CORRESPONDENCE COVER SHEET
WASTE PERMITS DIVISION
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Date: July 14, 2017
Facility Name: BR Perrin Plant

Permit No.: 2298
Registration No: 101662617

This cover sheet should accompany all correspondences submitted to the Waste Permits Division and should be affixed to the front of your submittal as a cover page. Please check the appropriate box for the type of correspondence being submitted. For questions regarding this form, please contact the Waste Permits Division at (512) 239-2335.

Table 1 - Municipal Solid Waste

APPLICATIONS	REPORTS and RESPONSES
☐ New Notification	☐ Closure Report
☐ New Permit (including Subchapter T)	☐ Groundwater Alternate SRC Demonstration
☐ New Registration (including Subchapter T)	☐ Groundwater Corrective Action
☐ Major Amendment	☐ Groundwater Monitoring Report
☐ Minor Amendment	☐ Groundwater Statistical Evaluation
☐ Limited Scope Major Amendment	☐ Landfill Gas Corrective Action
☒ Notice Modification	☐ Landfill Gas Monitoring
☐ Non-Notice Modification	☐ Liner Evaluation Report
☐ Transfer/Name Change Modification	☐ Soil Boring Plan
☐ Temporary Authorization	☐ Special Waste Request
☐ Voluntary Revocation	☐ Other:
☐ Subchapter T Workplan	
☐ Other:	

Table 2 - Industrial & Hazardous Waste

APPLICATIONS	REPORTS and RESPONSES
☐ New	☐ Annual/Biennial Site Activity Report
☐ Renewal	☐ CfPT Plan/Result
☐ Post-Closure Order	☐ Closure Certification/Report
☐ Major Amendment	☐ Construction Certification/Report
☐ Minor Amendment	☐ CPT Plan/Result
☐ Class 3 Modification	☐ Extension Request
☐ Class 2 Modification	☐ Groundwater Monitoring Report
☐ Class 1 ED Modification	☐ Interim Status Change
☐ Class 1 Modification	☐ Interim Status Closure Plan
☐ Endorsement	☐ Soil Core Monitoring Report
☐ Temporary Authorization	☐ Treatability Study
☐ Voluntary Revocation	☐ Trial Burn Plan/Result
☐ 335.6 Notification	☐ Unsaturated Zone Monitoring Report
☐ Other:	☐ Waste Minimization Report
	☐ Other:

July 14, 2017

Ms. Daniela Ortiz de Montellano, Project Manager
Texas Commission on Environmental Quality
Municipal Solid Waste Permit Section (MC-124)
Waste Permits Division
12100 Park 35 Circle, Bldg. F
Austin, Texas 78753

Re: Downstream Environmental, LLC. - B.R. Perrin Plant - Harris County Texas
Municipal Solid Waste (MSW) Permit No. 2298
Permit Modification with Notice
600896872 / RN101662617

Dear Ms. Montellano:

On behalf of Downstream Environmental, LLC. (a subsidiary company of SouthWaste Disposal, LLC), Daniel B. Stephens & Associates, Inc. (DBS&A) is providing the Texas Commission on Environmental Quality (TCEQ) an application for a notice modification to be filed for the referenced facility located at 3737 Walnut Bend, Houston Texas 77042 in Harris County. The purpose of this notice modification is to revise the facility's permit to represent current site conditions and to request an approval of a variance to memorialize the location of the existing grit dewatering/processing area. This modification is being submitted pursuant to 30 TAC 305.70(l) and consistent with the mandate of 30 TAC 305.70(d) that the requested changes do not substantially alter the permit conditions and do not reduce the capability of the facility to protect human health and the environment.

An original and three copies of the application revisions are included with this letter. The application revisions were prepared in a format that allows for the replacement of application pages with the revised pages. Revisions were made in accordance with to 30 TAC §330.57(g)(6). Should you have any questions or comments, please do not hesitate to contact me at (512) 651-6019.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Thomas Golden, P.E.
Project Engineer

cc: TCEQ Region 12 Office, Houston, TX
Mr. Tim Cox, Vice President of Operations, SouthWaste Disposal, LLC
Mr. Ben Camacho, Director of Permitting/Compliance, SouthWaste Disposal, LLC

Daniel B. Stephens & Associates, Inc.
4030 W. Braker Lane, Suite 325 512-821-2765
Austin, TX 78759 FAX 512-821-2724

July 5, 2017

ENGINEER'S APPOINTMENT

SouthWaste Disposal, LLC.
16350 Park Ten Place, Suite 215
Houston, Harris County, Texas 77084
866-413-9494

Texas Commission on Environmental Quality
Attention: Waste Permits Division, MC 124
12100 Park 35 Circle, Bldg. F
Austin, Texas 78753

Dear Executive Director,

The following Engineering Firm has been appointed to submit application information with Thomas Golden, P.E. as Project Engineer.

Daniel B. Stephens & Associates, Inc.
Thomas Golden, P.E. as Project Engineer
4030 West Braker Lane, Suite 325
Austin, Texas 78759
(800) 933-3105
tgolden@dbstephens.com

Mr. Golden is a Texas Licensed Professional Environmental Engineer with more than 12 years of experience in engineering design for water, wastewater, and landfill projects; environmental investigations and remediation; field and laboratory soil analysis; and management of enterprise-wide geographic information systems (GIS) for well, groundwater, land use, soil, and water resources management.

Daniel B. Stephens & Associates, Inc. will be responsible for the submission of drawings, specifications, and any other technical data to be evaluated by the commission regarding the applications for the Downstream Environmental, LLC. B.R. Perrin Plant.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

July, 5, 2017

Ben Camacho
Director of Permitting & Compliance

Date

July 6, 2017

Thomas Golden, P.E.
Project Engineer

Date

DOWNSTREAM ENVIRONMENTAL, LLC
B. R. Perrin Plant
Municipal Solid Waste Permit Modification

Application Technically Complete: April 3, 2002

Application Revisions: October 17, 2002, April 24, 2002, January 31, 2008 and July 14, 2017

Project Information

RN: RN101662617

MSW Permit No.: 2298

Project Name: Downstream Environmental, LLC. - B.R. Perrin Plant

Project Location: Wilcrest Green in Harris County, from Beltway 8 West, take Westpark exit, approximately 1 mile west of Beltway 8 to Walnut Bend Lane, go south on Walnut Bend to dead-end into facility.

Project Description: Municipal Solid Waste Disposal

Street Address: 3737 Walnut Bend, Houston Texas 77042 in Harris County

Applicant Information

CN: CN600896872

Owner/Operator: Downstream Environmental, LLC.

Address: 16350 Park Ten Place, Suite 215, Houston, Harris County, Texas 77084

Telephone: 866-413-9494 **Email:** bcamacho@wrmco.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.

Preparer: Thomas Golden, P.E.

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): tgolden@dbstephens.com

CONTENTS

PERMIT MODIFICATION NARRATIVE SUMMARY

This modification is being submitted pursuant to 30 TAC 305.70(l) and consistent with the mandate of 30 TAC 305.70(d) that the requested changes do not substantially alter the permit conditions and do not reduce the capability of the facility to protect human health and the environment. The B.R. Perrin Plant is currently permitted as a Type V MSW Facility to treat and dispose of Type V GG Wastes. This notice modification maintains the waste acceptance rate as approved in the facility's permit (MSW 2298). In accordance with 30 TAC 330.57, this permit modification is required to provide public notice based on the revisions to the permit.

Downstream Environmental, LLC. (a subsidiary company of SouthWaste Disposal, LLC) has prepared this permit modification to the facility's permit to replace and upgrade facility equipment while adhering to the existing MSW Permit requirements, specifically including the existing volumetric limitations, treatment conditions and other existing permit requirements. This permit modification also includes a variance to memorialize the location of the existing grit dewatering/processing area. Currently, the grit dewatering/processing area is located within the 50-foot buffer and does not comply with the location restrictions set forth in 30 TAC §330.543. In accordance with a meeting held on April 17th, 2017 between TCEQ and Downstream Environmental, LLC., a variance to keep and utilize the existing grit dewatering/processing area was requested and verbally approved, granted that Downstream Environmental, LLC. performs a permit modification requiring notice to the public that addresses the non-compliant location restriction. During the same meeting, it was also requested that Downstream Environmental, LLC. research demographic statistics on the usage of the City trail located east of the eastern property boundary. Based on communication with the Houston Parks Board, the City of Houston did not reveal any data with regards to the number of persons using the trail. Additionally, based on facility observations, the trail is rarely used by the public.

In summary, the following revisions include:

1. Upgrade facility equipment.
2. Revise the final facility site and equipment layout plan.
3. Maintain permitted waste acceptance and permitted waste capacity limits.
4. Revise financial assurance for the overall facility closure cost based on upgraded equipment and facility layout alterations.
5. Apply for a variance to keep and utilize the existing grit dewatering/processing that does not currently meeting the location restrictions set forth in 30 TAC §330.543.
6. Maintain operational effectiveness by replacing the Site Operating Plan.

These changes to the facility will not substantially alter previously permitted conditions and will not reduce the capability of the facility to protect human health and the environment.

Permit Modification Revisions

Global Change	▪ Edited grammar and revised text for clarity. ▪ Replaced title pages and table of contents for each part
Part I	
Part I	▪ Prepared new application Form 20650
Part I – Attachment 1	▪ Prepared new 1-4-mile Land Ownership Map
Part I – Attachment 2	▪ Prepared new 1-4-mile Land Ownership List
Part I – Attachment 2h	▪ Revised 500 Ft. Boundary Map
Part I – Attachment 2d	▪ Revised Land Use Map
Part I – Attachment 25B	▪ Removed Attachment 25B from Part I (The Closure Plan and Closure Cost Estimate are discussed and presented in Part III)
Part II	
Part II – Attachment 1	▪ Prepared new Aerial Photo Map
Part II – Land Use Variance	▪ Added paragraph 8.F discussing requested variance for location of grit dewatering/processing
Part III – Site Development Plan	
Part III - §330.55(a): Site Development Plan	▪ Added protective dike sizing language to paragraph (b)4. ▪ Added drainage calculations language to paragraph (b)5. ▪ Added flood protection language to paragraph (b)7.
Part III - §330.59: Technical Requirements	▪ Revised process description in paragraph (b)1. ▪ Revised waste storage volume language in paragraph (d)1 to comply with existing permit language. ▪ Generalized processed waste language in paragraph (d)2.
Part III - Fire Protection Plan	▪ Revised process description language in paragraph E ▪ Revised alternate processing procedures in paragraph K.
Part III - §330.55(a): Attachments to the Site Development Plan	▪ Prepared new site layout plan to match existing. ▪ Prepared new closure cost estimate. ▪ Revised the post-closure plan language. ▪ Prepared a new surface water protection plan. ▪ Prepared new secondary containment calculations.
Part III - Drawings	▪ Revised 500 Ft. Boundary Map (Attachment 2h). ▪ Revised Process Flow Diagram (Attachment 4). ▪ Revised Process Schematic Diagrams (Attachment 5).
Part IV – Site Operating Plan	
Global Change	▪ Edited grammar and revised text for clarity.
2.1.5	▪ Modified personnel type to be general.
3.1.1	▪ Revised section to clarify odor control system.
3.1.2	▪ Revised section to clarify the control of vectors.
3.4	▪ Added Section 3.4 to state that the requirement for a pre-operation notices does not apply.
4.1	▪ Added and revised language to comply with 30 TAC 330.219.
9.2	▪ Added and revised language to comply with 30 TAC 330.231.
10.1	▪ Added language to comply with 30 TAC 330.233.
10.2	▪ Added cleanup activities for public access roads
12.0	▪ Added and revised language to comply with 30 TAC 330.239.
16.0	▪ Added and revised language to comply with 30 TAC 330.247.

