department pursuant to Rule 17-4.530(1). However, the permittee shall give notice of continued use of a general permit thirty days before it expires.

Specific Authority: 403.814(1), F.S.

Law Implemented: 253.123, 253.124, 403.061, 403.087, 403.088, 403.702-403.73, 403.814, 403.851-403.864, F.S.

History: New 7-8-82. Amended 8-31-88. Previously numbered as 17-5.54.

Rinker Materials

November 8, 1993

Rinker Materials Corporation
1200 N.W. 137th Avenue
Miami, FL 33182

P.O. Box 650679
Miami, FL 33265-0679

Facsimile (305) 223-5403
Telephone (305) 221-7645

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST DISTRICT
1900 SOUTH CONGRESS AVENUE
WEST PALM BEACH, FLORIDA 33406
ATTN: PAUL WIERZBICKI

RE: GENERAL PERMIT NO: 5013-195017

Dear Paul:

Enclosed is the notice of intent required by Rule 17-775 for Rinker Materials to modify General Permit No. 5013-195017 to accept and treat low level PCB contaminated soils.

As discussed previously this modification addresses:

1. PCB contaminated soils

2. Moving the leachate collection outside the building

3. Drummed material operations.

If there are any questions please contact me at 305-221-7645. Thank you for your assistance in this matter.

Very Truly Yours,

Michael D. Vardeman
Cement Division Environmental Manager

EXHIBIT A

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor Carol M. Browner, Secretary

NOTICE OF INTENT TO USE THE GENERAL PERMIT TO CONSTRUCT/OPERATE A SOIL THERMAL TREATMENT FACILITY

INSTRUCTIONS: Please provide all information as requested below. For stationary facilities submit the original and four copies of this notice of intent application along with site location map, process flow chart drawings of the treatment facility, and groundwater monitoring plan to the appropriate district office, and one copy of the groundwater monitoring plan to the Bureau of Waste Cleanup. For mobile units submit applicable information to the Bureau of Waste Cleanup, Florida Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

Type: Stationary X Mobile __ General Permit No.: 5013-195017

Name of Facility: RINKER MATERIALS CORPORATION County: DADE

Facility Address: 1200 NW 137 AVENUE MIAMI, FLORIDA 33182

Latitude 25 ° 46 ' 48 "N Longitude 80 ° 25 ' 10 "W

Telephone Number: 305-221-7645

Name of Owner(s): RINKER MATERIALS CORPORATION

Owner(s) Address if different from above: SAME

Department of Environmental Regulation Air Permit Number: A013-233208

Expiration Date: January 15, 1995

Length of primary chamber (ft): 80ft.

Heat generation capability (BTU/hr): 40mm

Capacity of facility at a 25 minute retention time
(yd^3/hr): _____ or (tons/hr): 40

Operating temperature of primary chamber (°F): 1000° Discharge

Estimated average volume of soil to be processed (yd^3/mth): 5,000 To 29,000

Covered storage area (ft^2): 30,000 Height of cover (ft): 45'

Floor construction (cement, asphalt, etc.): Cement

RECEIVED
AUG 10 1993
DEPT. OF ENV. PROTECTION
WEST PALM BEACH

Statement by Applicant:

I hereby attest as the owner or authorized representative of RINKER MATERIALS CORPORATION (attach letter of authorization) the preceding information is accurate and that I will operate this facility in accordance with the requirements of Chapter 17-775 entitled "Soil Thermal Treatment Facilities." I understand that failure to operate this facility as required will constitute grounds for revocation of this permit.

James S. Jenkins III

Signature of Owner or Authorized Representative

James S. Jenkins III, V.P. Cement Operations

Name and Title

8-5-93

Date

Statement by Florida Registered Professional Engineer:

I hereby certify that the above information pertinent to the construction an operation of this facility is correct and that this facility is capable of operating to achieve the requirements and standards as set forth in Chapter 17-775 of the Florida Administrative Code.

Signature of Engineer
(affix seal)

Donald A. Beers, P.E.

Engineer's Name (Please Type)

PE 0032530

Florida Registration Number

Rinker Materials Corporation

Company Name

P.O. BOX 24635 West Palm Beach 33416-4635

Address Street City

8/10/93 407-820-8346

Date Telephone Number

RECEIVED

AUG 10 1993

DEPT. OF ENV. PROTECTION
WEST PALM BEACH

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Virginia B. Wetherell
Secretary

SEP 2 1 1993

NOTICE OF PERMIT ISSUANCE

CERTIFIED MAIL

In the Matter of an Application
for Permit by:
Mr. James S. Jenkins, III /
Rinker Material Corporation /
Post Office Box 650679 /
Miami, Florida 33265-0679 /

DEP File No. AO 13-234126
Dade County

Enclosed is Permit Number AO 13-234126 to operate an air pollution source issued pursuant to Section 403.087, Florida Statutes.

A person whose substantial interests are affected by this permit may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of receipt of this Permit. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this permit. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in West Palm Beach, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Vivek Kamath

Mary E. S. Williams
Director of District Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed by certified mail before the close of business on 9/21/93 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Mary Kenner SEP 21 1993
(Clerk) (Date)

cc: Dade County Environmental Resources Management

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Southeast District
P.O. Box 15425
West Palm Beach, Florida 33416

Virginia B. Wetherell
Secretary

PERMITTEE:
Mr. James S. Jenkins, III
Rinker Material Corporation
Post Office Box 650679
Miami, Florida 33265-0679

I.D. NUMBER: 50/DAD/13/0014
PERMIT/CERTIFICATION NUMBER: AO 13-234126
DATE OF ISSUE: SEP 2 1 1993
EXPIRATION DATE: September 17, 1998
COUNTY: Dade
LATITUDE/LONGITUDE: 25°46'48"N/80°25'10"W
UTM: Zone 17: 558.2 Km. E; 2851.3 Km. N
PROJECT: Rinker Material Corporation
Modification of Stone Dryer at Portland Cement Manufacturing Plant

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule 17-212 & 17-4, and in conformance with all existing regulations of the Florida Department of Environmental Protection. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

OPERATE: Stone dryer system decontaminating up to 40 TPH of petroleum contaminated soil. Major components of the system are Gencor Ultraflame low excess air oil burners for the existing 7 ft. diameter by 80 ft. long rotary dryer, an 85° efficient Joy-Western multicyclone, a 99.9% efficient Micropul baghouse with 3,366 a sq. ft. of cloth area, a 99.5 % efficient natural gas fired IT/McGill afterburner, two heat exchangers for energy recovery, a raw material gallery controlled with a Micropul baghouse that discharges approximately 500 acfm at 400°F through a 1.0 ft. square stack that is 45 ft. high, material handling equipment (screens, inclined belt feeders, bucket elevator, crusher, and stacker), fuel systems (used petroleum oil meeting the provisions of 40 CFR 266, Subpart E, propane, natural gas, and No. 2 fuel oil for the dryer, and natural gas and propane for the afterburner), a by-pass stack to be used only when the kiln is drying stone, and associated equipment. Air pollutants from the dryer are discharged in approximately 36,500 acfm of 800°F flue gases through a 4.5 ft. diameter by 80 ft. high stack.

IN ACCORDANCE WITH: Certificate of Completion of Construction for Permit Number AC 13-187599A received June 25, 1993; amendment to the modification number AC 13-187599 issued May 17, 1993; modification number AC 13-187599 issued September 24, 1993; application to modify existing stone dryer received December 10, 1990. (none are attached).

LOCATED AT: 1200 N.W. 137th Avenue, Miami, Dade County, Florida.

TO SERVE: Soil Thermal treatment facility (SIC # 4953).

SUBJECT TO: General Conditions 1-14 and Specific Conditions 1-32.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:

(a) Have access to and copy any records that must be kept under the conditions of the permit;

(b) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

(c) Sample or monitor any substances or parameters at any location reason-ably necessary to assure compliance with this permit or Department rules. Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in the permit, the permittee shall immediately notify and provide the Department with the following information:

(a) A description of and cause of noncompliance; and

(b) The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

GENERAL CONDITIONS:

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department, may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Rule 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. The permittee shall comply with the following :

(a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically, unless otherwise stipulated by the Department.

(b) The permittee shall hold at the facility or other location designated by this permit, records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit.

These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

(c) Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

14. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

PERMITTEE:
Mr. James S. Jenkins, III
Rinker Material Corpor[illegible]
Miami, Florida 33265-[illegible]

I.D. NUMBER: 50/DAD/13/0014
PERMIT/CERTIFICATION NUMBER: AO 13-234126
DATE OF ISSUE: SEP 2 1 1993
EXPIRATION DATE: September 17, 1998

SPECIFIC CONDITIO[illegible]:

1. Issuance of this [illegible]t does not relieve the permittee from complying with applicable emission limiting standards or oth[illegible]quirements of Chapter 17-296 and 17-297, F.A.C., or any other requirements under federal, state, o[illegible] regulations. The permittee is also required to comply with F.A.C. Rule 17-775 and any applicable c[illegible] regulation which may include requirements for a county operation permit.

2. The stack samp[illegible]cilities must comply with Rule 17-297.345, F.A.C.

3. The facility shal[illegible] equipped with a means to measure the pressure drop across the particulate matter air pollution co[illegible] device and continuous emissions monitors and recorders for hot zone temperature and carbon mon[illegible]e concentration (Rule 17-296.415(1)(c), F.A.C.).

4. Particulate matt[illegible]PM) and lead emissions from the dryer shall not exceed any of the following limits (Based on data in the a[illegible]tion and Rule 17-296.415(2)(b), F.A.C.):

   (A) 0.04 gr[illegible]M per dry standard cubic foot.

   (B) 3.3 pou[illegible]M per hour (max.), 1.0 pounds PM per hour (avg.).

   (C) 4.38 tons PM in any 12 consecutive month period.

   (D) 0.13 pou[illegible] lead per hour.

5. Particulate matt[illegible]issions from the fugitive dust baghouse shall not exceed 0.02 grains/dscf, nor 0.5 lbs/hr. Visi[illegible] emissions from any part of the process shall not exceed 5 percent opacity.

6. Carbon monoxid[illegible]issions shall not exceed 100 parts per million by volume, dry, during any 60 consecutive minu[illegible]eriod (Rule 17-296.415(1)(b), F.A.C.).

7. Visible emission[illegible]om the afterburner stack shall not exceed 5 percent opacity (Rule 17-296.415(2)(a), F.A.C.).

8. Reasonable precau[illegible]ns shall be taken to minimize uncontrolled particulate matter emissions (Rule 17-296.310, F.A.C.). These provisions are applicable to any source, including vehicular movement, transportation of [illegible]erials, and industrial related activities such as loading, unloading, storing, and handling. Befor[illegible]d after thermal soil treatment is accomplished, unconfined emissions of particulate matt[illegible]n the soil shall be controlled by the application of water and/or containment (Rule 296.415(3)[illegible]A.C.).

PERMITTEE:
Mr. James S. Jenkins, III
Rinker Material Corporation
Miami, Florida 33265-0679

I.D. NUMBER: 50/[illegible]/13/0014
PERMIT/CERTIFICATION NUMBER: AO 13-234126
DATE OF ISSUE: SEP 2 1 1993
EXPIRATION DATE: September 17, 1998

SPECIFIC CONDITIONS:

9. Operation of this facility shall not result in the emissions of air pollutants which cause or contribute to an objectionable odor (Rule 17-296.320, F.A.C.).

10. The system shall be properly operated and maintained (F.A.C. Rule 17-210.300(2)). No person shall circumvent any pollution control device or allow the emissions of air pollutants without the applicable air pollution control device operating properly (F.A.C. Rule 17-210.650. The afterburner must be in service any time the stone dryer is used to decontaminate soil. The use of the afterburner is not required when the dryer is used to dry stone. In case of excess emissions resulting from a malfunction, the permittee shall notify the Dade County Department of Environmental Resources Management and the Department's Southeast District Office within 1 working day of the cause and duration of the upset. If requested, the permittee shall submit a full written report on the malfunction (Rule 17-210.700, F.A.C.).

11. The facility shall only treat petroleum contaminated soil as defined in F.A.C. Rule 17-775.200(9), (F.A.C. Rule 17-296.415), whose metal concentrations do not exceed the limits shown in Table I of F.A.C. Rule 17-775.400(3).

12. Soil containing more than 1.4 percent petroleum (daily average) products shall not be treated in this facility unless it is processed at a rate less than 40 TPH and potential VOC emissions do not exceed 22.8 pounds per hour.

13. This facility may treat polychlorobiphenol (PCB) contaminated soil. Any soil containing PCB must meet all the requirements of F.A.C. Rule 17-775.410(6). The permittee shall maintain a log that shows the PCB content of any soil containing used oil, hydraulic oil, and/or mineral oil; the source of the PCB contaminated soil; the tons of PCB contaminated soil treated; the PCB content of the oil that contaminated the soil; the quantity of PCBs in each batch of soil that is treated; and the total amount of PCBs treated during the preceding 12 month period. Emissions of PCBs from the stack shall not exceed 154 pounds in any consecutive 12 month period. The cumulative weight of emissions shall be calculated using either of the following methods:

    (a) The weight of PCBs entering the kiln shall be assumed to be the weight emitted.

    (b) The weight of emission shall be calculated using the weight entering the kiln with adjustment for documented destruction in the facility by a test program conducted by the permittee that is approved by the Department.

    Method (a) shall be used until a destruction rate has been established on this system by stack test. Test protocol and methods to be used in determining destruction efficiency shall be submitted to the Department for approval. Method (b) shall not be used until the test results have been reviewed and accepted by the Department.

14. The input rate of petroleum contaminated soil to the facility shall not exceed 40 tons per hour. Material entering the kiln cannot be larger than 2 inches in diameter. The permittee shall have the means of determining feed or production rates of the facility on site.

15. The unit shall not be operated in a manner that creates a nuisance.

PERMITTEE:
Mr. James S. Jenkins, III
Rinker Material Corporation
Miami, Florida 33265-0679

I.D. NUMBER: 50/DAD/13/0014
PERMIT/CERTIFICATION NUMBER: AO 13-234126
DATE OF ISSUE: SEP 2 1 1993
EXPIRATION DATE: September 17, 1998

SPECIFIC CONDITIONS:

16. This unit shall be allowed to operate continuously, 24 hours per day, 7 days per week, 52 weeks per year.

17. The input of petroleum contaminants in the soil into the facility shall not exceed 1120 pounds per hour (daily average).

18. The dryer is authorized to burn up to 27.4 MM Btu/hr of waste oil (193 GPD) containing a maximum of 0.4 percent sulfur and 500 ppm lead, No. 2 distillate oil (193 GPH) containing a maximum of 0.5 percent sulfur, and propane (180 CFM)/or natural gas (460 CFM). The maximum fuel oil consumption shall not exceed 769,459 gallons in any 12 month period.

19. The fume incinerator (afterburner) is authorized to burn up to 15.0 MM Btu/hr of natural gas (250 CFM) or propane (100 CFM). The fume incinerator shall be in service any time the stone dryer is being used to process material containing contaminated soil. The by-pass stack must be closed when the unit is processing contaminated soil.

20. Contaminated soil shall not be treated by the facility unless the afterburner is operating at a minimum temperature of 1600 degrees Fahrenheit, and a minimum retention time of 0.5 seconds. If the permittee can document that the retention time of the flue gases in the afterburner is 1 second or more, the afterburner temperature may be reduced to 1500° F (Rule 17-296.415(1)(a), F.A.C.).

21. All emission monitoring equipment shall be properly installed, calibrated, operated, and maintained in accordance with the manufacturer's requirements for that instrument.

22. Pressure drop across the particulate matter air pollution control device shall be recorded hourly and the temperature and carbon monoxide concentration of the hot zone shall be recorded continuously (Rule 17-296.415(1)(c), F.A.C.).

23. Use of the existing cement kiln to decontaminate soil shall cease when the stone dryer begins operation as a soil decontamination unit.

24. The Southeast District and Dade County Department of Environmental Resources Management shall be notified in writing at least 15 days in advance of any formal compliance test to be conducted on this facility. The notification shall give the date, time, place, and contact person for the test (Rule 17-297.340(1)(i), F.A.C.).

25. Any test data submitted with an application for permit to operate (every 5 years) shall include analysis of the filter and impinger catch for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver along with similar analysis of the contaminated and treated soil processed during the test.

26. Compliance tests results shall be submitted to the Southeast District and Dade County within 45 days of the test.

PERMITTEE:
Mr. James S. Jenkins, III
Rinker Material Corporation
Miami, Florida 33265-0679

I.D. NUMBER: 50/[redacted]D/13/0014
PERMIT/CERTIFICATION NUMBER: AO 13-234126
DATE OF ISSUE: SEP 2 1 1993
EXPIRATION DATE: September 17, 1998

SPECIFIC CONDITIONS:

27. When the Department, after investigation, has good reason to believe that any applicable emission standard or condition of this permit is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the plant and to provide a report on the results of said tests to the Department (Rule 17-297.340(2), F.A.C.).

28. The permittee shall maintain a daily log that shows the date, operation time, pressure drop across the PM control device, processing rate, type and quantity of fuel consumption in the dryer and afterburner, and operation problems. These records shall be maintained for a minimum of 3 years.

29. The permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements, all continuous monitoring system or performance evaluations, all continuous monitoring system or monitoring device calibration checks, adjustments and maintenance performed on these systems or devices, all soil analysis required by Rule 17-775, F.A.C., and all other information required by rule or this permit, recorded in a permanent form suitable for inspection. The file shall be retained for at least 3 years following the date of such measurements, maintenance, reports, and records.

30. The permittee shall submit to Southeast District each calendar year, on or before March 1, an annual operation report for this facility for the preceding calendar year containing at least the following information pursuant to Subsection 403.061(13), F.S.:

    (a) Annual amount of material and/or fuels utilized.

    (b) Annual emissions (note calculation basis).

    (c) Annual hours of operation.

    (d) Any changes in the information contained in the permit.

    (e) All compliance test reports for the preceding year.

    (f) Temperature and CO exceedance reports for the year.

31. The permittee may request, in writing, that the permit(s) for this facility be modified to authorize the treatment of materials not meeting the specifications in F.A.C. Rule 17-775. The request to the Division of Air Resources Management shall include the appropriate processing fee for a modification, the history of the soil to be treated, an analysis of the contaminants suspected to be in the soil, an estimate of the emissions from the unit while processing the soil, and calculations showing that the ambient air impact from the unit will not exceed the Air Toxic Reference Concentration for any toxic pollutant. Public notice may be required by the Department as part of the review to modify the permit(s). The Department will approve or deny each request in writing on a case-by-case basis.

PERMITTEE:
Mr. James S. Jenkins, III
Rinker Material Corporation
Miami, Florida 33265-0679

I.D. NUMBER: 50/DAD/13/0014
PERMIT/CERTIFICATION NUMBER: AO 13-234126
DATE OF ISSUE: SEP 2 1 1993
EXPIRATION DATE: September 17, 1998

SPECIFIC CONDITIONS:

32. The Permittee shall be aware of and operate under the attached "General Permit Conditions Numbers 1 thru 14". General Permit Conditions are binding upon the Permittee and enforceable pursuant to Chapter 403 of the Florida Statutes.

Executed in West Palm Beach, Florida.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Vicki Kamalty

for Mary E.S. Williams
Director of District Management

MESW:nk:ms

ATTACHMENT VIII

GROUNDWATER MONITORING PLAN

METROPOLITAN DADE COUNTY, FLORIDA

METRO-DADE

METRO-DADE CENTER

ENVIRONMENTAL RESOURCES MANAGEMENT
SUITE 1310
111 N.W. 1st STREET
MIAMI, FLORIDA 33128-1971
(305) 375-3376

September 26, 1991

Mr. James S. Jenkins III
Rinker Materials Corp.
P.O. Box 24635
West Palm Beach, Florida 33416

CERTIFIED MAIL NO. P-731-362-836
RETURN RECEIPT REQUESTED

RE: Groundwater Monitoring Plan for Rinker Materials Cement Mill located at 1200 N.W. 137th Avenue, Miami, Dade County, Florida.

Dear Mr. Jenkins:

The Hazardous Waste Section of the Department of Environmental Resources Management (DERM) has reviewed the groundwater monitoring plan dated January, 1991 and the addendum dated April, 1991 for the soil thermal treatment permit, SW-1117, and approves it with the following modifications:

1. The surface water (isolated drainage canal) located south of the soil storage area shall be sampled semi-annually for the following parameters: metals, volatile organic aromatics, and poly aromatic hydrocarbons.

2. The background well (MW#1) shows elevated levels of chromium (.06 mg/L). Upon installation of the new background well (MW#23) this well must be immediately sampled. If this installation is not completed by October 31, 1991, MW#1 must be resampled for chromium.

3. DERM requires three (3) working days notice prior to all sampling and well installations.

4. Prior to the abandonment of any of the upgradient monitoring wells, DERM must give written approval.

5. Analytical results must be submitted to DERM within forty-five (45) days of sampling.

6. The lab to be used for analysis must have a Florida DER QUAPP and be a Florida HRS-certified lab.

7. DERM has the option to split any samples deemed necessary with the consultant or laboratory at the subject site. If data is subsequently submitted which exhibits a substantial variance from the DERM split sample analysis, DERM will then require a complete resampling using two independent certified laboratories.

If you have any questions concerning this approval please contact Lori Cunniff of the Solid Waste Program at 375-3321.

Sincerely,

Robert E. Johns, Chief
Hazardous Waste Section
POLLUTION CONTROL DIVISION

LC:ml

Florida Department of Environmental Regulation

Southeast District • 1900 S. Congress Ave., Suite A • West Palm Beach, Florida 33406

Lawton Chiles, Governor

Telephone: 407/433-2650
Fax: 407/433-2666

Carol M. Browner, Secretary

JAN. 05 1993

Mr. James Jenkins
Rinker Materials Corporation
P.O. Box 24635
West Palm Beach, Fl 33416-4635

RE: Modification of General Permit No. SO13-195017
Rinker Materials Corp.
1200 NW 137th Ave
Miami, Fl 33182

Dear Mr. Jenkins,

The Department has reveiwed the request to modify the Groundwater Monitoring Plan (GMP) for your facility, dated November 13, 1992, submitted by Handex, and the results from monitoring four previous quarters. The request to delete monitor wells 11, 12, 13, and 14 from the sampling schedule and retain monitor well 11 for quarterly groundwater elevation measurements is approved. Please note if abandonment of monitor wells 12, 13, and 14 is anticipated this must be accomplished using FDER and SFWMD guidelines.

If you have any questions please contact Paul Wierzbicki at 407-433-2650.

Sincerely,

Vivek Kamath

Vivek Kamath, P.E.
Waste Programs Administrator

cc: DER/BWC, Tallaha
DERM, Miami; R. .
West Palm Beach

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge) 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:	4. Article Number
Mr. James Jenkins Rinker Materials Corp. P.O. Box 24635 West Palm Beach, FL 33416-4635	P 253 330 170 Type of Service: ☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail ☐ Return Receipt for Merchandise Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature — Addressee X	8. Addressee's Address (ONLY if requested and fee paid)
6. Signature — Agent X	
7. Date of Delivery	

WEST PALM BEACH FL JAN 8 1993 USPS

PS Form 3811, Apr. 1989 * U.S.G.P.O. 1989-238-815 DOMESTIC RETURN RECEIPT

GROUNDWATER MONITORING PLAN

Rinker Portland Cement Corp.
1200 N.W. 137 Avenue
Miami, Florida

January 1991

prepared for:
Rinker Materials Corp.
P.O. Box 24635
West Palm Beach, Florida

prepared by:
Groundwater Specialists, Inc.
3003 South Congress Ave., Suite 1C
Palm Springs, FL 33461

GROUNDWATER MONITORING PLAN

RINKER PORTLAND CEMENT CORP.
1200 N.W. 137th Avenue, Miami, Florida

INTRODUCTION

The Rinker Portland Cement Corp. operates a Portland Cement manufacturing facility in North-Central Dade County. Because of the materials handled at the facility, various environmental regulations and guidelines require that groundwater monitoring be undertaken. Rinker Portland Cement Corp. authorized Groundwater Specialists, Inc. to prepare this Groundwater Monitoring Plan, in order to meet four separate regulatory requirements and guidelines, including: (1) those outlined in Chapter 17-775, FAC (pending); (2) those outlined in Chapter 17-762, FAC (pending); (3) those resulting from the recent designation of Rinker's wastewater treatment facility to "IW-2" status; and (4) those related to the Dade County Northwest Wellfield Protection Plan. The most prominent concern of this groundwater monitoring plan is the protection of groundwater quality at Dade County's Northwest Wellfield.

FACILITIES DESCRIPTION

The location of the Rinker Portland Cement Corp. facility is shown on Exhibit 1. A site plan is shown as Exhibit 2. The features most pertinent to this Groundwater Monitoring Plan are listed (1-4) below. These features lie outside the Northwest Wellfield Protection Area (see Exhibit 2).

(1) A proposed soils storage area (SW corner). This area will be used to store contaminated soils before thermal treatment in the kilns; it will be covered with a roof.

(2) A 600,000-gallon aboveground tank provides storage for contaminated wastewater (SE corner). This tank lies within a diked area; its contents are piped above ground to the kilns.

(3) A 600,000-gallon aboveground used oil tank (SE corner). This tank lies within a diked area; it stores oil before it is piped to the kilns.

(4) Six 25,000-gallon aboveground oil/water separation tanks (SE corner), two of which are proposed. These tanks supplement used oil and contaminated water storage; they lie within the same diked are as the larger used-oil tank.

Other on-site facilities lie partially or entirely within the Northwest Wellfield Protection Area, as that area was most recently calculated. These include: an eight-inch underground oil pipeline linking the aboveground tanks to the kilns; a four-inch aboveground wastewater pipeline linking the 600,000-gallon aboveground tank, and two 20,000-gallon wastewater tanks to the kilns; four isolated diesel or oil tanks; and a pressure cleaning facility. Of these facilities, only the underground oil pipeline warrants consideration for groundwater monitoring. The other aboveground features, including the isolated diesel or oil tanks, are situated on concrete slabs or under a roof; these are visually accessible for inspection. The pressure cleaning facility is beneath a roof and based on two separated concrete slabs; it includes a monitor well that taps the space between the two separated concrete slabs.

There are four existing wells used to provide water to the plant and two existing monitor wells on site. These are shown on Exhibit 2. Of the water-supply wells, two supply process water. These are fitted with surface pumps and tap the Biscayne Aquifer at total depths less than 20 feet; each is continuously pumped at 1.08 MGD (million gallons per day). A separate potable water well provides water for plant personnel, and another separate well supplies water for fire protection. These later wells also tap the uppermost parts of the Biscayne Aquifer. When compared to the water pumped from the process-supply wells, the potable well and the fire-protection well withdrawals are negligible.

A well at the pressure cleaning facility monitors water derived from cleaning should it penetrate the uppermost of two concrete slabs. The slabs are separated by about eight feet; the lowermost lies at a depth of about nine feet. The monitor well is sampled monthly for visual inspection. The pressure cleaning water is recirculated in an enclosed system with no discharge.

The second existing monitor well is owned and maintained by the Florida Department of Health and Rehabilitative Services. It is sampled monthly for bacteriological and turbidity analyses.

HYDROGEOLOGIC SETTING

The Rinker facility lies 2.7 miles nearly due south of the nearest well in the Northwest Wellfield as shown on Exhibit 1. The wellfield is theorized to cause a northward groundwater flow direction in the region of the Rinker facility. Many of the monitor wells proposed in this document address this fact by their locations on the northern side, downgradient of major Rinker facilities. The groundwater flow direction(s) on the Rinker property, however, could differ significantly from the regional flow direction because of pumping from Rinker's two production

wells. These wells pump 1.08 MGD each to support the cement manufacturing process. The installation and testing of the wells proposed herein will determine whether on-site groundwater pumping controls the on-site groundwater gradient as opposed to groundwater pumping from the Northwest Wellfield. Because the major intent of this monitoring plan is to protect the Northwest Wellfield from potential discharges from Rinker facilities, it is most prudent to monitor groundwater between Rinker's facilities and the Northwest Wellfield. Therefore, this plan refers to the north as the "downgradient" direction.

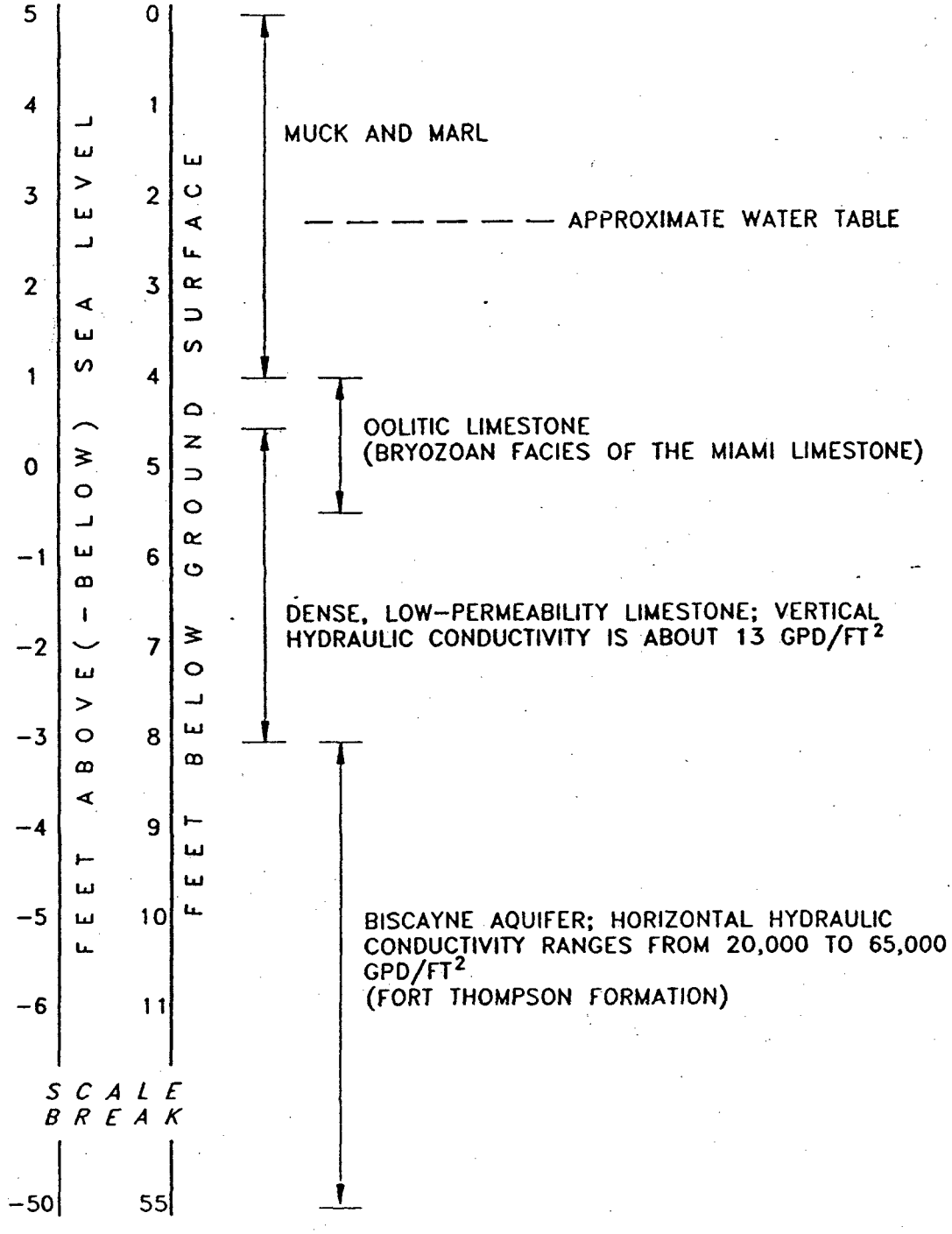
By far the most prolific aquifer in the subject area is the Biscayne Aquifer. It is tapped by both the Northwest Wellfield and Rinker's wells. The top of the Biscayne Aquifer lies at a depth of about eight feet in the subject area; its bottom lies at about 55 feet below grade. The Biscayne is practically equal in its vertical extent to the Fort Thompson Formation. This formation is riddled with solution cavities that lend a very high permeability to the Biscayne Aquifer.

