NM - 52

GENERAL CORRESPONDENCE

YEAR(S): 1993-1985

STATE OF NEW MEXICO

OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time	Date
	8:15 AM.	Dec. 2, 1993

Originating Party	Other Parties
K.M. Brown	Denny Foust
OCD Santa Fe	OCD Aztec

Subject: C & E Enterprises 1000370
Status of Evaporation Ponds
Permitted by OCD Nov. 6, 1985

Discussion:

Denny, Foust ⇒

C & E Enterprises have sold all of their interests to Meridian. The pond(s) were never constructed. The only activity that occurred was some coring at the proposed site. Shortly there after basin disposal was constructed (ie. commercial disposal facility).

Conclusions or Agreements:

No further paperwork or correspondence is needed except a letter of termination for approval to construct a pond.

Distribution:

Signed Kathy Brown

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

50 YEARS
1935 - 1985

TONEY ANAYA
GOVERNOR

November 6, 1985

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. D. W. Stiles
1060 Co. Rd. 329
Ignacio, CO 81137

Re: Application for Lined Evaporation Ponds to be located in Section 5, Township 30 North, Range 11 West, NMPM, San Juan County, New Mexico

Dear Mr. Stiles:

We have reviewed the plans and specifications in your application (WP-3) for the above-referenced lined evaporation pit. The design specifications submitted are acceptable and your application is hereby approved with the provision that the design specifications for your proposed solar heating system are submitted for approval prior to system installation.

The approved application consists of the application dated September 13, 1985, and the material dated September 26, 1985, submitted as a supplement to your application. Approval of this application allows for the disposal of produced water from the vulnerable area as outlined in Oil Conservation Commission Order No. 7940. Please be advised that the approval of this application does not relieve you of liability should your operation result in actual pollution of surface or ground waters which may be actionable under laws and/or regulations.

There will be no routine monitoring requirements other than those outlined in your application. Any design change or increase in the design disposal rate (100 Bbl/day) shall be reported to the Division.

This approval does not take the precedence over local zoning laws and is based on the premise that the ponds will receive only produced water and salt solutions (e.g., KCL solution) which are non-acidic. If in the future, you wish to dispose of other types of waste such as spent acid or septage, the OCD must be notified and prior approval obtained before such a practice commences.

The OCD District Office in Aztec shall be notified at least 24 hours in advance of primary and secondary liner installation to allow for the opportunity of an OCD representative to witness the installation.

On behalf of the staff of the Oil Conservation Division, I wish to thank you (and your staff and/or consultants) for your cooperation during this application review.

Sincerely,

/S/

R. L. STAMETS
Director

RLS/JB/dp

cc: OCD - Aztec Office

P 612 458 099

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. D. W. Stiles	
Street and No. 1060 Co . Rd 329	
P.O. State and ZIP Code Ignacio, CO 81137	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
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PS Form 3800, Feb. 1982 ★ U.S.G.P.O. 1983-403-517

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

50 YEARS
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STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

October 30, 1985

CERTIFIED MAIL P612 458051
RETURN RECEIPT REQUESTED

Mr. D. W. Stiles
Aztec Land Company
1060 Co. Rd. 329
Ignacio, CO 81137

Dear Mr. Stiles:

We received your verbal request on October 28, 1985, for a 30-day extension of the deadline for installation of 20 bbl tanks which are to be installed at your facilities in the N/2, NW/4, Section 5, Township 30 North, Range 11 West, NMPM, San Juan County, New Mexico. It is our understanding that this request for extension of time is due to delay in equipment delivery.

You are hereby authorized to collect produced water from the vulnerable area in frac tanks until November 30, 1985. If further delays with equipment delivery persist, please inform me by Nov
you have any questions concerning this matter, plea
contact me at (505) 827-5884.

Sincerely,

JAMI BAILEY
Field Represen

JB/dp

cc: Oil Conservation Division - Aztec
David Boyer
R. L. Stamets

P 612 458 051

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. D. W. Stiles	
Street and No. Aztec Land Co.	
P.O., State and ZIP Code 1060 Co. Rd. 329	
Postage Ignacio, CO 81137	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
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PS Form 3800, Feb. 1982
* U.S.G.P.O. 1983-403-517

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
SANTA FE, NEW MEXICO

The OCD has received an application from Aztec Land Company, Mr. D. W. Stiles, Authorized Agent, 1060 Co. Rd. 329, Ignacio, Colorado 81137, for surface disposal of produced water from oil and gas production operations. The facility will be located in the N/2, NW/4, Section 5, Township 30 North, Range 11 West, NMPM, San Juan County, New Mexico. The two ponds located at the facility will have approximately one acre of evaporative surface area and will receive approximately 100 barrels per day of produced water. The ponds will have a double membrane liner with a leak detection system between the liners. The application will be reviewed by the OCD for compliance with rules for protection of fresh water and other applicable regulations, and will be approved if such requirements are met. Copies of the application may be reviewed at the OCD office in Aztec located at 1000 Rio Brazos Rd., or in Santa Fe at the State Land Office, 310 Old Santa Fe Trail, during normal business hours. Five days from the date of publication of this notice will allowed before approval or denial of this application is given.

GIVEN Under the Seal of the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 8th day of October, 1985.

State of New Mexico
Oil Conservation Commission

R. L. STAMETS
Director

S E A L

Mailed to paper 10/9/85
Published 10/25/85

SAN JUAN ENGINEERING, INC.

1012 WEST PINON
2101 SAN JUAN BLVD.

FARMINGTON, NEW MEXICO 87401

TELEPHONE: 505-325-7535

October 7, 1985

State of New Mexico
Energy and Minerals Department
Soil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501

ATTN: Mr. Phillip Baca

RE: Evaporation Pond for Aztec Land Company

Dear Mr. Baca:

This letter will confirm our conversation of Thursday, October 3, 1985, regarding a bypass of the check valve on the subject project.

As stated in our September 26, 1985, letter (item 3), we had planned to put check valves on the 4 inch inlet to the pond to prevent back siphonage. In our conversation of last Thursday, you suggested that although the check valve was a good idea, that some means would be necessary to drain the upper pond into the lower pond. Therefore, on pond no. 1 we propose to put in a bypass of the check valve. This would amount to a few feet of 4 inch line with a gate valve arranged similar to the sketch I have enclosed. This arrangement would allow us if necessary to drain pond no. 1 into pond no. 2. We do not anticipate putting this arrangement on pond 2 since there would be no real need to bypass the check valve. That is, there is no place to which the water would flow. However, if you would like to have the bypass on pond 2, telephone me and we will include it in the construction. We are providing this documentation as you requested so that you would have some correspondence in your file regarding this relatively minor change.

If there is any further information I can furnish you please don't hesitate to contact me.

Very truly yours,

SAN JUAN ENGINEERING, INC.