Part I Form

Facility Name: B.R. Perrin Plant
Permittee/Registrant Name: Downstream Environmental, LLC.
MSW Authorization #: 2298
Initial Submittal Date: 04/03/2002
Revision Date: 07/14/2017

Texas Commission on Environmental Quality

Permit/Registration Modification and Temporary Authorization Application Form for an MSW Facility

1. Reason for Submittal

☒ Initial Submittal ☐ Notice of Deficiency (NOD) Response

2. Authorization Type

☒ Permit ☐ Registration

3. Application Type

☒ Modification with Public Notice ☐ Modification without Public Notice
☐ Temporary Authorization (TA) ☐ Modification for Name Change/Transfer

4. Application Fees

☐ Pay by Check ☒ Online Payment

If paid online, e-Pay Confirmation Number: 328359 and 328360

5. Application URL

Is the application submitted for a permit/registration modification with public notice?

☒ Yes ☐ No

If the answer is "Yes", enter the URL address of a publicly accessible internet web site where the application and all revisions to that application will be posted in the space provided: http:// dbsa-client-access.com/application/downstream.html

6. Confidential Documents

Does the application contain confidential documents?

☐ Yes ☒ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

7. General Facility Information

Facility Name: B.R. Perrin Plant

MSW Authorization No.: 2298

Regulated Entity Reference No.: RN101662617

Physical or Street Address (if available): 3737 Walnut Bend Ln

City: Houston County: Harris State: Texas Zip Code: 77042

(Area code) Telephone Number: 713-784-2005

Latitude: 29°43'11.28" N Longitude: 95°33'58.67" W

8. Facility Type(s)

☐ Type I ☐ Type IV ■ Type V

☐ Type I AE ☐ Type IV AE ☐ Type VI

9. Description of the Revisions to the Facility

Provide a brief description of all revisions to the permit/registration conditions and supporting documents referred by the permit/registration, and a reference to the specific provisions under which the modification/temporary authorization application is being made. Also, provide an explanation of why the modification/temporary authorization is requested:

The B.R. Perrin Plant is currently permitted as a Type V MSW Facility to treat and dispose of Type V GG Wastes.

This Part I form has been prepared for a permit modification to the facility's permit (MSW 2298) to replace and upgrade facility equipment while adhering to the existing MSW Permit requirements, specifically including the existing volumetric limitations, treatment conditions and other existing permit requirements. This permit modification also includes a variance to memorialize the location of the existing grit dewatering/processing area. Currently, the grit dewatering/processing area is located within the 50-foot buffer and does not comply with the location restrictions set forth in 30 TAC §330.543. In accordance with a meeting held on April 17th, 2017 between TCEQ and Downstream Environmental, LLC. (a subsidiary company of SouthWaste Disposal, LLC), a variance to keep and utilize the existing grit dewatering/processing area was requested and approved, granted that Downstream Environmental, LLC. performs a permit modification requiring notice to the public that addresses the non-compliant location restriction. During the same meeting, it was also requested that Downstream Environmental, LLC. research demographic statistics on the usage of the City trail located east of the eastern property boundary. Based on communication with the Houston Parks Board, the City of Houston did not reveal any data with regards to the number of persons using the trail. Additionally, based on facility observations, the trail is rarely used by the public.

In summary, the following revisions include:

1. Upgrade facility equipment.

2. Revise the final facility site and equipment layout plan.

3. Maintain permitted waste acceptance and permitted waste capacity limits.

4. Revise financial assurance for the overall facility closure cost based on upgraded equipment and facility layout alterations.

5. Apply for a variance to keep and utilize the existing grit dewatering/processing that does not currently meeting the location restrictions set forth in 30 TAC §330.543

6. Maintain operational effectiveness by replacing the Site Operating Plan.

10. Facility Contact Information

Site Operator (Permittee/Registrant) Name: Downstream Environmental, LLC

Customer Reference No. (if issued)*: CN 600896872

Mailing Address: 16350 Park Ten Place, Suite 215

City: Houston County: Harris State: Texas Zip Code: 77084

(Area Code) Telephone Number: (713) 413-9400

E-mail Address: bcamacho@wrmco.com

TX Secretary of State (SOS) Filing Number: 800553020

*If the Site Operator (Permittee/Registrant) does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Site Operator (Permittee/Registrant) as the Customer.

Operator Name[1]: Same as Site Operator (Permittee/Registrant)

Customer Reference No. (if issued)*: CN

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-mail Address:

Charter Number:

[1]If the Operator is the same as Site Operator/Permittee type "Same as "Site Operator (Permittee/Registrant)".
*If the Operator does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Operator as the customer.

Consultant Name (if applicable): Daniel B. Stephens & Associates, Inc.

Texas Board of Professional Engineers Firm Registration Number: F-286

Mailing Address: 4030 West Braker Lane, Suite 325

City: Austin County: Travis State: Texas Zip Code: 78759

(Area Code) Telephone Number: (512) 821-2765

E-Mail Address: tgolden@dbstephens.com

Agent in Service Name (required only for out-of-state):

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address:

11. Ownership Status of the Facility

Is this a modification that changes the legal description, the property owner, or the Site Operator (Permittee/Registrant)?

☐ Yes ■ No

If the answer is "No", skip this section.

Does the Site Operator (Permittee/Registrant) own all the facility units and all the facility property?

☐ Yes ☐ No

If "No", provide the information requested below for any additional ownership.

Owner Name:

Street or P.O. Box:

City: County: State: Zip Code:

(Area Code) Telephone Number:

Email Address (optional):

Charter Number:

Signature Page

I, Ben Camacho on behalf of Downstream Environmental, LLC., Director of Permitting/Compliance,
(Site Operator (Permittee/Registrant)'s Authorized Signatory) (Title)

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: [signature] Date: 7/12/17

- -

TO BE COMPLETED BY THE OPERATOR IF THE APPLICATION IS SIGNED BY AN AUTHORIZED REPRESENTATIVE FOR THE OPERATOR

I, ____________________________ , hereby designate ________________________________
(Print or Type Operator Name) (Print or Type Representative Name)

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

____
Printed or Typed Name of Operator or Principal Executive Officer

____
Signature

- -

SUBSCRIBED AND SWORN to before me by the said Ben Camacho
On this 12th day of July, 2017
My commission expires on the 12th day of Sept., 2020
Janet Allen
Notary Public in and for
Travis County, Texas
(Note: Application Must Bear Signature & Seal of Notary Public)

NOTARY PUBLIC STATE OF TEXAS
JANET ALLEN
My Notary ID # 10608103
Expires September 12, 2020

Permit / Registration Modification with Public Notice

(See Instructions for P.E. seal requirements.)

Required Attachments	Attachment No.
Land Ownership Map	1
Land Ownership List	2
Marked (Redline/Strikeout) Pages	Part III & IV
Unmarked Revised Pages	Part III & IV

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ■ Fee Payment Receipt
- ☐ Confidential Documents

TCEQ ePay Voucher Receipt

Transaction Information

Voucher Number:	328360
Trace Number:	582EA000264319
Date:	07/13/2017 12:26 PM
Payment Method:	CC - Authorization 000001346B
Amount:	$50.00
Fee Type:	30 TAC 305.53B MWP NOTIFICATION FEE
ePay Actor:	Ben Camacho

Payment Contact Information

Name:	Ben Camacho
Company:	Downstream Environmental Llc
Address:	12707 Mixson Drive, Austin, TX 78732
Phone:	713-303-9435

TCEQ ePay Voucher Receipt

Transaction Information

Voucher Number:	328359
Trace Number:	582EA000264319
Date:	07/13/2017 12:26 PM
Payment Method:	CC - Authorization 000001346B
Amount:	$100.00
Fee Type:	MSW PERMIT/REGISTRATION/AMEND/MOD/TEMP AUTHORIZATIONS APPLICATION FEE
ePay Actor:	Ben Camacho

Payment Contact Information

Name:	Ben Camacho
Company:	Downstream Environmental Llc
Address:	12707 Mixson Drive, Austin, TX 78732
Phone:	713-303-9435

Site Information

Site Name:	BR PERRIN PLANT
Site Address:	3737 WALNUT BEND LANE, HOUSTON, TX 77042

Customer Information

Customer Name:	DOWNSTREAM ENVIRONMENTAL LLC
Customer Address:	16350 PARK TEN PLACE STE 215, HOUSTON, TX 77084

Other Information

Comments:	MSW Permit Modification Permit #2298

Permit/Registration Modification without Public Notice or TA

(See Instructions for P.E. seal requirements.)

Required Attachments (for Modifications only) **Attachment No.**

Marked (Redline/Strikeout) Pages

Unmarked Revised Pages

Additional Attachments as Applicable- Select all those apply and add as necessary

☐ Signatory Authority
☐ Fee Payment Receipt
☐ Confidential Documents

Permit / Registration Name Change / Transfer Modification

(See Instructions for P.E. seal requirements.)