The uppermost six feet of sediments, that lie above the Biscayne Aquifer, are hydrogeologically more complex. Dense limestone, approximately three feet thick, directly overlies the Biscayne; it has very low permeability and prevents or severely impedes the percolation of rainfall into the Biscayne except where breached by quarries or similar manmade features. Above this dense limestone unit is the Miami Limestone (Oolite); it supports a thin, perched water table. A thin layer of muck and marl lies above the Miami Limestone and together with the Miami Limestone, forms the uppermost hydrogeologic unit. The near-surface hydrogeologic relationships are shown in a cross-section on Exhibit 3. [The hydrogeologic scenario described above is from an unpublished report prepared for Rinker by Dames & Moore (December, 1987). That report describes on-site hydrogeologic testing with the purpose of determining the direction of groundwater flow beneath Rinker's property; its conclusions were theoretical, as they were based on groundwater modeling of flow in the Biscayne Aquifer. The pertinent parts of the report are included in Attachment A.]

The uniformity of the more generalized subsurface is shown by cross-sections in Exhibit 4. The Biscayne Aquifer coincides with the strata marked "Qf". Those formations from ground surface to about eight feet in depth coincide with formations marked "Ql" and "Qm". The locations of the Rinker plant and the southernmost well in the Northwest Wellfield are indicated on the cross sections. It is worthy of mention that the dense limestone cited above and shown on Exhibit 3 (approximately between depths of 4.5 and 8 feet), does not appear on the cross sections; this is due to the generalized nature of the cross-sections on Exhibit 4.

GSI	DATE: NOV. 1990	FOR: RINKER PORTLAND CEMENT CORP.	SUBJECT: LOCAL HYDROGEOLOGIC PROFILE	EXHIBIT: 3

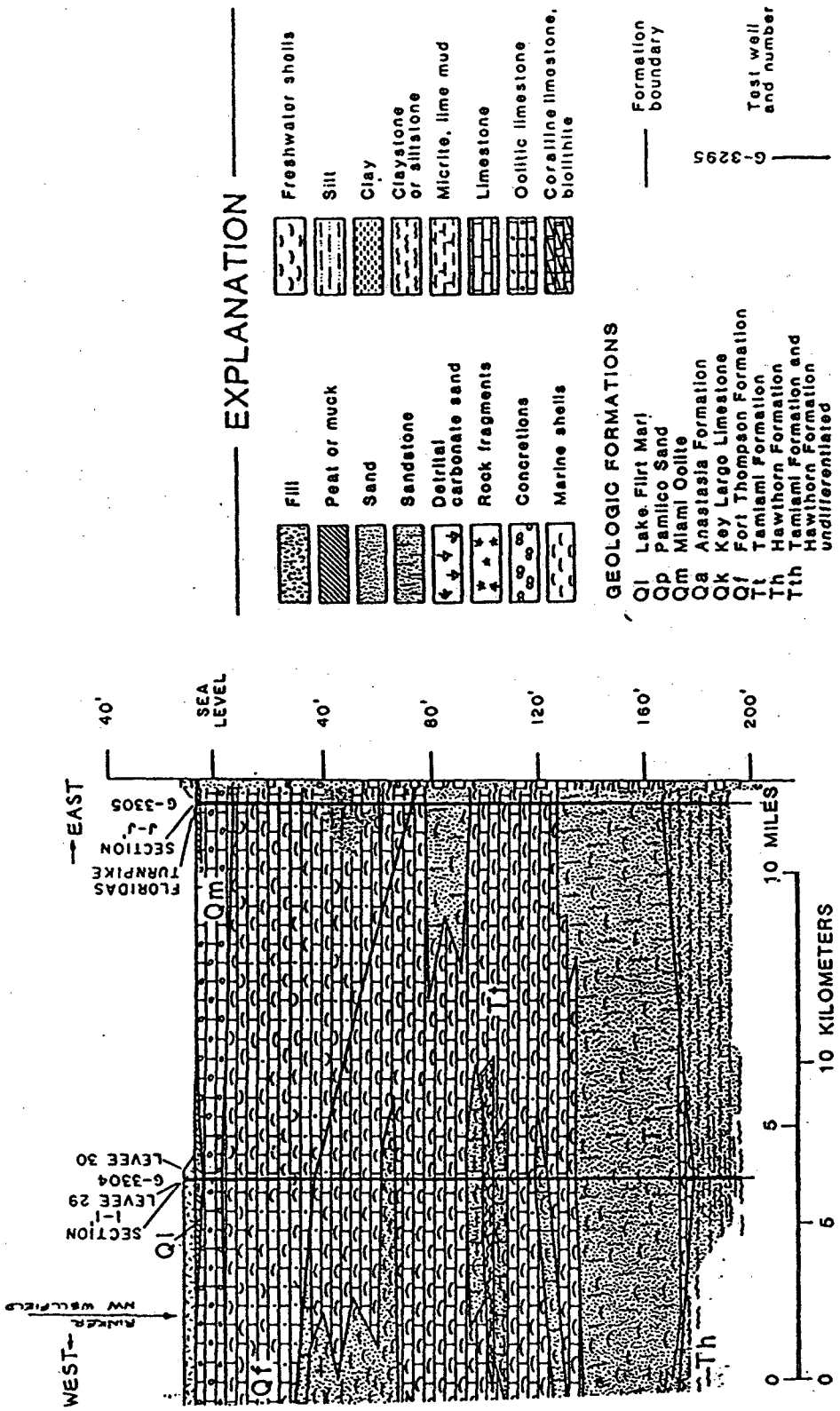
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA



CAD Ref. No. RNK2001
L 0.7

GSI	DATE: NOV. 1990	FOR: RINKER PORTLAND CEMENT CORP.	SUBJECT: REGIONAL HYDROGEOLOGIC PROFILE, E to W	EXHIBIT: 4.1

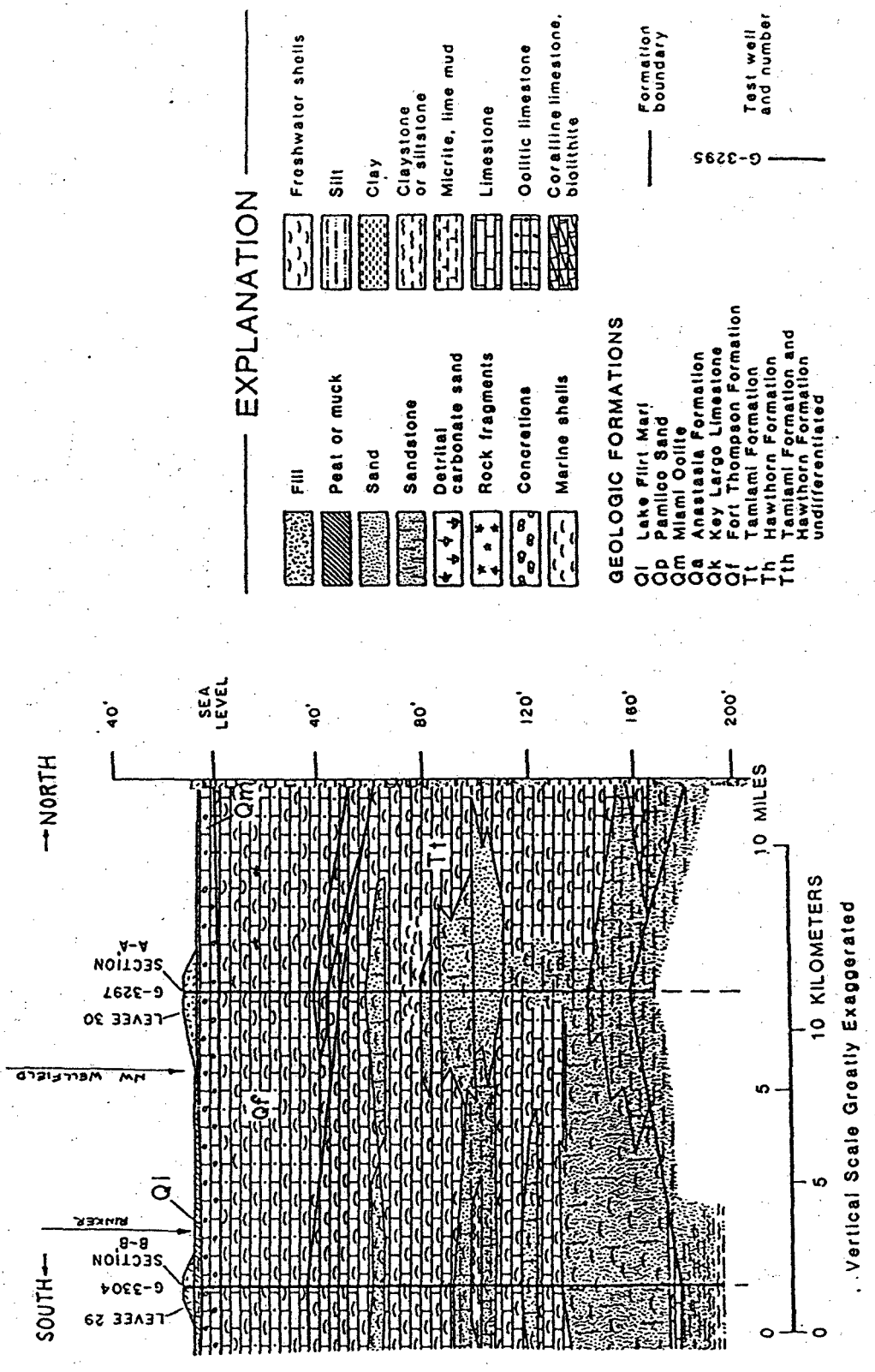
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA



CAD Ref. No. RNK2001
L 0,13

GSI	DATE: NOV. 1990	FOR: RINKER PORTLAND CEMENT CORP.	SUBJECT: REGIONAL HYDROGEOLOGIC PROFILE, N to S	EXHIBIT: 4.2

LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA



CAD Ref. No. RNK2001
L. 0,14

PROPOSED MONITOR-WELL DESCRIPTIONS AND SUPPLEMENTAL INFORMATION ON REQUIREMENTS AND GUIDELINES

The following text summarizes each of the four requirements and guidelines for groundwater monitoring and identifies proposed well locations and the rationale for those locations.

Requirements as per Chapter 17-775, FAC

Chapter 17-775, FAC, is entitled "Soil Thermal Treatment Facilities". As drafted, this rule requires groundwater monitoring at unspecified locations to ensure maintenance of groundwater quality potentially affected by the storage of contaminated soils. This rule pertains directly to a proposed under-roof soil storage facility shown on Exhibit 2. As discussed below, four monitor wells are planned at locations around this building/soils storage area.

Chapter 17-775.610(2) outlines the required contents of a groundwater monitoring plan. The requirements are listed below, followed with information intended to meet the requirements.

Requirement (a): Specify locations of the proposed unaffected natural background and downgradient monitoring wells and construction details of the monitoring wells:

A total of ten monitor wells are proposed as indicated on Exhibit 5. Wells 1 through 8 are "shallow" wells that tap the perched water table above the dense limestone cited above. These shallow wells would be the first to signal groundwater degradation because they are adjacent to the facilities of greatest concern and because they tap the uppermost water-bearing zone. Wells 9 and 10 are "deep" wells that tap the upper part of the Biscayne Aquifer. Construction diagrams for the shallow and deep monitor wells are shown on Exhibits 6 and 7, respectively.

As discussed above, the downgradient direction, or direction of groundwater flow, is north. The unaffected natural background wells are Wells 1, 4, 6, and 7; these lie upgradient of the soil storage area and the diked tanks area. The downgradient wells are 2, 3, 5, 8, 9, and 10. Wells 2, 3, 5, and 8 lie downgradient from the soil storage area and the diked tanks area. Wells 9 and 10 are downgradient of the entire Rinker facility and tap the zone that would indicate any potential off-site escape of degraded groundwater in the Biscayne Aquifer.

Requirement (b): Specify hydrogeological, physical and chemical data for the site, including:

(1). The direction and rate of the groundwater flow. The direction of groundwater flow in the Biscayne Aquifer is presently

concluded to be north, toward the Northwest Wellfield. The southernmost portion of the cone-of-depression of that wellfield was most recently modeled to lie on the Rinker property, as shown on Exhibit 5.

The rate of groundwater flow in the Biscayne Aquifer is concluded to be approximately 25 feet per day. This flow rate is based on Dade County's "Wellfield Cones of Influence" map that shows travel-time lines of 210 and 100 days around the Northwest Wellfield. Between these lines the flow rate was calculated to be 32 feet per day; this rate was extrapolated southward to the 210 day line to arrive at 25 feet/day.

The direction of groundwater flow in the uppermost water-bearing zone varies locally on site. This zone is thin and has a relatively low permeability; it is not affected significantly by water levels in the underlying Biscayne Aquifer. Groundwater in this shallow zone flows predominantly toward the nearest lateral escape. Such escapes may be quarries, canals or pumping wells. The locations of the aforementioned array of shallow monitor wells address the nonuniform direction of flow in this zone.

The groundwater flow rate in the uppermost zone is judged to vary considerably depending on the specific on-site location. Assuming a hydraulic conductivity of 300 gpd/sq ft in this zone, an average gradient of 0.001, and an effective porosity of 0.20, the average flow rate would be 0.2 feet per day.

(2). Specify background groundwater quality. Aside from the routine bacteriologic and turbidity analyses of samples from one monitor well (cited above), there are no known groundwater quality data available at the Rinker site. Such data will be reported following monitor-well installations and the first round of sampling and analyses.

(3). Specify porosity, horizontal and vertical permeability for the aquifers, and the depth to, and lithology of the first confining bed. The Biscayne Aquifer has vertical and horizontal permeabilities in the many thousands (gpd/sq ft). Likewise, the porosity can be exceptionally high. Because of these conditions, an on-site determination of these factors as they relate to groundwater monitoring is not practical, nor is the information that could be gained likely to be useful. It is certain that degraded groundwater will move at a very high rate and readily disperse horizontally and vertically.

The uppermost "aquifer", or water-bearing zone, is estimated to have an average horizontal hydraulic conductivity of about 300 gpd/sq ft, a vertical hydraulic conductivity of about 100 gpd/sq ft, and a porosity of 0.20. These estimates are based solely on the types of materials in this zone - muck, marl and probably sand-filed oolitic limestone.

The top of the first confining bed, a dense limestone, lies approximately between depths of 4.5 and 8 feet below ground.

(4). Specify vertical permeability, thickness and extent of any confining beds. The vertical hydraulic conductivity of the first confining bed is reported to be about 13 gpd/sq ft. (from the Dames & Moore report, Attachment A). Its thickness ranges between about 2 and 5.5 feet. The extent of this bed is large, it is widely found in the region of the site.

(5). Specify topography, soil information, and surface water drainage systems surrounding the site. Exhibit 1 shows the topography of the site; it is essentially flat except as affected by ponds, quarries and canals. Ground surface elevation is near five feet above sea level and varies generally about 0.5 feet, more or less than five feet.

According to the only available soil survey (Soil Conservation Service, 1947, Soil Survey Series 1947, No. 4, a description of Dade County soils), the soil beneath Rinker's facility is referred to as "Everglades Peat, shallow phase over shallow marl". It is reported to have a peat mantle less than 36 inches thick, separated from the underlying limestone by a thin layer of marl that ranges in thickness from a few inches to 24 inches. It is reported to have medium to slow drainage. This soil type is common to the entire Rinker facility as shown on Exhibit 2. The ponds and quarries in the vicinity of the site receive drainage directly by surface runoff and through the sediments above the dense limestone (Exhibits 1 and 2).

Depending on the relative height of groundwater levels and water levels in adjacent surface-water bodies at any given time, water could seep from sediments to canals and quarries or in the reverse direction. The canals in the vicinity of the site are for land drainage; they are not connected directly to ponds or quarries. Rinker maintains no structures on the nearby canals.

(6). Specify inventory depth, construction details (well drillings logs), and cones of depression of water supply wells located within a one mile radius of the site. Within a one-mile radius of Rinker's facility, there are at least fourteen properties that have or may have wells. Records of the South Florida Water Management District and Dade County DERM were checked to locate and gather data on such wells. In addition, a survey to document private wells was conducted; each property within one mile was visited and where possible, inquiries were made.

Records made available at the agencies were few. The well survey, likewise, produced relatively few facts. The data gathered from these efforts are summarized in Attachment B. Wells that were located tap the Biscayne Aquifer and they pump low volumes of

groundwater. There were no wells located within a one-mile radius of the Rinker facility to the north.

In the context of the extremely high transmissivity of the Biscayne Aquifer, the few, low-volume pumping centers have cones of depression that are insignificant. Such cones of depression might be calculated but it is not likely that they could be physically measured. It is possible that pumping-well drawdowns could be measured; they would certainly be minor (< 0.01 foot). Because: (1) private wells would not change even local groundwater contours, (2) the Northwest Wellfield is presently understood to be the dominant influence on the groundwater flow direction, and (3) there are no private wells located within one mile north (downgradient) of the Rinker facility, there is no apparent justification for gathering more information on neighboring wells than is provided in Attachment B.

Requirements as per Chapter 17-762, FAC.

Chapter 17-762, FAC is entitled "Stationary Aboveground Storage Tank Systems". As drafted, this rule requires groundwater monitoring before December 31, 1993, relative to Rinker's operation of an underground oil line. The location of this line is shown on Exhibit 5. Rinker has prepared plans to abandon the subject pipeline and replace it with an aboveground fuel line before the cited rule becomes effective. Because the existing underground fuel line will be abandoned before December 31, 1993, groundwater monitoring specific to this pipeline is not contemplated. However, the proposed monitor wells that tap the top of the Biscayne Aquifer lie downgradient of the pipeline as well as other related features. These are Wells 9 and 10 as shown on Exhibit 5.

Requirements as per "IW-2" status.

The requirement for groundwater monitoring resulting from the recent change in status from "IW-5" to "IW-2" is not specific. Wastewater is pumped to and stored in the aboveground wastewater tank; this tank lies within the diked area. From this storage tank, wastewater is pumped through an aboveground pipeline to the kilns via a smaller aboveground tank (kiln water tank). Groundwater monitoring of the wastewater system will be provided by Wells 5, 6, 7, 8, 9, and 10; these wells are discussed above.

Requirements as per the Northwest Wellfield Protection Plan.

The requirement for groundwater monitoring for water-quality protection of Dade County's Northwest Wellfield also is not specific. The above mentioned monitor wells (Wells 1 through 10) are intended to provide water-quality protection with respect to Dade County's Northwestern Wellfield.

MONITOR WELL SAMPLING FREQUENCY AND ANALYSES

Monitor well sampling and analyses will be performed according to regulations and rationale discussed herein. A summary of sampling frequencies and analyses is shown on Exhibit 8.

Wells 1 through 4 will be sampled quarterly as specified in Chapter 17-775, as these wells surround the only such facility (soil storage area) addressed in this rule.

Wells 5 through 8 also will be sampled quarterly; analyses will include volatile organic aromatics, polynuclear aromatic hydrocarbons, coliform bacteria and metals. Coliform bacteria analyses are included because these wells surround a wastewater tank. Metals are included because these wells surround the used-oil tanks.

Wells 9 and 10 will be sampled quarterly for the parameters required as per Chapter 17-775, minus coliform bacteria and metals; coliform bacteria and metals will be sampled/analyzed annually.

Any release of petroleum products or wastewater should be detected first in the shallow Wells 1 through 8. A relatively high (quarterly) frequency for sampling/analysis is therefore proposed. In the event that a release is not detected by the shallow wells or a detected release migrates to the underlying Biscayne Aquifer, such a release should be detected by deep Wells 9 and 10. Because of the high priority of protecting the Biscayne Aquifer, and because the groundwater flow rate in the Biscayne is so high (25 ft/day), Wells 9 and 10 also will be sampled with a high frequency (quarterly) for the most mobile parameters. Coliform bacteria and metals will be sampled/analyzed in the deep Wells 9 and 10 at a low frequency (annually) because they are relatively immobile and any source concentrations would likely be quite low.

CLOSING

The subject Rinker facility lies in rural Dade County above one of the most prolific aquifers known, the Biscayne Aquifer. Fortunately, the facility is separated from the Biscayne by natural materials (dense limestone) having a low permeability. This physical situation provides a buffer, or partial barrier to any release, offering protection to the Biscayne Aquifer. This groundwater monitoring plan provides for two levels of groundwater protection. Monitoring of groundwater above the dense limestone will provide the earliest possible signal should an otherwise undetected release occur. Monitoring of groundwater in the Biscayne Aquifer on the northern side (downgradient) of the facility will provide a signal should a release affect the water-supply aquifer. On the basis of the plan proposed, the letter and intent of the requirements and guidelines are believed to be satisfied.

SUMMARY

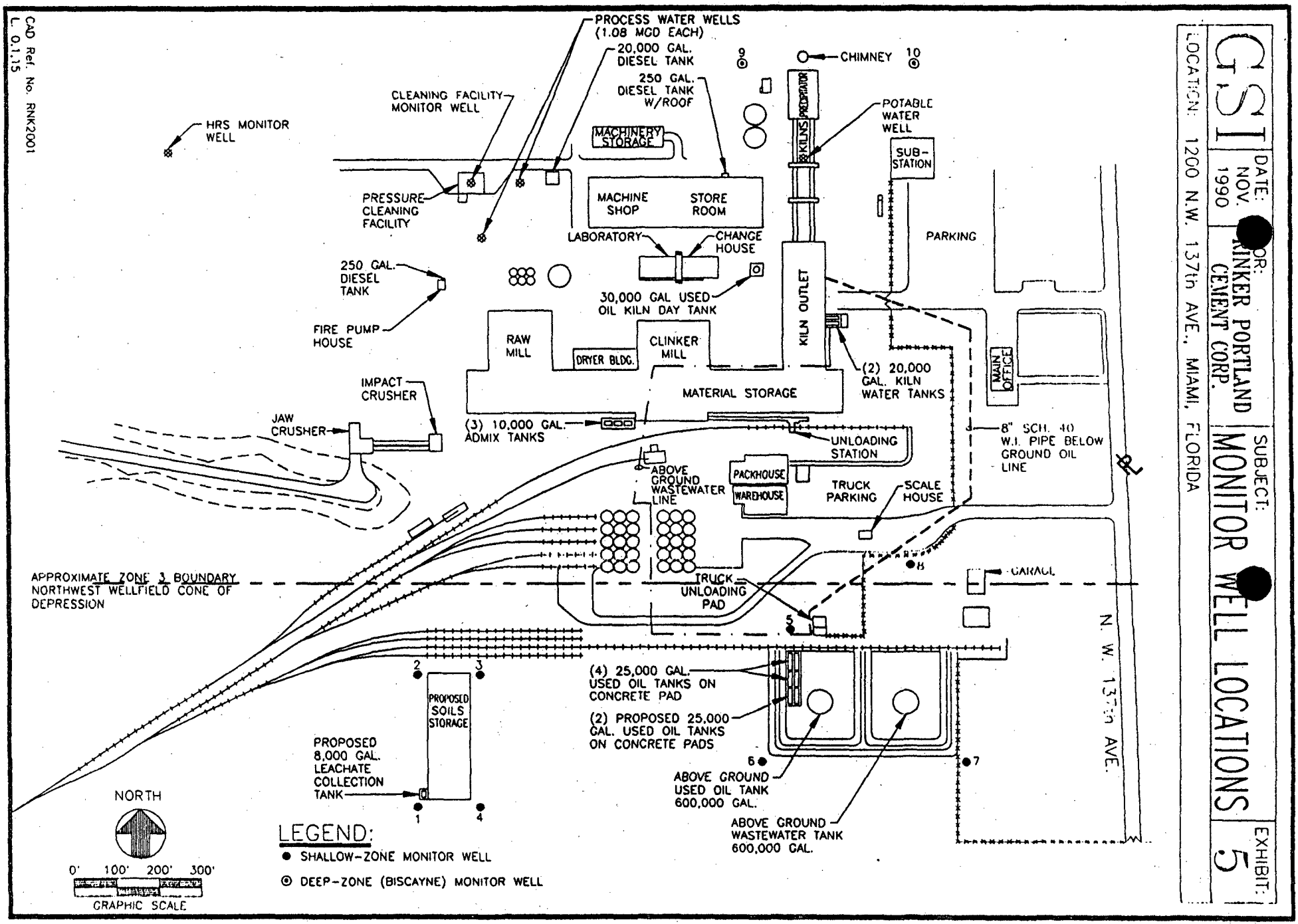
The Rinker Portland Cement Corp. is required to implement a groundwater monitoring plan at its facility on N.W. 137th Avenue, Miami, Florida. The facility contains aboveground wastewater and oil tanks and an underground oil pipeline. Groundwater occurs in a shallow zone above a low-permeability layer, beneath which occurs a very high permeability aquifer that yields water to a municipal wellfield north of the Rinker facility. Eight monitor wells that tap the shallow zone are proposed; these are located at the corners of an under-roof contaminated soils storage area and at the approximate corners of a diked area containing aboveground wastewater and oil tanks. Two monitor wells that tap the water-supply aquifer (the Biscayne Aquifer) are proposed; these are located on the northern or downgradient side of the Rinker facility. The proposed monitor-well sampling includes quarterly sampling for all wells, with groundwater analyses appropriate to the locations of the wells and facilities. Analyses will be made for petroleum-related compounds, metals, and coliform bacteria.

Respectfully submitted
GROUNDWATER SPECIALISTS, INC.

5.29.91

Paul G. Jakob
Florida P.G. 245

EXHIBITS



GSI

DATE: NOV. 1990

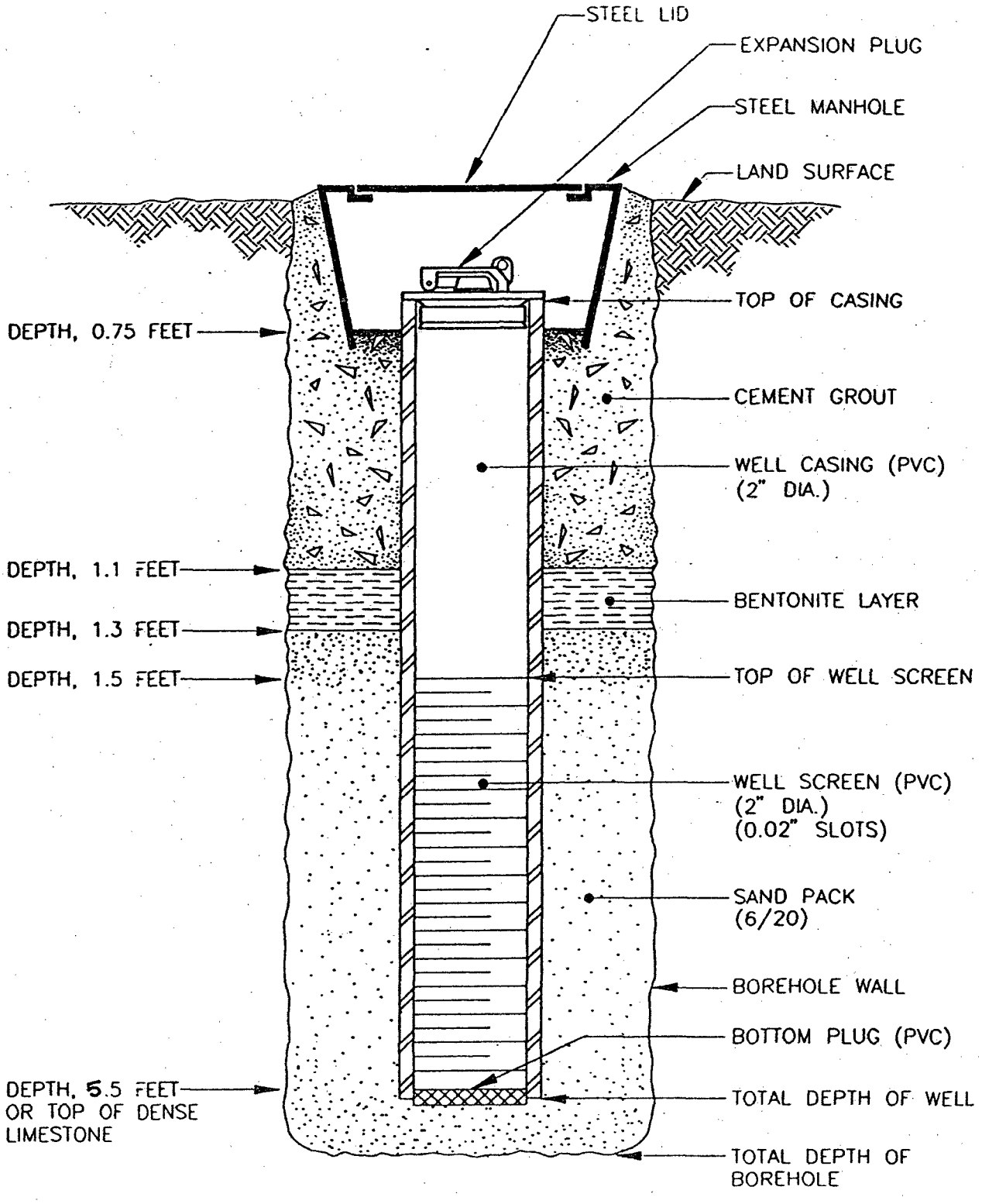
FOR: RINKER PORTLAND CEMENT CORP.

SUBJECT: MONITOR WELL LOCATIONS

EXHIBIT: 5

LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA

GSI	DATE: 11/90	FOR: RINKER PORTLAND CEMENT CORP.	SUBJECT: SHALLOW-ZONE MONITOR WELLS 1 THROUGH 8	EXHIBIT: 6
LOCATION:				



DRAWING NOT TO SCALE

CAD Ref. = RNK200:A
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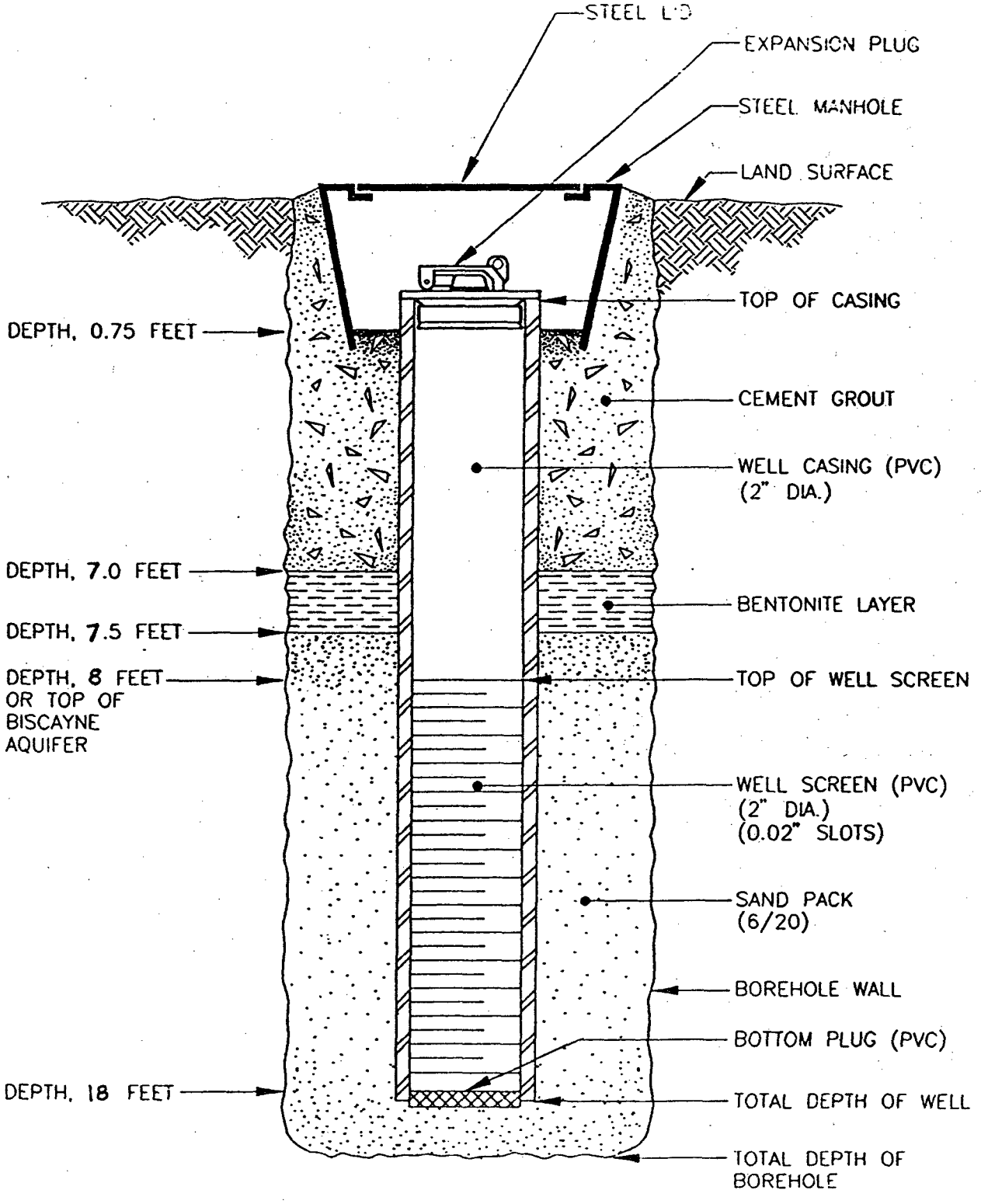
Plotting Scale: 1 = 1

GSI	DATE: 11/90	FOR: RINKER PORTLAND CEMENT CORP.	SUBJECT: DEEP-ZONE (BISCAYNE) MONITOR WELLS 9 AND 10	EXHIBIT: 7
LOCATION:				



DRAWING NOT TO SCALE

CAD Ref. = RNK2001A
L 0,1,3
Plotting Scale: 1 = 1

EXHIBIT 8

Monitor Well Sampling Frequency
and Analyses

	Well Numbers									
	1	2	3	4	5	6	7	8	9	10
Volatile organic aromatics	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Polynuclear aromatic hydrocarbons	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Metals	Q	Q	Q	Q	Q	Q	Q	Q	A	A
Coliform bacteria					Q	Q	Q	Q	A	A

Notes:

(1) Volatile organic aromatics will be analyzed by EPA Method 602, including MTBE.