Robert B. Stannard, Jr., P.E.
Vice President

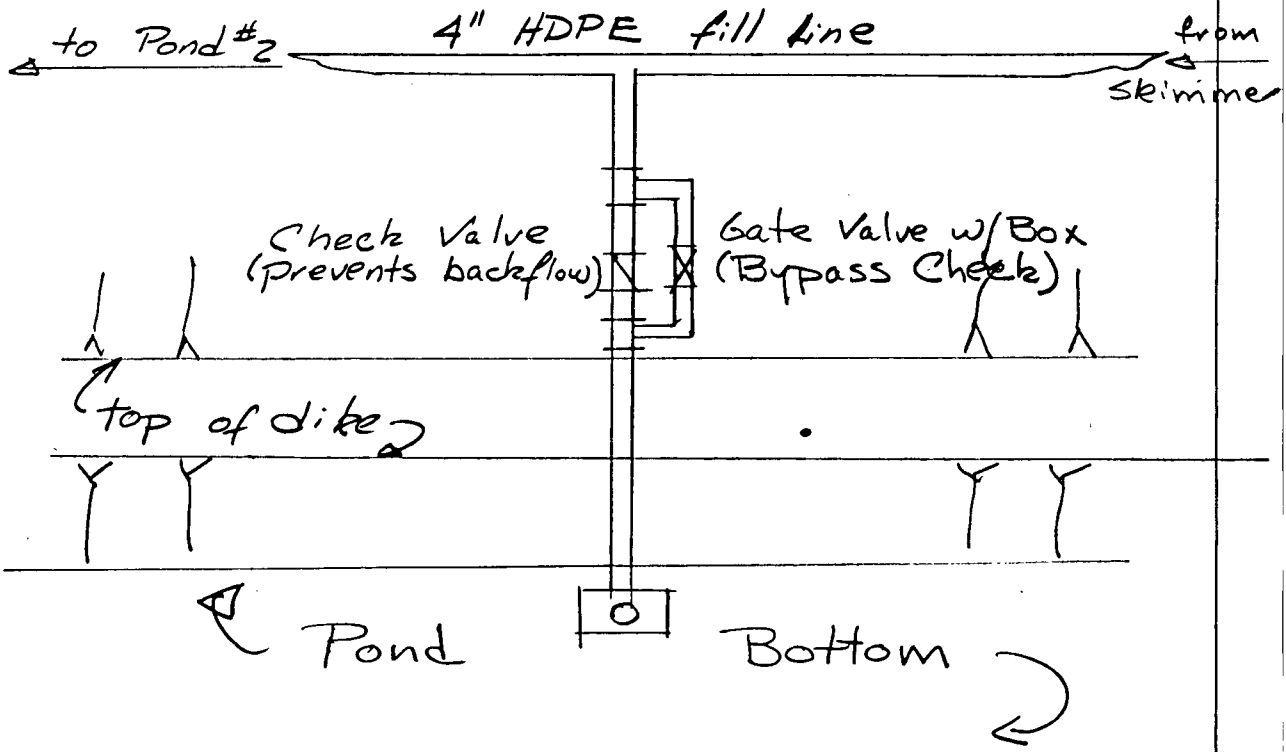
RBS/ja
Enclosure

SUBJECT Check Valve Bypass PROJECT 41054 PAGE 1/1

CLIENT Aztec Land Co DATE 10/5/85 BY RBS

CHECKED BY

Revised valving arrangement for pond #1



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

50 YEARS
1935 - 1985

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

September 30, 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. D. W. Stiles
1060 Co. Rd. 329
Ignacio, Colorado 81137

Dear Mr. Stiles:

On September 25, 1985 you informed me via a telephone conversation, that due to equipment delivery dates, you would not be able to collect produced water in above-ground tanks by October 1, 1985. You also requested permission to collect the produced water from the vulnerable area in frac tanks that will be installed temporarily at the well sites until receipt of the permanent storage tanks.

You are hereby authorized to collect produced water from the vulnerable area in frac tanks until October 31, 1985. If further delays with equipment delivery persist, please inform me by October 28, 1985. If you have any questions concerning this matter, please feel free to contact me at (505) 827-5885.

Sincerely,

Philip L. Baca

Philip L. Baca
Environmental Engineer

xc: Oil Conservation Division - Aztec
D. Boyer
R. L. Stamets

P 612 457 960

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to MR. D. W. STILES	
Street and No. 1060 Co. Rd 329	
P.O., State and ZIP Code Ignacio, Colorado 81137	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
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Postmark or Date	

★ U.S.G.P.O. 1983-403-517
PS Form 3800, Feb. 1982

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

50 YEARS
1935 - 1985

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

September 30, 1985

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. D. W. Stiles
1060 Co. Rd. 329
Ignacio, Co. 81137

Dear Mr. Stiles:

We have reviewed your application for approval to install two lined evaporation ponds in Section 5, Township 30 North, Range 11 West, NMPM, San Juan County, New Mexico. Upon review of the design for the leak detection system and fluid delivery system, the following design problems were discovered:

(1) The design for the leak detection system contains two perforated pipelines running parallel to the direction of flow. In the event of a leak, an unnecessary amount of time may pass before the leak is discovered due to the leak detection system's piping configuration. We recommend a single, non-perforated, mainline running parallel to the direction of flow, and perforated lateral lines running perpendicular to the direction of flow.

(2) Evaporation Pond #1 is at a higher elevation than Evaporation Pond #2. This could result in an overflow of Evaporation Pond #2 should both 4" gate valves be left (accidentally) open. We recommend redesigning the delivery system to include check valves to prevent such an occurrence.

(3) Since the 500 Bbl loading tank is at an elevation 50 feet higher than the skimmer pond, and since the loading tank is a distance from the skimmer pond, the potential for overflow in the skimmer pond exists should both 4" gate valves be left closed due to human error or valve failure. We recommend the installation of a float valve to alleviate this potential problem.

The above problems must be resolved before approval can be given. If you have any questions concerning this matter please feel free to contact me at (505) 827-5885..

Sincerely,

Philip L. Baca

Philip L. Baca
Environmental Engineer

PLB/et

cc: Oil Conservation Division - Aztec
D.G. Boyer
R. L. Stamets

P 612 457 959

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to MR. D. W. STILES	
Street and No. 1060 Co. Rd. 329	
P.O., State and ZIP Code Ignacio, Colorado 81137	
Postage	$
Certified Fee	
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TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, Feb. 1982 ★ U.S.G.P.O. 1983-403-517

SET TAB STOPS AT ARROWS

Certificate of Insurance

acord

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

NAME AND ADDRESS OF AGENCY

SCHREIBER INS. AGENCY
P.O. BOX 10
FARMINGTON, NM 87499
(505)325-1849

NAME AND ADDRESS OF INSURED

STILES ENTERPRISES
616 LA PLATA DRIVE
FARMINGTON, NM 87401 - 0000

COMPANIES AFFORDING COVERAGES

COMPANY LETTER **A** BITUMINOUS INSURANCE

COMPANY LETTER **B**

COMPANY LETTER **C**

COMPANY LETTER **D**

COMPANY LETTER **E**

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	POLICY EXPIRATION DATE	Limits of Liability in Thousands (000)	EACH OCCURRENCE	AGGREGATE
A	**GENERAL LIABILITY** ☒ COMPREHENSIVE FORM ☒ PREMISES—OPERATIONS ☒ EXPLOSION AND COLLAPSE HAZARD ☒ UNDERGROUND HAZARD ☒ PRODUCTS/COMPLETED OPERATIONS HAZARD ☒ CONTRACTUAL INSURANCE ☒ BROAD FORM PROPERTY DAMAGE ☒ INDEPENDENT CONTRACTORS ☒ PERSONAL INJURY	GL1226046	04/04/86	BODILY INJURY	$	$
				PROPERTY DAMAGE	$	$
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$ 1000	$ 1000
				PERSONAL INJURY		$ 1000
	AUTOMOBILE LIABILITY ☐ COMPREHENSIVE FORM ☐ OWNED ☐ HIRED ☐ NON-OWNED			BODILY INJURY (EACH PERSON)	$	
				BODILY INJURY (EACH ACCIDENT)	$	
				PROPERTY DAMAGE	$	
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	
	EXCESS LIABILITY ☐ UMBRELLA FORM ☐ OTHER THAN UMBRELLA FORM			BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	$
	WORKERS' COMPENSATION and EMPLOYERS' LIABILITY			STATUTORY		
					$	(EACH ACCIDENT)
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES
OIL & GAS LEASE OPERATOR

Cancellation: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 10 days written notice to the below named certificate holder, but failure to mail such notice shall impose no obligation or liability of any kind upon the company.

NAME AND ADDRESS OF CERTIFICATE HOLDER:

STATE OF NM ENERGY & MINERAL
OIL CONSERVATION DIV.
P.O. BOX 208
SANTA FE, NEW MEXICO 87501

DATE ISSUED: 09/18/85

PR
AUTHORIZED REPRESENTATIVE

ACORD 25 (1-79)

Evaporation Calculations For C&E Disposal Ponds

Surface Area - 32000 ft^2 (Approx. At 0' Depth)

Discharge - 100 BBL/DAY

Climatological Data (Source: W. K. Summers)

Month	Gal/Mo.	Evaporation, In.	Precipitation, In.
J	130200	0.96	0.52
F	117600	1.56	0.55
M	130200	3.79	0.61
A	126000	6.34	0.58
M	130200	8.01	0.46
J	126000	8.83	1.40
J	130200	8.13	0.91
A	130200	7.38	1.01
S	126000	5.71	0.96
O	130200	3.79	0.99
N	126000	2.03	0.45
D	130200	0.99	0.63

YR. 1

MONTH	RESIDUAL DEPTH, FT. (AT END OF MONTH)
J	0.51
F	0.91
M	1.19
A	1.24
M	1.15
J	1.12
J	1.02
A	1.03
S	1.16
O	1.47
N	1.87
D	2.38

← USE AREA = 36,212 ft^2 for DEPTH AT 2 ft.