Required Attachments	**Attachment No.**
TCEQ Core Data Form(s)	
Property Legal Description	
Property Metes and Bounds Description	
Metes and Bounds Drawings	
On-Site Easements Drawing	
Land Ownership List	
Land Ownership Map	
Property Owner Affidavit	
Verification of Legal Status	
Evidence of Competency	

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ☐ Fee Payment Receipt
- ☐ Confidential Documents
- ☐ Final Plat Record of Property, if platted
- ☐ Assumed Name Certificate

Part I

(Redline Copy)

PART I

TITLE PAGE - MSW #2298

Project Name:

DOWNSTREAM ENVIRONMENTAL, LLC

B. R. Perrin Plant

3737 Walnut Bend

Houston, Harris County, Texas 77042

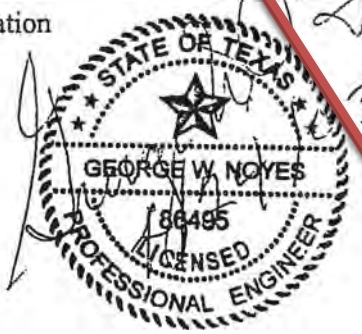
Prepared for:

THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
MUNICIPAL SOLID WASTE DIVISION

NAME OF APPLICANT:	**DOWNSTREAM ENVIRONMENTAL, LLC** 2044 Bissonnet Houston, TX 77005
PROPERTY OWNER:	Group Two Partners, LLP 2044 Bissonnet Houston, Texas 77005
CONSULTING ENGINEER:	George W. Noyes 1617 Oak Tree Drive Houston, Texas 77080
TYPE OF FACILITY:	Type V Municipal Solid Waste Processing Grit, Septage and Grease Trap Treatment Facility
WASTE TO BE ACCEPTED:	Grease Trap Waste, Grit Trap Waste and Septage
ORIGINALLY SUBMITTED:	April 3, 2002
REVISED AND SUBMITTED:	October 17, 2002

Revised
4/24/03

PART I
TABLE OF CONTENTS
[330.52]
TECHNICAL REQUIREMENTS OF PART I



Revised
4/24/03

Page

(11) APPOINTMENTS 88

(A) The person signing the Application meets the requirements in 305.44. If authority has been delegated, letter of delegation to authorized delegate.

(B) A "Notice of Appointment" identifying Applicant's Engineer

(12) EVIDENCE OF FINANCIAL ASSURANCE 92

(A) Closure Letter of Credit

(B) Estimate of Closure Costs

PART I
ADDITIONAL REQUIREMENTS

§330.51(6) DOCUMENTATION OF COORDINATION FROM AGENCIES

(a) Endangered Species & Wildlife Approval Letter
(b) Federal Aviation Administration Approval Letter
(c) Fire Marshal Coordination
(d) Wetlands Determination Coordination
(e) Watershed Management Review Coordination
(f) Flood Impact Fee Receipt
(g) Regional Solid Waste Plan Coordination
(h) TxDOT Coordination
(i) Texas Historical Commission Approval Letter
(j) NPDES Coordination
(k) EPA Report on Proposed Site
(l) Data Base of EPA Permitted Sites Within ½ Mile
(m) City's Zoning Approval Letter
(n) The Site's Deed Restrictions
(o) City's Traffic Approval Report
(p) City of Houston Coordination Regarding Facility Compatibility
(q) Wastewater Agreement and Wastewater Capacity Reservation Letter
(r) BFI's Letter Stating Landfill Capacity

PART I

A. APPLICATION FORM - Attached

PART I
Supplemental Technical Report

§330.52(b)(3) and §330.53(b)(3)

In the event the recycling goals of a Type V Registration cannot be met due to changes in the market, Applicant requests that the facility in question be allowed to operate under a Type V MSW Permit, and files this application as follows:

Subtitle D of the Resource Conservation and Recovery Act (RCRA) bans liquid waste from being disposed of at landfills. Since the ban on liquid waste receipt at landfills became effective in 1993, a lack of disposal service for commercial liquid waste streams is a problem in some Texas cities. Two of the waste streams which have been historically disposed of in landfills are grease trap waste and grit trap waste. The major constituent of both of these waste steams is water. Downstream Environmental, LLC is an innovative technology company that is committed to the urban friendly processing of grease and grit trap waste. Downstream Environmental's patented technology generates clean water and eliminates odor and land use problems.

Downstream Environmental, LLC is making application to obtain a Type V MSW Permit to operate a stationary Type V G municipal solid waste processing facility. The facility is designed to process septage, great trap waste and grit trap waste.

For the purpose of this Type V MSW Permit Application, the Applicant shall be referred to as "Downstream Environmental, L.L.C." or "Applicant".

PART I

(5) MAPS

(A) GENERAL

(i) Windrose
(ii) Water Wells - 500 Feet
(iii) Structures and Buildings within 500 Feet
(iv) Schools, day cares and churches within (1) mile
Hospitals and cemeteries within (1) mile
Community and recreation areas within (1) mile
(v) Location and Surface of all Roads within one (1) mile.
(vi) Longitudes and Latitudes
(vii) Area Streams, ponds and lakes
(viii) Airports within five (5) minutes.
(ix) Property Boundary of Site
(x) Drainage, pipeline, utility easements within or adjacent to the Site
(xi) Archaeological sites, historic sites or aesthetic sites, adjacent to the Site - N/A

Completely Revised
08/09/02

0001

ATTACHMENT 14d

D-B
ASSOCIATES

815 Brazos, Suite 205
Austin, Texas 78701
512/457-0032
Fax: 512/457-0038

April 13, 2000

Ms. Mary Wimbush
DOWNSTREAM ENVIRONMENTAL, L.L.C.
2044 Bissonnet
Houston, TX 77005

RE: LOCATED WATER WELLS – 10400 WESTPARK DR.- HOUSTON, TX

Dear Ms. Wimbush:

Attached is a topographical map, record of wells for grid number 65-20-2 and the well records for the located wells within one-mile of your site in Harris County. D-B Associates did not find any wells within a 500 foot radius of your site, but found one well within a ½ mile and two additional wells within the mile radius. The Located Files were the only files checked at the Texas Water Development Board.

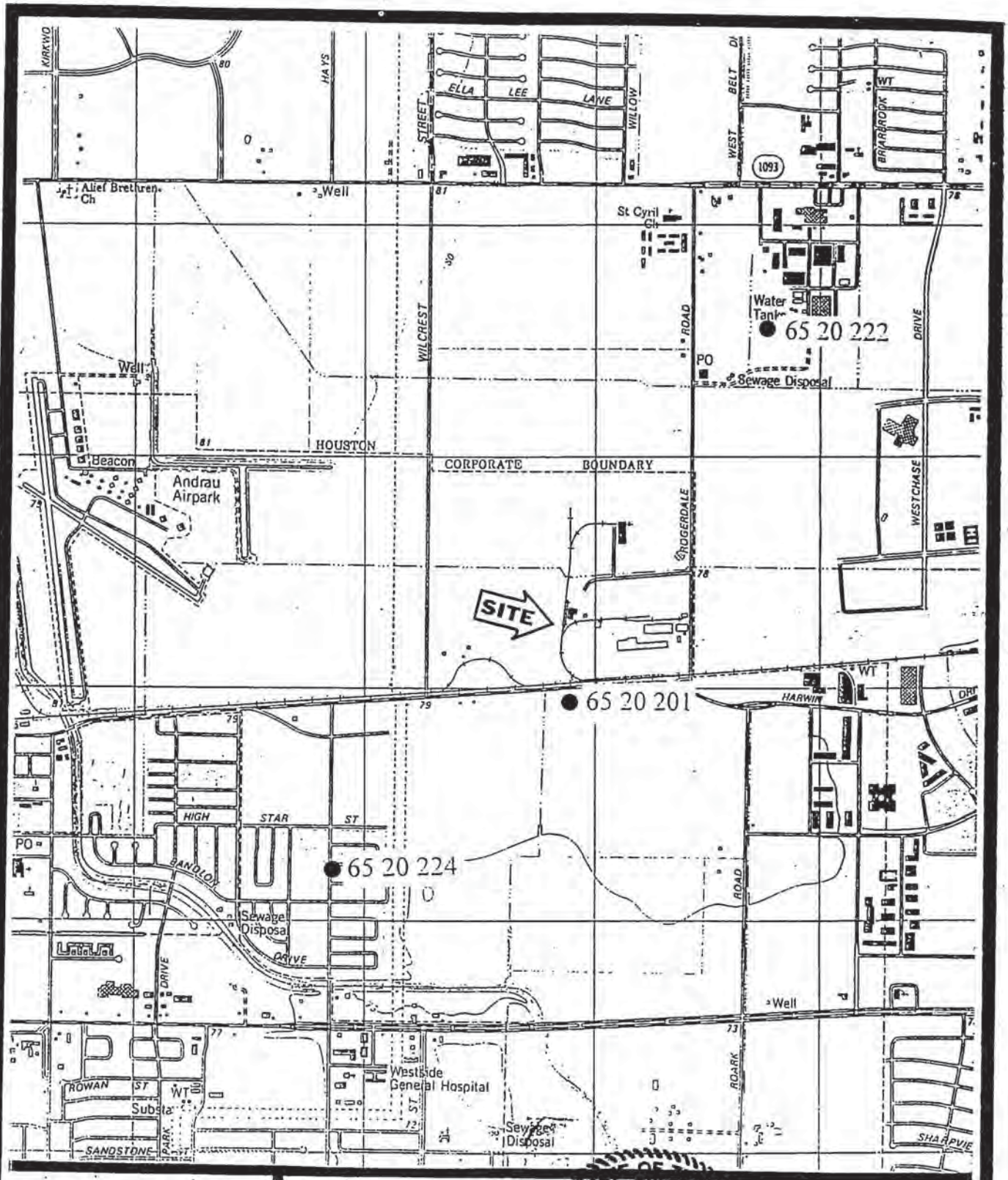
LOCATED WELLS: Wells that have physically been identified and spotted onto maps on file with the Texas Water Development Board.

If you should have any questions or concerns, please feel free to contact me at (512) 457-0032.

Sincerely,

Bonnie Burklund

STATE OF TEXAS
GEORGE W. HOYES
86495
LICENSED
PROFESSIONAL ENGINEER



ALL LOCATIONS ARE APPROXIMATE

1"=2000'