(2) Polynuclear aromatic hydrocarbons will be analyzed by EPA Method 610.

(3) Metals will include: Arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Analytical methods will be selected from those specified in Chapter 17-775, FAC.

(4) "Q" signifies quarterly; "A" signifies annually.

ATTACHMENT A

DAMES & MOORE A PROFESSIONAL LIMITED PARTNERSHIP
350 WEST CAMINO GARDENS BLVD., BOCA RATON, FLORIDA 33432 (305) 392-9070

December 9, 1987

Rinker Materials Corporation
1501 Belvedere Road
West Palm Beach, FL 33406

Attention: Mr. William Voshell
Environmental Specialist

Report
Hydrogeologic Study
Northwest Dade County Facility
Miami, Florida
For Rinker Materials Corporation

Dear Mr. Voshell:

1.0 INTRODUCTION

Dames & Moore was retained by Rinker Materials Corporation to perform a hydrologic evaluation to evaluate the aquifer's performance, and the radius of influence of the Rinker Material production wells. The Rinker Material Corporation facility is located at 1200 N.W. 137th Avenue, in Miami, Florida.

2.0 REGIONAL GEOLOGY

The area of investigation is comprised of several distinct layers. On the surface, much of the area is covered by mucks and marls extending as far east as Conservation Area No. 3 and diminishing toward the east. This muck/marl combination is present from the ground surface (+5 feet above MSL) to +1 foot above MSL.

Below the organic cover is a one to two foot thick layer of Miami limestone which is composed of the Miami Oolite/Bryozoan facies. This facies plays an important role in the recharge of canals within the area of the Conservation area located to the west.

Acting as a hydrologic barrier beneath the Oolite/Bryozoan facies is a group of very hard, dense limestone layers. This limestone is present from 0.5 feet above MSL to 3 feet below MSL. In contrast to the highly permeable layer below (the Biscayne Aquifer) these layers appear impermeable; vertical flows of water through them are orders of magnitude less than the horizontal flow through the Biscayne Aquifer. In this respect, they act as an aquitard, restricting surface water recharge into the underlying Biscayne Aquifer. The Biscayne Aquifer is present from 3 feet MSL to 50 feet below MSL.

3.0 REGIONAL HYDROGEOLOGY

Dade County is partially situated on the Atlantic Coastal Ridge, which runs roughly parallel to the coast and diminishes in the south central Everglades in the eastern portion of the County. West of the ridge, the Oolitic Facies gradually taper out and yield to the underlying Bryozoan Facies. It is these facies which carry the ponded waters from the western conservation areas to the canals in the east. Below the Miami Limestone (Oolitic/Bryozoan Facies) are the dense "impermeable" limestones. Geologic information from test wells and shallow borings indicate these dense limestones are widespread. Additional information obtained in connection with canal excavations, indicate that the harder layers of dense limestone occur throughout most of western and southern Dade County, and that they occur at about the same altitude (Klein and Sherwood 1961). Similar layers were present in wells to the south, therefore it is reasonable to assume that the relatively impermeable zone underlies much of the area and their confining characteristics are widespread.

Recharge to the Biscayne aquifer through the dense limestone happens on a localized scale, the overall continuity and the blanketing effect at these layers in general tend to retard infiltration. In Dade County, the aquifer thickens toward the east (i.e., coastal ridge) and contains much more sand. The thin dense limestones either thin and disappear or they occur deeper in the aquifer near the coast (Klein and Sherwood 1961).

The regional aquifer system is continuous and hydrologically sound. Tests made in the area of Levee 30 indicate aquifer transmissibility of 3,600,000 gallons per day, and a vertical permeability of 1.95×10^{-5} ft/sec (6.0×10^{-4} cm/sec). Historical records show that permeabilities within the Biscayne Aquifer vary greatly. Permeability values have been reported by Prugh that vary from 0.03 ft/sec (0.91 cm/sec) to 0.10 ft/sec (3.05 cm/sec) for various formations within the Biscayne Aquifer;

others have reported up to 1.31 ft/sec (40 cm/sec) (Shea, 1955) at other sites in the central and southern parts of the state. Schmertmann suggests a reasonable permeability of 0.02 ft/sec (0.61 cm/sec).

4.0 SUBSURFACE CONDITIONS

Field exploratory pits were dug at three points. Two pits were in line with each other and the remaining one was perpendicular to the other two exploratory pits. The axis of each pit intercepted the northernmost well on the property.

After initial water levels stabilized in the pits, a surveying team determined water levels in the pits and in all lakes in the immediate vicinity of the pumps. In addition, all free standing water (i. e., swamps) and canals were also determined. Extra additional points were chosen to help understand the localized water table. These extra points include the quarry water level and several other wells below the kiln area. Figure 1 shows the location of the measuring points within the immediate study area. The elevations for these measuring points are shown below:

		Feet Above Mean Sea Level
A.	Canal Pit	4.70
B.	Lake	4.33
C.	Canal	5.81
D.	Building Pit	3.22
E.	Pump #1	2.27
F.	Pump #2	1.85
G.	Swamp Pit	2.87
H.	Swamp	5.33
	Well #100 (Kiln)	2.85
	Well #200 (Fire Hydrant)	2.88
	Quarry	3.37

The depths of the exploratory pits were limited because of the dense limestone which was encountered approximately at sea level. This layer was present in all three pits, and was the limiting factor in the depth of the holes. This layer is the same dense layer mentioned earlier, which is present throughout much of Dade County.

5.0 DATA ANALYSIS

Through correlation of ground-water levels, it is evident that ground-water mounding occurs in the immediate vicinity of the wells. This mounding is a result of the impermeable dense limestone layer which displays a vertical permeability of roughly 1.95×10^{-5} ft/sec (6.0×10^{-4} cm/sec). The horizontal permeability is several orders of magnitude different than the vertical permeability. The average horizontal permeability of the Biscayne Aquifer is 0.02 ft/sec (0.61 cm/sec).

The mounding occurs as a direct result of the discharge from the plant's cooling water discharge pipe. In the immediate vicinity of the plant, the mound reaches a maximum level of 5.81 feet above sea level. The water level of the surficial aquifer is normally around 2.8 feet above sea level. The difference of 3.0 feet of water is due to the storage in the zone above the impermeable layer.

The drawdown associated with the two wells within the area of study, is not affected by the surficial mound of water. The area of the surficial aquifer immediately adjacent to the wells has no cascading waters into the well pits. Upper surficial aquifer water has been blocked, by fines, from entering the well area.

6.0 INVESTIGATION OF THE WELLFIELD PROTECTION ORDINANCE MODEL

On October 13, 1987, Mr. Steve Krupa of Dames & Moore conferred with Mr. Pete Hernandez of the Dade County Department of Environmental Resource Management (DERM) with regard to the well inventory used as a basis for the wellfield protection ordinance model. He indicated that the existing city wells are 90 feet deep and are cased to only 40 feet below the ground surface, leaving the remaining 50 feet as an open interval. He stated that the two Rinker Material Facility production wells had not been incorporated into the model. At the present time (i.e., October 13, 1987) the northwest wellfield is pumping at 155 million gallons per day, but the projected pumping rate of 220 million gallons per day (approximately by the year 1990) would put the Rinker facility within the 1/4 foot contour drawdown. Mr. Hernandez indicated that he was not aware as to the present location of the 1/4 foot drawdown contour (pumping rate of 155 million gallons per day). Mr. Hernandez indicated that the model did not take into consideration the presence of the thin

aquiclude, located on top of the Biscayne Aquifer.

Mr. Krupa inquired upon the level of accuracy of the Dade County aquifer simulation model program (Prickett and Longquist, Two-Dimensional Model). Mr. Hernandez stated, "within a 2000 foot radius of wells, the water profile and the computer program do not correlate. Outside of that, everything matches up."

7.0 COMPUTER ANALYSIS

A computer generated simulation of the aquifer within the immediate vicinity of the Rinker Plant Facility was run. This simulation projected drawdown from a one foot radius from the pump center to a maximum of 2626 feet away. The aquifer thickness in this area has been assumed to be roughly 100 feet. A combined flow rate of both wells of 1500 gallons per minute was used in the analyses. For our analyses Darcy's Law was used, an axisymetrical flow, and constant permeability were assumed. Zangar's (1953) correction method for partially penetrating wells was applied to the observed drawdown data, prior to analysis. Using the known conditions of radial distances and head for the quarry and the wells, we iterated on the permeability values until the drawdowns matched the corrected values of the field measurements. Superposition was used to evaluate the effects of the two well system. This provided an estimate of permeability of 2.82×10^{-2} cm/sec, or approximately 13,300 feet/day. The specific capacity of the model was calculated as follows:

$$S_w = Q/1.21 \text{ (model)} = (1500 \text{ gallons/min} \times 7.48 \text{ ft}^3/\text{gal})/1.21 \text{ feet}$$

$$S_{w \text{ (model)}} = 9272 \text{ ft}^2/\text{min}$$

7.1 RESULTS

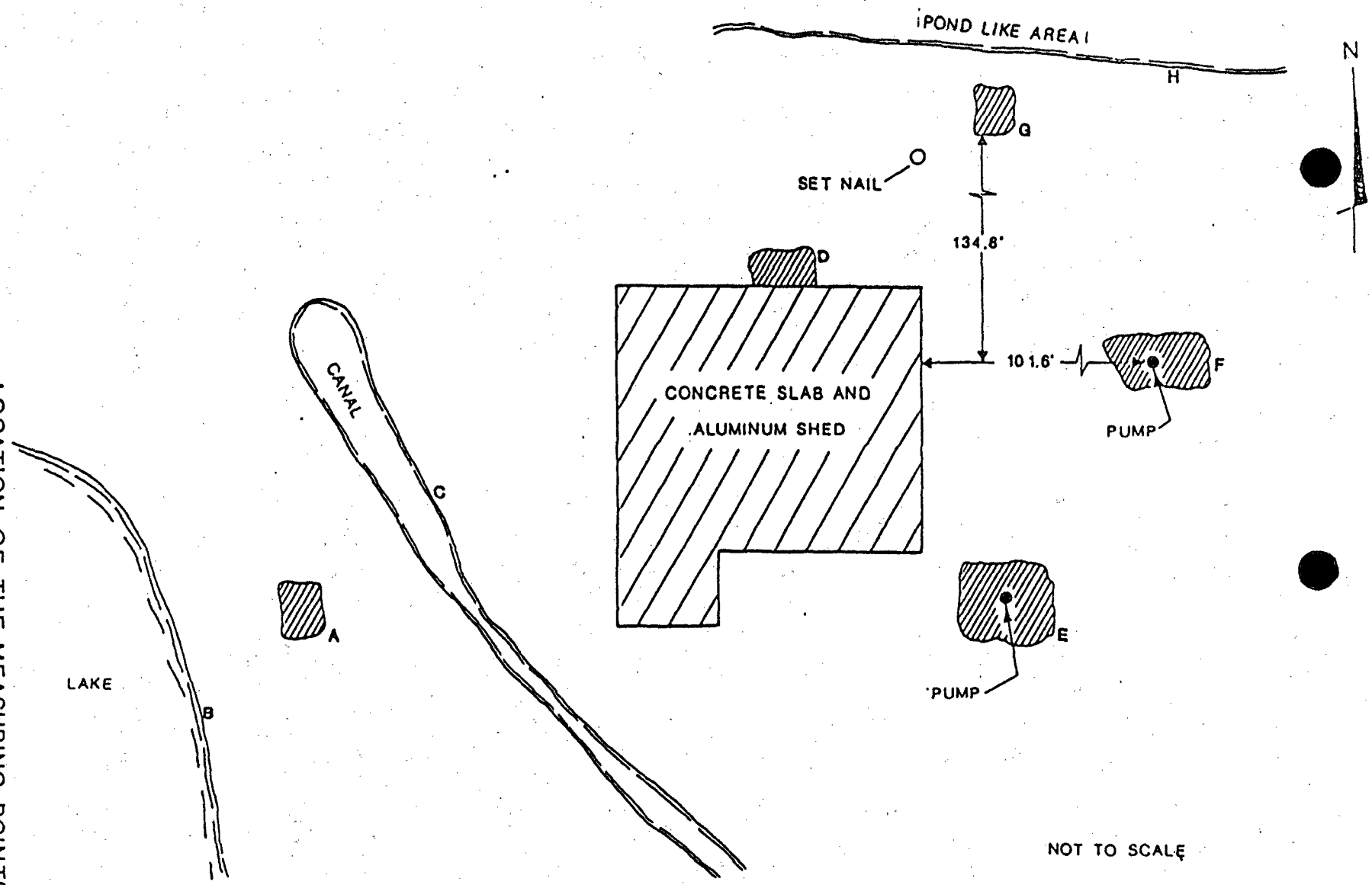
The output from the computer program is presented as Table 1, and the description of the variables in Figure 2. The model indicates that, for the given pumping rate, the projected drawdown at the well is approximately 0.3 foot. This decreases with distance, being approximately 0.2 foot at a distance of approximately nine feet from the well. The drawdown is reduced to 0.1 foot at a distance of 171 feet from the well. This model provides estimated travel times for different distances from the production wells. Travel time to the well is one day at approximately 24 feet from the well. This becomes two days at approximately 39 feet from the wells, and increases to six days,

at 66 feet from the wells. The projected travel times to the well (days) are only a rough estimates and the output can only be verified by actual in-situ testing.

BY Layn DATE 12/17 CHECKED _____ DATE _____ APPROVED _____ DATE _____

JOB No. 16198001024 (12/87)

PROJECT: RINKER MATERIALS CORP.
LOCATION: MIAMI, FLORIDA



LOCATION OF THE MEASURING POINTS FOR THE HYDROGEOLOGIC STUDY

DAMES & MOORE
PLATE 1

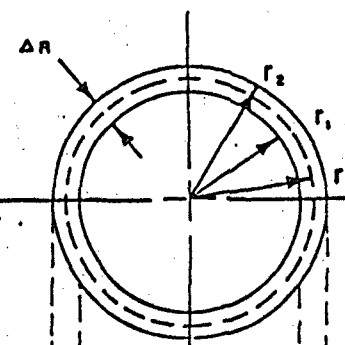
BY _____ DATE 12/87 CHECKED _____ DATE _____ APPROVED _____ DATE _____

JOB No. 16198001024 (12/87)

PROJECT: RINKER MATERIALS CORP.
LOCATION: MIAMI, FLORIDA

DARCY'S LAW FOR AXISYMMETRIC FLOW

PLAN VIEW:



DARCY'S LAW

$Q = KIA = K\frac{\Delta H}{L}A$

FOR AXISYMMETRIC FLOW

WHERE B = EFFECTIVE THICKNESS OF AQUIFER

$L = \Delta R$

$2\pi R$ = CIRCUMFERENCE

$A = B\ 2\pi R = B$ (CIRCUMFERENCE)

$Q = K\frac{\Delta H_{i,i+1}}{\Delta R_{i,i+1}}\ 2\pi r B$

$\Delta H_{i,i+1} = \frac{Q\,\Delta R_{i+1}}{2\pi K B r}$

KNOWN CONDITIONS

HEAD AT QUARRY (H_Q) 3.37 ft. ABOVE M.S.L.

HEAD AT WELL (H_W) 2.27 ft. ABOVE M.S.L.

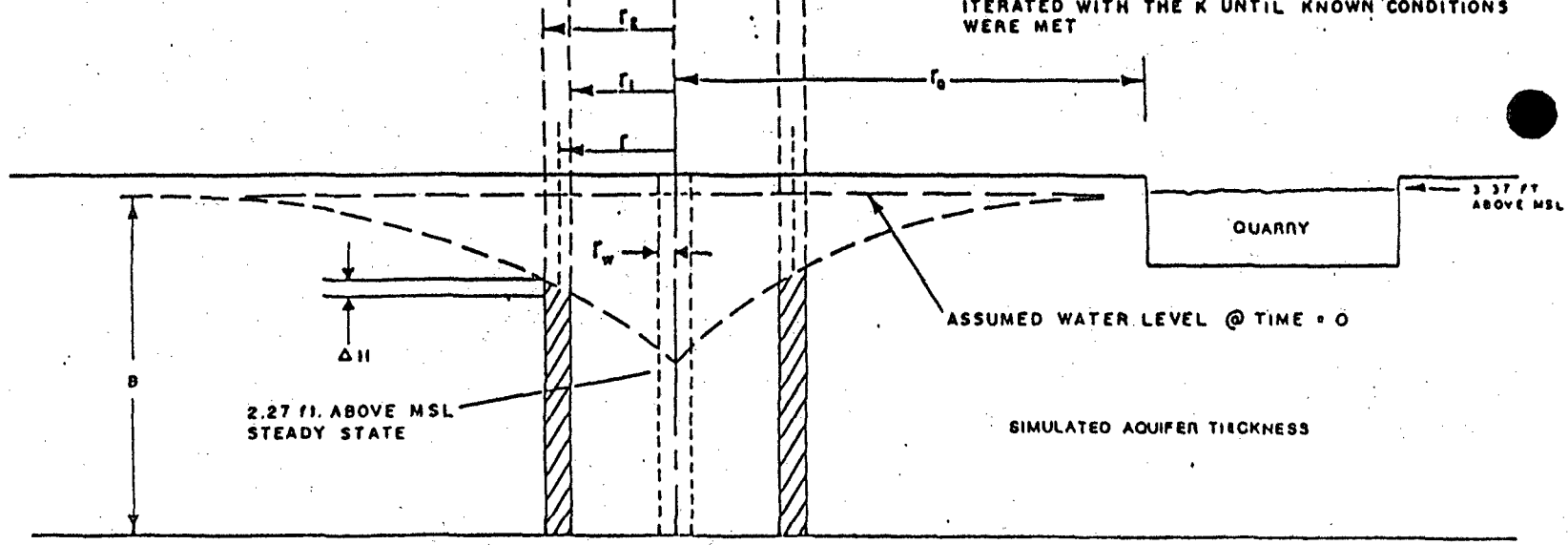
EFFECTIVE RADIUS OF WELL (r_w) 1.95 ft. (FULLY PENETRATING)

RADIUS TO QUARRY (r_Q) ≈ 2621 ft.

FLOW RATE FROM WELLS 1500 GPM

$\Delta H = H_Q - H_W = \frac{Q}{2\pi}\sum_{r=r_w}^{r=r_Q}\frac{\Delta R_{i,i+1}}{B r K}$

ITERATED WITH THE K UNTIL KNOWN CONDITIONS WERE MET



CROSS-SECTION FOR COMPUTER OUTPUT EAST-WEST

COMPUTER MODEL FOR RINKER MATERIALS

DAMES & MOORE
FIGURE 2

Table 1
Projected Drawdown & Travel Times
Rinker Materials Corporation Site
Miami, Dade County, Florida

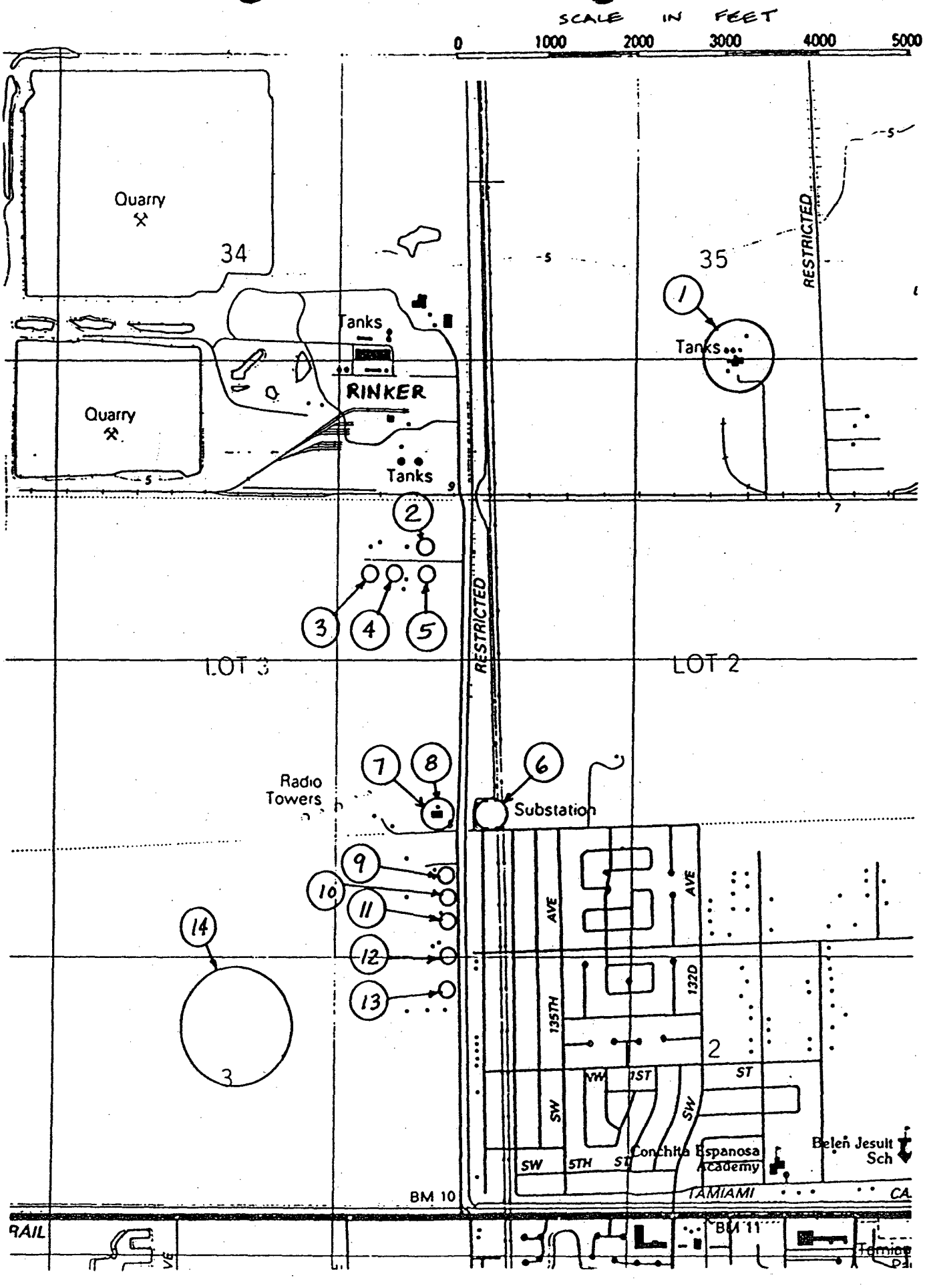
Initial Radius	:	0.67 (feet)
Delta B	:	5.0 (feet)
Flow rate	:	1500.00 (gpm)
Permeability	:	12000.0 (feet/day)
Thickness	:	100.0 (feet)

Inside Radius (feet)	Delta B (feet)	Average Radius (feet)	Average Perimeter (feet)	Thickness Area (feet)	Delta B sound (feet)	Slope (-)	Drawdown (feet)	Time to Well (days)
0.7	0.1	0.7	4.4	100.0				
0.7	0.1	0.8	5.0	100.0	0.0039	0.03912	0.29	0.00
0.8	0.1	0.9	5.6	100.0	0.0043	0.04338	0.28	0.00
0.9	0.1	1.0	6.3	100.0	0.0039	0.03954	0.28	0.00
1.0	0.1	1.1	6.9	100.0	0.0035	0.03467	0.27	0.00
1.1	0.1	1.2	7.5	100.0	0.0032	0.03151	0.27	0.00
1.2	0.2	1.3	8.5	100.0	0.0029	0.01444	0.27	0.00
1.4	0.2	1.5	9.7	100.0	0.0051	0.02566	0.26	0.00
1.6	0.2	1.7	11.0	100.0	0.0045	0.02234	0.26	0.00
1.8	0.2	1.9	12.2	100.0	0.0040	0.01979	0.25	0.00
2.0	0.2	2.1	13.5	100.0	0.0036	0.01775	0.25	0.00
2.2	0.5	2.5	15.7	100.0	0.0032	0.00644	0.25	0.01
2.7	0.5	3.0	18.8	100.0	0.0069	0.01384	0.24	0.01
3.2	0.5	3.5	22.0	100.0	0.0058	0.01153	0.24	0.02
3.7	0.5	4.0	25.1	100.0	0.0049	0.00988	0.23	0.02
4.2	0.5	4.5	28.3	100.0	0.0043	0.00565	0.23	0.02
4.7	0.5	5.0	31.4	100.0	0.0039	0.00768	0.22	0.03
5.2	1.0	5.7	36.1	100.0	0.0035	0.00346	0.22	0.03
6.2	1.0	6.7	42.4	100.0	0.0060	0.00601	0.21	0.06
7.2	1.0	7.7	48.7	100.0	0.0051	0.00512	0.21	0.08
8.2	1.0	8.7	55.0	100.0	0.0045	0.00446	0.20	0.10
9.2	1.0	9.7	61.2	100.0	0.0040	0.00395	0.20	0.11
10.2	1.0	10.7	67.5	100.0	0.0035	0.00355	0.19	0.11
11.2	2.0	12.2	76.9	100.0	0.0032	0.00161	0.19	0.03
13.2	2.0	14.2	89.5	100.0	0.0055	0.00282	0.19	0.13
15.2	2.0	16.2	102.1	100.0	0.0049	0.00243	0.18	0.14
17.2	2.0	18.2	114.6	100.0	0.0043	0.00213	0.18	0.42
19.2	2.0	20.2	127.2	100.0	0.0039	0.00189	0.17	0.49
21.2	5.0	23.7	149.2	100.0	0.0034	0.00068	0.17	1.05
26.2	5.0	28.7	180.6	100.0	0.0073	0.00146	0.17	1.30
31.2	5.0	33.7	212.0	100.0	0.0060	0.00120	0.16	1.62
36.2	5.0	38.7	243.5	100.0	0.0051	0.00103	0.15	1.82
41.2	10.0	46.2	290.6	100.0	0.0045	0.00045	0.15	3.67
51.2	10.0	56.2	353.4	100.0	0.0075	0.00075	0.14	4.68
61.2	10.0	66.2	416.2	100.0	0.0061	0.00061	0.14	5.20
71.2	10.0	76.2	479.1	100.0	0.0052	0.00052	0.13	7.34
81.2	10.0	86.2	541.9	100.0	0.0045	0.00045	0.12	9.00
91.2	10.0	96.2	604.7	100.0	0.0040	0.00040	0.12	10.68
101.2	20.0	111.2	699.0	100.0	0.0036	0.00011	0.12	33.25
121.2	20.0	131.2	824.6	100.0	0.0062	0.00031	0.11	24.39
141.2	20.0	151.2	950.3	100.0	0.0053	0.00026	0.11	28.51
161.2	20.0	171.2	1076.0	100.0	0.0046	0.00023	0.10	35.09
181.2	20.0	191.2	1201.9	100.0	0.0040	0.00020	0.10	42.84
201.2	20.0	211.2	1327.3	100.0	0.0036	0.00018	0.09	53.16
221.2	20.0	231.2	1452.2	100.0	0.0033	0.00017	0.09	58.82

271.2	50.0	296.2	1881.4	100.0	[illegible]70	0.00011	0.09	135.41
321.2	50.0	346.2	2175.5	100.0	0.0058	0.00012	0.08	168.54
371.2	50.0	396.2	2489.7	100.0	0.0050	0.00010	0.07	206.31
421.2	50.0	446.2	2803.9	100.0	0.0044	0.00009	0.07	249.41
471.2	50.0	496.2	3118.0	100.0	0.0039	0.00008	0.06	297.85
521.2	50.0	546.2	3432.2	100.0	0.0035	0.00007	0.06	351.65
571.2	50.0	596.2	3746.3	100.0	0.0032	0.00006	0.06	411.38
621.2	50.0	646.2	4060.5	100.0	0.0029	0.00006	0.05	476.04
671.2	50.0	696.2	4374.6	100.0	0.0027	0.00005	0.05	545.65
721.2	50.0	746.2	4688.8	100.0	0.0025	0.00005	0.05	620.20
771.2	50.0	796.2	5003.0	100.0	0.0023	0.00005	0.04	703.48
821.2	50.0	846.2	5317.1	100.0	0.0022	0.00004	0.04	790.11
871.2	50.0	896.2	5631.3	100.0	0.0020	0.00004	0.04	882.17
921.2	50.0	946.2	5945.4	100.0	0.0019	0.00004	0.04	979.68
971.2	50.0	996.2	6259.5	100.0	0.0018	0.00004	0.04	1082.62
1021.2	50.0	1046.2	6573.8	100.0	0.0017	0.00003	0.03	1191.01
1071.2	50.0	1096.2	6887.9	100.0	0.0017	0.00003	0.03	1304.83
1121.2	50.0	1146.2	7202.1	100.0	0.0016	0.00003	0.03	1424.09
1171.2	50.0	1196.2	7516.2	100.0	0.0015	0.00003	0.03	1548.80
1221.2	50.0	1246.2	7830.4	100.0	0.0014	0.00003	0.03	1678.94
1271.2	50.0	1296.2	8144.6	100.0	0.0014	0.00003	0.03	1814.52
1321.2	50.0	1346.2	8458.7	100.0	0.0013	0.00003	0.03	1955.54
1371.2	50.0	1396.2	8772.9	100.0	0.0013	0.00003	0.02	2102.00
1421.2	50.0	1446.2	9087.0	100.0	0.0012	0.00002	0.02	2253.90
1471.2	50.0	1496.2	9401.2	100.0	0.0012	0.00002	0.02	2411.24
1521.2	50.0	1546.2	9715.4	100.0	0.0012	0.00002	0.02	2574.02
1571.2	50.0	1596.2	10029.5	100.0	0.0011	0.00002	0.02	2742.24
1621.2	50.0	1646.2	10343.7	100.0	0.0011	0.00002	0.02	2915.90
1671.2	50.0	1696.2	10657.8	100.0	0.0010	0.00002	0.02	3095.00
1721.2	50.0	1746.2	10972.0	100.0	0.0010	0.00002	0.02	3279.54
1771.2	50.0	1796.2	11286.2	100.0	0.0010	0.00002	0.01	3469.52
1821.2	50.0	1846.2	11600.3	100.0	0.0010	0.00002	0.01	3664.93
1871.2	50.0	1896.2	11914.5	100.0	0.0009	0.00002	0.01	3865.78
1921.2	50.0	1946.2	12228.6	100.0	0.0009	0.00002	0.01	4072.09
1971.2	50.0	1996.2	12542.8	100.0	0.0009	0.00002	0.01	4283.83
2021.2	50.0	2046.2	12956.9	100.0	0.0009	0.00002	0.01	4501.00
2071.2	50.0	2096.2	13171.1	100.0	0.0008	0.00002	0.01	4723.62
2121.2	50.0	2146.2	13485.3	100.0	0.0008	0.00002	0.01	4951.67
2171.2	50.0	2196.2	13799.4	100.0	0.0008	0.00002	0.01	5185.17
2221.2	50.0	2246.2	14113.5	100.0	0.0008	0.00002	0.01	5424.10
2271.2	50.0	2296.2	14427.7	100.0	0.0008	0.00002	0.01	5668.46
2321.2	50.0	2346.2	14741.9	100.0	0.0008	0.00002	0.00	5918.28
2371.2	50.0	2396.2	15056.1	100.0	0.0007	0.00001	0.00	6173.54
2421.2	50.0	2446.2	15370.2	100.0	0.0007	0.00001	0.00	6434.24
2471.2	50.0	2496.2	15684.4	100.0	0.0007	0.00001	0.00	6700.37
2521.2	50.0	2546.2	15998.5	100.0	0.0007	0.00001	0.00	6971.94
2571.2	50.0	2596.2	16312.7	100.0	0.0007	0.00001	0.00	7248.95
2621.2	50.0	2646.2	16626.9	100.0	0.0007	0.00001	0.00	7531.40

ATTACHMENT B

PRIVATE WELL LOCATIONS
NUMBERED 1 - 14



KNOWN DETAILS OF PRIVATE WELLS, KEYED BY NUMBER TO MAP :

MAP # 1. Owner: Florida Transport
1301 NW 14th ST, Miami
305 592 6927
Operates 1 well; 4-6-inches diameter; depth ±60 feet; pumps 9,000 gallons/day.