YR. 2

MONTH	RESIDUAL DEPTH, FT
J	2.82
F	3.17
M	3.39
A	3.37
M	3.22
J	2.99
J	2.82
A	2.77
S	2.84
O	3.09
N	3.42
D	3.87

YR. 3

MONTH	RESIDUAL DEPTH, FT.
J	4.31
F	4.61
M	4.77
A	4.70
M	4.50
J	4.20
J	3.98
A	3.87
S	3.88
O	4.08
N	4.35
D	4.75

← USE AREA = 41,040 ft^2 for DEPTH AT 4 ft.

YR. 4

MONTH	RESIDUAL DEPTH, FT.
J	5.14
F	5.43
M	5.59
A	5.52
M	5.32
J	5.03
J	4.80
A	4.69
S	4.71
O	4.90
N	5.18
D	5.57

CONCLUSION: EVAPORATIVE SURFACE AREA APPEARS TO BE ADEQUATE UNTIL YR. 4. THEN MIN. FREEBOARD OF 1 ft. WILL BE EXCEEDED IN EAST POND.

FORCE CALCULATIONS -

FORCE DUE TO WAVE ACTION (F_W) -

$\frac{H_i}{gT^2} = 0.0194$ $\qquad$ $\frac{H_i}{d} = \frac{0.4}{4} = 0.1$

FROM FIG 7-91

$\frac{F_W}{\omega d^2} \approx 0 \longrightarrow F_W = 0$

Thus force due to WAVE ACTION IS NEGLIGIBLE

FORCE DUE TO HYDROSTATIC PRESSURE (F_{HS}) -

$F_{HS} = \int_0^d \rho_w A \, d(d)$ $\qquad$ $A = d(l)$ where $l = 1$ linear ft

$F_{HS} = \int_0^d \rho_w d\,l\, d(d) = \frac{1}{2}\rho_w d^2$

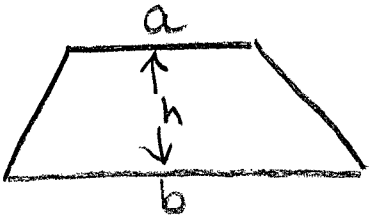
let $\rho_w \simeq 66$ lb/ft^3

SHEAR FORCE FOR BERM (F_S) -

$F_S = V_B \rho_S \mu_S$

$V_B = \left(\frac{a+b}{2}\right) h \, l$

$l = 1$ ft



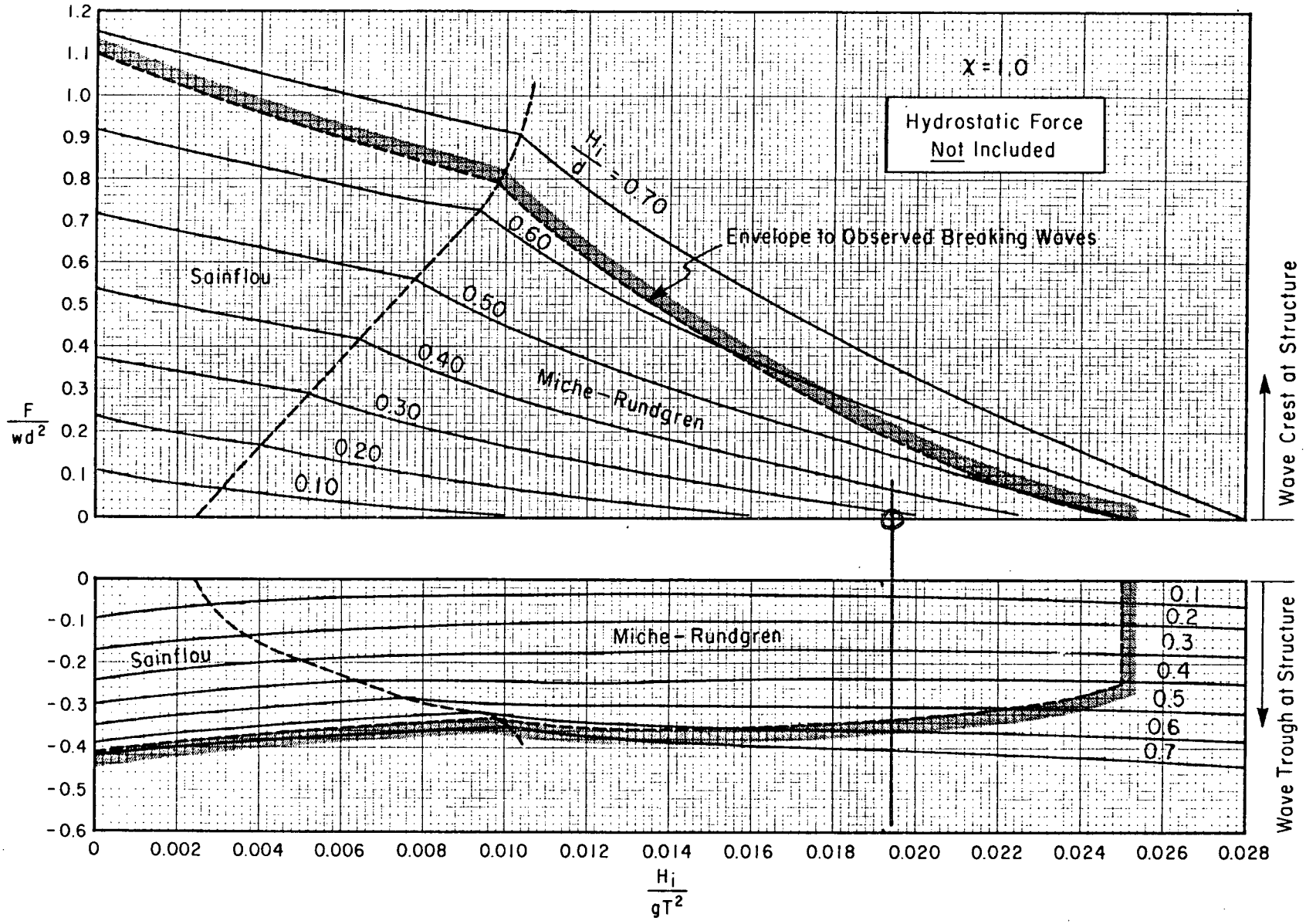


Figure 7-91. Nonbreaking wave forces; $\chi = 1.0$.

$\rho_s = 80$ lb/ft^3 (probably a little low)
μ_s = friction factor ≈ 0.4

$$\text{Safety Factor} = \frac{F_s}{F_{Hs}}$$

All calculations are based upon max. water level allowed to prevent overtopping
For East Pond - $d = 5$ ft
For West Pond - $d = 6$ ft

See Pg. 2 of Blueprints for Berm #

Berm #	Water Level, ft	F_{Hs}, lb/ft	F_s, lb/ft	Safety Factor
1	6	1188	6240	5.3
2	5	825	4320	5.2
4	— (Part of nat'l grade)			Very Large
5	5	825	4512	5.5
6	5	825	6720	8.1
5	6	1188	4512	3.8
6	6	1188	6720	5.7
7	3	297	2560	8.6

CONCLUSION: SAFETY FACTORS ARE ADEQUATE.
NOTE: Some Values For F_s Are Minimum Values And Actual Values of F_s MAY BE Higher (SEE Pg. 2 of Blue Prints for Existing Grade).

POND DESIGN FOR C&E OPERATORS

WAVE CALCULATIONS*

WIND SPEED = U_A = 50 mph

FETCH = 300 ft (For Larger Rectangular Pond)

DEPTH = 4 ft

SLOPE OF SIDE = 2:1

I FIND WAVE HEIGHT AND PERIOD

From Fig. 3-27

Wave Height = H = 0.4 ft.

Period = T = 0.8 sec.