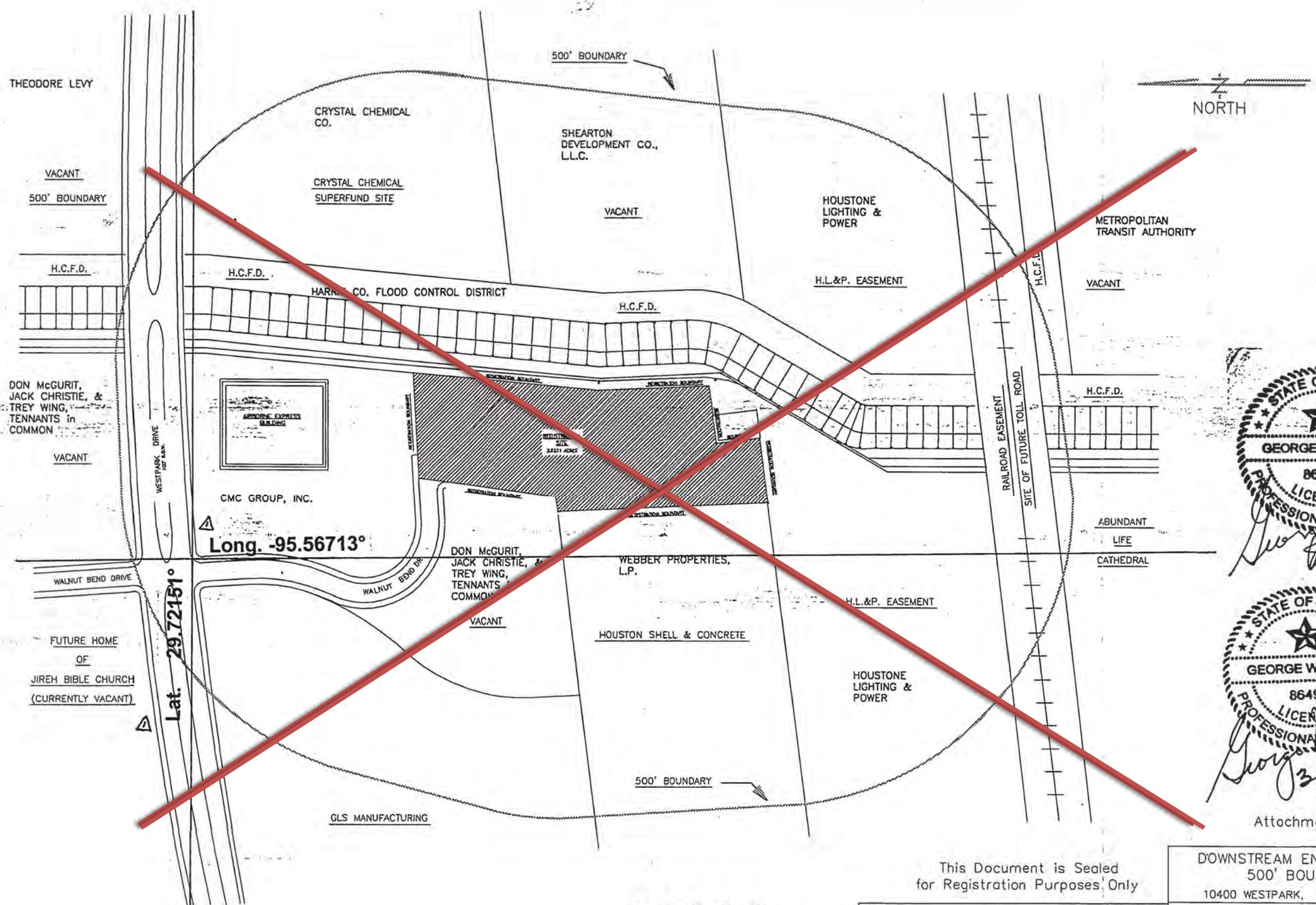
LOCATED WATER W[illegible] LOCATIONS
10400 WESTPARK DI[illegible] HOUSTON, TX

[illegible] GS [illegible] MINUTE QUADRANGLE
GEORGE W. HOYES [illegible] ALIEF, TEX.
1982

STATE OF TEXAS
[illegible]495
LICENSED
PROFESSIONAL ENGINEER

00019

Attachment 14c



STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER
7/8/02

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER
3/5/01

Attachment 2h

This Document is Sealed for Registration Purposes Only

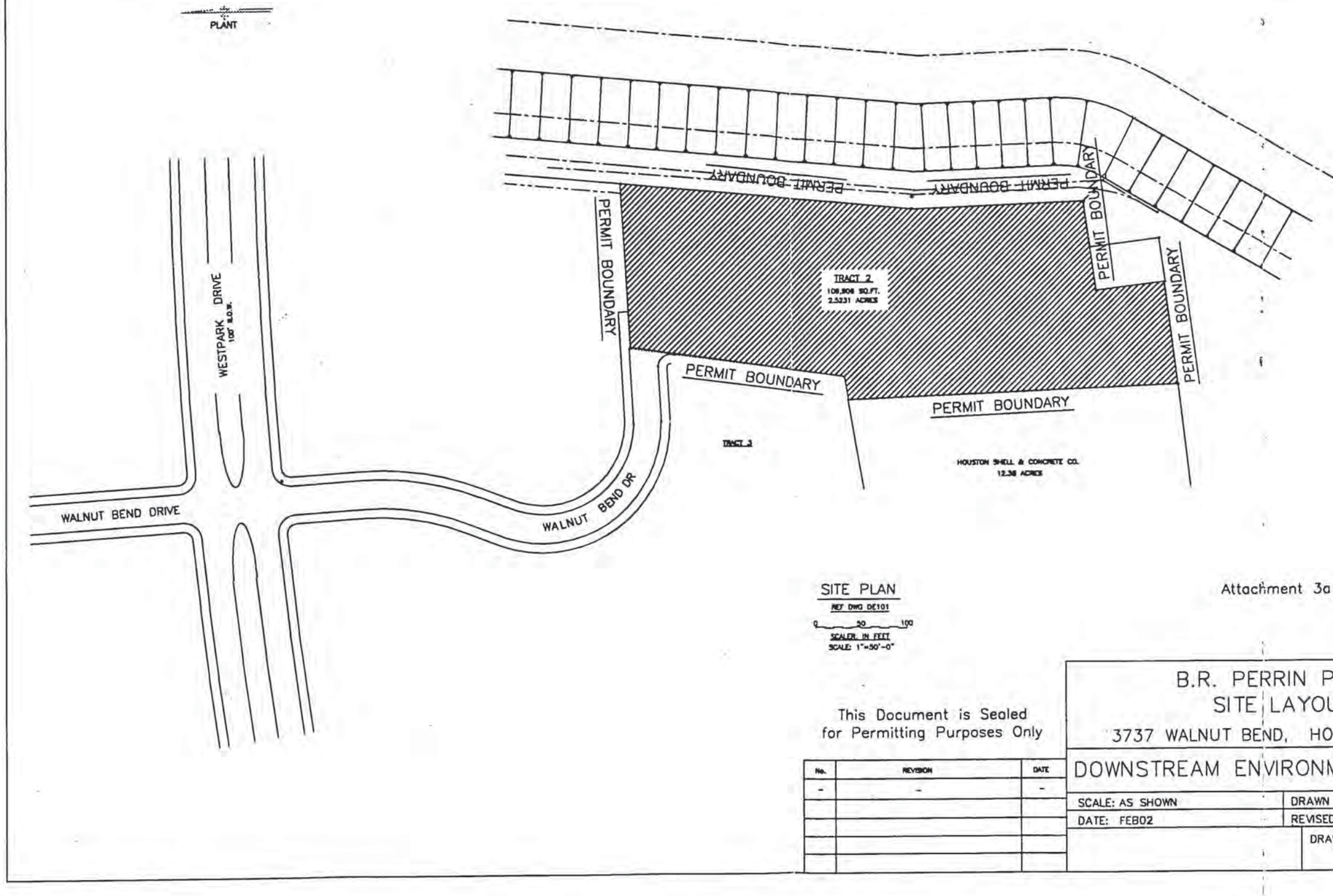
NO.	REVISION	DATE
-	-	-
1	ADD LATITUDE & LONGITUDE	7/02

DOWNSTREAM ENVIRONMENTAL
500' BOUNDARY
10400 WESTPARK, HOUSTON TX 77042

DOWNSTREAM ENVIRONMETAL, L.L.C.

SCALE: AS SHOWN	DRAWN BY: DGN
DATE: 24FEB01	REVISED: -
	DRAWING NUMBER: DE115.rev1

00020



SITE PLAN

REF DWG DE101

0 50 100

SCALED IN FEET

SCALE: 1"=50'-0"

Attachment 3a

This Document is Sealed
for Permitting Purposes Only

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER
1/29/02

No.	REVISION	DATE
-	-	-

B.R. PERRIN PLANT
SITE LAYOUT
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, LLC

SCALE: AS SHOWN	DRAWN BY: DGN
DATE: FEB02	REVISED: n/a
	DRAWING NUMBER: DE 101

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

City of Houston
Walnut Bend Lane Area
General Landuse Map

One Mile Radius
City Limit Line
School Site
Park Site

N

(landuse as of 1997) :

1	Single-family Residential
2	Multi-family Residential
3	Commercial/Office
4	Industrial
5	Public and Institutional
6	Transportation and Utilities
7	Parks and Open Space
8	Undeveloped
9	Agricultural Production
10	Open Water
11	Others (mismatched code)

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

3/29/02

0 1100 2200 3300 Feet

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

3/28/01

Planning & Development Department
Information Systems Division

Map Date : April 2000

This Map Represents The Best Information Available To The City
The City Does Not Warrant Its Accuracy Or Completeness
Field Verifications Should Be Done As Necessary

Attachment 2d

00022

PART I

(6) LANDOWNERS LIST

List of landowners within a 500 foot radius of the site's boundaries is attached.

Completely Revised
08/09/02

PART I

(7) LEGAL DESCRIPTION OF THE SITE

The property is an approximate 2.5 acre tract of land located at 10400 Westpark, in Southwest Houston, Harris County, Texas, more particularly described as:

> Approximately 2.5 acre portion of Section 3, Reserve D, Wilcrest Green in Harris County, Houston, Texas, Plat of subject property is attached as Exhibit "A" and "B", along with metes and bounds description. Referred to on Exhibit "A" as tract 2, 109,406 sq.ft., 2.5231 acres. See survey.
> See: Attachment 28a - Deed.

Address and Directions to proposed site:

> West Beltway 8 to Westpark. West on Westpark. South on Walnut Bend Lane.
> Street Address: 3737 Walnut Bend Lane, Houston, TX 77042

Attached:

(A) Owner's Deed
Applicant's 20 Year Lease
(B) Plat - Contained in Survey
(C) Metes and Bound Description
(D) Drawing of Metes and Bounds - Contained in Survey

U967661

FILED BY
ALAMO TITLE COMPANY
42901111

SPECIAL WARRANTY DEED

04/04/01 201478362 U967661 $23.00

Date: April 3, 2001

Grantor: DON MCGUIRT and JACK CHRISTIE, not joined herein by their respective spouses for the reason that the property herein described constitutes no part of their residential homesteads, and TREY WING, a single person

Grantor's Mailing Address (including county):

12330 Tealwood North
Houston, Harris County, Texas 77024

Grantee: GROUP TWO PARTNERS, LLP, a Texas Limited Liability Partnership

Grantee's Mailing Address (including county):

2044 Bissonnet
Houston, Harris County, Texas 77005

Consideration: For Ten and No/100 Dollars and other valuable consideration.

Property (including any improvements):

TRACT I:
A 2.5231 acre tract, more or less, being a portion of WILCREST GREEN, SECTION THREE (3), Restricted Reserve "D", a subdivision in Harris County, Texas, according to the map or plat thereof, recorded under Film Code No. 397067 of the Map Records of Harris County, Texas, and being more particularly described by metes and bounds in Exhibit "A" attached hereto and made a part hereof for all purposes.