MAP # 2. Owner: United Dump Trucks
unnamed road to W. of 137th Ave, Mia
305 822 3831
No known wells; may have well.

MAP # 3. Owner: Unknown
Operates one well on property; details unknown.

MAP # 4. Owner: H & R Land Clearing and Demolition
unnamed road W. of 137th Ave, Miami
305-266-4266
No known wells on property; may have well.

MAP # 5. Owner: Miami Rental Equipment
unnamed rodd W. of 137th Ave, Miami
305 264 3647
No wells on this property

MAP # 6. Owner: F P & L
13675 NW 6 TH ST., Miami
305 552 4050
Operates one well; 4-inch diameter, depth unknown; well used to irrigate about 3 acres; max short-term pumping rate is 80 to 100 gpm

MAP # 7 and 8. Owner: Eagle Crest Storage and Dade Co. School Bus Storage (Mr. Shelby Strictland,
13775 NW 6 TH ST.
305 552 5555
Operates one well; 4-inch diameter; depth 30 feet; pumping rate is unknown

MAP# 9. Owner: Azpetia Trucking
550 NW 137 Ave, Miami
305 226 7484
No known wells; well may exist

MAP # 10. Owner: Walter Lista
450 NW 137 TH Ave, Miami
305 551 7888
No known wells; well may exist.

MAP # 11 and 12. Unused properties; no known wells.

MAP # 13. Owner: Volunteer Construction Co.
90 NW 137th Ave
— a "for lease" sign shows 305 593 2071
No known wells; well may exist; site not currently in use.

MAP # 14. Owner: Osprey Agricultural Services
8255 NW 58th St, Miami
305 592 0194
Operates four wells for irrigation; each is 2-inch diameter; depth is 20 feet; max short term pumping rate is 50 gpm per well.

GROUNDWATER MONITORING PLAN

ADDENDUM A

Rinker Portland Cement Corp.
1200 NW 137th Avenue
Miami, Florida

April 1991

Prepared for:

Rinker Portland Cement Corp.
1200 NW 137th Avenue
Miami, Florida

Prepared by:

Groundwater Specialists, Inc.
3003 S. Congress Avenue
Suite 1C
Palm Springs, Florida 33461

TABLE OF CONTENTS

EXHIBITS

APPENDICES

ADDENDUM A

GROUNDWATER MONITORING PLAN

Rinker Portland Cement Corp.
1200 NW 137th Avenue
Miami, Florida

Introduction

This Addendum supplements information in the Groundwater Monitoring Plan (GWMP) of January 1991, submitted to the Florida DER as part of the General Permit Application to Construct/Operate a Soil Thermal Treatment Facility as per Chapter 17-775, FAC. It provides information as recommended in a letter from Ms. Zoe Kulakowski (Florida DER), to Mr. Michael Vardeman (Rinker Portland Cement Corp.), dated January 22, 1991, and new and revised proposals relating to schedules of data collection and submittal.

Supplemental Information As Recommended

Ms. Kulakowski's letter recommends that certain information be provided in the application for a general permit to construct/operate the soil thermal treatment facility. The letter enumerates Items 1 through 17; in this Addendum, these are referred to as requests for information. A copy of Ms. Kulakowski's letter is included herewith as Appendix AA.

As consultants to Rinker, GSI (Groundwater Specialists, Inc.) has prepared Responses 1 through 17, that correspond to the requests for information. A restatement of the requests and responses follow:

Request 1. Install a sufficient number of piezometers/wells screened in the water table zone only to establish site groundwater flow patterns and to use for selecting monitor well locations. Incorporate surface water features into the elevation network. If the site flow directions are seasonally variable and nonuniform as believed by Dames and Moore, this entire network may also be needed for quarterly water elevation data. Provide construction details for the piezometers/wells.

Response 1. During the week of March 18, 1991, 22 piezometers were installed on the subject property. In the subsurface, all of these structures were constructed as permanent monitor wells. The wellhead configuration varied depending on their locations relative to on-site traffic. Of the piezometers, 19 are "shallow", with wellscreens set within sediments between depths from 2 to 11 feet. The remaining three piezometers are "deep", with wellscreens set within the upper portion of the Fort Thompson formation, the Biscayne Aquifer. The locations of the piezometers are shown on

Exhibit A1. The dimensions and top-of-casing elevations of all piezometers are shown on Exhibit A2. Typical well construction diagrams are shown in Appendix AB.

In addition to the piezometers, water-level measuring points were established at all significant surface-water bodies within and surrounding the property. The locations of the measuring points and the identity of each surface-water body are shown on Exhibits A1 and A3, respectively.

On March 25, 1991, when the two process wells (Wells PN and PS) were operating as they do on a continuous basis, water-level elevations in all piezometers and surface-water bodies were measured. These are summarized on Exhibit A2. The configuration of the water table in the shallow zone is shown on Exhibit A4. The configuration of water-levels in the deep zone is shown on Exhibit A5. As shown on the exhibits, the shallow-zone flow direction is predominantly eastward to the regional canal, with considerable influence to the north caused by returned cooling water on the Rinker property. The only discernable deep-zone flow direction is toward Rinker's process wells, Wells PN and PS.

Request 2. Establish background groundwater quality for the GWMP. Any existing chemical data may be used from other permitted sites nearby or the ambient groundwater monitoring network.

Response 2. On March 22, 1991, Piezometer 1 was sampled according to conditions described in GSI's generic QAP (#880557G). Piezometer 1 is located on the southern edge of the property and the southern edge of the proposed soil storage area. It is intended to represent an upgradient, background location. The sample was analyzed for parameters outlined in Chapter 17-775.610(4), (FAC), for monitoring during implementation of the GWMP. The results of analysis are summarized on Exhibit A6. The laboratory reports are presented in Appendix AC.

Request 3. On Figure 2, show all surface water features that are shown on Plate 1 (Dames and Moore 12/9/87) and Exhibit 1. How deep are the little lakes and the canal? Do they breach the dense limestone?

Response 3. All significant surface-water features are shown on Exhibit A1. The pits excavated by Dames & Moore have been backfilled with materials excavated from the pits. The "pond-like area" and "lake" on Dames & Moore's Plate 1 correlate with surface-water bodies connected to SW1 and SW5, respectively. Please note that Dames & Moore's Plate 1 is conceptual in nature, not to scale.

A description of the ponds, canals and quarries is shown on Exhibit A3. These are referenced by measuring points on each of these surface-water bodies (SW1 through SW9). The only known breaches of the hard, dense limestone layer on the property are the

two quarries and the fire well (within the fire house) and process wells (Wells PN and PS). Stratigraphic data show that the dense limestone lies generally between 14 and 19 feet below grade in the filled areas of the property. The filled areas are approximately as shown on Exhibit A7. A stratigraphic cross section is shown on Exhibit A8 [Piezometer 22 apparently is placed on higher land, partially filled to construct a road.].

Request 4. Identify the locations of Well #100, Well #200, the fire protection well (is it at the fire pump house?), and the plant cooling water discharge pipe release point.

Response 4. Well #100 is the potable water well; its location is beneath the kiln. Well #200 is inside the fire pump house. There are three points at which cooling water is released to surface water bodies. These points are described on Exhibits A1 and A3.

Request 5. Provide at least three lithologic logs to establish the site stratigraphy.

Response 5. Three lithologic logs represented on a stratigraphic cross section are shown on Exhibit A8. The section shows the lithology determined by spilt-spoon borings at the locations of Piezometers 20 and 22, and Soil Boring 1 (SB1).

Request 6. Provide well construction details (example: annulus completion), lithologic logs and measured cones of depression for the process water wells.

Response 6. The process water "wells" (Wells PN and PS) were constructed as open pits with a total depth that penetrates the uppermost part of the high-permeability Fort Thompson formation - the Biscayne Aquifer. The pits occupy an area of approximately 10 by 20 feet at land surface. There are no available lithologic logs derived during the excavation of the pits. However, a lithologic log is available from Piezometer 20, located about 123 feet from both pits; this log is shown on the stratigraphic cross section, Exhibit A8. A cross section showing the pit's relationship to the lithology is included in Appendix AD.

The measured cones of depressions in the shallow and deep zones created by the process wells (Wells PN and PS) are depicted on Exhibits A4 and A5. These cones of depression represent a steady-state condition as they are based on measurements made during a time when the continuously-operating process wells were operating.

In order to determine the drawdown and recovery caused by operating Wells PN and PS, Well PN was shut down for a 1/2-hour period on March 26, 1991, during which time water-level recovery then drawdown were measured in Piezometers 15, 16, and 20, as well as in Wells PN and PS. These piezometers lie equidistant from

Wells PN and PS. [Due to continuous demand for water by the cement manufacturing process, it is not possible to shut down either of the wells for a longer period] Exhibit A9 is a summary of data derived from the recovery test. Further discussion and conclusions of the test are contained in Appendix AD.

Request 7. Detail every movement and the onsite process of remediating the contaminated soils brought onsite. Address unloading/loading, storage of treated/untreated soils, weighing, and specific locations of all activities.

Response 7. The present soil handling practice is that incoming soils are dropped, screened and reloaded onto trucks, on the existing soil storage slab. This soil storage slab is now covered with a canvass roof. The soil storage slab drains within a bermed area; collected water is pumped into a dedicated tank. A lisenced waste-water hauler empties the tank and discharges the water into the wastewater feed system from which it is piped to the kilns.

Contaminated soils that arrive at the plant for thermal treatment are first weighed on the incoming trucks at the scale house. Any truck noted to be dripping water is turned away at that point. After weighing, the incoming trucks are directed to the soil-storage building where they dump their loads under the roof and on the concrete floor of the building. The trucks leave the property with a stop at the scale after their loads are dropped. The contaminated soils within the building are then screened to eliminate metals, plastics and other materials potentially damaging to later processing. [These miscellaneous materials are collected in a designated dumpster for subsequent delivery to a sanitary landfill.] After screening, the soils are loaded within the soil-storage building onto a designated truck. A dedicated front-end loader is used. The loaded truck delivers the soil into the west entrance of the Raw Material Feed Building where the soils are dropped on a concrete slab under roof. The concrete slab is bermed and has a contained leachate collection system. Water from the system is delivered to the wastewater feed system then into the kilns. The delivery truck circulates between the two under-roof locations. From the Raw Materials Feed Building, the process slurry is routed to the kilns through an above-ground piping system. After treatment in the kilns, the resulting clinker is crushed, sampled and analyzed.

Request 8. Is any response of the water table zone observed in the immediate vicinity of each process water well? Establish whether flow in the water table zone is totally independent of pumping the Biscayne process wells.

Response 8. A significant response in the water-table zone was noted during the test on Well PN. This is because the water-table (shallow) zone is well connected hydraulically to Well PN and provides a substantial flow of water to Wells PN and PS. However,

the water-table zone is concluded to be isolated from the deep zone on the basis of several observations. These include: (1) the hard, dense nature of the limestone between 14 and 19 feet (no evidence of cracks or solution holes in this limestone are known to exist), (2) the water level in the shallow zone is 0.12 feet lower than in the deep zone at well pairs, Well 16 and Well 20, (3) the degree of response to the recovery test was significantly different in the two zones, and (4) the notable lack of response to pumping in the shallow zone, due to pumping deep-zone wells at the Sweetwater Ready Mix Plant (see Appendix AE). Waters of the shallow and deep zones are known to intermingle at the locations of the quarries and Wells PN and PS because the confining layer is breached. Thus, the water-table zone is not independent of the deep zone in the near vicinity of the quarries and Wells PN and PS, but it is at other locations on the site. Please refer also to Response 6 and Appendix AD.

Request 9. How deep did the trench extend for the underground pipeline and the W. I. pipe? Was the dense limestone unit breached during construction?

Response 9. The trench for the underground oil pipeline is only 5 to 6 feet below grade. This is not deep enough to breach the dense limestone.

Request 10. Did Dames & Moore excavate a pit around both process wells during the December 1987 study? If so, how was well construction integrity restored? Please explain what was meant by "no cascading water into the well pits". Was the pit water elevation compared to the pumping well water elevation?

Response 10. Dames & Moore did not excavate the pits around Wells PN and PS. They did, however, construct other pits that were subsequently backfilled with the same materials excavated. These later pits did not breach the dense limestone.

The statement regarding "no cascading water" referred to the visible lack of water cascading from the water-table zone, over the inner wall of the well pits, and down to the water level in the pits. This is not surprising as the actual depth of the dense limestone is beneath the normal water level in the pit; thus, any tendency to "cascade" would be underwater and not observable. The present author believes that Dames & Moore mistook the level of the dense limestone layer in the area of Wells PN and PS, to be about five feet higher than its actual level. In short, the "no cascading water" statement is insignificant.

Request 11. Propose an unaffected natural background well. Wells 1, 4, 6, and 7 are too close to potential sources to be used for this purpose.

Response 11. Under existing conditions, Piezometer 1 is selected to be an unaffected background well. Piezometer 1 was sampled/analyzed as noted on Exhibit A6. Proposed Well 23, discussed below, will be installed as a natural background well.

Request 12. Without the site specific flow information, review cannot be competed of the proposed monitor well locations. I concur with the proposed shallow construction (water table zone) for the potential source areas. Since the objective of this GWMP is to detect <u>any</u> discharge to groundwater, the proposed monitor wells will need to be located as close to the unit as possible on the downgradient side. Examples of potential sources are the truck scale, truck unloading pad, the proposed soils storage area(s), the oil line to the kiln (to increase BTUs?), the inlet and outlet and the pressure cleaning facility (to wash out trucks?).

Response 12. As noted on the cited exhibits, the groundwater flow direction in the areas of concern have been determined to be generally northward in the water-table and in the areas where contaminated soils are and will be handled. The areas of concern include the truck scale, the existing soil storage slab (covered), proposed soil storage building and the Raw Materials Feed Building entrance. The active oil line to the kiln is unrelated to the Chapter 17-775 features of this GWMP. Likewise, the pressure cleaning facility is a wholly enclosed facility with no release of water. The previously indicated monitor well in this cleaning facility is a sump in an enclosed vault, not a monitor well. The second truck cleaning facility near the scale house is used to clean dust from outgoing cement haulers; water from that facility drains into the ditch referred to as measuring point SW4. No trucks that contained contaminated soils are cleaned at either of the two cleaning facilities. There are no other points on the property, not previously described, that are potential contamination source areas as related to the handling of incoming contaminated soils.

Request 13. Identify the specific analytical methods for metals to be used for every sampling event.

Response 13. The analytical methods to be used in the GWMP are prescribed in Chapter 17-775.610(4), FAC. The metals and respective EPA Methods that will be used are: arsenic, 206.3; barium, 208.2; cadmium, 213.2; chromium, 218.2; lead, 239.2; mercury, 245.1; selenium, 270.3; and silver, 271.2. Sampling conducted within the GWMP will be under GSI's generic QAP (#880557G); the FDER approval notice of this document is shown in Appendix AF. Samples will be analyzed by V.O.C. Analytical, Inc. under its approved generic QAP (#900376G); approval notice also is shown in Appendix AF.

Request 14. Describe well purging procedures. Will pH, specific conductivity, and temperature be monitored until stabilized to

document sufficient purging? Field parameters should be reported with the data.

Response 14. Pre-sampling well purging will be accomplished by pumping from the wells using clean stainless steel tubes and under the conditions of GSI's generic QAP. Measurements of pH, specific conductivity, and temperature will be made from well-purge water until these parameters have stabilized. The results of these measurements will be reported in quarterly data reports.

Request 15. Include provisions to establish the flow direction quarterly using a network of piezometers and monitor wells.

Response 15. Provisions to determine quarterly the groundwater flow directions are described below.

Request 16. Provide a schedule for well installation, the first quarterly data collection event, and subsequent events.

Response 16. A schedule of well completions and sampling events is provided below.

Request 17. Include provisions to submit the quarterly water quality and groundwater elevation to the Bureau of Waste Cleanup.

Response 17. A schedule of data submittals to the Bureau of Waste Cleanup is provided below.

Additional Information

In addition to the information responding to Ms. Kulakowski's letter, the following is provided to supplement the GWMP.

Rinker Materials Corp. operates the Sweetwater Ready Mix Plant to the northeast and adjacent to the Rinker Portland Cement Corp.'s Cement Mill. The Ready Mix Plant was the subject of a Contamination Assessment Report, dated January 1989, prepared by Jammal & Associates, Inc. A plume of dissolved hydrocarbons resides in the shallow zone on the Plant property. The plume enters the northeast corner of the Rinker Portland Cement Corp. property. The groundwater flow direction, however, indicates that hydrocarbons will tend to migrate to the southeast and not toward the Cement Mill. There are two water wells on the site; these tap the deep-zone (the Biscayne Aquifer), and have no apparent effect on groundwater in the shallow zone. One of these wells (the 10-inch well) continuously pumps about 50 gpm from the deep zone. The other well is used for fire protection. The exact depths of these wells could not be ascertained. The location of the Plant, the two water wells, the groundwater flow direction and the location of the plume are shown in Appendix AE.

As part of the cement manufacturing process, piles of coal, gypsum and slag are stored on site for use in the product. Piezometer 19 was installed among these piles for possible future use in determining the local direction of groundwater flow and whether minerals dissolved from these piles affect groundwater quality. The direction of groundwater flow at Piezometer 19 was determined to be generally north-northeast.

Revised Proposal

The following are proposals regarding well construction, sampling events, analyses, groundwater flow determinations and schedules. These are revisions to the GWMP submitted in January 1991 and pertain only to the application to construct/operate a Soil Thermal Treatment Facility.

Rinker currently operates a soil thermal treatment facility at the Cement Mill. Incoming soils are trucked to the existing soil storage slab indicated on Exhibit A1. This soil storage slab will be used until the proposed soil storage building can be completed. The existing soil storage slab is now covered with a canvass roof to aid in the prevention of runoff until the proposed building is completed.

Under this GWMP, groundwater monitoring will begin in the vicinity of the existing soil storage slab and shift to the new facility upon its completion. Existing Piezometers 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18 and 19 and proposed Well 23 will be monitored while the current facility operates; these are located at the scale house, the existing soil storage slab, the entrance to the Raw Mill, upgradient of the proposed soil storage building, and three intermediate points. Where not presently protected, the wellheads of these piezometers will be sealed and secured against runoff and traffic; the piezometers will be converted to monitor wells. Also, SW3, 7, 8 and 9 will be monitored for water levels. These points exert considerable control over the onsite groundwater-flow direction. The proposed monitoring schedule is as follows:

Phase I
Week of April 15, 1991 - Convert Piezometers 2, 5 through 14, 17, 18 and 19 to permanent monitor wells with the same numbers. Construct Well 23 (monitor well) as an unaffected natural background well. Abandon Piezometers 1, 3, and 4. Piezometer 15, 16, 20, 21 and 22 will be maintained for other purposes.

Phase II
Week of April 22, 1991 - Begin Monitoring as outlined in the following:

Groundwater Levels: Groundwater levels in Wells 6 through 14, 17, 18, 19 and 23 will be measured quarterly and a contour map will be prepared representing the shallow groundwater zone.

Groundwater Quality: Groundwater samples will be collected quarterly from Wells 6 through 14 for analyses by EPA Methods selected from those listed in Chapter 17-775.610 (4)(a), (b), (c) and (d), FAC.

Reporting: A groundwater contour map and the results of analyses will be reported to the FDER within five weeks of the quarterly sampling event and in accordance with Chapter 17-775.610(5), FAC.

Phase III

Before, but within two weeks of completion of the proposed soil storage building, Monitor Wells 24 and 25 will be constructed. The completion of this building is anticipated during late 1991. Following use/operation of the proposed soil storage building, monitoring will continue for two quarters (6 months) as listed under "Phase II" above. Also during that time, Wells 2, 5, 24, and 25 will be incorporated in the monitoring schedule as outlined in "Phase II" above, and will remain on the schedule. After the two quarters cited, Wells 11, 12, 13 and 14 will be deleted from the schedule of sampling/analyses and groundwater level measurement, with the exception of Well 11, which will continue to be monitored quarterly for groundwater levels. A summary of the monitoring schedule and a map showing monitoring points are provided on Exhibits A10 and A11, respectively.

During implementation of the GWMP, wells located on the upgradient side of any of the identified potential source areas will be deleted from the sampling schedule but only upon written notification to and written approval from the FDER. The wells that could be deleted from the schedule will be determined following additional rounds of water-level measurements to amply demonstrate the direction of groundwater flow, but could include Wells 2, 8, 10, 13, 14 and 24.

During the course of implementing the GWMP, three additional wells will be constructed; these will be Wells 23, 24 and 25 as discussed above. These will be constructed with the use of a hollow-stem auger to a total depth of 11 feet and as depicted on Exhibit A11 and in Appendix AB. This construction methodology also was used to construct the piezometers in their subsurface extents. The conversion of the piezometers to monitor wells will include only the rebuilding of wellheads to make them secure and leakproof.

All measurements of groundwater (and surface-water) levels and all groundwater sampling will be completed by Groundwater Specialists, Inc. in accordance with its approved Generic Quality Assurance Plan (Appendix AF). Likewise, analyses will be performed by V.O.C. Analytical, Inc. in accordance with its approved Quality Assurance Plan (Appendix AF).

Respectively submitted,
GROUNDWATER SPECIALISTS, INC.

5.29.91

Paul G. Jakob, P. G.
President

EXHIBITS

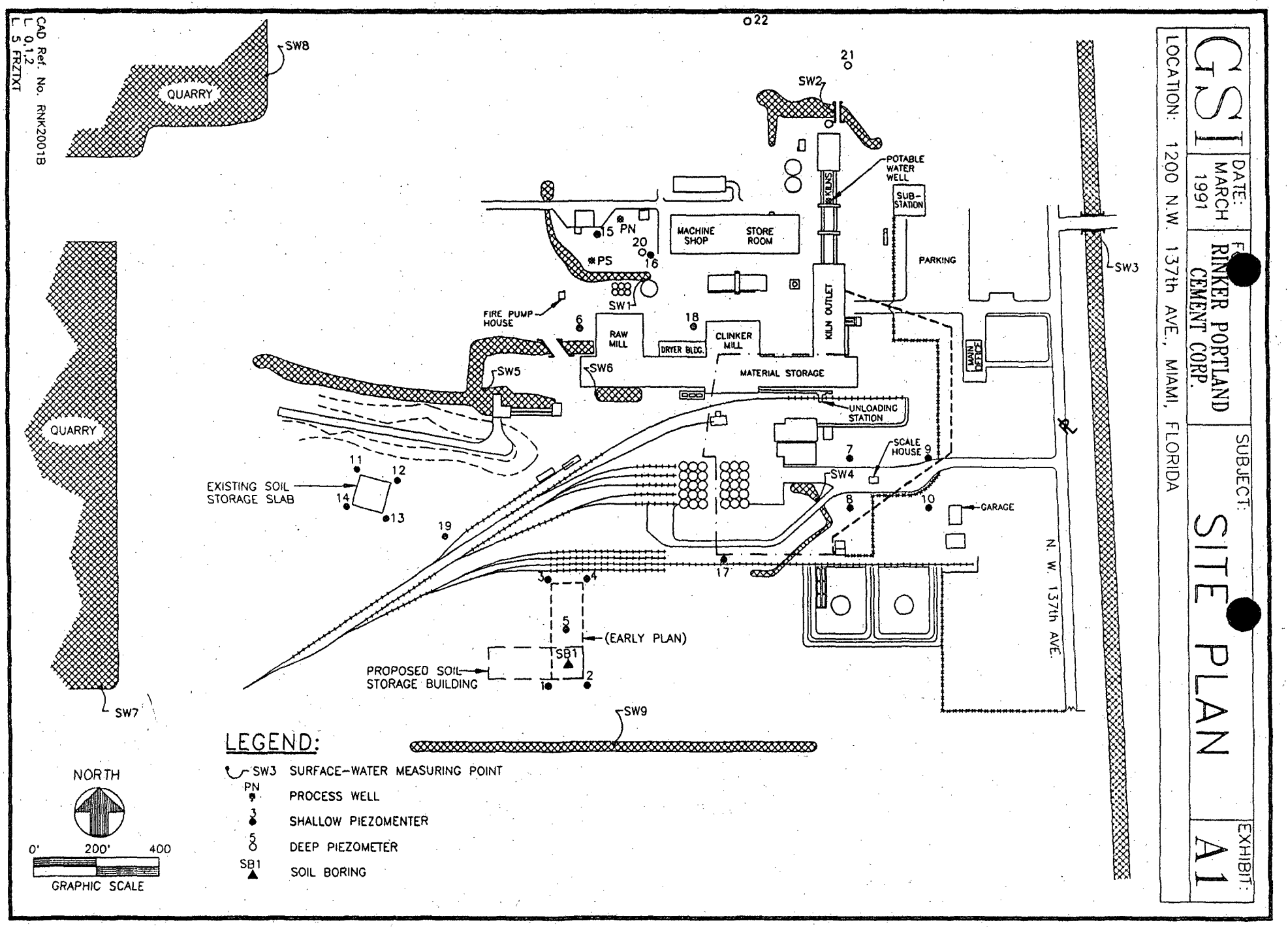

CAD Ref. No. RNK2001B
L 0,1,2
L 5 FRZTXT
GSI
DATE: MARCH 1991
FILE: RINKER PORTLAND CEMENT CORP.
SUBJECT: SITE PLAN
EXHIBIT: A1
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA
QUARRY
SW8
SW2
21
22
POTABLE WATER WELL
SUB-STATION
PARKING
SW3
MACHINE SHOP
STORE ROOM
15 PN
20
16
PS
SW1
FIRE PUMP HOUSE
6
18
RAW MILL
DRYER BLDG.
CLINKER MILL
KILN OUTLET
SCALE HOUSE
SW5
SW6
MATERIAL STORAGE
UNLOADING STATION
QUARRY
EXISTING SOIL STORAGE SLAB
11
12
14
13
19
7
9
SCALE HOUSE
SW4
8
10
GARAGE
N. W. 137th AVE.
17
3
4
5
(EARLY PLAN)
SB1
PROPOSED SOIL STORAGE BUILDING
2
1
SW7
SW9
LEGEND:
SW3 SURFACE-WATER MEASURING POINT
PN PROCESS WELL
3 SHALLOW PIEZOMENTER
5 DEEP PIEZOMETER
SB1 SOIL BORING
NORTH
0'
200'
400
GRAPHIC SCALE

EXHIBIT A2

PIEZOMETER DIMENSIONS, GROUNDWATER AND SURFACE-WATER ELEVATIONS

Piezometer	Total Depth (feet)	Screen Zone (feet)	Top of Casing Elev. (feet)	Depth to Water (feet)	Water Elevation (feet)
1	11.3	3.3-11.3	10.84	7.85	2.99
2	11.5	3.5-11.5	11.02	8.02	3.00
3	9.7	4.7- 9.7	9.86	6.86	3.00
4	11.4	3.4-11.4	10.04	6.85	3.19
5	11.2	3.2-11.2	10.65	7.64	3.01
6	8.0	3.0- 8.0	11.79	8.87	2.92
7	8.0	3.0- 8.0	9.03	6.06	2.97
8	7.9	2.9- 7.9	9.56	6.59	2.97
9	8.0	3.0- 8.0	9.69	6.74	2.95
10	8.0	3.0- 8.0	10.05	7.10	2.95
11	6.6	1.6- 6.6	8.11	5.06	3.05
12	7.0	2.0- 7.0	8.48	5.46	3.02
13	7.0	2.0- 7.0	8.41	5.38	3.03
14	7.0	2.0- 7.0	8.09	5.07	3.02
15	8.0	3.0- 8.0	11.93	9.31	2.62
16	8.0	3.0- 8.0	11.51	8.76	2.75
17	7.2	2.2- 7.2	12.13	9.17	2.96
18	11.0	3.0-11.0	12.43	9.44	2.99
19	8.0	3.0- 8.0	11.28	8.26	3.02
20	28.0	20.0-28.0	11.79	8.87	2.92
21	27.0	17.0-27.0	15.03	12.06	2.97
22	28.0	18.0-28.0	12.85	9.87	2.98

Surface Water Measuring Point	Measuring Point Elevation (feet)	Depth to Water (feet)	Water Elevation (feet)
SW1	9.29	0.13	9.16
SW2	10.11	1.60	8.51
SW3	5.56	2.67	2.89
SW4	9.68	0.87	8.81
SW5	9.20	1.72	7.48
SW6	11.95	1.34	10.61
SW7	9.20	6.03	3.17
SW8	7.39	4.38	3.01
SW9	6.00	2.88	3.12

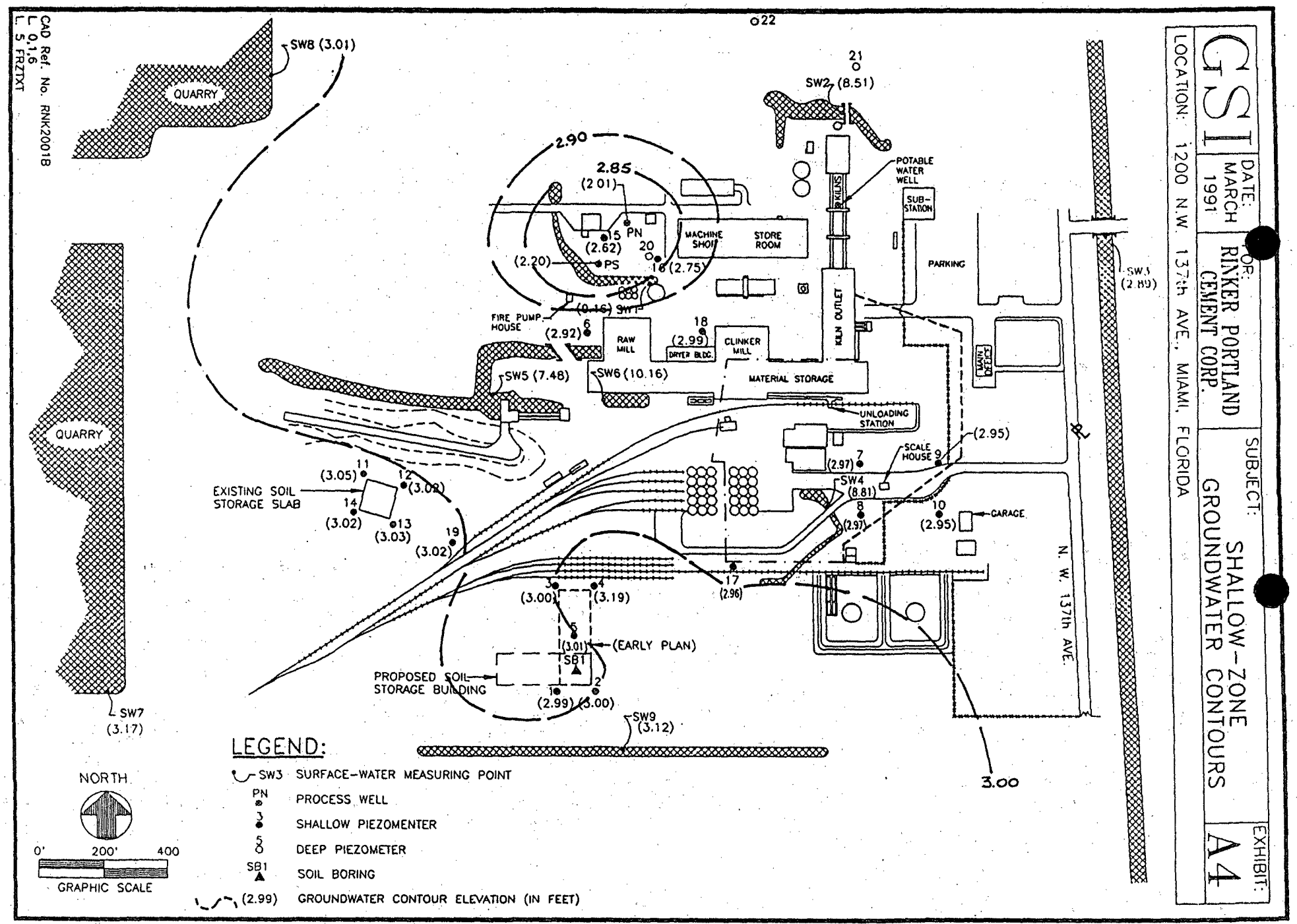
Notes: The tops of casings range from 0.0 to 3.0 feet above grade. All elevations are referenced to mean sea level. The total depths and screen zones are referenced to grade. All piezometers are constructed of 2-inch diameter PVC. Date of measurements was March 25, 1991.