II FIND BREAKING WAVE HEIGHT, H_b

From Fig. 7-3 (Use Slope = 0.1)

$$\frac{H}{gT^2} = \frac{0.4}{32.2(0.8)^2} = 0.0194$$

g ↑ gravity constant

$$\frac{H_b}{H} \approx 1.0$$

$H_b \approx H = 0.4$ ft.

$$\frac{H_b}{gT^2} = 0.0194$$

From Fig. 7-2

$\alpha \approx 1.8$

$\beta \approx 1.45$

} For slope 1 vertical per 3 horizontal

* REF.: U.S. Army Corps Engr. Shore Protection Manual

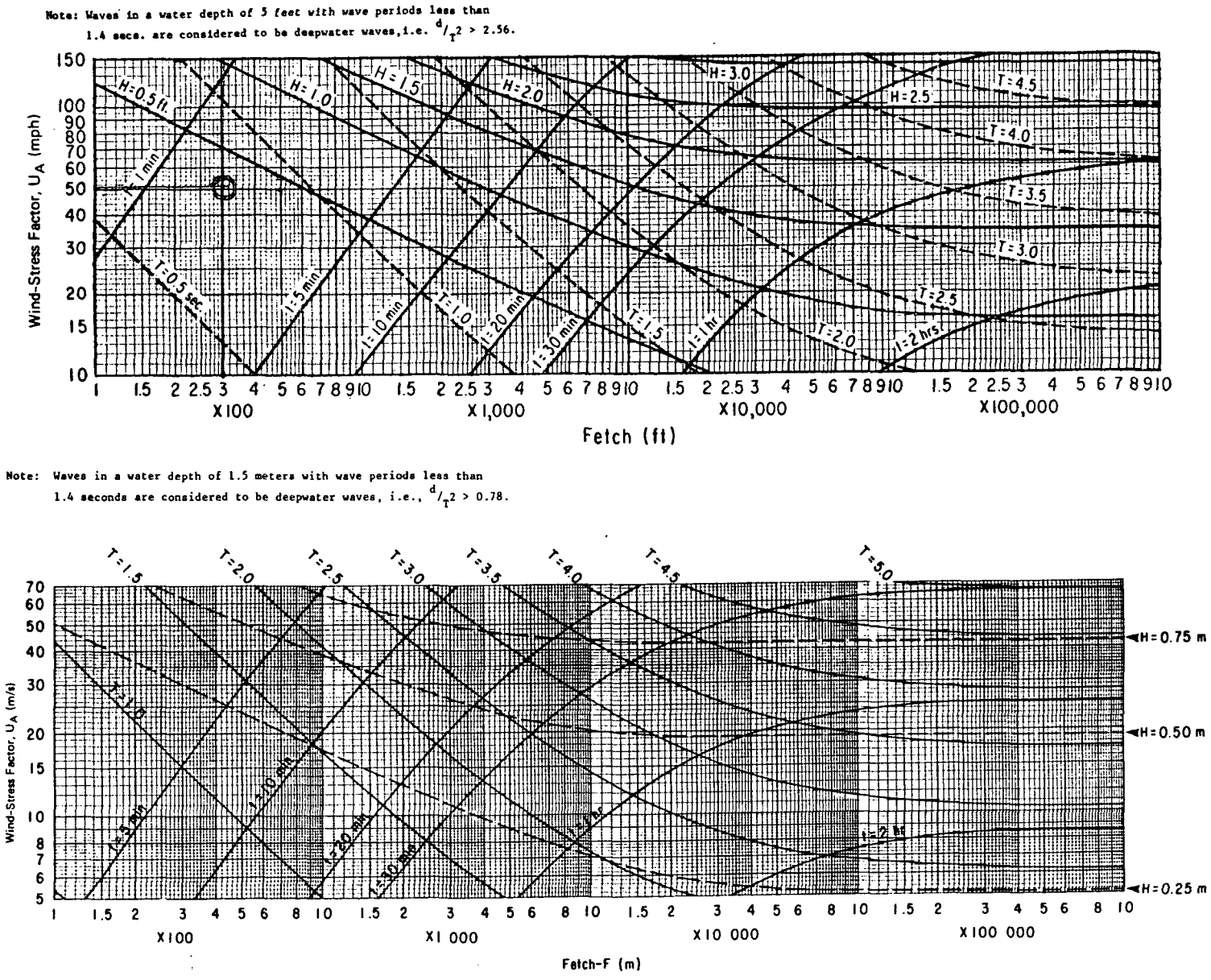


Figure 3-27. Forecasting curves for shallow-water waves; constant depths = 5 feet (upper graph) and 1.5 meters (lower graph).

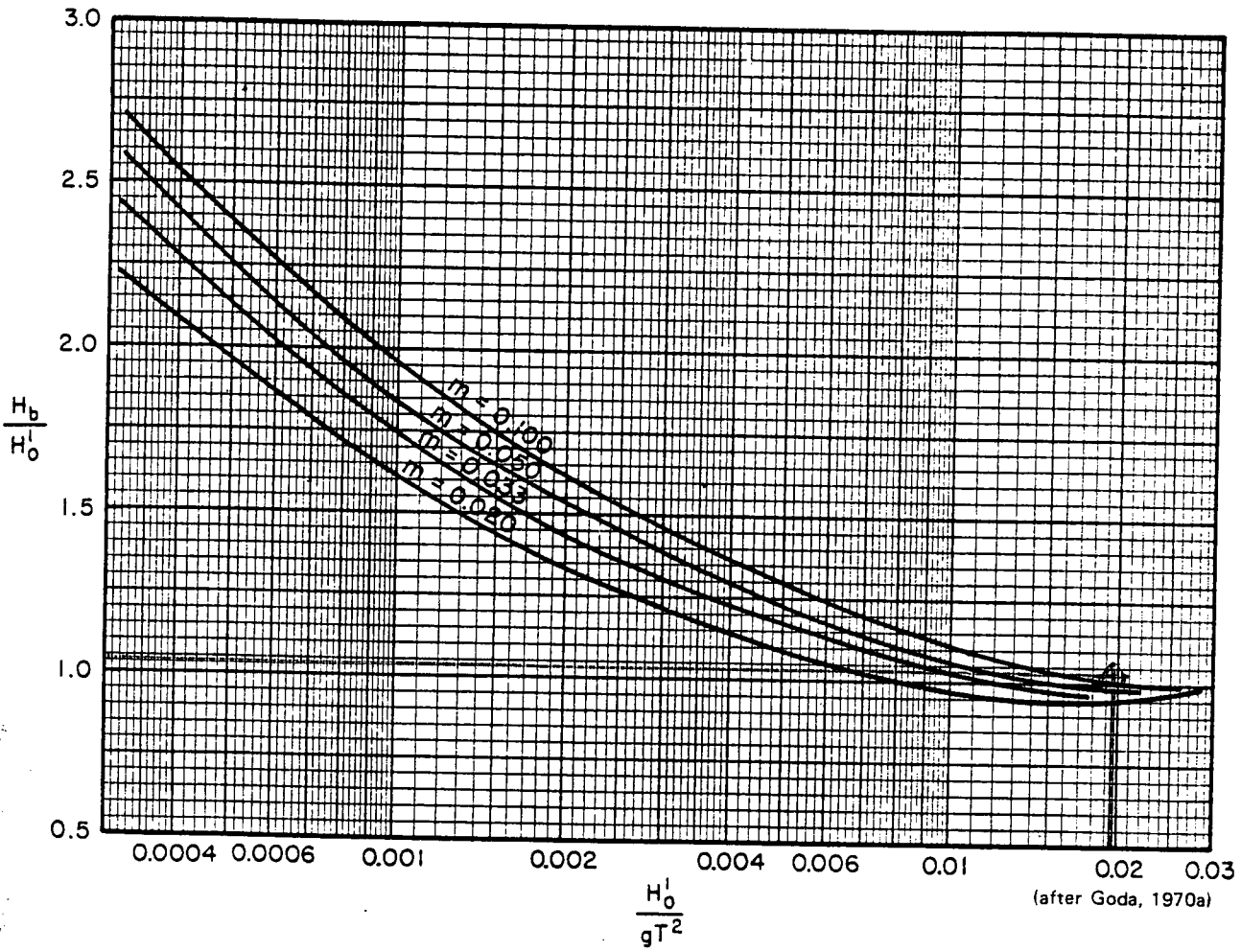


Figure 7-3. Breaker height index H_b/H_o' versus deepwater wave steepness H_o'/gT^2 .