TRACT II:
A 0.4759 acre tract of land, more or less, out of Restricted Reserve "D", WILCREST GREEN, SECTION THREE (3), according to the map or plat thereof, recorded under Film Code No. 397067 of the Map Records of Harris County, Texas, and being more particularly described by metes and bounds in Exhibit "A" attached hereto and made a part hereof for all purposes.

Reservations from and exceptions to Conveyance and Warranty:

Easements, rights-of-way, and prescriptive rights, whether of record or not; all presently recorded instruments, other than liens and conveyances, that affect the property. Taxes for the current year have been prorated and are assumed by Grantee.

Grantors hereby reserve for the benefit of Grantors, Grantors heirs, executors, administrators, successor and assigns, an easement for drainage purposes over and across the most Northerly ten feet (10') of Tract I and over and across a portion of the Westerly property lines of Tract I commencing at the Northwest corner of Tract I and continuing in a Southerly direction along the Westerly property line of Tract I to a point thirty feet (30') South of the Southeast corner of Tract II for the purpose of providing drainage from Grantors' remaining tract of land, which said remaining

Attachment 28a

tract of land is Westerly of and adjacent to and adjoining Tract I and which remaining tract is adjacent to and adjoining the Southerly boundary line of Tract II to the fifty foot (50') wide Harris County Flood Control District easement recorded in Volume 6872, Page 349 of the Deed Records of Harris County,Texas. This drainage easement shall be a covenant running with the land and shall be binding upon the respective parties hereto, their heirs, executors, administrators, legal representatives, successor and assigns, and shall forever benefit Grantors' remaining tract of land as described herein. Grantors shall have the right to make such use of said drainage easement as is necessary to accomplish the purpose set forth herein; provided however, Grantors shall repair, at Grantors' cost, any damage to Tract I created by Grantors in exercising Grantors' rights herein.

Grantor and Grantee agree that the following covenants, conditions and restrictions shall be and are imposed against the property:

No use of the Property shall be permitted which is illegal by reason of noise, odor, pollution, dust, smoke, fumes, or hazardous by reason of excessive danger of fire or explosion, nor shall anything be done thereon which may create environmental contamination of which may be or become an environment hazard to surrounding property owners.

In addition, no activity or use shall be permitted on or with respect to any part of the property which is obnoxious, offensive, constitutes a nuisance, or is materially out of harmony with the development of Wilcrest Green, including, but not limited to the operation of (a) a used car lot, car repair lot or car detail lot, or the like (b) storage yard for pipe, junk vehicles, or any other kind of junk material (c) a manufacturing or assembling facility, unless such facility is operated inside an enclosed facility with an exterior constructed of brick, stone, metal or concrete, or some combination thereof, with said facility having a proper business like front facade (exterior cannot be greater than 50% metal) and (d) any type of "adult entertainment" business catering to adults only and sexual in nature.

Expressly permitted and excepted herein is the construction and operation of a non toxic waste treatment plant for liquid transportable waste including but not limited to grease trap waste, septage and grit. Said facility will be operated wholly within the applicable laws of the T.N.R.C.C., the City of Houston, and other applicable regulatory agencies and if at any time it is not operating within their guidelines, it will be reported to one of the proper authorities for corrective action to be taken immediately.

Any question as to what constitutes any annoyance, nuisance, or is obnoxious shall be solely at the discretion of Don McGuirt, President (or any successor President) of 50 Westpark Corp., so long as 50 Westpark Corp. or Don McGuirt owns property in Wilcrest Green.

A tree buffer zone of ten feet (10') will be required on subject tracts northern property line a distance of approximately one hundred eighty-five feet (185'), along with approximately four hundred feet (400') on the western border. This buffer area shall fall inside the required fence and shall be planted with fast growing evergreen trees with their growth projected to be well above the fence line. Tree will be such that they are well taller than fence when planted. Spacing shall be such that it provides as dense a cover as is reasonably possible.

Grantee shall have right to cross under twenty foot (20') easement to east of subject property for the purpose of installing conduit or culverts for drainage, so long as any damage to existing road is repaired by Grantee. Grantee may also tie into the wastewater line lying within this twenty foot (20') easement at their expense so long as road is repaired.

No signage other than a monument sign installed on Westpark by Grantor for the benefit of all 3 owners will be permitted. Grantor will install the monument sign including address and Grantee will be responsible for installing their name on subject sign in lettering and material approved by Grantor.

The preceding restrictive covenants shall be covenants running with the land and shall be for the benefit of and enforceable solely by Grantor by any and all equitable means, inclusive of, but without limitation, temporary restraining order, temporary injunction and permanent injunction. The preceding restrictive covenants shall be enforceable solely by Grantor and shall terminate upon the earliest to occur of the following: (a) passage of twelve years from date of the conveyance of the property to Grantee; (b) when Grantor or Don McGuirt ceases to own any land in Wilcrest Green.

Grantor, for the consideration and subject to the reservations from and exceptions to conveyance and warranty, grants, sells, and conveys to Grantee the property, together with all and singular the rights and appurtenances thereto in any wise belonging, to have and hold it to Grantee, Grantee's heirs, executors, administrators, successors and assigns forever, Grantor binds Grantor and Grantor's heirs, executors, administrators, successors and assigns to warrant and forever defend all and singular the property to Grantee and Grantee's heirs, executors, administrators, successors and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except to the reservations from and exceptions to conveyance and warranty, when the claim is by, through or under Grantor, but not otherwise.

When the context requires, singular nouns and pronouns include the plural.

THE PROPERTY IS CONVEYED BY GRANTORS, AND ACCEPTED BY GRANTEE, IN ITS "AS IS", "WHERE IS" CONDITION, "WITH ALL FAULTS". ABSOLUTELY NO WARRANTIES (EXCEPT FOR THE SPECIAL WARRANTY OF TITLE SET FORTH HEREIN) ARE GIVEN GRANTEE WITH RESPECT TO THE PROPERTY INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF SUITABILITY, HABITABILITY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. NO WARRANTIES OR REPRESENTATIONS HAVE BEEN MADE BY GRANTORS WITH RESPECT TO THE ENVIRONMENTAL STATUS OF THE PROPERTY OR WITH RESPECT TO THE PRESENCE OR ABSENCE OF ANY HAZARDOUS SUBSTANCES OR DANGEROUS CONDITION IN, ON, UNDER, OR ABOUT THE PROPERTY. GRANTEE ASSUMES ALL RISKS WITH RESPECT TO THE PHYSICAL AND ENVIRONMENTAL CONDITION OF THE PROPERTY AFTER THE DATE HEREOF.

Don McGuirt

DON MCGUIRT

307

Jack Christie

JACK CHRISTIE

Trey Wing

TREY WING

AGREED TO AND ACCEPTED BY:

GROUP TWO PARTNERS, LLP, a Texas Limited Liability Partnership

By: Paul T Hlavinka
Name: PAUL T. HLAVINKA
Title: Managing Ptr.

THE STATE OF TEXAS {}

COUNTY OF HARRIS {}

This instrument was acknowledged before me on the 3 day of April, 2001, by DON MCGUIRT.

MELISSA ROBIRDS
Notary Public, State of Texas
My Commission Expires 11-07-2004

Notary Public, State of Texas
Notary's printed name:

Notary's commission expires:

THE STATE OF TEXAS {}

COUNTY OF HARRIS {}

This instrument was acknowledged before me on the 3 day of April, 2001, by JACK CHRISTIE.

MELISSA ROBIRDS
Notary Public, State of Texas
My Commission Expires 11-07-2004

Notary Public, State of Texas
Notary's printed name:

Notary's commission expires:

THE STATE OF TEXAS {}

COUNTY OF HARRIS {}

This instrument was acknowledged before me on the 3 day of April, 2001, by TREY WING.

Notary Public, State of Texas
Notary's printed name:

Notary's commission expires:

THE STATE OF TEXAS {}

COUNTY OF HARRIS {}

This instrument was acknowledged before me on the 3 day of April, 2001, by Paul T. Hlavinka managing ~~General~~ Partner of GROUP TWO PARTNERS, LLP, a Texas Limited Liability Partnership, on behalf of said partnership.

Notary Public, State of Texas
Notary's printed name:

Notary's commission expires:

50 73-1934

(KAM/bd H:42901111 MR)

Attachment 28a

Waste Water Capacity
Purchase Agreement

As a condition precedent to the sale of 10400 Westpark and concurrent with the closing on the 2.999 acres tract of land at 10400 Westpark, Houston, Texas, to be purchased by Group Two Partners, LLP:

Downstream Environmental, LLC, hereby agrees to purchase from Don McGuirt, Trey Wing and Jack Christie, 100,000 gallons of City of Houston waste water capacity for the sum of $2.25 per gallon over a period of 9 months. To be purchased 33.333 gallons (1/3) three months after date of closing, 33.333 gallons (1/3) six months after date of closing, and 33.334 gallons (1/3) nine months after closing. Each amount to be the sum of $75,000. Buyer may prepay any of these amounts with no prepayment penalty. In the event any of these dates of payment are not met, a carrying cost penalty in the amount of ½ of 1% per month will be added to the payment owed from the due date of any missed payment (6% per annum), until paid. Once payment is made and received, the carrying cost will cease as to that payment only. The maximum time allowed to pay for this 100,000 gallons will be 24 months. In the event default occurs because the $225,000 (plus carrying costs) has not been paid in full by the end of the 24 months, the accompanying Dispute Resolution Agreement, requiring specific performance, will immediately go into effect. After the 24 month period, future penalties will be accessed at the rate of 5% per month on the unpaid balance, or the maximum rate allowed by law should the 5% per month be found to be usurious.

Sellers warrant that the wastewater capacity that is the subject of this contract is suitable for use at 10400 Westpark.

Additionally: After the full and complete purchase as stated above has been completed, Sellers would be agreeable to Buyers purchasing an additional amount of waste water capacity from them should they have it available under the following terms and conditions.

0 to 50,000 gal. = $2.25 per gal. 50,000 to 100,000 gal. = $1.95 per gal. 100,000 to 150,000 gal. = $1.75 per gal.

These prices will be good for any single purchase, or collective purchases paid for within a 30 day period. Otherwise, the prices are not meant to be necessarily cumulative.

The performance of this contract is guaranteed by Downstream Environmental, LLC, the long term Tenant at 10400 Westpark. The remedy for default for either party to this contract is to proceed immediately to remedy the default by specific performance or damages enforced by binding mediation, followed by final judgment and execution of said judgment.

Dated this 2nd day of April, 2001.

Sellers:

Don McGuirt, Trey Wing & Jack Christie

Don McGuirt

Trey Wing

Jack Christie

Buyer:

Downstream Environmental, LLC

By: Mary Wimbish

Mary Wimbish, General Counsel

DISPUTE RESOLUTION PROCEDURES

1. Any party may from time to time call a special meeting for the resolution of disputes that arise under the Operating Agreement. Such meeting shall be held at the Company's offices within three (3) working days of a written request therefor, which request shall specify in reasonable detail the nature of the dispute to be resolved at such meeting. The meeting shall be attended by Representatives of the parties and any other person that may be affected in any material respect by the resolution of such disputes. Such Representatives shall have authority to settle the dispute and shall attempt in good faith to resolve the dispute.