EXHIBIT A3

SURFACE-WATER MEASUREMENT POINTS
AND DESCRIPTION OF SURFACE-WATER BODIES

Rinker Portland Cement Corp.

Number	Description
SW1	A soakage pond having a depth of about three feet in its southern reach and seven feet at the northern end. This pond receives about 0.5 million gallons per day of cooling water from the mills.
SW2	A soakage pond having a depth of three to six feet. This pond receives about 0.7 million gallons per day of cooling water from the kilns.
SW3	A regional, unnamed drainage canal, connected to the Tamiami Canal about two miles to the south, canal ranges in depth from three to probably ten feet.
SW4	A shallow soakage ditch, less than one foot in depth. This ditch contains exterior washing of cement dust from the exterior washing of outgoing cement-hauling trucks, not contaminated soils-hauling trucks.
SW5	A soakage pond having a depth from one to six feet. This pond receives about 0.5 million gallons per day of cooling water from the raw mill and crusher.
SW6	A holding pond about two feet deep. This empties to the water body described under SW5.
SW7	A quarry having an area of about 70 acres and a depth of 45 feet. This quarry is hydraulically connected to the water-table zone and the deep zone.
SW8	An active quarry having an area of about 200 acres and a depth of 50 feet. This quarry is hydraulically connected to the water-table zone and the deep zone.
SW9	An isolated canal having a maximum depth of about seven feet. This canal serves a drainage purpose only and by its apparent depth, does not penetrate the dense limestone.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L 0,1,6
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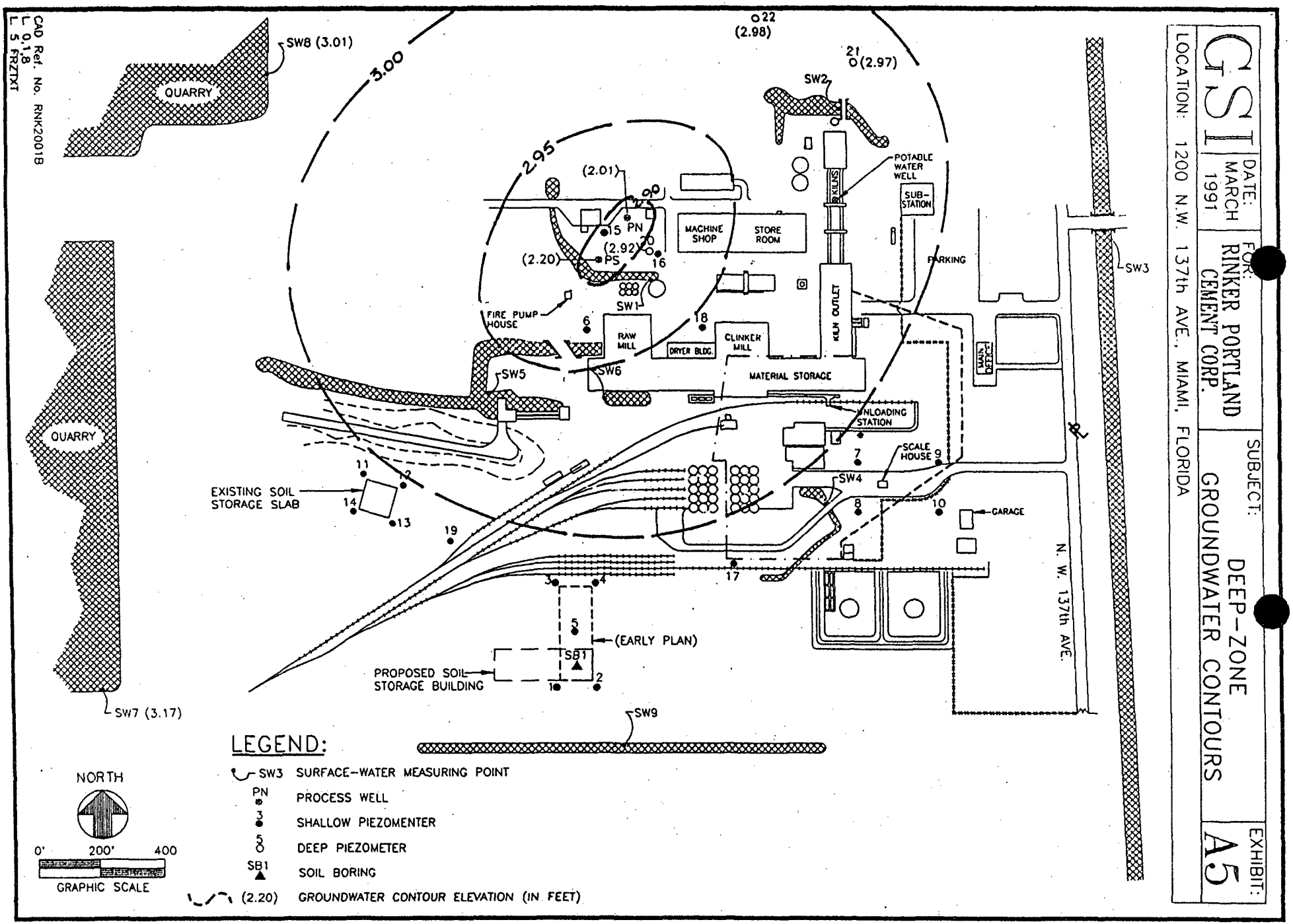
QUARRY
SW8 (3.01)
QUARRY
SW7
(3.17)
22
21
SW2 (8.51)
2.90
2.85
(2.01)
PN
(2.62)
20
(2.20)
PS
16 (2.75)
MACHINE SHOP
STORE ROOM
POTABLE WATER WELL
SUB-STATION
PARKING
SW3
(2.89)
KILN OUTLET
FIRE PUMP HOUSE
(2.92)
6
RAW MILL
18
(2.99)
DRYER BLDG.
CLINKER MILL
SW5 (7.48)
SW6 (10.16)
MATERIAL STORAGE
UNLOADING STATION
(2.95)
SCALE HOUSE
7
(2.97)
9
SW4
(8.81)
8
(2.97)
10
(2.95)
GARAGE
EXISTING SOIL STORAGE SLAB
11
(3.05)
12
(3.02)
14
(3.02)
13
(3.03)
19
(3.02)
17
(2.96)
3
(3.00)
4
(3.19)
5
(3.01)
(EARLY PLAN)
SB1
PROPOSED SOIL STORAGE BUILDING
1
(2.99)
2
(3.00)
SW9
(3.12)
N. W. 137th AVE.
3.00
LEGEND:
SW3 SURFACE-WATER MEASURING POINT
PN PROCESS WELL
SHALLOW PIEZOMENTER
DEEP PIEZOMETER
SB1 SOIL BORING
(2.99) GROUNDWATER CONTOUR ELEVATION (IN FEET)
NORTH
0' 200' 400
GRAPHIC SCALE
GSI
DATE: MARCH 1991
FOR: RINKER PORTLAND CEMENT CORP.
SUBJECT: SHALLOW-ZONE GROUNDWATER CONTOURS
EXHIBIT: A4
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA



GSI

DATE: MARCH 1991

FOR: RINKER PORTLAND CEMENT CORP.

SUBJECT: DEEP-ZONE GROUNDWATER CONTOURS

EXHIBIT: A5

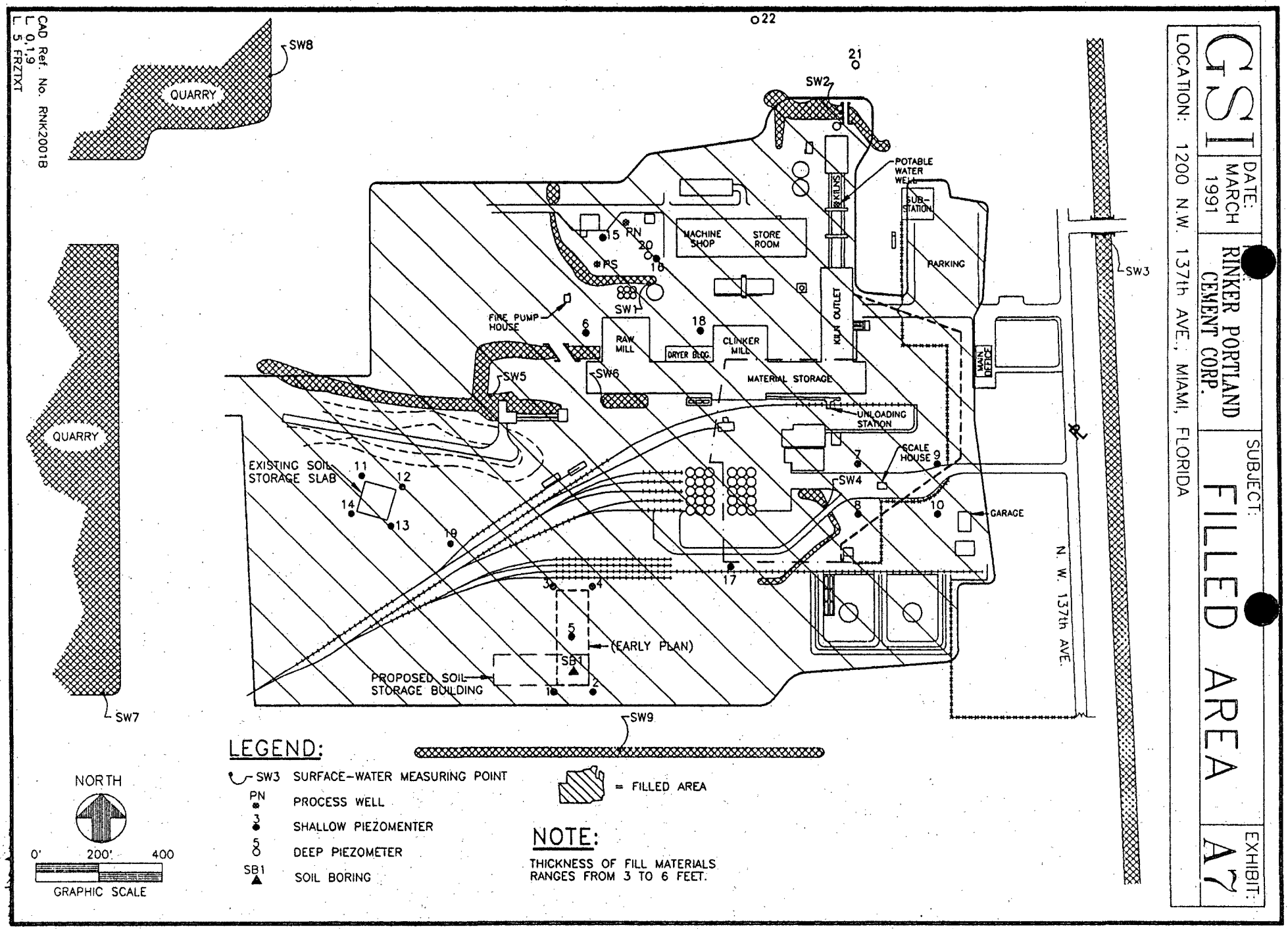
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA

EXHIBIT A6

SUMMARY OF ANALYSES - WELL 1

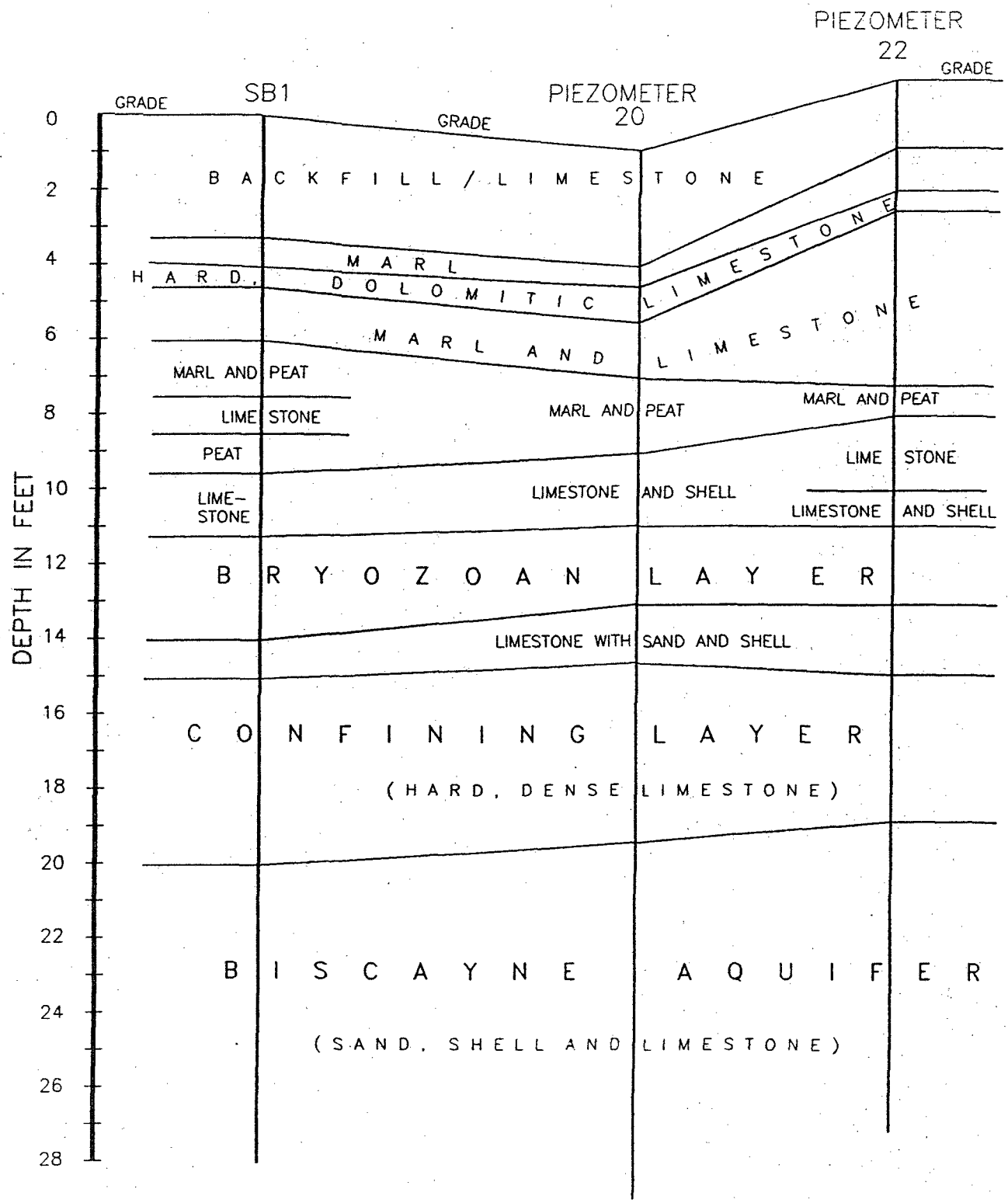
Parameter		Detection limit	Concentration
EPA Method 602 (in ppb)			
benzene		1	BDL
ethylbenzene		1	BDL
toluene		5	BDL
xylene		2	BDL
methyl-tertbutyl ether		5	BDL
EPA Method 610 (in ppb)			
acenaphthene		1	BDL
acenaphthylene		1	BDL
anthracene		1	BDL
benzo(A)anthracene		1	BDL
benzo(A)pyrene		1	BDL
benzo(B)fluoranthene		1	BDL
benzo(G,H,I)perylene		1	BDL
benzo(K)fluoranthene		1	BDL
chrysene		1	BDL
dibenzo(A,H)anthracene		1	BDL
fluoranthene		1	BDL
fluorene		1	BDL
indeno(1,2,3-CD)pyrene		1	BDL
naphthalene		1	BDL
phenanthrene		1	BDL
pyrene		1	BDL
1,methylnaphthalene		1	BDL
2,methylnaphthalene		1	BDL
TOTAL METALS (in ppm)			
arsenic	EPA 206.2	0.003	BDL
barium	EPA 200.7	0.10	BDL
cadmium	EPA 213.2	0.0002	BDL
chromium	EPA 200.7	0.01	0.06
lead	EPA 239.2	0.002	0.009
mercury	EPA 245.2	0.0002	0.0005
selenium	EPA 270.2	0.003	BDL
silver	EPA 271.2	0.0002	BDL

Note: BDL denotes below detection limit.


CAD Ref. No. RNK2001B
L 0,1,9
L 5 FRZTXT
GSI
DATE: MARCH 1991
RINKER PORTLAND CEMENT CORP.
SUBJECT: FILLED AREA
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA
EXHIBIT: A7
QUARRY
SW8
SW2
SW3
SW1
SW4
SW5
SW6
SW7
SW9
21
22
POTABLE WATER WELL
KILNS
SUB-STATION
MACHINE SHOP
STORE ROOM
PARKING
FIRE PUMP HOUSE
RAW MILL
DRYER BLDG.
CLINKER MILL
KILN OUTLET
MATERIAL STORAGE
UNLOADING STATION
SCALE HOUSE
GARAGE
EXISTING SOIL STORAGE SLAB
PROPOSED SOIL STORAGE BUILDING
(EARLY PLAN)
SB1
N. W. 137th AVE.
LEGEND:
SW3 SURFACE-WATER MEASURING POINT
PN PROCESS WELL
3 SHALLOW PIEZOMENTER
5 DEEP PIEZOMETER
SB1 SOIL BORING
= FILLED AREA
NOTE:
THICKNESS OF FILL MATERIALS RANGES FROM 3 TO 6 FEET.
NORTH
0' 200' 400
GRAPHIC SCALE

GSI	DATE: MARCH 1991	RINKER PORTLAND CEMENT CORP.	SUBJECT: STRATIGRAPHIC CROSS-SECTION	A8

LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA



CAD Ref. No. RNKSECTN
L 0,1,8

NOTE: DEPTHS ARE REFERENCED TO A COMMON DATUM.

EXHIBIT A9

SUMMARY OF PUMPING/RECOVERY
TEST DATA

Well/Piezometer Number	Distance from Well PN (feet)	Pumping Water Level (feet MSL)	Recovered Water Level (feet MSL)	Maximum Recovery (feet)
PN	0	2.01	2.93	0.92
PS	130	1.98	2.20	0.22
15	73	2.68	2.78	0.10
16	123	2.79	2.87	0.08
20	117	2.91	2.94	0.03

Note: The "pumping/recovery" test was conducted by shutting off Well PN for a period of 0.5 hours and measuring the groundwater level recovery in the wells listed above. Wells PN and PS run continuously at about 694 gpm each to provide process water to the Mill. The 0.5 hour period is about the maximum possible test period because of the demand for water in the Mill. Raw data from the test are provided in Appendix AD.

EXHIBIT A10

SUMMARY OF MONITORING SCHEDULE

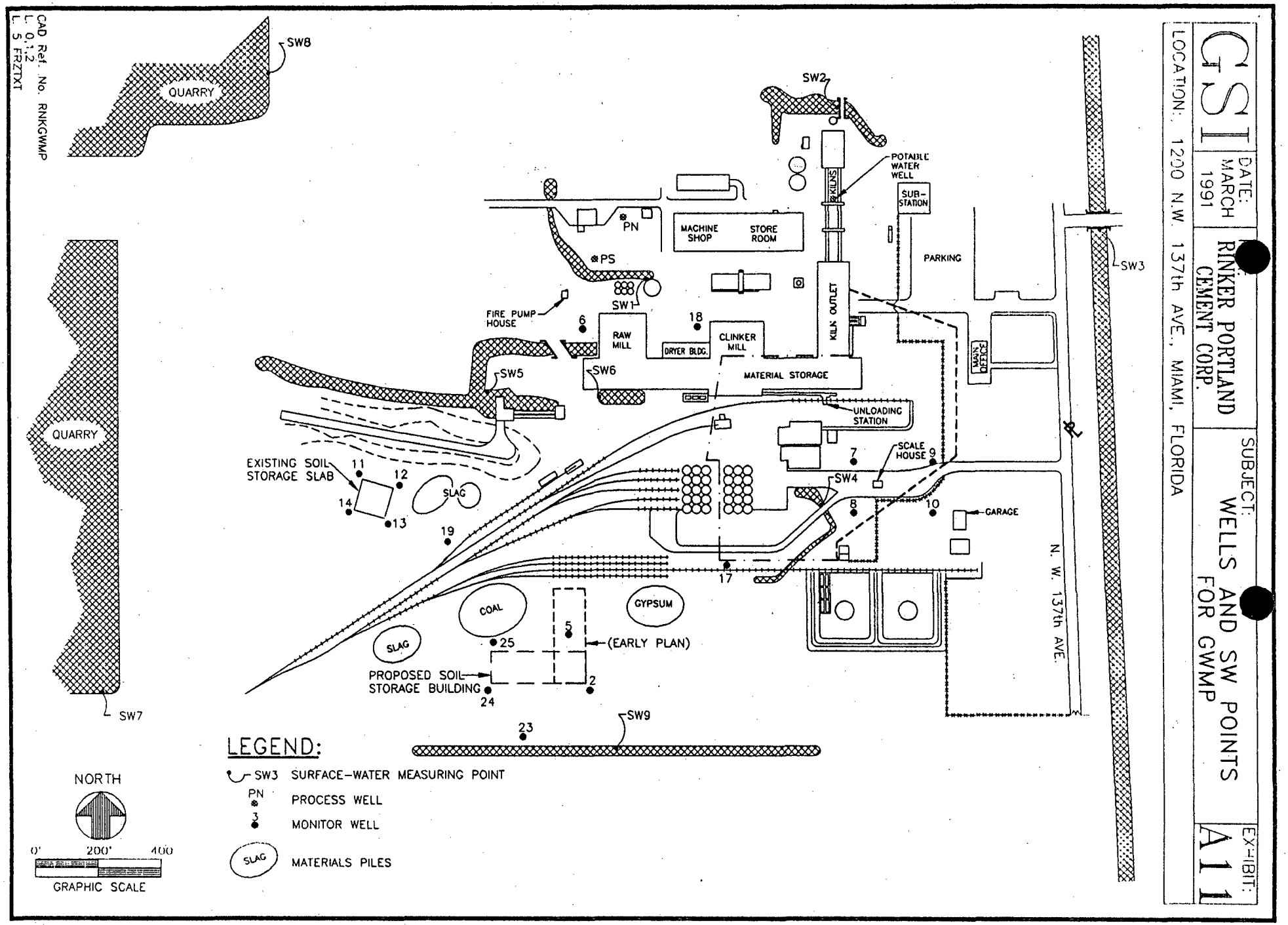
Phase II - With Existing Soil Storage Slab

Monitoring Point	Analyses	Water Levels
Well 6	X	X
Well 7	X	X
Well 8	X	X
Well 9	X	X
Well 10	X	X
Well 11	X	X
Well 12	X	X
Well 13	X	X
Well 14	X	X
Well 17		X
Well 18		X
Well 19		X
Well 23		X
SW 3		X
SW 7		X
SW 8		X
SW 9		X

Phase III - Upon Operation of Proposed Soil Storage Building

Monitoring Point	Analyses	Water Levels
Well 2	X	X
Well 5	X	X
Well 6	X	X
Well 7	X	X
Well 8	X	X
Well 9	X	X
Well 10	X	X
Well 11		X
Well 17		X
Well 18		X
Well 19		X
Well 23		X
Well 24	X	X
Well 25	X	X
SW 3		X
SW 7		X
SW 8		X
SW 9		X

Note: The transition from use of the existing to the proposed facilities is described in the text.


CAD Ref. No. RNKGWMP
L. 0,1,2
L. 5 FRZTXT
SW8
QUARRY
SW2
POTABLE WATER WELL
KILNS
SUB-STATION
PN
MACHINE SHOP
STORE ROOM
PARKING
SW3
PS
SW1
FIRE PUMP HOUSE
6
18
RAW MILL
DRYER BLDG.
CLINKER MILL
KILN OUTLET
SCALE HOUSE
SW5
SW6
MATERIAL STORAGE
UNLOADING STATION
QUARRY
EXISTING SOIL STORAGE SLAB
11
12
14
13
SLAG
19
7
SCALE HOUSE
9
SW4
8
10
GARAGE
N. W. 137th AVE.
17
COAL
GYPSUM
SLAG
5
25
(EARLY PLAN)
PROPOSED SOIL STORAGE BUILDING
24
2
SW7
23
SW9
LEGEND:
SW3 SURFACE-WATER MEASURING POINT
PN PROCESS WELL
3 MONITOR WELL
SLAG MATERIALS PILES
NORTH
0'
200'
400
GRAPHIC SCALE
GSI
DATE: MARCH 1991
RINKER PORTLAND CEMENT CORP.
SUBJECT: WELLS AND SW POINTS FOR GWMP
EXHIBIT: A11
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA

APPENDIX AA

FDER Letter of January 22, 1991

Florida Department of Environmental Regulation
Twin Towers Office Bldg. ○ 2600 Blair Stone Road ◎ Tallahassee, Florida 32399-2400
Lawton Chiles, Governor

January 22, 1991

Mr. Michael Vardeman
Rinker Portland Cement Corporation
1200 Northwest 137 Avenue
Miami, Florida 33182

Dear Mr. Vardeman:

The Bureau of Waste Cleanup has reviewed the Ground Water Monitoring Plan (GWMP) dated January 1991 (received January 17, 1992) for your stationary soil thermal treatment facility. We consider this to be a draft document because it was submitted prior to the submission of the NOTICE OF INTENT TO USE THE GENERAL PERMIT TO CONSTRUCT/OPERATE A SOIL THERMAL THREATMENT FACILITY (NOTICE). The following review comments should be addressed before submitting the notice and attachments to meet the requirements of Chapter 17-775.610, F.A.C.

This GWMP has been reviewed for compliance with only Chapter 17-775, F.A.C. While the desire to comply with Chapters 17-775 F.A.C., 17-762 , the IW-2 status, and the Dade County Northwest Wellfield Protection Plan requirements via one GWMP is understood, coordinating reviews between the State and local governments would be extremely difficult. Within FDER alone, Chapter 17-775, F.A.C. reviews will be conducted in Tallahassee, Chapter 17-762, F.A.C. reviews will probably be delegated to Dade County and the IW-2 status reviews will be done by the South East Florida District. When resubmitting with the NOTICE, please revise the plan to comply with Chapter 17-775, F.A.C. exclusively.

1) Install a sufficient number of piezometers/wells screened in the water table zone only to establish site groundwater flow patterns and to use for selecting monitor well locations. Incorporate surface water features into the elevation network. If the site flow directions are seasonally variable and nonuniform as believed by Dames and Moore, this entire network may also be needed for quarterly water elevation data. Provide construction details for the piezometers/wells.

2) Establish background groundwater quality for the GWMP. Any existing chemical data may be used from other permitted sites nearby or the ambient groundwater monitoring network.

3) On Figure 2, show all surface water features that are shown on Plate 1 (Dames & Moore 12/9/87) and Exhibit 1. How deep are the little lakes and the canal? Do they breach the dense limestone?

4) Identify the locations of well #100, well #200, the fire protection well (Is it at the fire pump house?), and the plant cooling water discharge pipe release point.

5) Provide at least three lithologic logs to establish the site stratigraphy.

6) Provide well construction details (example: annulus completion), lithologic logs and measured cones of depression for the process water wells.

7) Detail every movement and the onsite process of remediating the contaminated soils brought onsite. Address unloading/loading, storage of treated/untreated soils, weighing, and specific locations of all activities.

8) Is any response of the water table zone observed in the immediate vicinity of each process water well? Establish whether flow in the water table zone is totally independant of pumping the Biscayne process wells.

9) How deep did the trench extend for the underground pipeline and the W.I. pipe? Was the dense limestone unit breached during construction?

10) Did Dames & Moore excavate a pit around both process wells during the December 1987 Study? If so, how was well construction integrity restored? Please explain what was meant by "no cascading water into the well pits". Was the pit water elevation compared to the pumping well water elevation?

11) Propose an unaffected natural background well. Wells 1, 4, 6 and 7 are too close to potential sources to be used for this purpose.

12) Without the site specific flow information, review cannot be completed of the proposed monitor well locations. I concur with the proposed shallow construction (water table zone) for the potential source areas. Since the objective of this GWMP is to detect any discharge to groundwater, the proposed monitor wells will need to be located as close to the unit as possible on the downgradient side. Examples of potential sources are the truck scale, truck unloading pad, the proposed soils storage area(s), the oil line to the kiln (to increase BTUs?), the inlet and outlet and the pressure cleaning facility (to wash out trucks?).

13) Identify the specific analytical methods for metals to be used for every sampling event.

14) Describe well purging procedures. Will pH, specific conductivity, and temperature be monitored until stablized to document sufficient purging? Field parameters should be reported with the data.

15) Include provisions to establish the flow direction quarterly using a network of piezometers and monitor wells.

16) Provide a schedule for well installation, the first quarterly data collection event, and subsequent events.

17) Include provisions to submit the quarterly water quality and groundwater elevation to the Bureau of Waste Cleanup.

If you have any questions concerning this review or the soil thermal treatment rule, please contact me at (904) 488-0190.