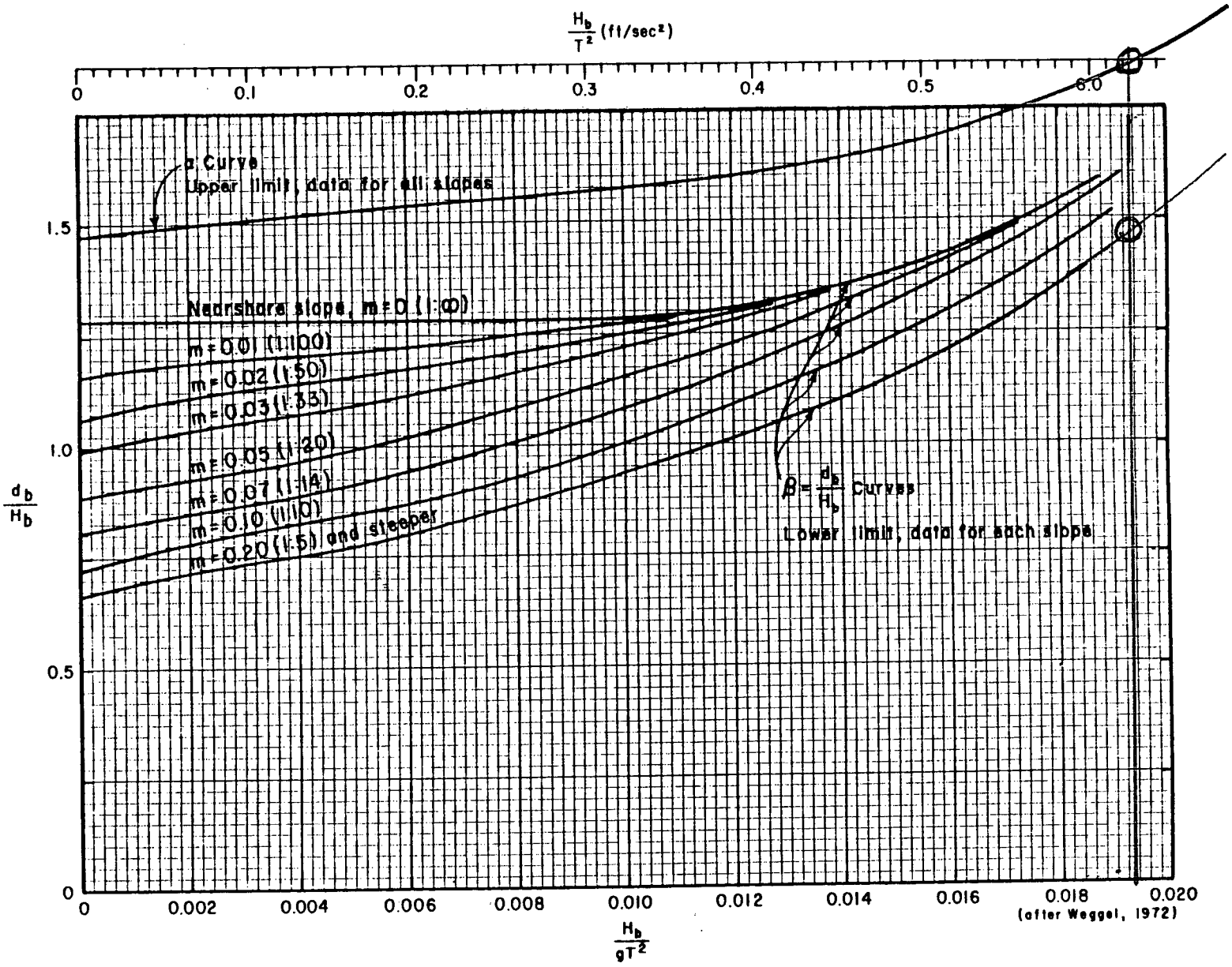


Figure 7-2. α and β versus H/gT^2.

$d_{B\,MAX} = \alpha H_b = 1.8(0.4) = 0.72$ ft
$d_{B\,MIN} = \beta H_b = 1.45(0.4) = 0.58$ ft

CONCLUSION: With a slope of 1 vertical foot rise for 3 horizontal feet, breaking waves could occur at a dike toe depth between 0.58 - 0.72 ft.

III FREEBOARD DETERMINATION

Find depth, d, at which overtopping would occur.

A. For East Pond

Overtopping would occur with a wavecrest and depth combination (y_c) of six feet.

$$y_c = d + h_o + \left(\frac{1+\chi}{2}\right) H_i$$

$H_i = 0.4$ ft Assume $\chi = 1.0$ (Smooth Surface)

$\frac{H_i}{gT^2} = 0.0094$

$\frac{h_o}{H_i} = 2\pi^2 \frac{H_i}{gT^2} = 0.383 \approx 0.40$ (See Fig. 7-90)

Note: Because $T < 1.4$ sec. assume Deepwater Waves (See Fig 3-27)

$h_o = H_i\, 0.40 = 0.16$

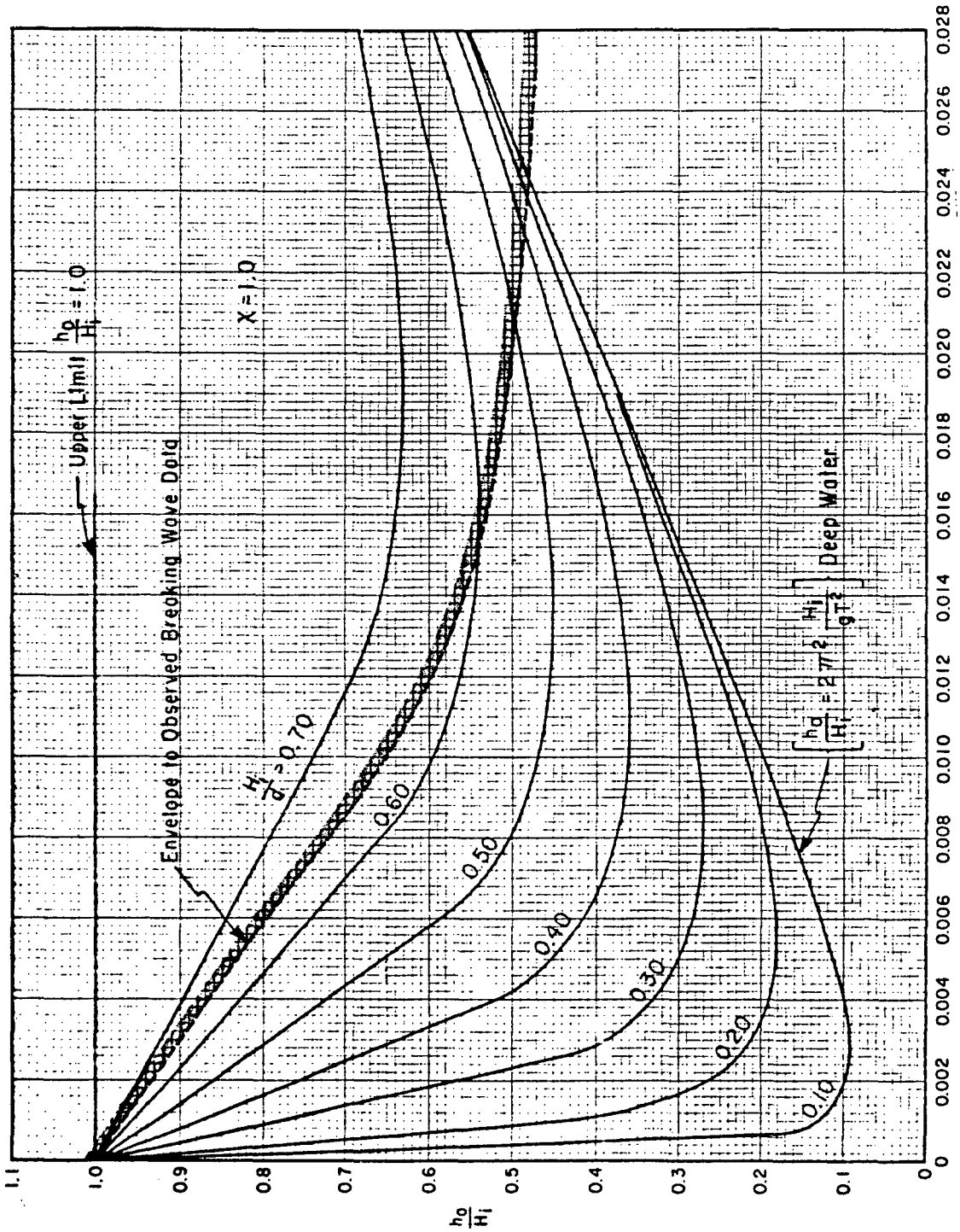


Figure 7-90. Nonbreaking waves; $\chi = 1.0$.

$$d = y_c - h_o - \frac{1+\chi}{2} H_i$$

$$d = 6 - 0.16 - \left(\frac{1+1}{2}\right) 0.4 = 5.4 \text{ ft.}$$

CONCLUSION: At A Depth Of 5.4 ft, overtopping would occur, thus set max. depth at 5.0 ft. (Minimum freeboard of 1.0 ft.)