2. If the dispute has not been resolved within five (5) working days after the special meeting has been held, a mediator, mutually acceptable to the parties and experienced in limited liability governance and interpretation shall be appointed. The cost of the mediator shall be shared by the parties. The mediator shall be given any written statements of the parties and may review the site and any relevant documents. The mediator shall call a meeting of the parties affected by such dispute within ten (10) working days after his/her appointment, which meeting shall be attended by Representatives of such parties with authority to settle such dispute. During such ten day period the mediator may meet with the affected parties separately.

3. No minutes shall be kept and the comments and/or findings of the mediator, together with any written statements prepared, shall be nonbinding, confidential, and without prejudice to the rights and remedies of any party. The entire mediation process shall be completed within twenty (20) working days of the date upon which the special meeting referred to in paragraph 2 is held, unless all of the parties involved in the dispute agree otherwise in writing. If the dispute is settled through the mediation process, the decision will be implemented by written agreement signed by all the parties involved.

4. Any controversy or dispute not resolved through nonbinding mediation shall be settled by binding arbitration. Either party may initiate arbitration by giving written notice to the other party after exhausting the mediation procedures referred to above. The notice shall state the nature of the claim or dispute, the amount involved, if any, and the remedy sought.

5. The dispute shall be submitted to an independent arbitrator mutually selected by the parties. If the parties do not mutually agree on an arbitrator who is willing and able to serve, the parties shall then utilize AAA or another recognized alternate dispute resolution organization acceptable to the Company and the affected Member(s) to provide an independent arbitrator. The decision of the appointed independent arbitrator shall be final and binding on the parties to the dispute, and may be enforced in any Court having jurisdiction. In rendering a decision, the arbitrator shall comply with the Commercial Arbitration Rules of the American Arbitration Association in effect as of May, 1992. The arbitrator shall have no direct or indirect social, political, or business relationship of any sort with any of the parties or their respective legal counsel, or anyone else having a material role in the arbitration.

4-3-01

4/3/01

Attachment 28b

4-3-01

REVISED

LEASE AGREEMENT

LANDLORD: Group Two Partners, LLP
TENANT: Downstream Environmental, LLC

1. **Rent** - $5,000.00 per month, plus 5% rent increase each year thereafter. Rent due date - 1st day of each month. See: Attached Rent Schedule. Late fee: $250.00 if paid later than the 15th of the month.

2. **Term**: April 2, 2001 through April 2, 2021.

3. Kind of Lease - **20 year commercial lease with an option to purchase at the end of 20 year term for $1.00.** Landlord: Group Two Partners, LLP - Tenant: Downstream Environmental, LLC.

4. Purpose – the permitted purpose for the Tenant's use of the subject property shall be for the construction, operation and maintenance of a commercial non-hazardous liquid waste disposal facility, including attendant waste water disposal operation. Any subsequent use of the property by the Tenant for any purpose inconsistent with such stated purpose, shall be undertaken only with the prior written consent of the Landlord, which Landlord shall not unreasonably withhold.

5. Property: 2.5 acres at **10400 Westpark, Houston, Texas**.

6. Special Provisions - Storm water, wastewater **impact fees** and TNRCC permits/registrations to be paid by Tenant during lease term according to Tenant's need. Tenant may modify, amend, or increase wastewater permits and capacity as needed, at Tenant's expense. Impact fees, once paid, are non-transferrable by Tenant and inure to the benefit of Landlord.

7. Strict Obligation by Tenant to Maintain all **Permits** in good standing.

8. Strict obligation by Tenant to maintain TNRCC registrations and permits including payment of **Closure bond**.

9. **Option to Purchase** - Tenant has the option to purchase subject property for $1.00 at the end of this 20 year lease, provided Tenant has fulfilled the obligations of this 20 year lease.

10. **No encumbrances** (liens) that would interfere with Tenant's use, by Warranty of Landlord.

LANDLORD _____
TENANT _____

11. **Deposit** - $10,000.00 deposit required from Tenant which is credited as the first month's rent and an account with $5,000.00 held in reserve for taxes , legal fees and partnership filing fees.

12. Documents pertaining to **TNRCC permits** shall be provided to Tenant or Landlord, upon request of either party, time is of the essence.

13. **Credit worthiness** of Tenant - May be investigated by Landlord - documents and references available upon request, time is of the essence.

14. **Real estate taxes** and assessments - After date of this Lease are to be paid by Tenant. Prior to date of Lease are to be paid by Landlord or Seller. Provided, however, that if lease is executed after the date of closing on purchase of real property by Landlord, then liability for real estate taxes and assessments shall be pro-rated back to date of closing, and Tenant shall be responsible for any real estate taxes and assessments occurring after date of closing.

15. Operating Expenses - Including **utilities**, cost of maintaining the road and all improvements shall be the obligation of the Tenant.

16. There will be no future **encumbrances** or mortgage of real estate by Landlord, without Tenant's written consent, which will not be unreasonably withheld.

17. **No assignment**, pledge or sale of this Lease by Landlord, without written consent of Tenant, which will not be unreasonably withheld.

18. All pre-existing, recorded or unrecorded, asserted or unasserted, disclosed or undisclosed, mortgages, **M&M liens**, or other debts arising out of the improvement of the real estate prior to date of this Lease, is the responsibility of Landlord, and if remains unpaid or in default, may be paid by Tenant and lease payments offset in the amount paid.

19. It is the obligation of Landlord to pay **personal income tax liens** or any other liens, filed against the property on account of the Landlord's debt.

20. This **Lease and Option to Buy is to be recorded** in real property records, and all purported purchasers or lien holders asserting an interest in the realty shall have notice of this Lease and their claims shall be subject to the rights of Tenant.

21. **Improvements** and Betterment of the property shall be made by the Tenant at the Tenant's expense for the purpose of the operation of a commercial non-hazardous liquid waste disposal facility.

LANDLORD ____
TENANT ____

22. All **improvements** and betterments shall be approved in advance by Landlord, approval to be given promptly (within 5 business days) and not to be unreasonably withheld.

23. Any and all tax assessments for local improvements and betterments necessary to operate liquid waste disposal facility shall be paid by Tenant. **Personal property taxes shall be paid by Tenant.**

24. This lease is for use of the surface. The **mineral rights** are retained by Landlord. Landlord shall not convey or lease the mineral rights in any way that would interfere with the Tenant's use of the surface.

25. Any and all assessments or **TNRCC fees** shall be paid by Tenant.

26. Environmental contamination:

    a. Caused by Tenant or Tenant's wastewater operation is the liability or responsibility of Tenant.

    b. That was pre-existing prior to the date of this Lease is the liability and responsibility of Tenant.

27. Acts of **sabotage or pollution** by third parties other than Tenant, which causes temporary shutdown of Tenant's operations, will not suspend the Lease payments and the clean-up shall be the responsibility of Tenant.

28. Tenant is responsible for security and sampling procedures to minimize risk of **sabotage** and/or pollution by third parties.

29. **Repairs** - It is the Tenant's obligation to keep and maintain the leased premises in good order and maintain and repair existing improvements.

30. Compliance with Laws - Tenant shall comply with all laws and **TNRCC regulations**. Landlord warrants that all laws and regulations have been complied with to date.

31. Tenant will pay all annual property taxes, assessments for **streets**, sidewalks, improvements, permit renewal fees, flood impact fees, **TNRCC closure bonds**, and performance bonds related to the wastewater disposal operation. Payment shall be paid directly to the taxing authority.

32. Any disputes arising under or out of this agreement shall be subject to binding mediation in accordance with a **mediation agreement** attached.

33. **Confidentiality** - All matters herein will be kept strictly confidential.

LANDLORD _____
TENANT _____

34. Confidentiality and **Non-Compete Agreement** attached hereto shall be signed by all parties. Landlord will not compete with Tenant directly or indirectly in the liquid waste industry.

35. **Default** - Occurs after the rent us late for 60 days and Landlord Tenant written notice by certified mail, return receipt requested, and gives Tenant 90 days after receipt of notification to cure. All disputes related to default, eviction and possession of real property and/or personal property, shall be resolved by following the binding mediation procedure agreed to in the attached mediation agreement. Texas Landlord/Tenant Law shall be applied, save and except the 60 day default rule and 90 days to cure rule as stated above.

36. Tenant covenants and agrees that Tenant, its agents, employees and invitees, shall not use nor permit the use of the premises in any manner that results in a **violation** of any ordinance, regulation or law.

37. Landlord expressly disclaims any **warranty of suitability**. Tenant expressly agrees to lease the property "as is", whether suitable or not, and expressly **waives the implied warranty of suitability**.

38. Tenant has the **right to sublease** all or any portion of the leased premises during the term of this lease, with the Landlord's consent, not to be unreasonably withheld.

39. Tenant shall have the right at any time and from time to time during the term of this **lease, construct or build buildings** and other improvements on the leased premises, and correct and change the contour of the leased premises, subject to the following general conditions:

    1. The **cost of work** shall be borne and paid for by Tenant.

    2. The leased premises shall at all times be kept free from **mechanic's and materialmen's liens** or other debts of the Tenant.

    3. The **Landlord's consent shall be required** in order for the **Tenant to build** any improvements contemplated under this provision. The Landlord shall be given reasonable notice of the general nature of any work to be commenced, and furnished plans and permits.

    4. The **Landlord's consent shall be required** in order for the Tenant **to remove** any of the improvements or the foundations or footings thereof, which are situated on the subject property.

LANDLORD ____
TENANT ____

40. In the event of **Tenant's default**, any and all buildings, improvements, additions, alterations, and fixtures, (except furniture, equipment, tanks and trade fixtures), constructed, placed, or maintained on any part of the leased premises during the lease term shall be considered part of the real property of the premises and shall remain on the premises and become the property of Landlord. Provided, however, that in the event of such default, Tenant shall be entitled to a credit for the reasonable fair market value of any and all Tenant improvements, buildings, additions, alterations and fixtures which in such circumstances remain with the property and premises, subject, however, to a reduction in such allowable amount to the extent of the amortization of such improvements which would be allowable if the same had been capitalized for federal income tax purposes under the Internal Revenue Service regulations then in effect. Such credit shall be deducted from the amount of rents or other charges owing by Tenant to Landlord, and if such amount exceeds the total amount of rents and/or other charges owing by Tenant to Landlord, then the balance due thereon shall be payable by Landlord to Tenant on or before one (1) year from date of default. Fair market value hereunder shall be determined by certified appraisal method mutually agreeable to Landlord and Tenant. In the alternative to the above procedure, at the option of the Landlord, Landlord may within one (1) year from the date of default elect to sell the subject property, and, out of the net proceeds thereof, Landlord shall first be entitled to receipt of Landlord's full costs in and to the subject property, including purchase price and all subsequent costs, plus interest upon the same at the rate of 10% per annum from date of costs incurred. The balance of such net receipts from sales shall be split between the Landlord and Tenant, 10 % being payable to the Landlord and 10 % being payable to the Tenant. For purposes of this provision, Landlord shall have elected such sales option by having listed the property for sale with a licensed real estate broker on or before one (1) year from date of default, irrespective of the date of contract and closing.