Sincerely,

Zoe P. Kulakowski

Zoe P. Kulakowski, P.G.
Technical Review Section
Bureau of Waste Cleanup

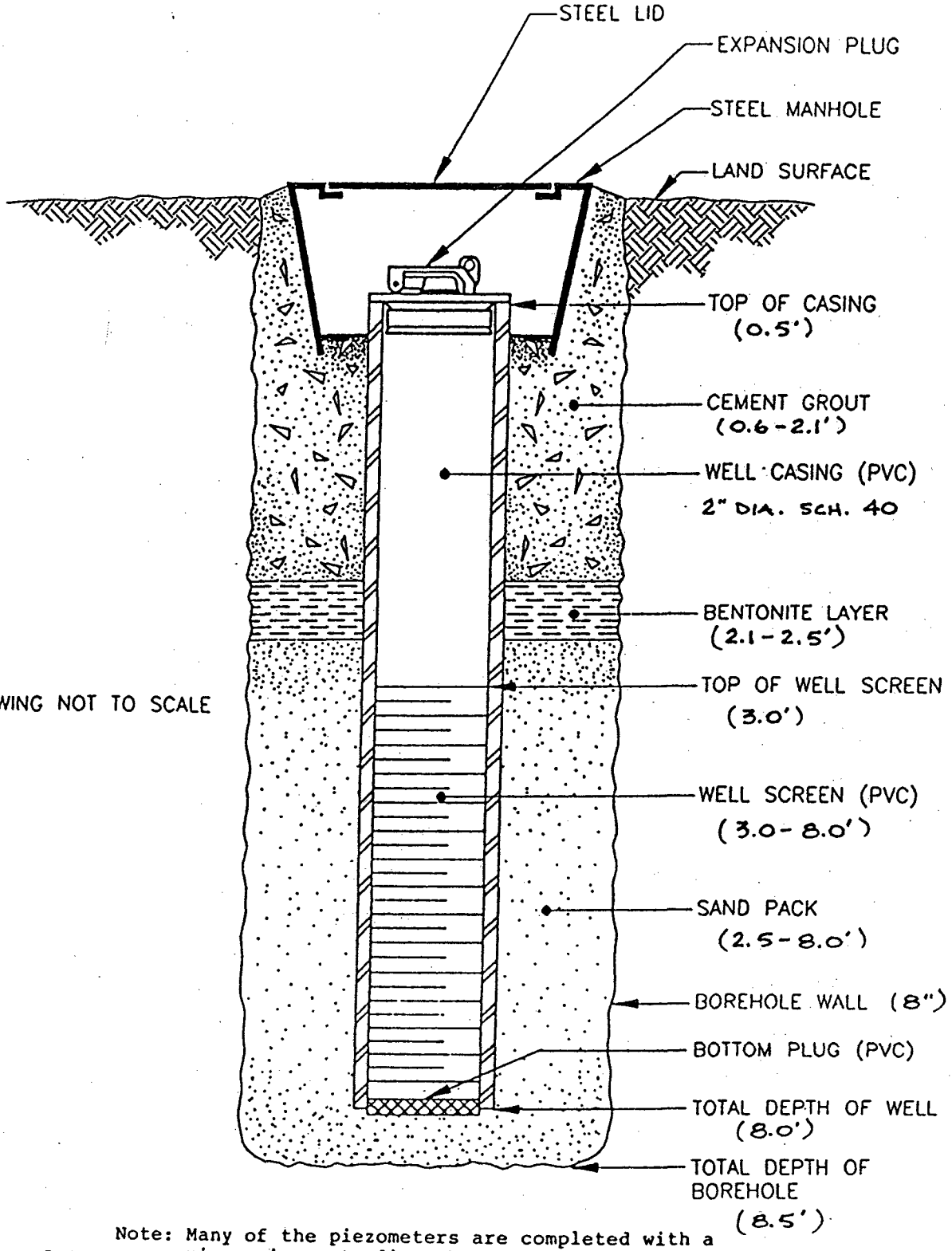
ZPK/sr

xc: Paul Wierzbicki, Southeast Florida District

APPENDIX AB

Typical Piezometer Diagrams

GSI	DATE: MARCH 1991	FOR: RINKER PORTLAND CEMENT CORP.	SUBJECT: TYPICAL SHALLOW-ZONE PIEZOMETER	AB
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA			FACILITY:	

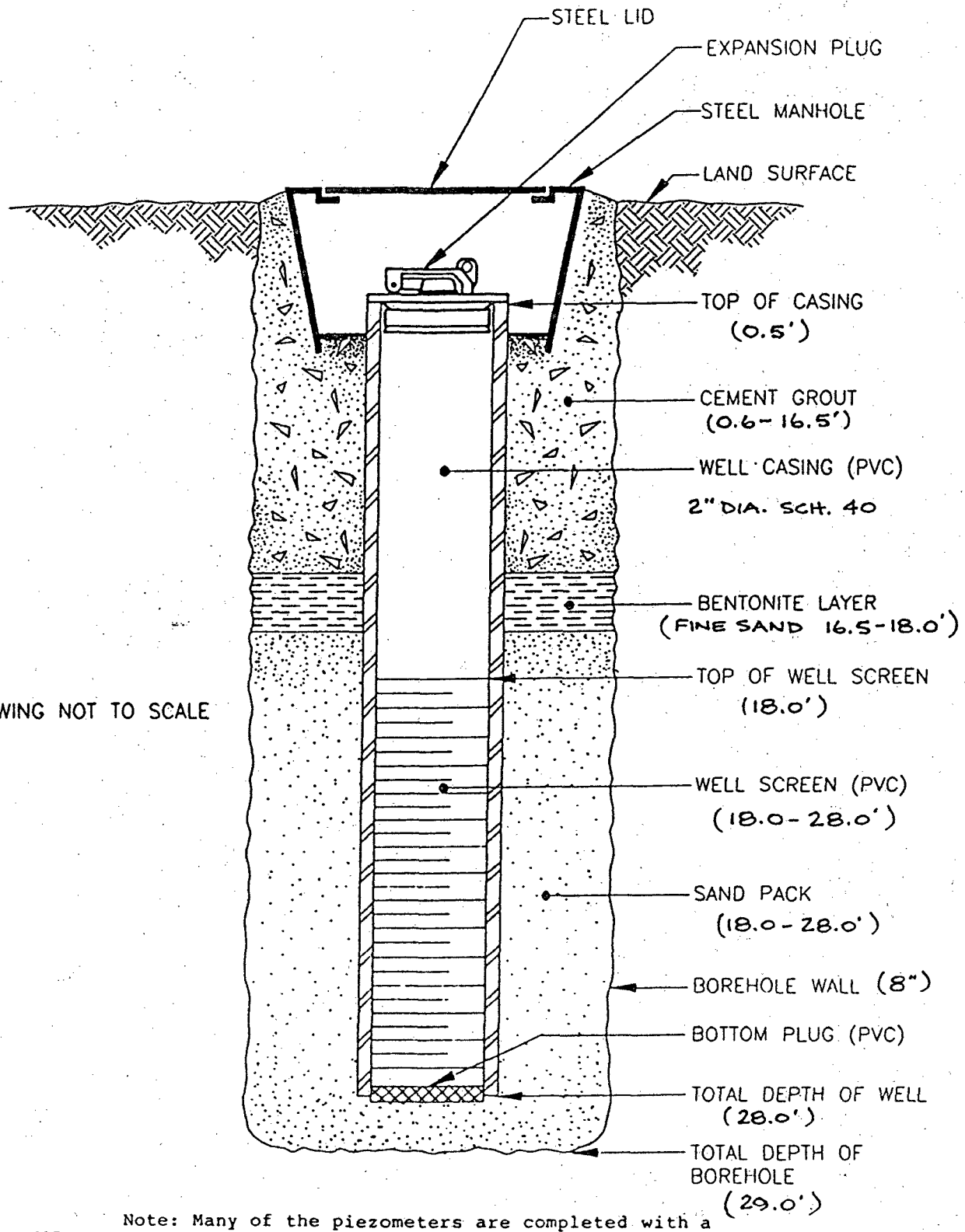


DRAWING NOT TO SCALE

Note: Many of the piezometers are completed with a riser pipe extending above grade. Subsurface portions were completed as shown.

CAD Ref. = GSITMW
L. O. 1
Plotting Scale: 1 = 1

GSI	DATE: MARCH 1991	FOR: RINKER PORTLAND CEMENT CORP.	SUBJECT: TYPICAL DEEP-ZONE PIEZOMETER	AB
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA			FACILITY:	



DRAWING NOT TO SCALE

Note: Many of the piezometers are completed with a riser pipe extending above grade. Subsurface portions were completed as shown.

CAD Ref. = GSITMW
L. O. 1
Plotting Scale: 1 = 1

APPENDIX AC

Reports of Analyses

Note: The concentration of chromium on the analysis that follows (0.06 ppm) may have resulted from the natural background content of the limestone (aquifer). Natural concentrations of chromium in the limestone matrix have been detected near 10 ppm by Rinker's lab and other laboratories in the past. In order to establish the validity of the analysis reported herein, another sample will be drawn from Piezometer 1 during the week of April 15, 1991. The result will be submitted to the FDER within three weeks of sampling.

Analytical Technologies, Inc.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

GROUNDWATER SPECIALIST
3003 SOUTH CONGRESS AVE.
SUITE 1C
PALM SPRINGS FL 33461-0000

Lab I.D.#: 91-2054
Order Number: P41115
Order Date: 03/23/91
Client: 07058
Sampled By: GREG SOUCY
Sample Date: 03/22/91
Sample Time: VARIOUS

Project Number: RNK2002
Project Name: RINKER CEMENT MILL
Sample Site: MIAMI, FL
Sample Type: GROUNDWATER

N/S = Not Submitted

Lab ID	Sample ID	Parameter		Units	Results	Detection Limit
2054-1	38-AC22	SILVER	272.2	PPM	BDL	0.0002
2054-1	38-AC22	ARSENIC	206.2	PPM	BDL	0.003
2054-1	38-AC22	BARIUM	200.7	PPM	BDL	0.10
2054-1	38-AC22	CADMIUM	213.2	PPM	BDL	0.0002
2054-1	38-AC22	CHROMIUM	200.7	PPM	0.06	0.01
2054-1	38-AC22	MERCURY	245.2	PPM	0.0005	0.0002
2054-1	38-AC22	LEAD	239.2	PPM	0.009	0.002
2054-1	38-AC22	SELENIUM	270.2	PPM	BDL	0.003

Comments: PPM = Parts Per Million, mg/l. PPB = Parts Per Billion, ug/l.
Method References: EPA 600/4-79-020, Revised March 1983 and Federal Register 40 CFR Part 136, July 1, 1988. BDL = Below Detection Limits.

Approved By : Susan Lambert

Analytical Technologies, Inc.
11 EAST OLIVE ROAD
PENSACOLA, FLORIDA 32514
PHONE (904) 474-1001

Client: GROUNDWATER SPECIALIST

Project Number: RNK2002
Project Name: RINKER CEMENT MILL
Sample Site: MIAMI, FL
Sample Type: GROUNDWATER

Lab I.D.#: 91-2054-1
Order Date: 03/23/91
Sampled By: GREG SOUCY

Sample ID.: 38-AC22 Sample Date: 03/22/91 Time: VARIOUS

BETX+MTBE BETX + MTBE

Parameter	Units	Result	Detection Limit
BENZENE	PPB	BDL	1
ETHYL BENZENE	PPB	BDL	1
METHYL TERT-BUTYL ETHER	PPB	BDL	5
TOLUENE	PPB	BDL	5
XYLENE	PPB	BDL	2
TRIF-TOLUENE *SURR* LIMITS (70-130)	% REC	113	

Analytical Technologies, Inc.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Client: GROUNDWATER SPECIALIST

Project Number: RNK2002
Project Name: RINKER CEMENT MILL
Sample Site: MIAMI, FL
Sample Type: GROUNDWATER

Lab I.D.#: 91-2054-2
Order Date: 03/23/91
Sampled By: GREG SOUCY

Sample ID.: 38-RC22 Sample Date: 03/22/91 Time: VARIOUS

BETX+MTBE BETX + MTBE

Parameter	Units	Result	Detection Limit
BENZENE	PPB	BDL	1
ETHYL BENZENE	PPB	BDL	1
METHYL TERT-BUTYL ETHER	PPB	BDL	5
TOLUENE	PPB	BDL	5
XYLENE	PPB	BDL	2
TRIF-TOLUENE *SURR* LIMITS (70-130)	% REC	108	

Analytical Technologies, Inc.
11 EAST OLIVE ROAD PHONE (904) 474-1001
PENSACOLA, FLORIDA 32514

Client: GROUNDWATER SPECIALIST

Project Number: RNK2002
Project Name: RINKER CEMENT MILL
Sample Site: MIAMI, FL
Sample Type: GROUNDWATER

Lab I.D.#: 91-2054-1
Order Date: 03/23/91
Sampled By: GREG SOUCY

Sample ID.: 38-AC22 Sample Date: 03/22/91 Time: VARIOUS

1770/BASE/610 1770/BASE NEUTRALS/610

Parameter	Units	Result	Detection Limit
ACENAPHTHENE	PPB	BDL	1
ACENAPHTHYLENE	PPB	BDL	1
ANTHRACENE	PPB	BDL	1
BENZO(A)ANTHRACENE	PPB	BDL	1
BENZO(A)PYRENE	PPB	BDL	1
BENZO(B)FLUORANTHENE	PPB	BDL	1
BENZO(GHI)PERYLENE	PPB	BDL	1
BENZO(K)FLUORANTHENE	PPB	BDL	1
CHRYSENE	PPB	BDL	1
DIBENZO(A,H)ANTHRACENE	PPB	BDL	1
FLUORANTHENE	PPB	BDL	1
FLUORENE	PPB	BDL	1
INDENO(1,2,3-CD)PYRENE	PPB	BDL	1
NAPHTHALENE	PPB	BDL	1
PHENANTHRENE	PPB	BDL	1
PYRENE	PPB	BDL	1
1,METHYLNAPHTHALENE	PPB	BDL	1
2,METHYLNAPHTHALENE	PPB	BDL	1

end of report

APPENDIX AD

Results of Aquifer Tests

RESULTS OF PUMPING/RECOVERY TEST AND SLUG TESTS

On March 26, 1991, a 0.5 hour shut-down of Well PN (northern of two process wells) was effected. Water levels in Wells PN, PS, and Piezometers (also called wells) 15, 16 and 20 were measured during recovery and then drawdown as Well PN was restarted. Wells PN and PS pump 694 gpm each, on a continuous basis. A plan showing the well locations is included on page ADA in this appendix. An analysis of the data and conclusions on aquifer characteristics follow.

Time-recovery data from Wells PN, 15, 16 and 20 are shown on page ADB; plots are shown on page ADC. Based on recoveries measured in Wells 15 and 16 (shallow) and Well 20 (deep), it is clear that the shallow and deep zones are affected by pumping/recovery of Well PN (and PS). A cross section showing the depths of penetration of these wells is included on page ADD (Well PS is identical to Well PN). This diagram shows Wells 15, 16 and 20 as if they were in the same direction from Well PN. Well PN is shown to penetrate about six feet of saturated shallow zone and less than two feet of the deep zone. As determined during the construction of Well 20, about four feet of the saturated shallow zone (between depths of 10 and 14 feet) consists of the bryozoan layer and sandy, shelly limestone of the Miami formation; this lies immediately above the hard, dense limestone confining bed, and is known to be a permeable horizon.

Using the recovery data from the test, the total transmissivity of both zones was determined, then the transmissivity of each zone was estimated. The total transmissivity was determined using the Theis Equation (Walton, 1970, Groundwater Resource Evaluation, McGraw Hill), where:

(1) $s = 114.6\ QW(u)/T$ and
(2) $u = 1.87\ rrS/Tt$

The known (or estimated) parameters are:

s = drawdown/recovery (at t=25 minutes) = 0.92 feet
Q = total pumping rate yielding the recovery = 694 gpm
r = well radius, taken to be 10 feet
S = storage coefficient = 0.20
t = time of recovery = 0.0173 days = 25 minutes

The unknown parameters are T, W(u) and u. The two equations (1 and 2) were subtracted to eliminate T and the unique points in the well function where W(u) and u fit the equation were determined. The results were:

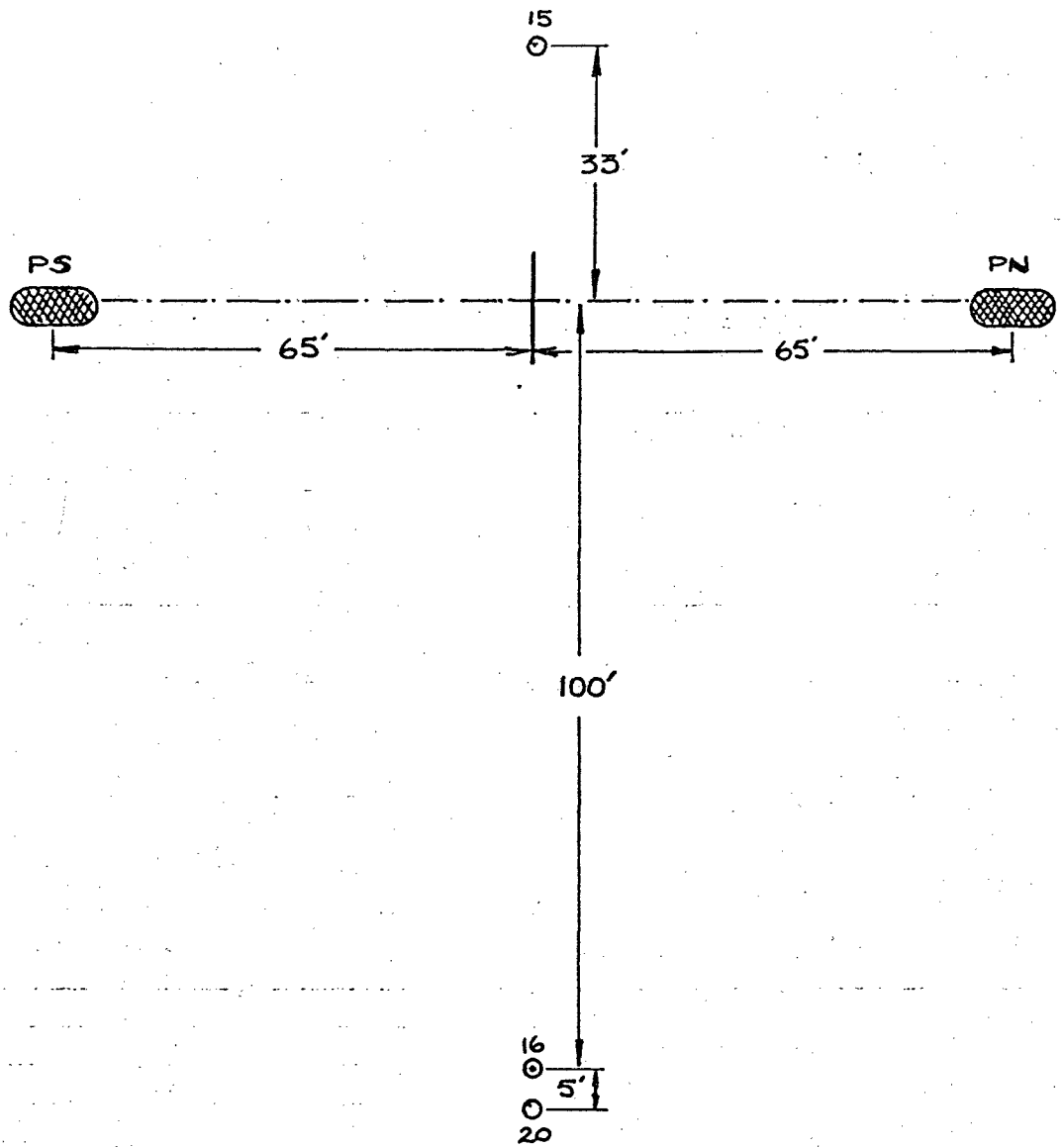
W(u) = 7.41
u = 3.4 X 10EE-4

T was then solved to be 646,000 gpd/ft. This figure matches well with that reported by Dames and Moore in the GWMP of January, 1991. The transmissivity of the shallow and deep zones were then estimated on the basis of the time-recovery drawdowns. At the end of 30 minutes of recovery, the total recoveries in Wells 16 and 20 (equidistant from Well PN) were 0.080 and 0.027 feet. As the transmissivity of each zone is inversely proportional to the drawdown, and transmissivities are additive, the ratio of the shallow zone transmissivity to the total transmissivity is 0.027/(0.027+0.080), or 0.252. Thus the transmissivity of the shallow zone is estimated to be 163,000 gpd/ft and that of the deep zone is 483,000 gpd/ft. These estimates are quite reasonable in light of the small penetration of the deep zone by Well PN and the known high permeability of the bryozoan layer of the shallow zone in more eastern parts of Dade County. The relative flatness of the shallow water levels also indicates the relatively high permeability of the bryozoan layer.

In addition to the test conducted on Well PN, six slug tests were conducted on shallow piezometers. The results of four of the tests are shown on pages ADE through ADL. The tests yielding the highest and lowest hydraulic conductivities were rejected as anomalous. The average of the hydraulic conductivities determined was 12.5 gpd/sq.ft. The average transmissivity determined was 87.5 gpd/ft. These values are very much lower than determined during the recovery test of Well PN because the piezometers tap only the sediments above the bryozoan facies where the hydraulic conductivity is much lower than the bryozoan layer. Thus, the shallow zone is subdivided into two hydraulic units, one of very low permeability above a depth of about 10 feet and another of high permeability approximately between 10 and 14 feet in depth in the area of Piezometer 20.

It is evident from the shallow groundwater levels and surface-water levels that the cooling water ponds have little effect on groundwater levels. Water seeped from these ponds is theorized to enter the bryozoan layer and then flow laterally to the process wells and/or the canal on the east of the property. Because of the high permeability of the bryozoan layer, water entering this layer would not show a significant mounding effect.

LOCATIONS OF WELLS USED IN RECOVERY TEST



LEGEND:

- O SHALLOW-ZONE PIEZOMETER
- ⊙ DEEP-ZONE PIEZOMETER
- PROCESS WELL

N

GSI PUMPING TEST FORM — HYDROCARBON CA PROJECTS

PROJECT RINKER 2002 PUMPING WELL _____ DATE ____ PAGE 1 OF 2

3-26-91

WELL NUMBER PN						WELL NUMBER PS					
TIME	HELD	WET	DTW	S	Q AND COMMENTS	TIME	HELD	WET	DTW	S	Q AND COMMENTS
7:33	8.5	.55	7.95		STATIC	7:38	9.0	.72	8.28		STATIC
800	START TEST				PN TURNED OFF	800	START TEST				
8:01	8.5	1.15	7.35	0.6		8:00	8.9	.52	8.48	.20	
8:02	8.5	1.31	7.19	.76		8:14	9.0	.51	8.49	.21	RECOVERY
8:03	8.0	.88	7.12	.83		8:19	9.0	.51	8.49	.21	
8:05	8.0	.95	7.06	.90		8:25	9.0	.50	8.50	.22	
8:06	8.0	.97	7.03	.92		8:30	PUMP TURNED BACK ON				
8:07	8.0	.97	7.03	.92	RECOVERY	8:38	9.5	1.39	8.11	.17	
8:11	8.0	.97	7.03	.92		8:43	9.5	1.37	8.13	.15	
8:16	8.0	.97	7.03	.92		8:48	9.5	1.33	8.17	.11	
8:21	8.0	.97	7.03	.92		8:54	9.5	1.23	8.27	.01	DRAWDOWN
8:29	8.0	.97	7.03	.92		8:59	9.5	1.21	8.29	.0	
8:30	PUMP TURNED BACK ON "PN"										END TEST
8:31	8.5	1.42	7.08	.87							
8:32	8.5	1.32	7.08	.87							
8:33	8.5	1.25	7.25	.70							
8.33	8.5	1.19	7.31	.64							
8:34	8.5	1.15	7.35	.60							
8.35	8.5	1.12	7.38	.57							
8:36	8.6	1.10	7.40	.55	DRAWDOWN						
8:37	8.5	1.08	7.42	.53							
8:41	8.5	1.01	7.49	.46							
8:46	8.5	.93	7.57	.38							
8:51	8.5	.82	7.68	.27		WELL # 15 (0)					
8:56	8.5	.69	7.81	.14		7:35	10	.76	9.25		STATIC
9:02	8.6	.68	7.82	.13		8:00	START TEST				
					END TEST	8:03	10	.82	9.18	.07	
						8:08	10	.83	9.17	.08	
						8:13	10	.84	9.16	.09	RECOVERY
						8:18	10	.85	9.15	.10	
						8:23	10	.85	9.15	.10	
						8:30	TURN PUMP				BACK ON
						830	10	.86	9.14	.11	
						835	10.5	1.36	9.14	.11	
						8:40	10	.85	9.15	.10	
						8:47	10	.84	9.16	.09	
						8:52	10	.82	9.18	.07	DRAWDOWN
						8:58	10	80	9.20	.05	
						9:04	10	.79	9.21	.04	
						9:10	10	.77	9.23	.02	

GSI PUMPING TEST FORM — HYDROCARBON CA PROJECTS

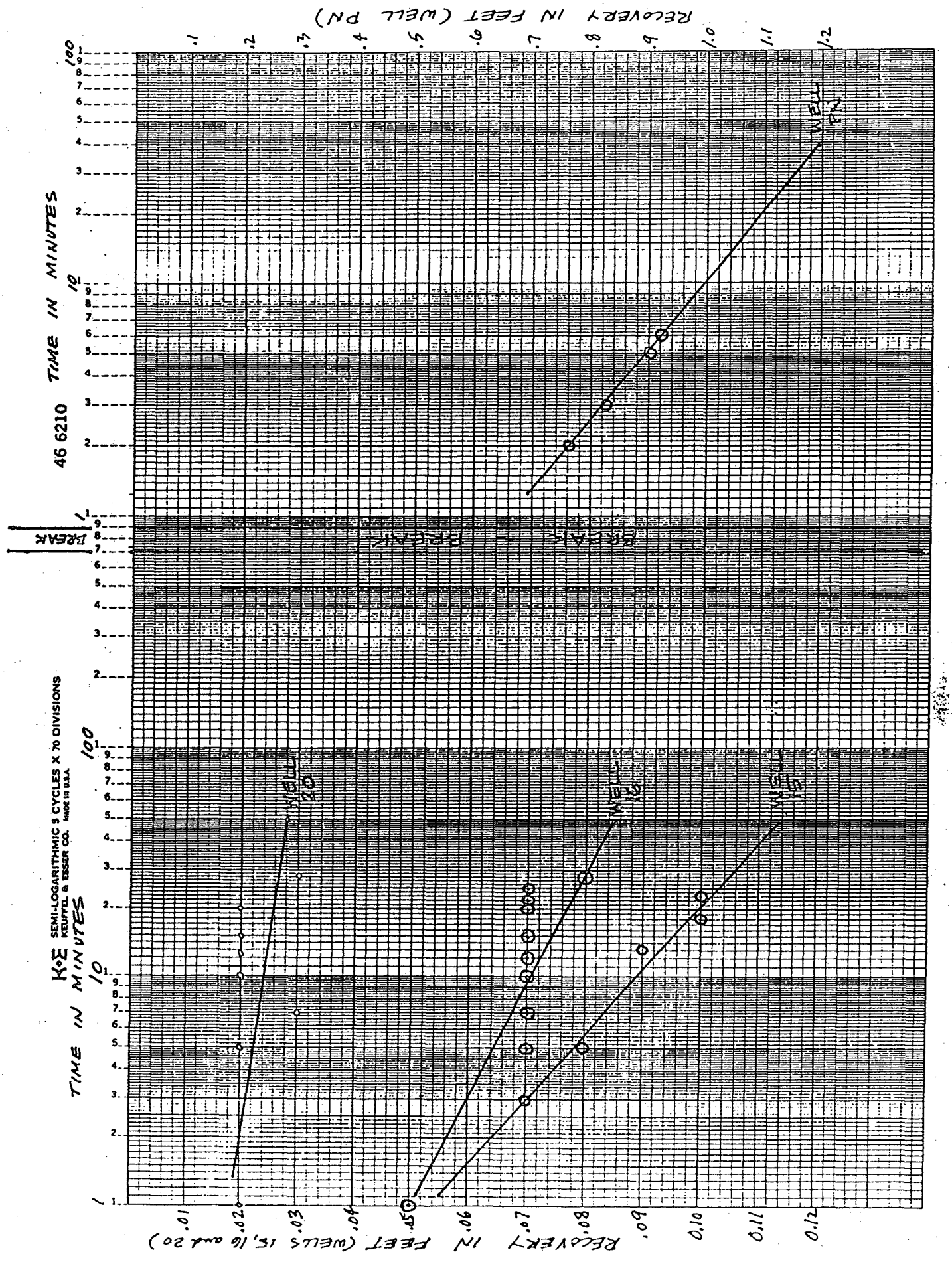
PROJECT RNK 2002 PUMPING WELL PS DATE ___ PAGE 2 OF 2

MEASURED w/"M" SCOPE 3.26.91

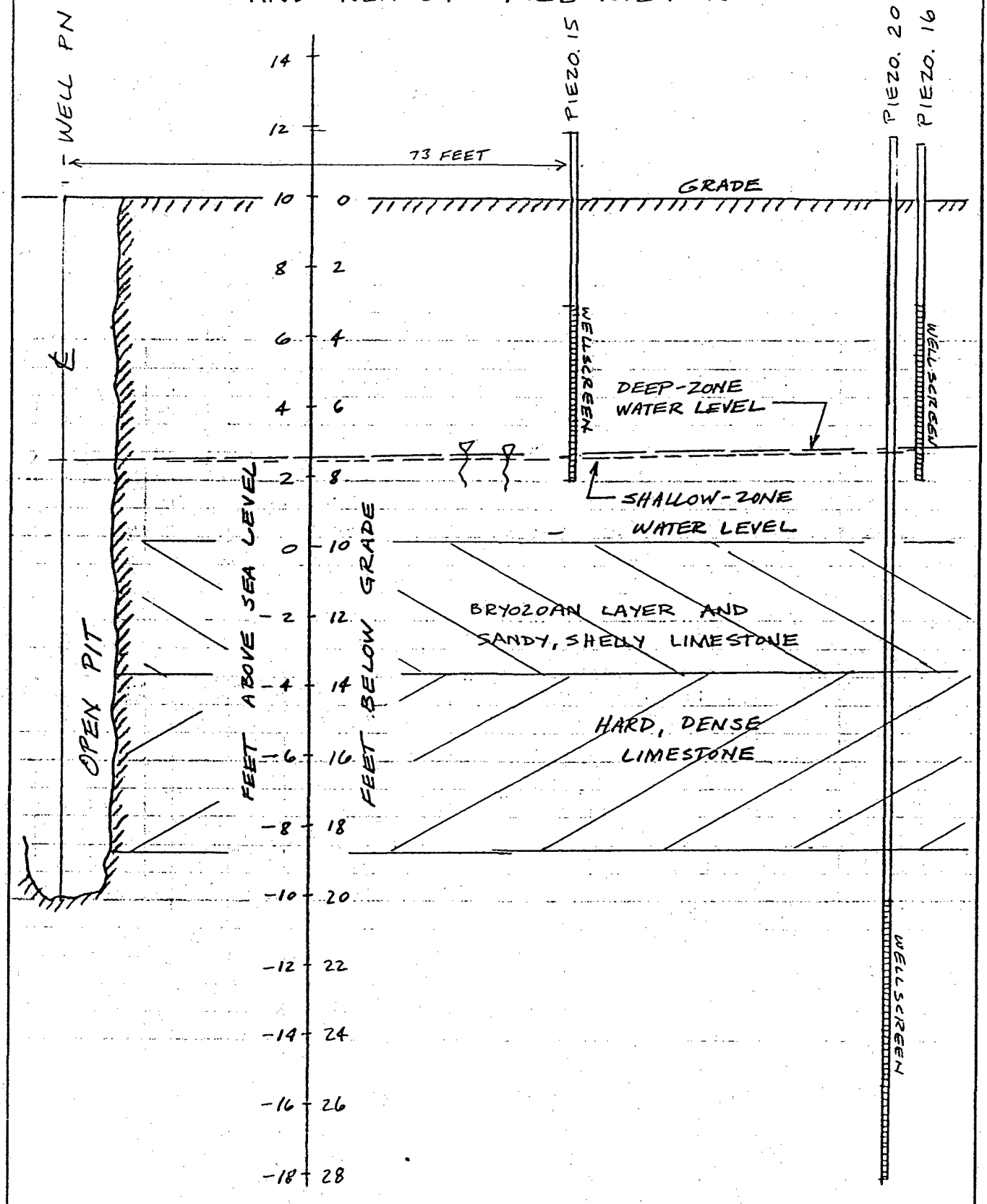
WELL NUMBER 20 (T) (DEEP)						WELL NUMBER 16 (TP) (SHALLOW)					
TIME	HELD	WET	DTW	S	Q AND COMMENTS	TIME	HELD	WET	DTW	S	Q AND COMMENTS
0741			8.88		BACKGROUND W.L.'s	0741			8.72		BACKGROUND W.L.'s
745			8.86		" "	0745			8.71		" "
0800	START TEST →				PN TURNED OFF	0800	START TEST				
801			8.86	0.02		801			8.67	0.05	
805			8.86	0.02		805			8.65	.07	
807			8.85	0.03	RECOVERY	807			8.65	.07	RECOVERY
810			8.86	0.02		810			8.65	.07	
8:12:30			8.86	0.02		8:12:30			8.65	.07	
815			8.86	0.02		815			8.65	.07	
820			8.86	0.02		820			8.65	.07	
8:22:30			8.86	0.02		8:22:30			8.65	.07	
825			8.86	0.02		825			8.65	.07	
828			8.85	0.03		828			8.64	.08	
830	PUMP "PN" TURNED BACK ON					830	PN TURNED ON				
831			8.87	0.01		831			8.68	.04	
835			8.87	0.01		835			8.68	.04	
840			8.87	0.01	DRAWDOWN	840			8.69	.03	DRAWDOWN
845			8.87	0.01		845			8.69	.03	
850			8.88	0		850			8.71	.01	
855			8.88	0		855			8.72	0	
900 AM			8.88	0		900			8.72	0	
	TEST COMPLETED						TEST COMPLETED				