B. For West Pond

Overtopping would occur with a wave crest and depth combination (y_c) of seven feet.

$$y_c = d + h_o + \frac{1+\chi}{2} H_i \qquad \text{Assume } \chi = 1.0$$

$H_i = 0.4$ (This is probably a little high)

$$\frac{H_i}{gT^2} = 0.0194$$

as in A.) $h_o = 0.16$

$$d = y_c - h_o - \frac{1+\chi}{2} H_i$$

$$d = 7 - 0.16 - \left(\frac{1+1}{2}\right)(0.4) = 6.4 \text{ ft}$$

CONCLUSION: Overtopping would occur at a pond depth of 6.4 ft, thus set max depth at 6.0 ft (Minimum freeboard of 1.0 ft.)

SAN JUAN ENGINEERING, INC.

401 WEST PINON
2101 SAN JUAN BLVD.

FARMINGTON, NEW MEXICO 87401

TELEPHONE: 505-325-7535

September 26, 1985

41054.2

State of New Mexico
Energy and Mineral Department
Soil Conservation Division
P. O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

ATTN: Phillip Baca

RE: Produced Water Evaporation Pond for Aztec Land Company

Dear Mr. Baca:

I am writing at the request of Mr. Woodrow Stiles on behalf of the Aztec Land Company to inform your Department of some minor changes we intend to make during construction of the referenced evaporation pond. Since these changes are very minor in nature and still comply with the intent of your regulations. I have not prepared drawings detailing the changes. If you require detailed drawings, please do not hesitate to contact me.

The changes we intend to make are:

1. Change the leak detection underdrain from the parallel system shown on our plans to a header-lateral system. In the proposed change, we would have one main line running down the middle of the pond with lateral lines feeding in at 90°. These lateral lines would still be spaced at twenty foot centers.

2. We will install a float valve on the skimmer pond inlet. This will prevent surges into the skimmer pond and allow the pond to function with the detention time that was designed into it.

3. We will put check valves on each of the 4" inlets to the pond. This will prevent an accidental spill by the upper pond siphoning into the lower pond, if valving is improperly manipulated.

4. We will change the gate valves from the metallic type gate valves shown on the drawings to either a plastic or a resin type gate valve. This will forestall potential corrosion should valves not be exercised according to a maintenance schedule.

As I said, I believe these changes are so minor in nature that detailed redesign drawings will not be required. However, if your department does require further information, please do not hesitate to contact me.

Very truly yours,

SAN JUAN ENGINEERING, INC.

Robert B. Stannard, Jr., P.E.
Vice-President

RBS/ig
cc: Aztec Land Company
Attn: Woodrow Stiles

September 13, 1985

State of New Mexico
Energy and Minerals Department
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501

ATTN: Mr. David Boyer, Geologist

Dear Mr. Boyer:

In response to your letter dated August 29, 1985, the following is provided:

Name of Owner or Legally Responsible Party:

Aztec Land Company
Suite 1100 Two Energy Square
4849 Greenville Avenue
Dallas, Texas 75296
(214) 363-6993

Name of Local Representative:

D.W. Stiles
1060 Co. Rd. 329
Ignacio, Colorado 81137
(303) 883-2236

Additional contact numbers - Stiles Enterprises
8 AM to 5 PM - (505) 327-9866
After hours, weekends - (505) 325-7725

Enclosed you will find a Certificate of Insurance. We will forward a Certificate of Insurance for Stiles Enterprises at a later date.

The leak detectors will be checked weekly with the time and date recorded and the records will be kept at the office of A.R. Kendrick, P.O. Box 516, Aztec, NM 87410. An additional set of records will be sent to the Aztec Land Company office in Dallas. The Oil Conservation Division will be notified immediately in case of any leaks.

Affirmation

"I hereby certify that I am familiar with the information contained in and submitted with this application and that such information is true, accurate and complete to the best of my knowledge and belief."

D.W. Stiles, Agent for Aztec Land Company, September 13, 1985

If you have any further questions, please don't hesitate to contact the undersigned or San Juan Engineering, Inc., 2101 San Juan Boulevard, Farmington, NM 87401, (505) 325-7535.

Sincerely,

D.W. Stiles

DWS/ja
Enclosure

SUPPLEMENTAL INFORMATION
TO
THE APPLICATION OF
AZTEC LAND COMPANY
TO BUILD AN EVAPORATION POND

1. General Information. The proposed evaporation pond of the Aztec Land Company is located in the North One-Half Southeast Quarter (N1/2 SE1/4), Section 5, Township 30 North, Range 11 West, N.M.P.M., San Juan County, New Mexico. The site is a high bench between two intermittent arroyos, approximately one mile north of the City of Aztec, and one and one-half miles north of the Animas River. The site slopes from east to west at about 6-1/2%. Soils are sands and sandy loams.

The climate is typical for the San Juan Basin. Precipitation averages 12 inches annually, mostly coming in September and the winter months. Annual evaporation is about 69 inches, occurring from April to October. Net annual evaporation is about 56.5 inches. These figures have been abstracted from information for the weather station at Aztec Ruins, within 3 miles of the site.

The intended use of the pond is to evaporate water produced from local gas wells. The Aztec Land Company will operate the ponds system. The ponds will be available to water haulers as a point of disposal. San Juan County recently closed the only legal liquid waste disposal pit in the County. Although another commercial evaporation pit is permitted and under construction, it is near Bloomfield, the Aztec Land Company's ponds will fill the need of a legal disposal point in the Aztec area.

2. Design Information. The ponds have been designed in accordance with Order R-3221-C of the New Mexico Oil Conservation Commission, using double liners and leak detection systems. The nominal evaporative capacity of the pond system is 100 barrels/day (4200 gpd) of water. Two skimming devices are to be installed prior to the evaporative ponds, to minimize the accumulation of surface oil which could retard evaporation.

a) The oil-water mixture will be unloaded into a 500 bbl storage-feed tank situated to provide 22 psi to the skimmer. The tank will be inside a containment berm of 750 bbl capacity. From this tank the oil and water mixture will flow to a skimmer tank.

b) The heated mechanical skimmer tank is manufactured by Process Equipment & Service Co., Inc. of Farmington, New Mexico. It will be capable of treating up to 600 bbl/day of water at pressures ranging from 15 to 50 psi. Nominal working

characteristics will be 100 bbl/day at 20 psi. Separated oil will flow from the skimmer tank to a 300 bbl oil storage tank, located inside a containment berm. Clarified water will flow to the skimmer pond.

c) Following the mechanical skimmer tank is a conventional skimmer pond. This pond is equipped with two liners and a leak detection system identical to the main ponds (see below). It will operate at a nominal depth of 2 feet and has a storage capacity of 150 bbl. It has a skimmer box located at its outlet.

The small amount of oil which may accumulate in the skimmer box at the outlet of the skimmer pond will be recirculated to the storage-feed tank (a.) as necessary. At the design flow of 100 bbl per day, it is estimated that the anticipated 1/10 of 1% oil carryover to the skimmer pond will cause about 1" depth of oil to accumulated in the skimmer box every 60 days. From the skimmer box and pond virtually oil-free water will flow to the evaporation ponds.

d) The evaporation ponds are designed with a total surface area of 1.0 acre at a design depth of 4 feet. At this depth the storage volume will be 1.3 million gallons (31,000 bbl). Evaporation off of the ponds is estimated to be 1.5 million gallons per year (35,800 bbl/yr).

e) The evaporation ponds and the skimmer pond will utilize a double liner system. The primary liner will be CPER-OR (chlorinated polyethelene, reinforced-oil resistant), 30 mil minimum thickness with a 10x10, 1000d reinforcing scrim. The liner is resistant to sunlight, natural levels of ozone, and to oil products.

The secondary liner will be PVC (polyvinyl chloride), 20 mils thick. This liner is not resistant to sunlight, but will be in a buried installation. A sand cushion and leak detection system will be installed between the liners (see below). Liners will have berm vents located about 100 feet apart (see plan) to vent off any air trapped during installation, or gas generated by any organic material in the soils used for construction.

f) The leak detection system will consist of perforated pipe, laid on grade between the liners. Any liquid passing the primary liner will be routed by the leak detection system to a sump at the north end of the pond. These sumps will be inspected weekly. Any presence of liquid will be interpreted as evidence of liner failure. The pond bottoms and leak detection system are sloped to route even small amounts of leakage to the sump.

g) The pond inlet piping will be constructed of high density polyethelene piping (HDPE), specially formulated to be oil resistant. The piping is designed so that incoming flow can be routed to either pond. If necessary, the upper pond can be drained into the lower pond within 2 days.

h) The ponds and other structures will be enclosed in a 6 foot high chain link fence, topped by barbed wire. This fence is designed to discourage vandalism, unauthorized entry and unauthorized dumping.