41. Tenant shall have the **right** at any time during Tenant's occupancy of the leased premises, or within a reasonable time thereafter, **to remove** any and all furniture, machinery, equipment or other trade fixtures, owned or placed by Tenant, its sublessees or licensees, in, under or on the leased premises, or acquired by Tenant, whether before or during the lease term.

42. Tenant may, at any time and from time to time, **encumber the leasehold interest**, by deed of trust, mortgage, or other security instrument, after obtaining the consent of Landlord, but no such encumbrance shall constitute a lien on the fee title of Landlord, and the indebtedness secured by the encumbrance shall at all times be and remain inferior an subordinate to all the conditions, covenants, and obligations of this lease and to all of the rights of Landlord under this lease. References in this lease to "Lender" refer to any person or entity to whom Tenant has encumbered its leasehold interest.

LANDLORD ___
TENANT ___

43. At any time after execution and recordation in Harris County, Texas, of any mortgage or deed of trust encumbering Tenant's leasehold interest, **Lender shall notify Landlord** in writing that the mortgage or deed of trust has been given and executed by Tenant and furnish Landlord with the address to which it desires copies of notices to be mailed. Landlord must mail to Lender and to any agent or representative designated by Lender, at the addresses given, duplicate copies of all written notices which Landlord gives or serves on Tenant under and pursuant to the terms and provisions of this lease after the receipt of such a notice from Lender.

44. Landlord and Tenant agree that they will neither modify nor **terminate this lease by mutual consent** without the written consent of Lender, if requested by the Tenant. This provision shall be applicable to the extent, and only to the extent, that any such modification or termination would constitute a material default under the terms of the mortgage or deed of trust set out in paragraph 42 above.

45. In the event that the leased premises is **damaged or destroyed** by contamination, regardless of the extent of such damage or destruction, Tenant shall have the obligation, to clean up the contaminated property and at the same time pay rent under this Lease, even if contamination renders the property useless or valueless.

46. Tenant shall not cause or permit any **mechanics' liens** or other liens to be filed against the fee of the leased premises or against Tenant's leasehold interest in the land or any buildings or improvements on the leased premises by reason of any work, labor, services, or materials supplied or claimed to have been supplied to Tenant or to anyone holding the leased premises or any part of them through or under Tenant. If such a mechanic's lien or materialmens' lien is recorded against the leased premises or any buildings or improvements on the premises, Tenant shall either cause the same to be removed, or, if Tenant in good faith desires to contest the lien, take timely action to do so, at Tenant's sole expense. IF Tenant contests the lien, Tenant agrees to indemnify Landlord and hold Landlord harmless form all liability for damages occasioned by the lien or the lien contest and shall, in the event of a judgment of foreclosure on the lien, cause the lien to be discharged and removed prior to execution of the judgment.

47. In the event the leased premises or a substantial portion of the leased premises are taken for public purposes by **condemnation** of any kind, this lease is terminated.

48. Tenant may, with the Landlord's consent, **sell or assign its leasehold** estate in its entirety or any portion of it, or may sublet the leased premises or any portion of them or any portion of any building or other improvement erected on the premises, at any time and form time to time, and the rights of Tenant, or any successor or assignee of Tenant, may pass by operation of law. It is agreed, however, that each such transfer, assignment, or sale shall be subject to the obligations to Landlord as set forth in this lease, and shall not release Tenant of Tenant's obligations under this lease.

LANDLORD ____
TENANT ____

49. Landlord hereby represents and warrants that it is the owner in **fee simple** absolute of the leased premises, subject to the covenants, conditions, restrictions, easements, and other matters of record.

50. Should Landlord, during the lease term hereof, attempt to sell all or any portion of the leased premises or any portion of the entire tract of which the leased premises are a portion, Tenant shall have the **right of first refusal** to meet any bonafide offer of sale on the same terms and conditions of such offer, and upon failure to meet such bonafide offer within ten (10) days after written notice from Landlord, Landlord shall be free to sell the premises or a portion of it to the third person in accordance with the terms and conditions of the offer, subject to Tenant's continuation of a leasehold estate granted by this lease.

51. Tenant shall permit Landlord or Landlord's agents, representatives, or employees to **enter on the leased premises** for the propose of **inspection**, determining whether Tenant is in compliance with the terms of this lease, maintaining, repairing or altering the premises, or showing the leased premises to prospective tenants, purchasers, mortgagees, or beneficiaries under trust deeds.

52. The relationship between Landlord and Tenant at all times shall remain solely that of landlord and tenant and not be deemed a partnership or a joint venture. The attorney for the Landlord is Paul Hlavinka. The attorney for the Tenant is Mary Wimbish. The **attorneys' conflicts of interest** are disclosed and waived by the parties in consideration for reducing the cost of this transaction for the Landlord and the Tenant. This paragraph shall not in any way serve to restrict the ability of Paul T. Hlavinka to provide legal services, for charge, to the Landlord, for a reasonable fee, on an as needed basis, notwithstanding any provisions in the Landlord's limited liability partnership agreement to the contrary.

53. Neither Landlord or Tenant's **bankruptcy, insolvency**, assignment of the benefit of creditors, nor the appointment of a receiver shall affect this lease.

54. It is expressly agreed and understood by the parties that this lease is to be construed as a "triple net lease" and that the Landlord shall not be liable nor responsible for the payment of any taxes, assessments, rentals, liability for construction of improvements, hazardous waste remediation, casualty losses, or any other payment of any kind or nature, except as may be expressly and unambiguously set out under the terms of this lease.

55. All rents or other sums, **notices**, demands or requests from one party to another may be personally delivered or sent by mail to the addresses stated herein for Landlord or Tenant as follows: Mary Wimbish, Attorney, Downstream Environmental, LLC, 2044 Bissonnet, Houston, Texas 77005 and Paul Hlavinka, Attorney, Group Two Partners, LLP, 2044 Bissonnet, Houston, Texas 77005.

LANDLORD ____
TENANT ____

56. This agreement shall be **binding** upon and inure to the benefit of the parties to the lease and their respective heirs, executors, administrators, legal representatives, successors and assigns.

57. This agreement shall be **construed** under and in accordance with the laws of the State of Texas, and all obligations of the parties created by this lease are performable in Harris County, Texas.

LANDLORD:

GROUP TWO PARTNERS, LLP

TOBIAS M. HLAVINKA

MARY WIMBISH

PAUL T. HLAVINKA

WILLIAM PAGE

RANDALL L. SULLIVAN

TENANT:

DANIEL G. NOYES, PRESIDENT
DOWNSTREAM ENVIRONMENTAL, LLC by permission

56. This agreement shall be **binding** upon and inure to the benefit of the parties to the lease and their respective heirs, executors, administrators, legal representatives, successors and assigns.

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DOWNSTREAM ENVIRONMENTAL, LLC

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LANDLORD:

GROUP TWO PARTNERS, LLP

TOBIAS M. HLAVINKA

MARY WIMBISH

PAUL T. HLAVINKA

WILLIAM PAGE

Randall L Sullivan

RANDALL L. SULLIVAN

TENANT:

DANIEL G. NOYES, PRESIDENT
DOWNSTREAM ENVIRONMENTAL, LLC

EXHIBIT "A"

TRACT I

METES AND BOUNDS DESCRIPTION
2.5231 ACRES (109,906 SQUARE FEET)
RESTRICTED RESERVE "D"
WILCREST GREEN, SECTION THREE
HARRIS COUNTY, TEXAS

BEING a 2.5231 acre (109,906 square foot) portion of Restricted Reserve "D" of Wilcrest Green, Section Three, a subdivision recorded in Film Code No. 397067 of the Map Records of Harris County, Texas; said 2.5231 acre tract being more particularly described by metes and bounds as follows:

BEGINNING at a 5/8-inch iron rod found at an interior "L" corner of the southerly line of said Restricted Reserve "D";

THENCE crossing said Restricted Reserve "D" along and with the following six (6) courses:

NORTH 82°59'43" East, a distance of 25.40 feet to a 5/8-inch iron rod set;

NORTH 07°54'42" East, a distance of 239.86 feet to a 5/8-inch iron rod set;

NORTH 86°36'50" East, a distance of 180.56 feet to a 5/8-inch iron rod set in the west line of that certain called 20-foot wide sanitary sewer and access easement described under Harris County Clerk's File No. G203077 and G203079;

SOUTH 05°21'48" West, along and with said easement west line, a distance of 322.58 feet to a 5/8-inch iron set;

SOUTH 02°42'29" East, a distance of 188.72 feet to a 5/8-inch iron rod set;

SOUTH 82°48'18" West, at 50.00 feet passing a 5/8-inch iron rod found at the northeast corner of a Lift Station Site recorded under Harris County Clerk's File No. H819158, and continuing on along the north line of said Lift Station Site and the south line of said Restricted Reserve "D" for a total distance of 98.00 feet to a 5/8-inch iron rod found at the northwest corner of said Lift Station Site;

THENCE SOUTH 07°38'13" East, along and with the west line of said Lift Station Site, a distance of 75.00 feet to a 5/8-inch iron found at the southwest corner of said Lift Station Site;

THENCE SOUTH 82°48'18" West, along and with the southerly line of said Restricted Reserve "D", a distance of 115.01 feet to a 5/8-inch iron rod found at an exterior "L" corner of said Restricted Reserve "D" southerly line;

THENCE NORTH 02°32'12" West, along and with said Restricted Reserve "D" southerly line, a distance of 359.70 feet returning to the **PLACE OF BEGINNING**, and containing 2.5231 acres of land.