NOTE: LINEAR DISTANCES MEASURED BETWEEN THE NORTH PROCESS WELL (PN) AND THE PIEZOMETERS USED IN THE PUMP TEST:

PN to #15 ≅ 73'
PN to #16 ≅ 123'
PN to #20 ≅ 119'


RECOVERY IN FEET (WELL PN)
TIME IN MINUTES
46 6210
BREAK
PREPARE
WELL PN
WELL
K+E SEMI-LOGARITHMIC 5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
TIME IN MINUTES
RECOVERY IN FEET (WELLS 15, 16 and 20)

CROSS SECTION SHOWING PUMPING WELL PN AND NEARBY PIEZOMETERS



NOTE: THIS CROSS SECTION SHOWS THE RELATIONSHIP AMOUNG WATER LEVELS IN THE SHALLOW AND DEEP ZONES, THE HARD, DENSE LIMESTONE, AND WELL PN - THE OPEN PIT WATER LEVEL REFLECT PUMPING

GROUNDWATER SPECIALISTS, INC

SLUG TEST ANALYSIS (by Bouwer, 1978, Groundwater Hydrology, McGraw-Hill)

WELL "R" (#18) RNK2002 DATE: MARCH 27, 1991

DEFINITIONS:

D	=	2	=	well diameter (inches)
BH	=	8	=	borehole diameter (inches)
Rl	=	0.08	=	radius of well (feet)
Rc	=	0.20833	=	radius of well section where water level is rising (feet)
Re	=		=	effective radial distance over which head difference (y) is dissipated (feet)
Rw	=	0.33	=	borehole radius (feet)
Le	=	7.20	=	length of saturated screen (feet)
yo	=	12.00	=	y intercept at time 0 (feet)
yt	=	0.62	=	y intercept at time t (feet)
t	=	605.00	=	time in seconds after start of test (seconds)
H	=	7.00	=	saturated thickness of aquifer (feet)
Lw	=	6.20	=	length from water table to bottom of wellscreen (feet)
A	=	2.00	=	dimensionless coefficient
B	=	0.60	=	dimensionless coefficient
C	=	1.40	=	dimensionless coefficient

EQUATIONS:

$$\ln(Re/Rw) = \frac{1}{\frac{1.1}{\ln(Lw/Rw)} + \frac{A + B \times \ln[(H-Lw)/Rw]}{(Le/Rw)}}$$

$$K = \frac{Rc \times Rc \times \ln(Re/Rw) \times (1/t) \times \ln(yo/yt)}{2 \times Le}$$

SOLUTIONS:

Le/Rw =	21.6		
Lw/Rw =	18.6		
H-Lw =	0.80		
Rc*Rc =	0.043		
2*Le =	14.4		
1/t =	0.002		
ln (yo/yt) =	3.0		
ln (Re/Rw) =	2.0		
ln [(H-Lw)/Rw] =	0.8	(if >6, then 6 is used in equation)	

K	=	0.00003	=	hydraulic conductivity (ft/second)
K	=	19	=	hydraulic conductivity (gpd/sq ft)
T	=	135	=	transmissivity (gpd/ft)

GROUNDWATER SPECIALISTS, INC

SLUG TEST ANALYSIS (by Bouwer, 1978, Groundwater Hydrology, McGraw-Hill)

WELL "R" RNK2002 DATE: MARCH 27, 1991

DEFINITIONS:

D	=	2	=	well diameter (inches)
BH	=	8	=	borehole diameter (inches)
Rl	=	0.08	=	radius of well (feet)
Rc	=	0.20833	=	radius of well section where water level is rising (feet)
Re	=		=	effective radial distance over which head difference (y) is dissipated (feet)
Rw	=	0.33	=	borehole radius (feet)
Le	=	1.56	=	length of saturated screen (feet)
yo	=	12.00	=	y intercept at time 0 (feet)
yt	=	0.62	=	y intercept at time t (feet)
t	=	605.00	=	time in seconds after start of test (seconds)
H	=	7.00	=	saturated thickness of aquifer (feet)
Lw	=	1.56	=	length from water table to bottom of wellscreen (feet)
A	=	2.00	=	dimensionless coefficient
B	=	0.60	=	dimensionless coefficient
C	=	1.40	=	dimensionless coefficient

EQUATIONS:

$$\ln(Re/Rw) = \frac{1}{\frac{1.1}{\ln(Lw/Rw)} + \frac{A + B \times \ln[(H-Lw)/Rw]}{(Le/Rw)}}$$

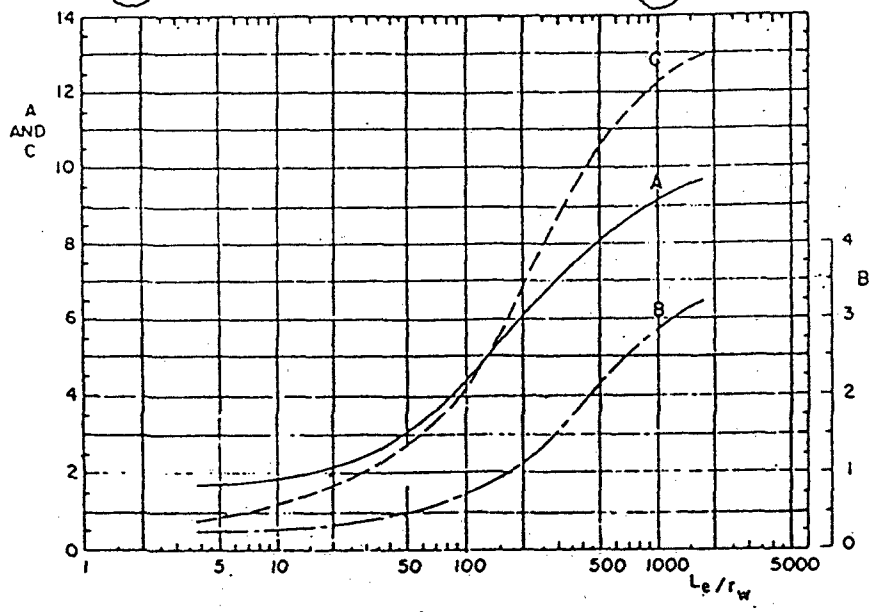
$$K = \frac{Rc \times Rc \times \ln(Re/Rw) \times (1/t) \times \ln(yo/yt)}{2 \times Le}$$

SOLUTIONS:

Le/Rw =	4.7	
Lw/Rw =	4.7	
H-Lw =	5.44	
Rc*Rc =	0.043	
2*Le =	3.12	
1/t =	0.002	
ln (yo/yt) =	3.0	
ln (Re/Rw) =	0.7	
ln [(H-Lw)/Rw]=	2.7	(if >6, then 6 is used in equation)

K	=	0.00005	=	hydraulic conductivity (ft/second)
K	=	29	=	hydraulic conductivity (gpd/sq ft)
T	=	206	=	transmissivity (gpd/ft)

Pg. ADF

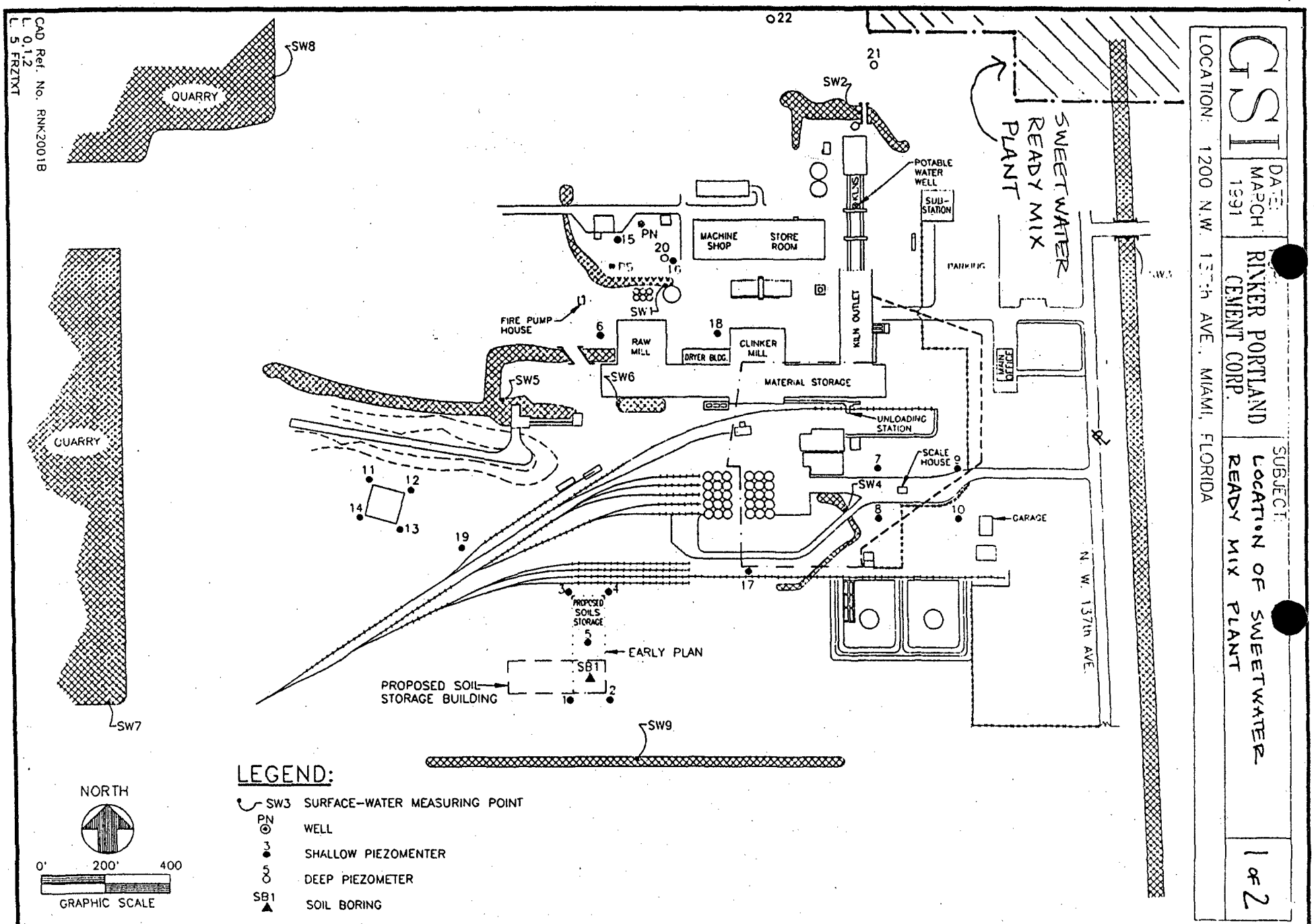


WELL 18

Figure 5.11 Curves relating coefficients A, B, and C to L_e/r_w.

Y_E IN FEET

TIME IN SECONDS


CAD Ref. No. RNK2001B
L. 0,1,2
L. 5 FRZTXT
GSI
DATE: MARCH 1991
RINKER PORTLAND CEMENT CORP.
SUBJECT: LOCATION OF SWEETWATER READY MIX PLANT
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA
1 of 2
SWEETWATER READY MIX PLANT
QUARRY
QUARRY
SW1
SW2
SW4
SW5
SW6
SW7
SW8
SW9
POTABLE WATER WELL
SUB-STATION
MACHINE SHOP
STORE ROOM
PARKING
FIRE PUMP HOUSE
RAW MILL
DRYER BLDG.
CLINKER MILL
KILN OUTLET
MATERIAL STORAGE
UNLOADING STATION
SCALE HOUSE
GARAGE
N.W. 137th AVE.
PROPOSED SOILS STORAGE
EARLY PLAN
PROPOSED SOIL STORAGE BUILDING
SB1
PN
LEGEND:
SW3 SURFACE-WATER MEASURING POINT
WELL
SHALLOW PIEZOMENTER
DEEP PIEZOMETER
SOIL BORING
NORTH
0' 200' 400
GRAPHIC SCALE

GROUNDWATER SPECIALISTS, INC

pg. ADG

SLUG TEST ANALYSIS (by Bouwer, 1978, Groundwater Hydrology, McGraw-Hill)

WELL "F" (#6) RNK2002 DATE: MARCH 27, 1991

DEFINITIONS:

D	=	2	=	well diameter (inches)
BH	=	8	=	borehole diameter (inches)
Rl	=	0.08	=	radius of well (feet)
Rc	=	0.20833	=	radius of well section where water level is rising (feet)
Re	=		=	effective radial distance over which head difference (y) is dissipated (feet)
Rw	=	0.33	=	borehole radius (feet)
Le	=	2.80	=	length of saturated screen (feet)
yo	=	1.05	=	y intercept at time 0 (feet)
yt	=	0.60	=	y intercept at time t (feet)
t	=	180.00	=	time in seconds after start of test (seconds)
H	=	7.00	=	saturated thickness of aquifer (feet)
Lw	=	2.80	=	length from water table to bottom of wellscreen (feet)
A	=	1.80	=	dimensionless coefficient
B	=	0.50	=	dimensionless coefficient
C	=	0.80	=	dimensionless coefficient

EQUATIONS:

$$\ln(Re/Rw) = \frac{1}{\frac{1.1}{\ln(Lw/Rw)} + \frac{A + B \times \ln[(H-Lw)/Rw]}{(Le/Rw)}}$$

$$K = \frac{Rc \times Rc \times \ln(Re/Rw) \times (1/t) \times \ln(yo/yt)}{2 \times Le}$$

SOLUTIONS:

Le/Rw =	8.4	
Lw/Rw =	8.4	
H-Lw =	4.20	
Rc*Rc =	0.043	
2*Le =	5.6	
1/t =	0.006	
ln (yo/yt) =	0.6	
ln (Re/Rw) =	1.1	
ln [(H-Lw)/Rw] =	2.5	(if >6, then 6 is used in equation)

K	=	0.00003	=	hydraulic conductivity (ft/second)
K	=	18	=	hydraulic conductivity (gpd/sq ft)
T	=	124	=	transmissivity (gpd/ft)

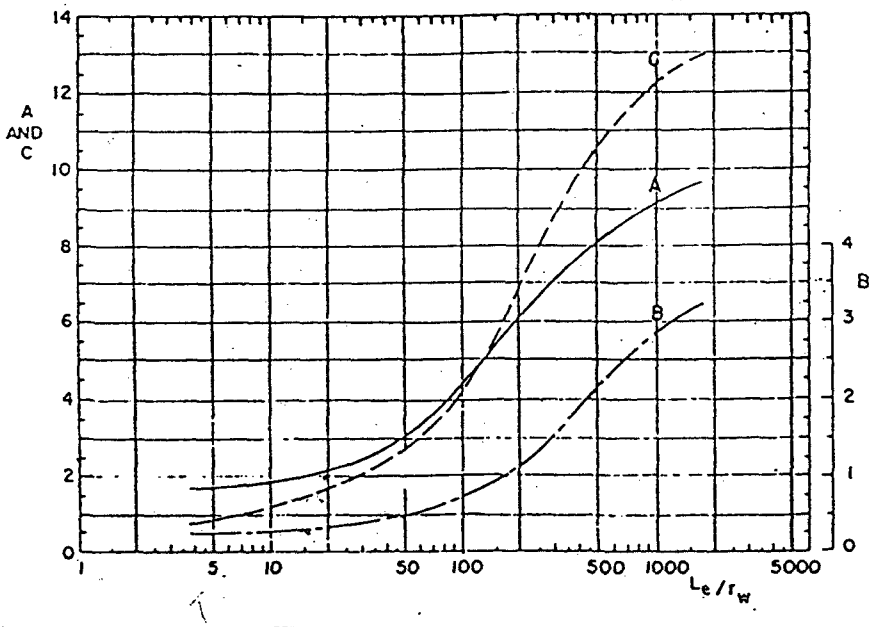
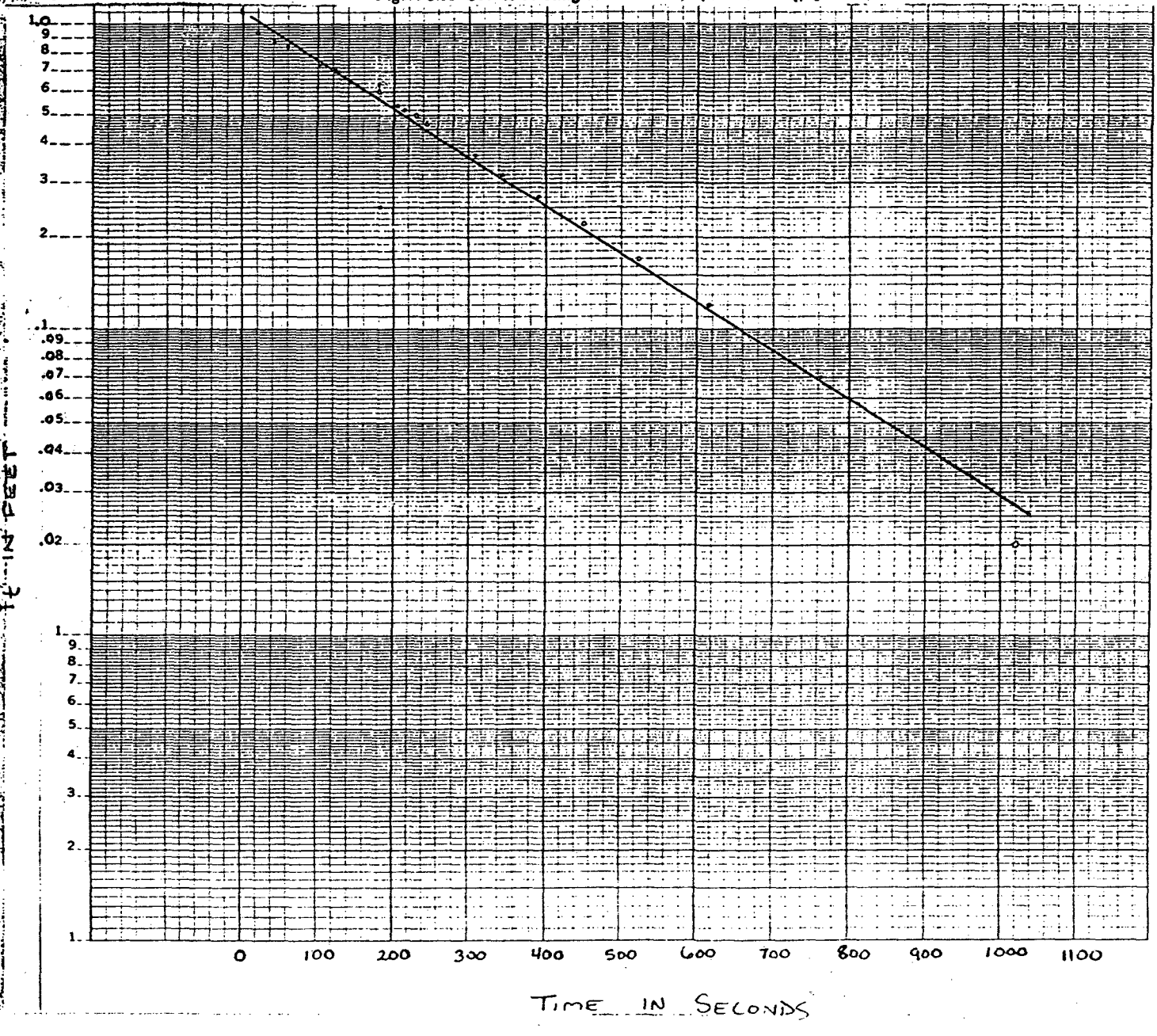


Figure 5.11 Curves relating coefficients A, B, and C to L_e/r_w.



GROUNDWATER SPECIALISTS, INC

SLUG TEST ANALYSIS (by Bouwer, 1978, Groundwater Hydrology, McGraw-Hill)

WELL "Q" (#17) RNK2002 DATE: MARCH 27, 1991

DEFINITIONS:

D	=	2	=	well diameter (inches)
BH	=	8	=	borehole diameter (inches)
RI	=	0.08	=	radius of well (feet)
Rc	=	0.20833	=	radius of well section where water level is rising (feet)
Re	=		=	effective radial distance over which head difference (y) is dissipated (feet)
Rw	=	0.33	=	borehole radius (feet)
Le	=	2.80	=	length of saturated screen (feet)
yo	=	2.21	=	y intercept at time 0 (feet)
yt	=	2.00	=	y intercept at time t (feet)
t	=	100.00	=	time in seconds after start of test (seconds)
H	=	9.20	=	saturated thickness of aquifer (feet)
Lw	=	2.80	=	length from water table to bottom of wellscreen (feet)
A	=	1.80	=	dimensionless coefficient
B	=	0.50	=	dimensionless coefficient
C	=	1.00	=	dimensionless coefficient

EQUATIONS:

$$\ln(Re/Rw) = \frac{1}{\frac{1.1}{\ln(Lw/Rw)} + \frac{A + B \times \ln[(H-Lw)/Rw]}{(Le/Rw)}}$$

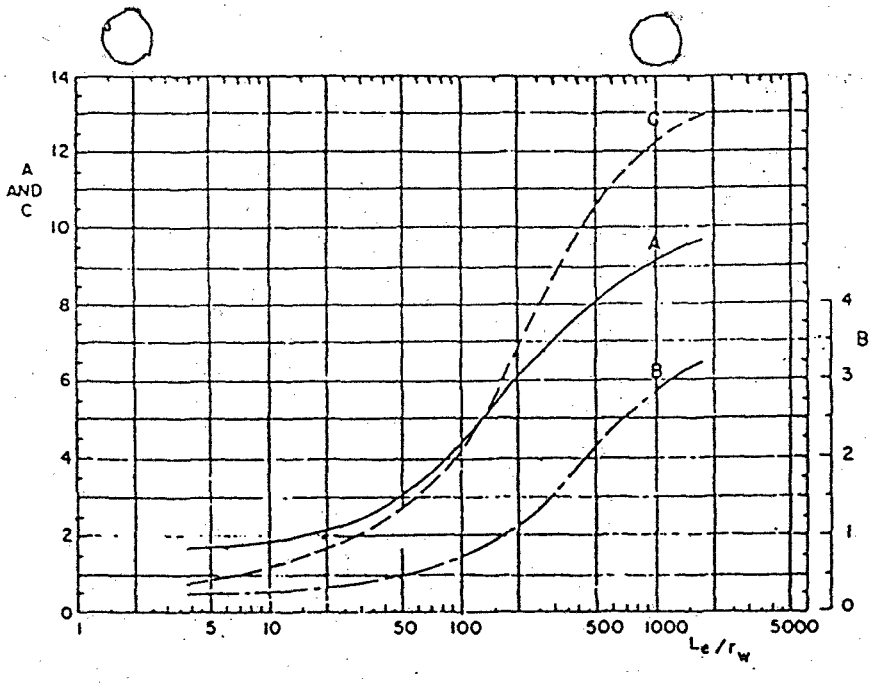
$$K = \frac{Rc \times Rc \times \ln(Re/Rw) \times (1/t) \times \ln(yo/yt)}{2 \times Le}$$

SOLUTIONS:

Le/Rw	=	8.4	
Lw/Rw	=	8.4	
H-Lw	=	6.40	
Rc*Rc	=	0.043	
2*Le	=	5.6	
1/t	=	0.010	
ln (yo/yt)	=	0.1	
ln (Re/Rw)	=	1.1	
ln [(H-Lw)/Rw]	=	2.9	(if >6, then 6 is used in equation)

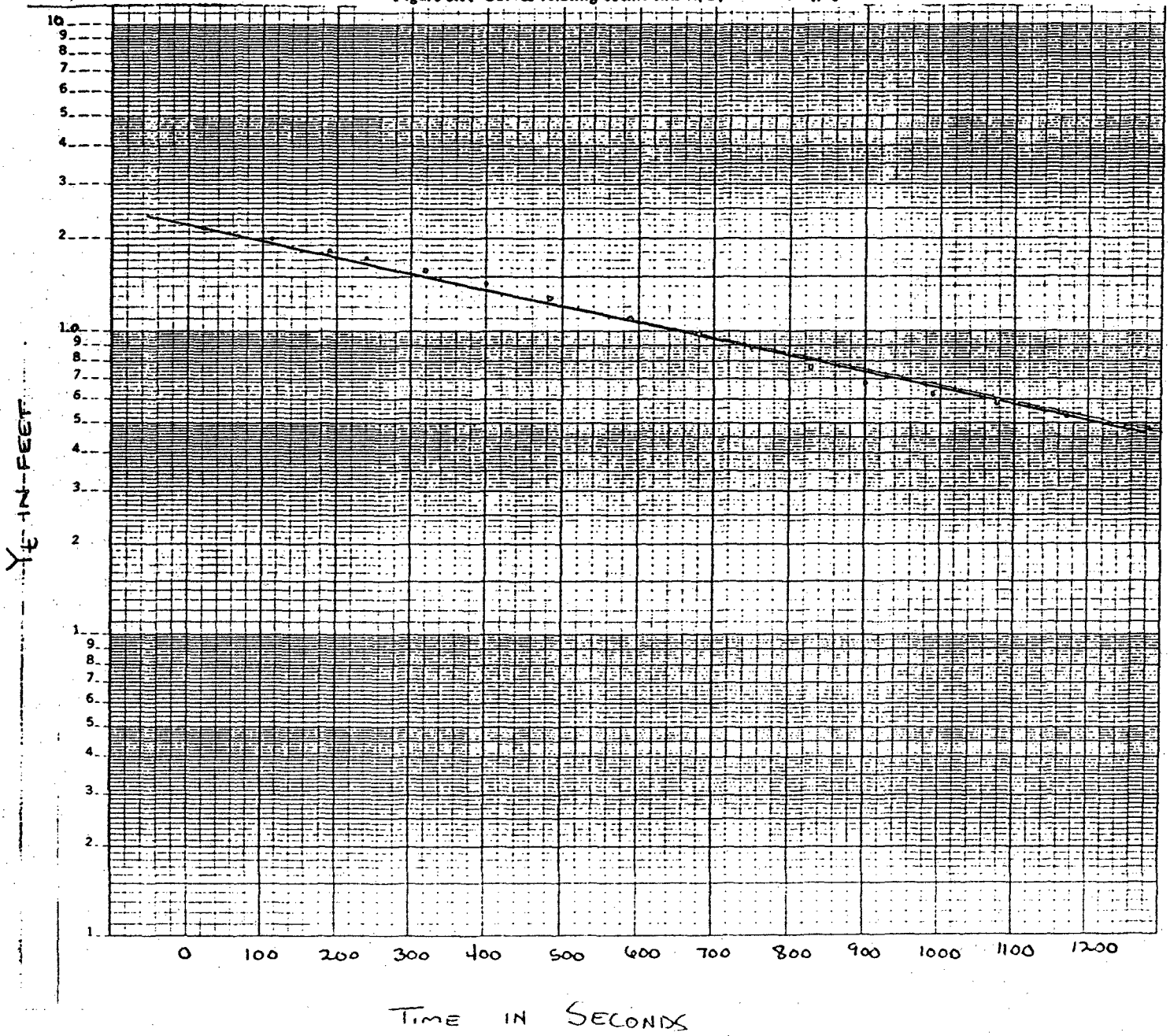
K	=	0.00001	=	hydraulic conductivity (ft/second)
K	=	6	=	hydraulic conductivity (gpd/sq ft)
T	=	51	=	transmissivity (gpd/ft)

pg. ADJ



WELL 17

Figure 5.11 Curves relating coefficients A, B, and C to L_e/r_w.