Certificate of Insurance

acord

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

NAME AND ADDRESS OF AGENCY

Kysar Insurance Agency
205 South Main P.O. Box Y
Aztec, N.M. 87410

NAME AND ADDRESS OF INSURED

D.W. and Jane Stiles
1060 Country Road
Ignacio, Colorado 81137

COMPANIES AFFORDING COVERAGES

COMPANY LETTER A — Transamerica Insurance Co.
COMPANY LETTER B
COMPANY LETTER C
COMPANY LETTER D
COMPANY LETTER E

RECEIVED
SEP 13 1985
OIL CON. DIV.
DIST. 3

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	POLICY EXPIRATION DATE	Limits of Liability in Thousands (000)	EACH OCCURRENCE	AGGREGATE
A	GENERAL LIABILITY [X] COMPREHENSIVE FORM [X] PREMISES—OPERATIONS [X] EXPLOSION AND COLLAPSE HAZARD [X] UNDERGROUND HAZARD [X] PRODUCTS/COMPLETED OPERATIONS HAZARD [X] CONTRACTUAL INSURANCE [X] BROAD FORM PROPERTY DAMAGE [X] INDEPENDENT CONTRACTORS [X] PERSONAL INJURY	18479991	3-15-86	BODILY INJURY	$300,000	$300,000
				PROPERTY DAMAGE	$100,000	$100,000
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	$
				PERSONAL INJURY		$
A	AUTOMOBILE LIABILITY [X] COMPREHENSIVE FORM [X] OWNED [X] HIRED [X] NON-OWNED	18479991	3-15-86	BODILY INJURY (EACH PERSON)	$	
				BODILY INJURY (EACH ACCIDENT)	$	
				PROPERTY DAMAGE	$	
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$300,000	
A	EXCESS LIABILITY [X] UMBRELLA FORM [ ] OTHER THAN UMBRELLA FORM	18479991		BODILY INJURY AND PROPERTY DAMAGE COMBINED	$ 1,000,000	
	WORKERS' COMPENSATION and EMPLOYERS' LIABILITY	WC-1124204		STATUTORY		
					$ 1,000,000 (EACH ACCIDENT)	
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES

All operations as described in the policy.

Cancellation: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 10 days written notice to the below named certificate holder, but failure to mail such notice shall impose no obligation or liability of any kind upon the company.

NAME AND ADDRESS OF CERTIFICATE HOLDER:
State of New Mexico
Energy & Minerals Department
Oil Conservation Division
P.O. Box 208
Santa Fe, N.M. 87501

DATE ISSUED: September 11, 1985

AUTHORIZED REPRESENTATIVE

ACORD 25 (1-79)

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

50 YEARS
1935 - 1985

TONEY ANAYA
GOVERNOR

September 9, 1985

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. D. W. Stiles
1060 Co. Rd. 329
Ignacio, Colorado 81137

Dear Mr. Stiles:

This letter is in reference to the letter to you dated August 29, 1985 which granted site approval for the proposed commercial evaporation pit located in the S 1/2 NE 1/4 of the N 1/2 SE 1/4 of Section 5, Township 30 North, Range 11 West. Approval of the site was granted pursuant to the Oil Conservation Division rules and regulations and does not apply to any other governmental or local approval, such as zoning, which may be required. It is your responsibility to meet these other requirements.

If you have any questions, feel free to contact our staff in Santa Fe at (505) 827-5885.

Sincerely,

Jami Bailey
Field Representative

P 505 905 974

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. D.W. Stiles	
Street and No. 1060 Co. Rd.	
P.O., State and ZIP Code Colorado 81137	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return Receipt Showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, Feb. 1982

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

50 YEARS
1935 - 1985

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

August 29, 1985

Mr. D. W. Stiles
1060 Co. Rd. 329
Ignacio, Colorado 81137

Dear Mr. Stiles:

The site proposed by you for a commercial evaporation pit located on 28.44 acres in the S 1/2 NE 1/4 in the N 1/2 SE 1/4 of Section 5, Township 30 N, Range 11 West, and inspected by Jami Bailey and Phil Baca on August 8, 1985, is acceptable for the activities proposed. Because there appears to be no continuously impermeable zone between the base of the proposed pit and the local groundwater supply, this site approval is based on the use of a double liner system in the pit with a leak detection system installed between the primary (top) and secondary (bottom) liner. Materials used for lining the evaporation pit shall be impermeable and may be rigid, semi-rigid, or flexible. Please see "Guidelines for the Design and Construction of Lined Evaporation Pits" available at the District Office.

In addition, before final approval is given for operation of the project, the following topics must be addressed:

1) A system and procedure for monitoring the leak detection system of the pit(s) and skimmer pond(s).

2) Contingency plans to cope with the failure of liners.

3) Procedure on notification of OCD in the event of detecting leaks or failure of liners.

4) A large scale topographic or survey map of the pit area.

If you have any questions, feel free to contact our staff in Santa Fe at (505) 827-5885.

Sincerely,

DAVID BOYER
Geologist

DB/JB/nr

8/7/85 BAILEY / BFCA

D.W. Stiles 1060 Co. Rd 329
Ignacio, Co. 81137 883-2236

Checks (pumper) for 58 wells owned by C+E Operators.

Wants pit on 28.44 ac. in S½ NE¼ in N½ SE¼ Sec 5 T30N R11W

Closest water well: Bob Harris down-gradient + Koogler School. School on city water. Harris has well + south of Harris is pond + irrigation ditch.

Stiles will drill 1 test, 1 deep, cathodic protection holes on perimeter of pit area. Observation of area showed 4' thick (in bedrock) shale ledges below pit area on fault block.

5/7/15 BMcK / RMcA

D.W. Stiles 1060 Co. Rd 329
Ignacio, Co. 81137 883-2236

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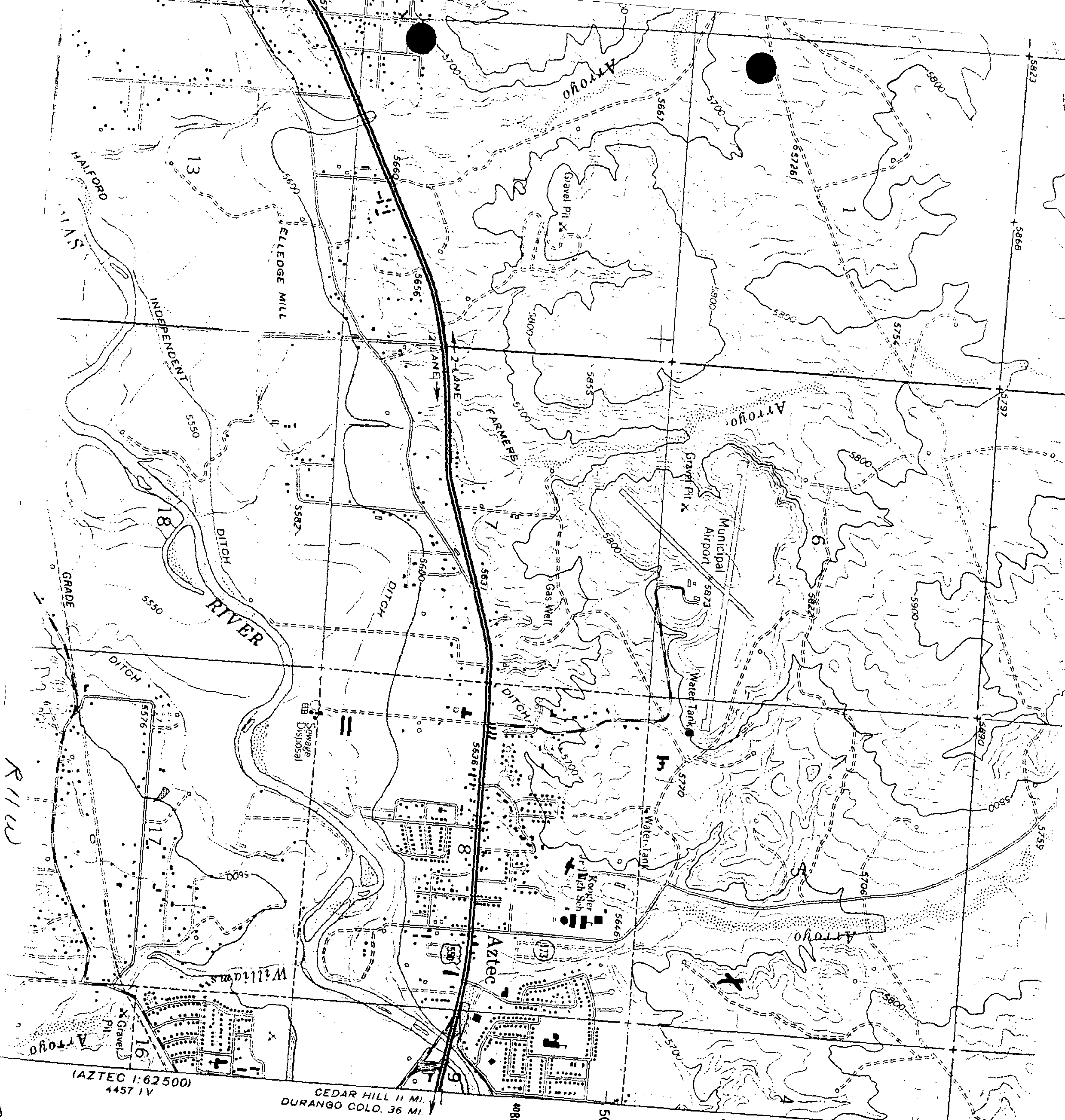
wants pit on 28.44 ac. in S½ NE¼ in N½ SE¼ Sec 5 T30N R11W

Closest water well: Bob Harris down-gradient + Kroeger School. School on city water. Harris has well + South of Harris is pond + irrigation ditch.

Sides will drill 1 test, 1 deep, cathodic protection holes on perimeter of pit area. Observation of area showed 4' thick thin bedded shale beds below pit area on ground rock.


(AZTEC 1:62500)
4457 IV
CEDAR HILL 11 MI.
DURANGO COLO. 36 MI.
4080
50'
4081
4082
T. 31 N.
T. 30 N.
Aztec
Municipal Airport
Gravel Pit
Water Tank
Sewage Disposal
Gas Well
RIVER
DITCH
FARMERS
ELLEDGE MILL
INDEPENDENT
HALFORD
GRADE
Arroyo
Williams
R11W

Memo

From

ERNIE BUSCH
Geologist - Field Rep.

To Jamie Bailey

Jamie,

attached is a copy of the drillers log and resistivity info on the C+E operators Fee A# 5 Cathodic hole. Woodrow Stiles asked that approval to construct the pit, be given as soon as possible.

Thanks
Ernie

Oil Conservation Aztec, New Mexico

Kinge Corrosion Systems

CORROSION CONTROL CO. — 301 Ash — Aztec, New Mexico

COMPANY C & F [illegible] **DAILY DRILLING REPORT** 8-19 19 85

WELL NAME:	WELL NUMBER:	SECTION:	TOWNSHIP:	RANGE:
Fee A-5		13	30 N.	11 W.

WATER AT	FEET	HOLE MADE:
80' - 220'		248

DESCRIPTION OF FORMATION

FROM	TO	FORMATION IS	COLOR
0	20	sand	
20	40	powder sand clay [illegible]	
40	60	clay sand and gravel	
60	80	gravel clay - water	
80		casing depth	
80	120	bentonite, shale	
120	140	shale	
140	220	shale, water sand & bentonite	
220	240	Bentonite, shale	
240	248	shale, sand	

REMARKS: 80' cased due to formations water at 80' making approx. 1 to 2 gallons per hour [illegible] at 220' approx. 2 gallons per minute.

[illegible] **Driller** **Tool Dresser**

CORROSION CONTROL CO.

P.O. DRAWER G - PHONE 334-6141
AZTEC, NEW MEXICO 87410

Drilling Log (Attach Hereto). ☐ Completion Date August 20, 1985

Well Name	Location	
Fee #5-A	C+E Operators	
Type & Size Bit Used: 6 1/8"		Work Order No.
Anode Hole Depth: 160'	Total Drilling Rig Time: 10 hrs	Total Lbs. Coke Used: 2000#
Lost Circulation Mat'l Used		No. Sacks Mud Used

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Anode Depth	140	130	120	110	100	90	80	70		
Anode Output (Amps)	3.8	4.3	3.6	4.3	4.4	4.6	4.6	5.5		

	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Anode Depth										
Anode Output (Amps)										

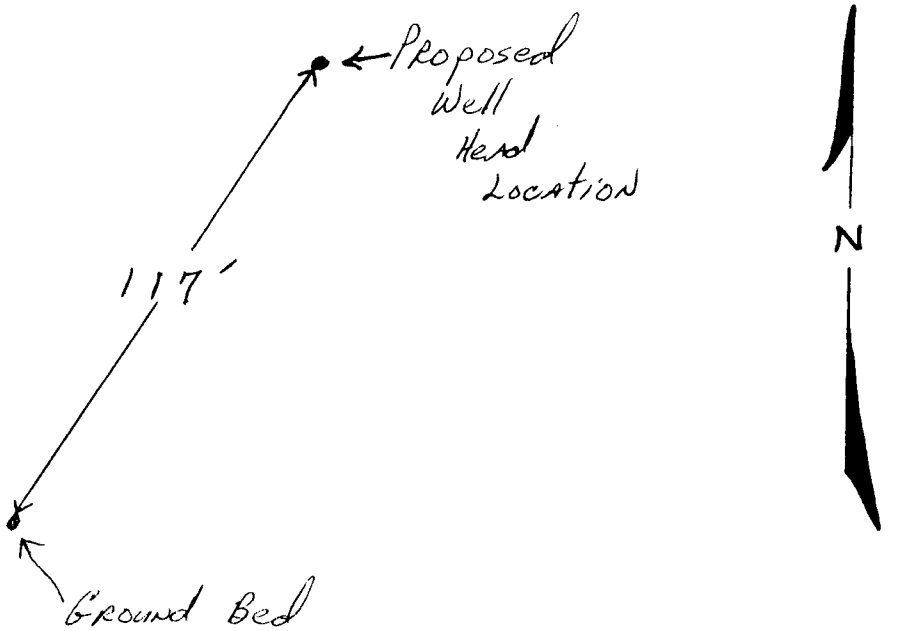
Total Circuit Resistance			No. 8 C.P. Cable Used	No. 2 C.P. Cable Used
Volts	Amps	Ohms	1000'	

Remarks: Set 80' of 7" steel casing due to sand & gravels. Water standing in hole next morning at 61'. used 160' of vent pipe with 150' of perforations. Logged hole & took anode readings with Vibrasgrounds. I did not feel the total resistance reading was correct so will get FINAL total output of ground bed after well has been drilled.

All Construction Completed

Cody Murdoss
(Signature)

GROUND BED LAYOUT SKETCH



CORROSION CONTROL CO.

P. O. BOX 179 — PHONE 334-6361
AZTEC, NEW MEXICO 87410

Date 8-20-85

DEEP WELL GROUNDBED LOG

Company C & E Operators

Well No. 5-A Location Fee

Volts Applied — Amperes

0

25

50 Sat over Night, Water at 61'

75

100

125

150 T.D. 159'

175

200

225

250

275

300

325

350

375

400

425

450

475

500

525

550

575

600

625

650

675

700

725

750

775

800

825

850

875

900

Ω		A
4.5		2.7
4.3	✓	2.8
4.3		2.8
5.2	✓	2.3
5.2		2.3
5.1	✓	2.3
4.9		2.4
4.8	✓	2.5
4.9		2.4
5.0	✓	2.3
5.5		2.2
6.1	✓	2.0
5.4		2.2
5.1	✓	2.3
5.4		2.2
5.4	✓	2.2
5.6		2.2
5.5	✓	2.2

2	1	140	3.6Ω	3.1Ω	3.8A
8	2	130	3.3Ω	2.8Ω	4.3A
7	3	120	4.3Ω	3.3Ω	3.6A
9	4	110	3.2Ω	2.8Ω	4.3A
6	5	100	3.2Ω	2.7Ω	4.4A
5	6	90	3.1Ω	2.6Ω	4.6A
4	7	80	3.2Ω	2.6Ω	4.6A
3	8	70	2.5Ω	2.2Ω	5.5A