GROUNDWATER SPECIALISTS, INC

pg. ADK

SLUG TEST ANALYSIS (by Bouwer, 1978, Groundwater Hydrology, McGraw-Hill)

WELL "E" RNK2002 DATE: MARCH 27, 1991

DEFINITIONS:

D	=	2	=	well diameter (inches)
BH	=	8	=	borehole diameter (inches)
Rl	=	0.08	=	radius of well (feet)
Rc	=	0.20833	=	radius of well section where water level is rising (feet)
Re	=		=	effective radial distance over which head difference (y) is dissipated (feet)
Rw	=	0.33	=	borehole radius (feet)
Le	=	6.80	=	length of saturated screen (feet)
yo	=	0.07	=	y intercept at time 0 (feet)
yt	=	0.06	=	y intercept at time t (feet)
t	=	122.00	=	time in seconds after start of test (seconds)
H	=	7.20	=	saturated thickness of aquifer (feet)
Lw	=	6.80	=	length from water table to bottom of wellscreen (feet)
A	=	2.00	=	dimensionless coefficient
B	=	0.60	=	dimensionless coefficient
C	=	1.40	=	dimensionless coefficient

EQUATIONS:

$$\ln(Re/Rw) = \frac{1}{\frac{1.1}{\ln(Lw/Rw)} + \frac{A + B \times \ln[(H-Lw)/Rw]}{(Le/Rw)}}$$

$$K = \frac{Rc \times Rc \times \ln(Re/Rw) \times (1/t) \times \ln(yo/yt)}{2 \times Le}$$

SOLUTIONS:

Le/Rw =	20.4	
Lw/Rw =	20.4	
H-Lw =	0.40	
Rc*Rc =	0.043	
2*Le =	13.6	
1/t =	0.008	
ln (yo/yt) =	0.2	
ln (Re/Rw) =	2.1	
ln [(H-Lw)/Rw] =	0.1	(if >6, then 6 is used in equation)

K	=	0.00001	=	hydraulic conductivity (ft/second)
K	=	6	=	hydraulic conductivity (gpd/sq ft)
T	=	40	=	transmissivity (gpd/ft)

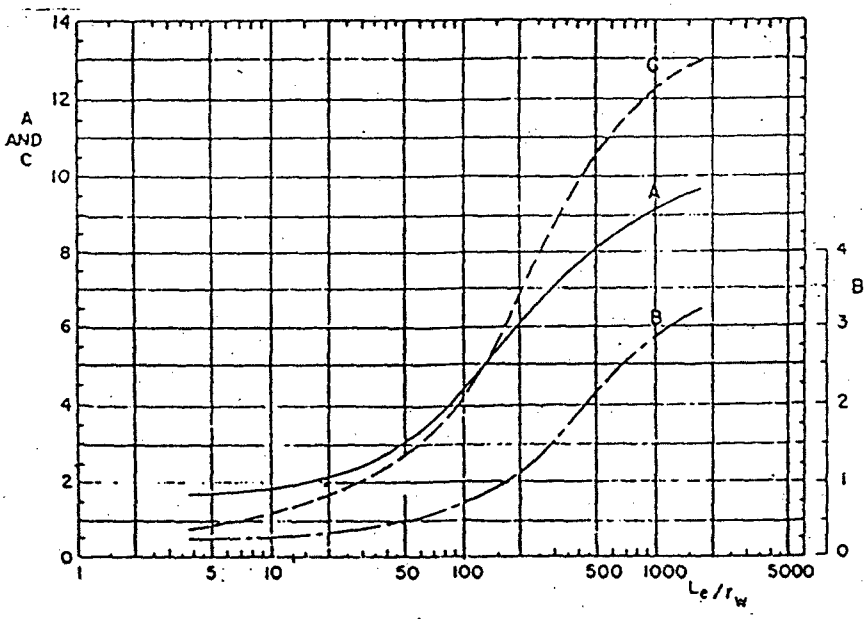
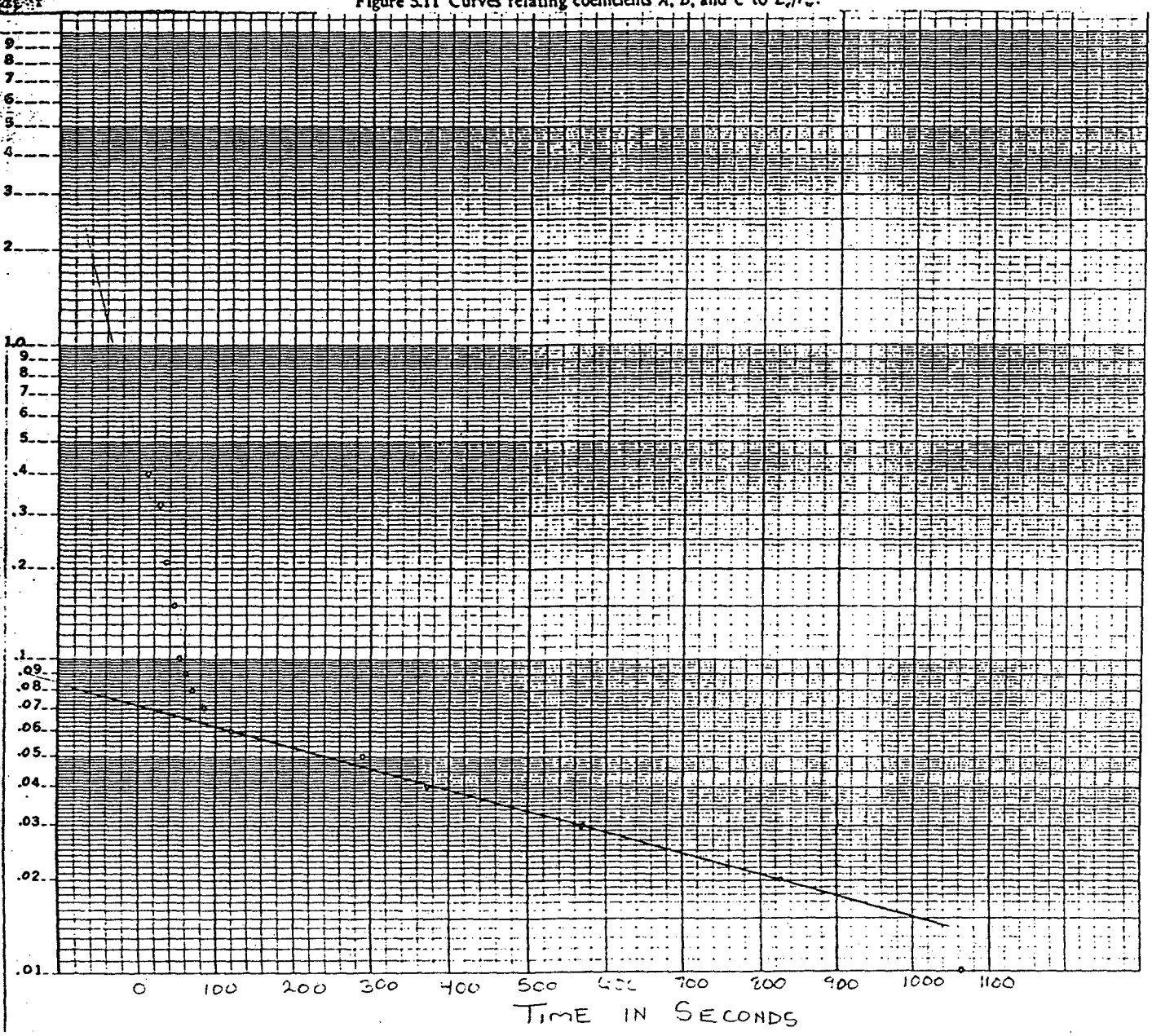
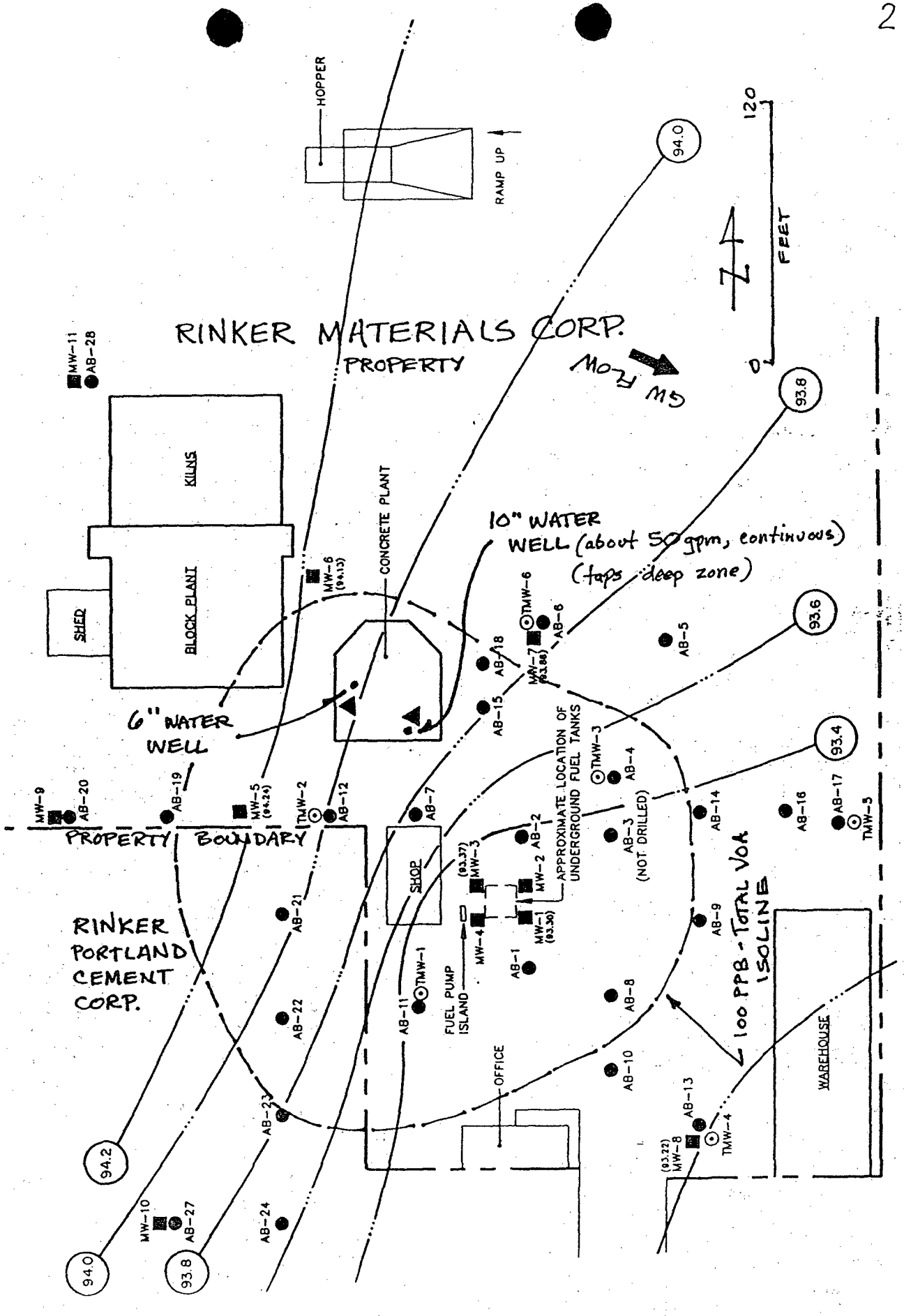


Figure 5.11 Curves relating coefficients A, B, and C to L_e/r_w.



APPENDIX AE

Data from Rinker's Sweetwater Ready Mix Plant



SWEETWATER READY MIX PLANT - SHOWING WELL LOCATIONS, GROUNDWATER CONTOURS (SHALLOW ZONE), HYDROCARBON PLUME, AND RELATIONSHIP TO RINKER PORTLAND CEMENT CORP.

APPENDIX AF

FDER Letters of QAP Approvals

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

October 29, 1990

William Kelly
Groundwater Specialists, Inc.
3003 South Congress Ave.
Suite 1C
Palm Springs, FL 33461

SUBJECT: Quality Assurance Review;880557G-Groundwater Specialists, Inc. Generic C QA Plan; Revision 10 to Approved Document;

Dear Mr. Kelly:

The amendments to your approved Generic QA Plan, received on September 26, 1990, have been reviewed and approved. The amendments have been incorporated into the document.

Your Generic (Comprehensive) QA Plan will need to be revised to comply with required information as outlined in the new Manual for Preparing QA Plans (DER-QA-001/90, sent under separate cover). These revisions need to be submitted as soon as possible after January 1, 1990. Although the new format is not required yet, it may be easier to revise your Generic (Comprehensive) QA Plan in the new format, since the required information is organized differently. We strongly suggest following the new format to allow for a smooth transition to current QA policies.

Your cooperation is appreciated in maintaining your QA Plan to reflect current field sampling operations and our QA requirements.

Sincerely,

Sylvia S. Labie, QA Officer
Quality Assurance Section

SSL/KNS/kns

cc: Kent Smith

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Dale Twachtmann, Secretary
Carol M. Browner, Secretary

January 22, 1991

Larry Korn
V.O.C. Analytical, Inc.
877 N.W. 61st Street
Ft. Lauderdale, Fl 33309

SUBJECT: Quality Assurance Review; V.O.C. Analytical, Inc.
Generic A QA Plan #900376G
Revision 1;

Dear Mr. Korn:

The subject document, received on January 11, 1991, has been reviewed and is approved-pending minor revisions for analytical work only. Before sampling activities, including field analytical work, can be performed appropriate revisions will have to be submitted and approved. Further detail on the status of this plan is explained in the enclosed guidance document (DER QAS #90-03) and enclosed review comments.

As further revisions are necessary, the revised pages must be resubmitted. If you have any questions concerning this matter, please call (904) 488-2796.

Sincerely,

for Sylvia S. Labie, QA Officer
Quality Assurance Section

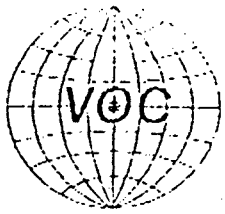
SSL/ART/art

Attachments (8): DER QAS #90-03 (Explanation of Status)
annotated QAP pages
review sheets
Section 6 of Rev 0 review comments
DER QAS #89-04, 89-06, 90-04 and 90-05

cc: Andrew R. Tintle

Recycled Paper

TOTAL P.02



ANALYTICAL

March 27, 1991

Dave Marple
Rinker Materials Corp.
P.O. Box 650679
Miami, Florida 33165

RE: V.O.C. Analytical Q.A. Plan # 900376G

Dear Mr. Marple:

Pursuant to our phone conversation the other day, I am enclosing a copy of the approval letter sent by the FDER.

V.O.C. Analytical's QA Plan was submitted in August of 1990 as a generic plan per Sylvia Labie's instructions. Since that time the requirements have changed in the QA department of the FDER. Therefore V.O.C. Analytical is revising section six which addresses sampling of different matrices and decontamination. This section will be approved officially within the next couple of weeks and we will forward a complete copy to you at that time.

In December of 1990 I spoke to Sylvia Labie about sampling prior to the official approval, and she told me that with documentation (EPA Region IV Sampling Protocol) V.O.C. Analytical can indeed sample all matrices.

Field personnel at V.O.C. Analytical have over five years of sampling experience and have in the past trained county employees in this discipline. All sampling protocol is followed to the letter and documented in field notebooks for regulatory review and admissible in a court of law. We would welcome an inspection of our facility in Fort Lauderdale by the State or County Regulatory Agencies at their convenience.

If you have any questions or need any additional information please call me at (305) 938-8823.

Sincerely,
V.O.C. ANALYTICAL, INC.

Lawrence J. Korn

rinkerqa

877 N.W. 61 Street, Suite 202 - Ft. Lauderdale, FL 33309 - (305) 938-8823 - Fax (305) 938-8900

GSI groundwater specialists, inc.

3003 South Congress Avenue, Suite 1C
Palm Springs, Florida 33461

TEL: 407/641-5353
FAX: 407/641-5282

April 12, 1991
RNK

Ms. Zoe Kulakowski
Florida DER
Bureau of Waste Cleanup
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32339-2400

Re: Supplements/Revisions to Addendum A, Groundwater Monitoring Plan of April 1991, Rinker Portland Cement Corp., Miami, Florida.

Dear Ms. Kulakowski:

Thank you for taking the time to discuss the referenced GWMP. As you stated in our telephone conversation this morning, you will approve the GWMP as supplemented with information in this letter. The following items provide that information as well as a revision of the slug test on Piezometer 18.

Item 1. Well 23 will be added to the list of wells for water quality monitoring. Please see the attached revision to Exhibit A10.

Item 2. The analytical methods to be used for the analyses of groundwater samples will include EPA Methods 602 and 610, in addition to those listed under Response 13 of the GWMP.

Item 3. As per our discussion, the slug test analysis for Piezometer 18 was revised. The revision is herewith enclosed. The revision results in a higher hydraulic conductivity and transmissivity. These higher figures cause higher averages for these parameters as follows:

Average Hydraulic Conductivity: 14.75 gpd/sq ft.
Average Transmissivity: 105.25 gpd/ft.

Please note that these figures apply to the uppermost portion of the shallow zone. Also, please not that Piezometers 2 and 19 were tested. Piezometer 2 produced

the lowest value and Piezometer 19, the highest value. These high and low values were rejected. Piezometer 1 also was tested but the results could not be analyzed.

Again, thank you for your careful review and timely attention to this matter.

Very truly yours,
GROUNDWATER SPECIALISTS, INC.

Paul G. Jakob, P.G.
President

PGJ/db
cc: Mr. Michael Vardeman, Rinker Portland Cement Corp.

EXHIBIT A10

SUMMARY OF MONITORING SCHEDULE

Phase II - With Existing Soil Storage Slab

Monitoring Point	Analyses	Water Levels
Well 6	X	X
Well 7	X	X
Well 8	X	X
Well 9	X	X
Well 10	X	X
Well 11	X	X
Well 12	X	X
Well 13	X	X
Well 14	X	X
Well 17		X
Well 18		X
Well 19		X
Well 23	X	X
SW 3		X
SW 7		X
SW 8		X
SW 9		X

Phase III - Upon Operation of Proposed Soil Storage Building

Monitoring Point	Analyses	Water Levels
Well 2	X	X
Well 5	X	X
Well 6	X	X
Well 7	X	X
Well 8	X	X
Well 9	X	X
Well 10	X	X
Well 11		X
Well 17		X
Well 18		X
Well 19		X
Well 23	X	X
Well 24	X	X
Well 25	X	X
SW 3		X
SW 7		X
SW 8		X
SW 9		X

Note: The transition from use of the existing to the proposed facilities is described in the text.

GROUNDWATER SPECIALISTS, INC

Pg. ADE

SLUG TEST ANALYSIS (by Bouwer, 1978, Groundwater Hydrology, McGraw-Hill)

WELL "R" (#18) RNK2002 DATE: MARCH 27, 1991

DEFINITIONS:

D	=	2	=	well diameter (inches)
BH	=	8	=	borehole diameter (inches)
Rl	=	0.08	=	radius of well (feet)
Rc	=	0.20833	=	radius of well section where water level is rising (feet)
Re	=		=	effective radial distance over which head difference (y) is dissipated (feet)
Rw	=	0.33	=	borehole radius (feet)
Le	=	1.56	=	length of saturated screen (feet)
yo	=	12.00	=	y intercept at time 0 (feet)
yt	=	0.62	=	y intercept at time t (feet)
t	=	605.00	=	time in seconds after start of test (seconds)
H	=	7.00	=	saturated thickness of aquifer (feet)
Lw	=	1.56	=	length from water table to bottom of wellscreen (feet)
A	=	2.00	=	dimensionless coefficient
B	=	0.60	=	dimensionless coefficient
C	=	1.40	=	dimensionless coefficient

EQUATIONS:

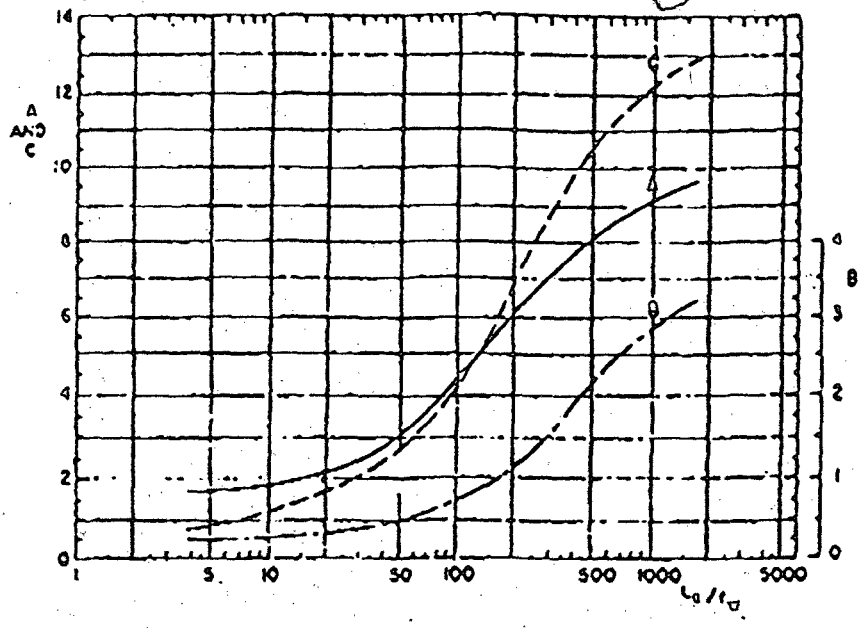
$$\ln(Re/Rw) = \frac{1}{\frac{1.1}{\ln(Lw/Rw)} + \frac{A + B \times \ln[(H-Lw)/Rw]}{(Le/Rw)}}$$

$$K = \frac{Rc \times Rc \times \ln(Re/Rw) \times (1/t) \times \ln(yo/yt)}{2 \times Le}$$

SOLUTIONS:

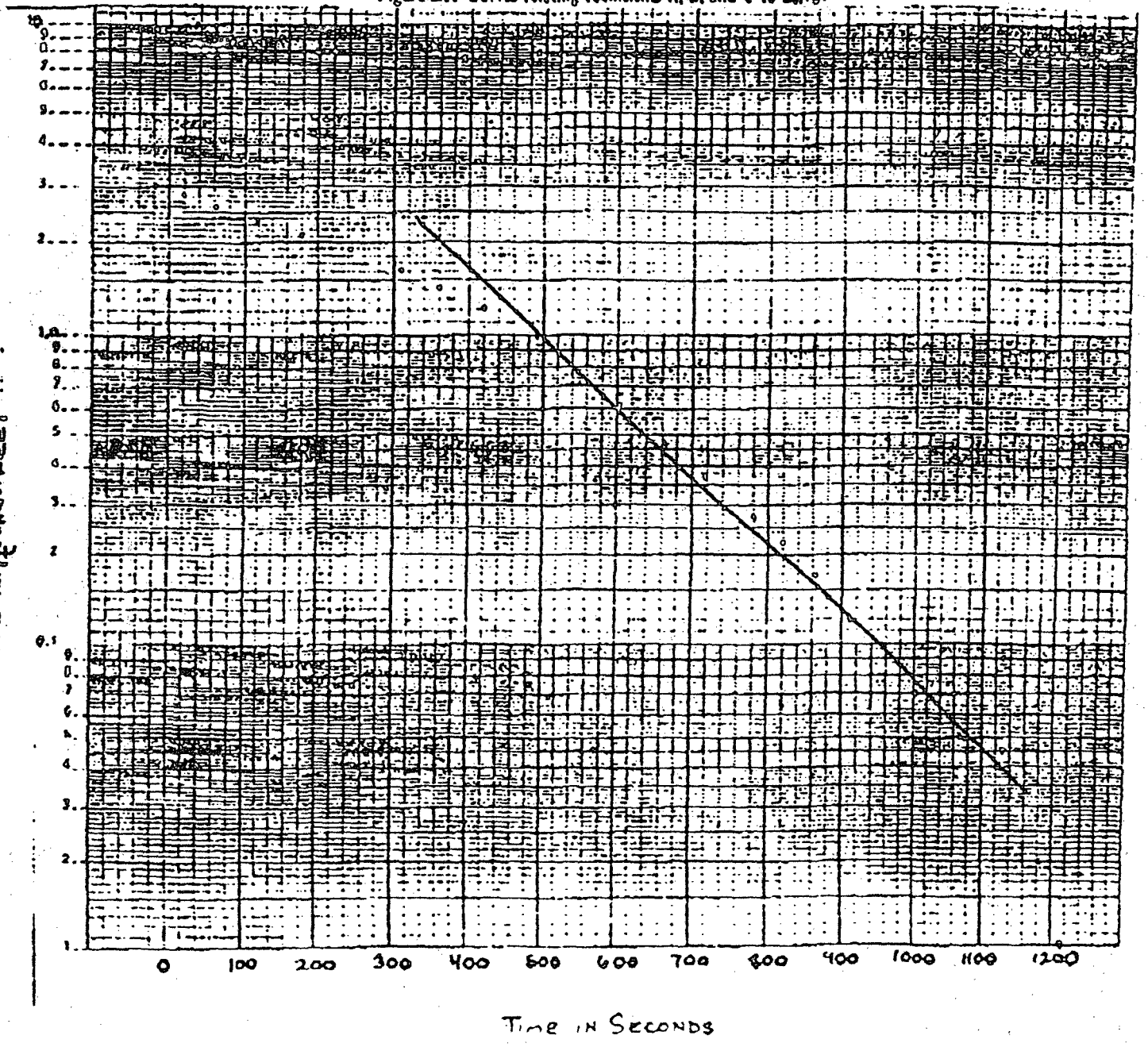
Le/Rw =	4.7		
Lw/Rw =	4.7		
H-Lw =	5.44		
Rc*Rc =	0.043		
2*Lc =	3.12		
1/t =	0.002		
ln (yo/yt) =	3.0		
ln (Re/Rw) =	0.7		
ln [(H-Lw)/Rw] =	2.7	(if >6, then 6 is used in equation)	

K	=	0.00005	=	hydraulic conductivity (ft/second)
K	=	29	=	hydraulic conductivity (gpd/sq ft)
T	=	206	=	transmissivity (gpd/ft)



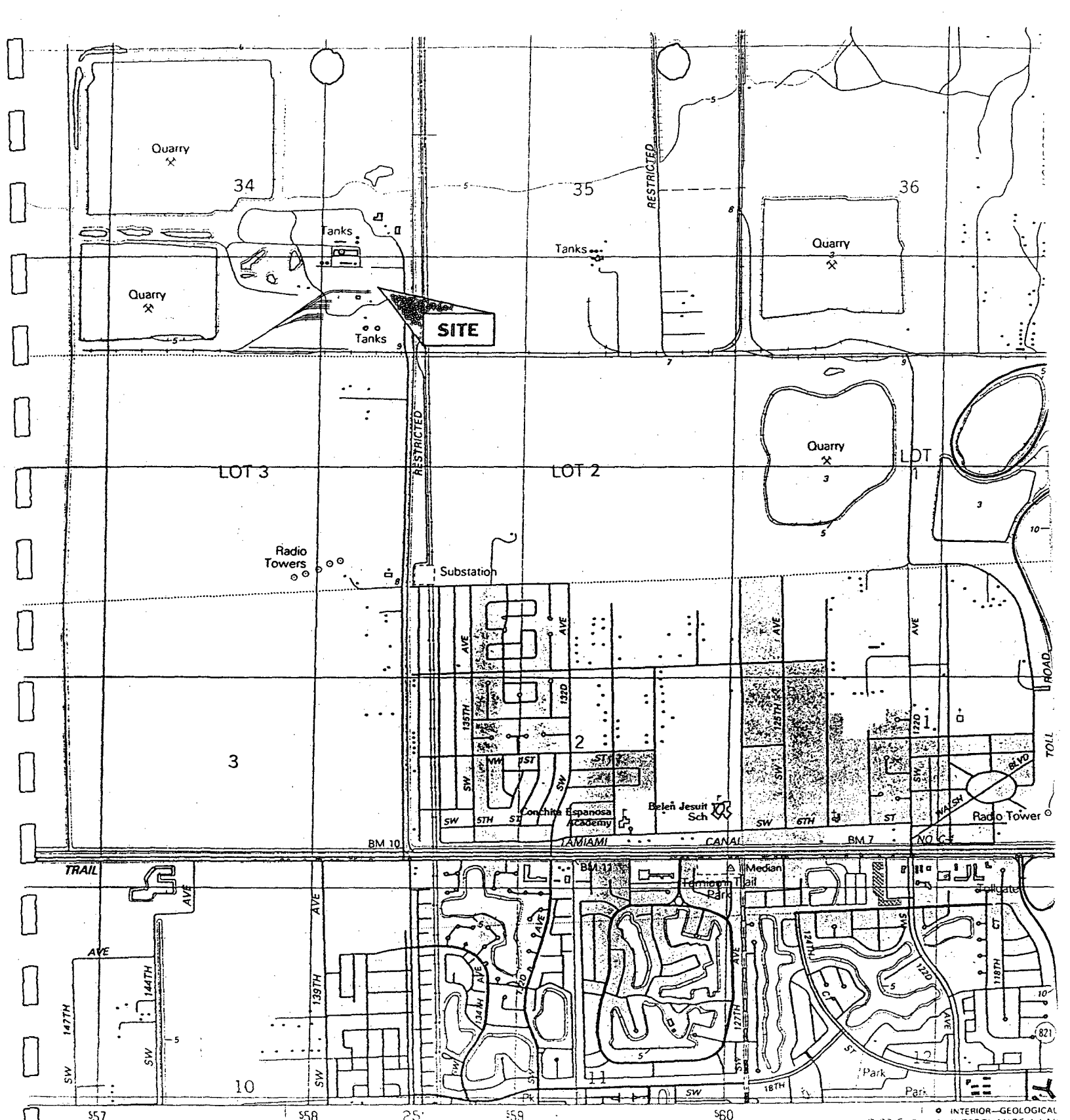
WELL 1B

Figure 5.11 Curves relating coefficients A, B, and C to L_a/t_a.



ATTACHMENT IX

SITE LOCATION MAPS (USGS QUAD)



INTERIOR—GEOLOGICAL

R 39 E FLA 94 INTERCHANGE 4.4 MI

ROAD CLAS

Primary highway, hard surface .....

Secondary highway, hard surface .....

Interstate Route

Cou

USGS QUADRANGLE: HIALEAH SW

6000 7000 8000 9000 10 000

1000 2000

FEET

ATUM OF 1929

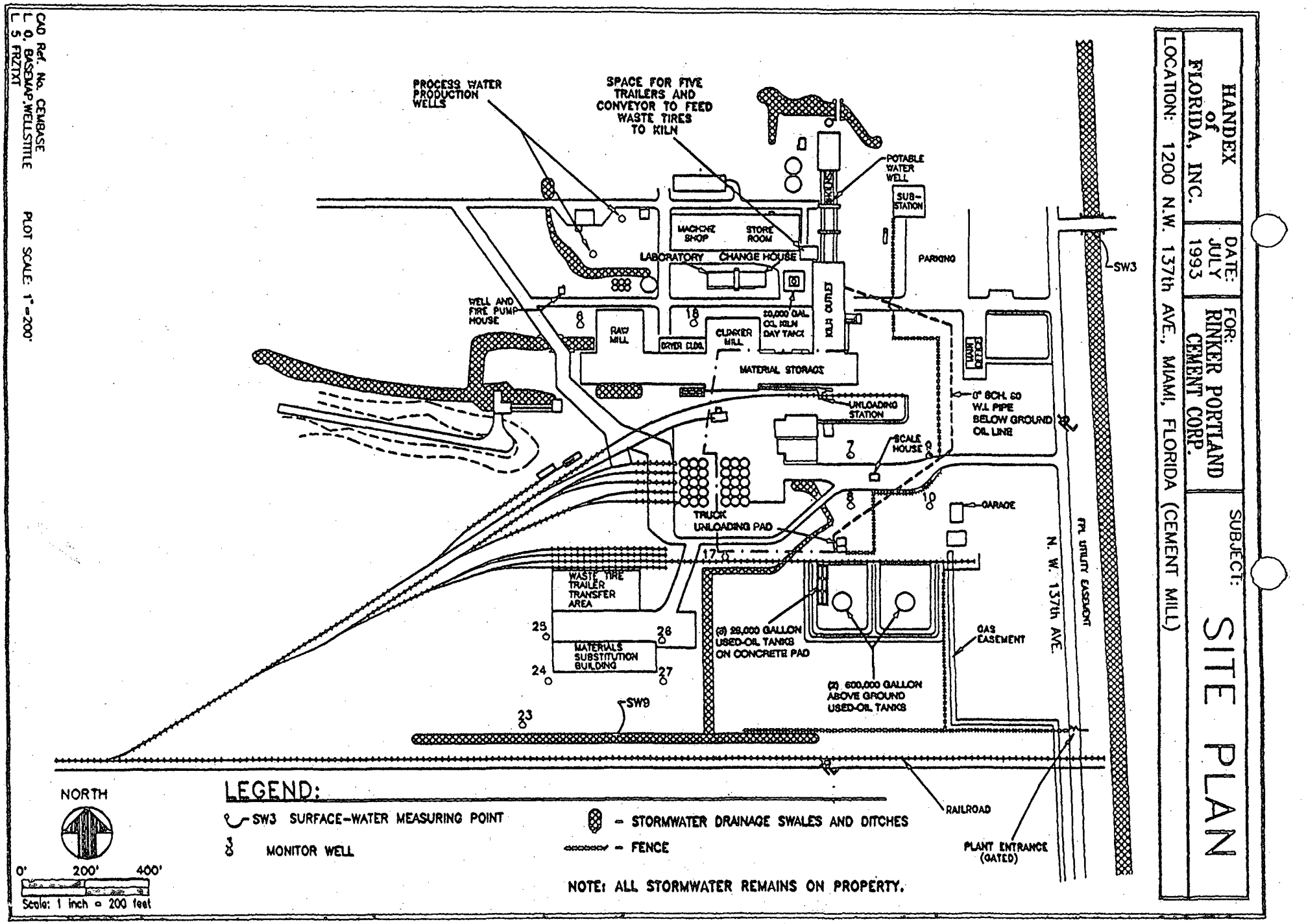
ACCURACY STANDARDS

RADO 80225, OR RESTON, VIRGINIA 22092

MBOLS IS AVAILABLE ON REQUEST

FLORIDA

QUADRANGLE LOCATION


HANDEX of FLORIDA, INC.
DATE: JULY 1993
FOR: RINKER PORTLAND CEMENT CORP.
SUBJECT: SITE PLAN
LOCATION: 1200 N.W. 137th AVE., MIAMI, FLORIDA (CEMENT MILL)
CAD Ref. No. CEMBASE
L 0, BASEMAP, WELLSTITLE
L 5 FRZTXT
PLOT SCALE: 1" = 200'
PROCESS WATER PRODUCTION WELLS
SPACE FOR FIVE TRAILERS AND CONVEYOR TO FEED WASTE TIRES TO KILN
POTABLE WATER WELL
SUB-STATION
MACHINE SHOP
STORE ROOM
LABORATORY
CHANGE HOUSE
PARKING
SW3
WELL AND FIRE PUMP HOUSE
RAW MILL
DRYER CLONE
CLINKER MILL
20,000 GAL. OIL KILN DAY TANK
KILN
MATERIAL STORAGE
UNLOADING STATION
6" SCH. 60 W.I. PIPE BELOW GROUND OIL LINE
SCALE HOUSE
TRUCK UNLOADING PAD
GARAGE
N. W. 137th AVE.
FPL UTILITY EASEMENT
WASTE TIRE TRAILER TRANSFER AREA
MATERIALS SUBSTITUTION BUILDING
(3) 20,000 GALLON USED-OIL TANKS ON CONCRETE PAD
GAS EASEMENT
(2) 600,000 GALLON ABOVE GROUND USED-OIL TANKS
SW9
RAILROAD
PLANT ENTRANCE (GATED)
NORTH
0' 200' 400'
Scale: 1 inch = 200 feet
LEGEND:
SW3 SURFACE-WATER MEASURING POINT
MONITOR WELL
= STORMWATER DRAINAGE SWALES AND DITCHES
= FENCE
NOTE: ALL STORMWATER REMAINS ON PROPERTY.