TRACT II

BEGINNING at a 5/8-inch iron rod found in the south right-of-way line of Westpark Drive (100 feet wide) at the northwest corner of said Restricted Reserve "D", same being the northeast corner of Restricted Reserve "C", Wilcrest Green, Section 3, a subdivision recorded in Volume 316, Page 74 of the Map Records of Harris County;

THENCE along and with said south right-of-way line of Westpark Drive and a curve to the right having a Central Angle of 01°45'39", a Radius of 1950.00 feet, an Arc Length of 59.93 feet, and a Chord Length of 59.93 feet Bearing North 81°57'29" East to a 5/8-inch iron rod set;

THENCE crossing said Restricted Reserve "D" along and with the following ten (10) courses:

ALONG and with a curve to the left having a Central Angle of 41°20'37", a Radius of 35.00 feet, an Arc Length of 25.26 feet, and a Chord Length of 24.71 feet Bearing South 17°57'49" West to a 5/8-inch iron rod set;

SOUTH 02°42'29" East, a distance of 71.56 feet to a 5/8-inch iron rod set;

ALONG and with a curve to the right having a Central Angle of 32°12'08", a Radius of 311.00 feet, an Arc Length of 174.79 feet, and a Chord Length of 172.50 feet Bearing South 13°22'43" West to a 5/8-inch iron rod set;

ALONG and with a curve to the left having a Central Angle of 122°51'57", a Radius of 99.02 feet, an Arc Length of 212.34 feet, and a Chord Length of 173.93 feet Bearing South 31°57'11" East to a 5/8-inch iron rod set;

NORTH 86°36'50" East, a distance of 82.49 feet to a 5/8-inch iron rod set;

SOUTH 07°54'42" West, a distance of 49.91 feet to a 5/8-inch iron rod set;

ALONG and with a curve to the left having a Central Angle of 101°17'52", a Radius of 15.00 feet, an Arc Length of 26.52 feet, and a Chord Length of 23.20 feet Bearing North 42°44'14" West to a 5/8-inch iron rod set;

SOUTH 86°36'50" West, a distance of 58.00 feet to a 5/8-inch iron rod set;

ALONG and with a curve to the right having a Central Angle of 122°51'57", a Radius of 130.02 feet, an Arc Length of 278.82 feet, and a Chord Length of 228.38 feet Bearing North 31°57'11" West to a 5/8-inch iron rod set;

NORTH 60°31'13" West, a distance of 10.00 feet to a 5/8-inch iron rod set in the west line of said Restricted Reserve "D", same being the east line of said Restricted Reserve "C";

THENCE along and with the line common to said Restricted Reserve "C" and said Restricted Reserve "D", the following three (3) courses:

ALONG and with a curve to the left having a Central Angle of 32°12'08", a Radius of 270.00 feet, an Arc Length of 151.75 feet, and a Chord Length of 149.76 feet Bearing North 13°22'43" East to a 5/8-inch iron rod found;

NORTH 02°42'29" West, a distance of 80.17 feet to a 5/8-inch iron rod found;

NORTH 50°43'41" West, a distance of 13.38 feet returning to the **PLACE OF BEGINNING**, and containing 0.4759 of one acre (20,732 square feet) of land.

50-23-1937

PART I

(8) PROPERTY OWNER'S AFFIDAVIT AND STATEMENT OF APPLICANT

Ownership: Group Two Partners, LLP
Lessor: Group Two Partners, LLP
Lessee: Downstream Environmental, LLP
Term of Lease: 20 years

Attached:
Property Owner's Affidavit
Statement of Applicant

Completely Revised
08/09/02

PROPERTY OWNERS AFFIDAVIT

I, Mary Wimbish, authorized agent for DOWNSTREAM ENVIRONMENTAL, LLC, the owner of record of the property described as:

> Approximately 2.5 acre portion of Section 3, Reserve D, Wilcrest Green in Harris County, Houston, Texas, Plat of subject property is attached as Exhibit "A" and "B", along with metes and bounds description. Referred to on Exhibit "A" as tract 2, 109,406 sq.ft., 2.5231 acres. See survey.

have all rights and covenants to lease, rent, sell, or grant an option to DOWNSTREAM ENVIRONMENTAL, LLC, the property described.

I acknowledge and am aware that DOWNSTREAM ENVIRONMENTAL, LLC plans to file for a Type 5GG registration and Type 5GG permit to operate a non-toxic liquid waste processing facility upon said property.

I acknowledge that the State of Texas may hold the undersigned and DOWNSTREAM ENVIRONMENTAL, LLC, either jointly or severally responsible for the operation, maintenance, and closure of the facility.

I acknowledge that DOWNSTREAM ENVIRONMENTAL, LLC and the State of Texas shall have access to the property during the active life of the facility and for a period of up to five years after closure for the purpose of inspection and maintenance.

IT IS AGREED by DOWNSTREAM ENVIRONMENTAL, LLC, that the actual operations of a waste treatment facility will not commence prior to DOWNSTREAM ENVIRONMENTAL, LLC's closing of the purchase of the property in question scheduled for October 1, 2000.

WITNESS MY HAND on this day, 19th January, 2001.

Mary Wimbish

Mary Wimbish, Authorized Agent for
Property Owner, DOWNSTREAM ENVIRONMENTAL

Subscribed and Sworn to before me, by the said Mary Wimbish, this 19th day of January, 2001, to certify which witness my hand and seal of office.

Notary Public in and for
The State of Texas
County of Harris

My Commission Expires on: 1/26/01

GWEN S. ALLEN
NOTARY PUBLIC
STATE OF TEXAS

00057

PART I

(9) LEGAL AUTHORITY

(A) Applicant is a Texas Limited Liability Company.

Attached:
Articles of Incorporation
Name Change

(B) List of persons owning 20% or more of the proposed facility:
Dan Noyes
Mary Wimbish

Completely Revised
08/09/02

The State of Texas
Secretary of State

CERTIFICATE OF AMENDMENT

FOR

DOWNSTREAM ENVIRONMENTAL, L.L.C.

FORMERLY

THE GREASE SPOT L.L.C.
CHARTER NUMBER 07025551

THE UNDERSIGNED, AS SECRETARY OF STATE OF THE STATE OF TEXAS, HEREBY CERTIFIES THAT THE ATTACHED ARTICLES OF AMENDMENT FOR THE ABOVE NAMED ENTITY HAVE BEEN RECEIVED IN THIS OFFICE AND ARE FOUND TO CONFORM TO LAW.

ACCORDINGLY THE UNDERSIGNED, AS SECRETARY OF STATE, AND BY VIRTUE OF THE AUTHORITY VESTED IN THE SECRETARY BY LAW, HEREBY ISSUES THIS CERTIFICATE OF AMENDMENT.

DATED NOV. 19, 1999

EFFECTIVE NOV. 19, 1999

THE STATE OF TEXAS

Elton Bomer, Secretary of State

The State of Texas

Secretary of State

CERTIFICATE OF ORGANIZATION

OF

THE GREASE SPOT L.L.C.

FILING NUMBER 07025551

THE UNDERSIGNED, AS SECRETARY OF STATE OF THE STATE OF TEXAS, HEREBY CERTIFIES THAT THE ATTACHED ARTICLES OF ORGANIZATION FOR THE ABOVE NAMED COMPANY HAVE BEEN RECCIVED IN THIS OFFICE AND HAVE BEEN FOUND TO CONFORM TO LAW.

ACCORDINGLY, THE UNDERSIGNED, AS SECRETARY OF STATE, AND BY VIRTUE OF THE AUTHORITY VESTED IN THE SECRETARY BY LAW, HEREBY ISSUES THIS CERTIFICATE OF ORGANIZATION.

ISSUANCE OF THIS CERTIFICATE OF ORGANIZATION DOES NOT AUTHORIZE THE USE OF A COMPANY NAME IN THIS STATE IN VIOLATION OF THE RIGHTS OF ANOTHER ENTITY UNDER THE FEDERAL TRADEMARK ACT OF 1946, THE TEXAS TRADEMARK LAW, THE ASSUMED BUSINESS OR PROFESSIONAL NAME ACT OR THE COMMON LAW.

DATED APR. 17, 1997

EFFECTIVE APR. 17, 1997

Antonio O. Garza, Jr., Secretary of State

PART I

(10) EVIDENCE OF COMPETENCY

(A) The Applicant is Downstream Environmental, LLC, formerly The Grease Spot, LLC, was registered with the Texas Natural Resource Conservation Commission as an innovative processor of grease and/or grit trap waste for disposal. A pilot plant referred to as the "Grease Pilot Plant Project", Permit No. 10134-02 TNRCC Log No. 108/080, City of Pearland Texas, Liquid Waste Treatment Plant. It operated at the City of Pearland's WWTP on Barry Rose Road. Applicant's permission granted by the TNRCC for innovative treatment methods was for two years (1997-1999) ending May, 1999. Applicant has a Type V Registration at the same location that is the subject of this application, address: 3737 Walnut Bend, Houston, TX 77042, MSW No. 43008. The facility on Walnut Bend is under construction and near completion There are no out-of-state facilities owned or operated in which the applicant or its owners have a financial interest.

(B) The principals involved are Mary Wimbish and Dan Noyes of Downstream Environmental, LLC. Downstream Environmental, LLC has owned and operated a solid waste facility within the State of Texas within the last ten years.

(C) Mr. Dan Noyes has extensive experience in municipal wastewater and solid waste industry services. Mr. Noyes has not owned a solid waste treatment plant in the state of Texas and Mary Wimbish has not owned or operated a solid waste treatment facility in the state of Texas in the last ten years.

(D) Names of Key Personnel at the site: Dan Noyes
George W. Noyes

(E) **Attached**:
Resume of Dan Noyes
Resume of George Noyes
Letters of Qualification
MSW Type V Registration No. 43008

DAN G. NOYES
Environmental Specialist
1709 Crestdale
Houston, Texas 77080 (713) 827-8507

EDUCATION

Texas A&M University - Studies Industrial Engineering 1970-1974

AREAS OF EXPERTISE

Water Treatment
Wastewater Permits
Water Permits
Wastewater Treatment
System Evaluation
Wastewater Operation
Sludge Processing
Water Operation
Pumping Systems
Disinfection Design
Project Management
Control Systems Design

PROFESSIONAL EXPERIENCE

>1996 - The Grease Spot, L.L.C. / Downstream Environmental, L.L.C. - President, Founder. Developed a pilot plant system for the Grease Spot, L.L.C. to process non-hazardous transportable waste. This research and development company is currently embarking upon operating its first small commercial plant in West Houston.

1989 - present: Noyes & Associates, Inc. - President, Founder. Designed, engineered, manufactured, and applied water and wastewater treatment and transfer technology. Developed bids and proposals. Invented new technology, most notable being the One Moving Part Plant, the Dynamic Membrane BioReactor, The Kinetic Pump Having a Centerless Impeller, and High Efficiency Gas Entrainment Process. Developed markets in Mexico and across the United States. Recognized as the 25th fastest growing business in 1994; the 18th in 1995 by the Houston Chamber of Commerce.

1985 - 1989: Metro/Quip South, Inc. - President, Founder. Manufacturer's representative in the area of municipal wastewater equipment. Grew business from single man operation with 4 principals to a small company with 6 employees with 34 principals with a n annual sales volume of $9 million per year.

1978-1981: Red-Alert Service - Obtained B Class Wastewater Operator's Classification. Operated and maintained municipal and industrial package wastewater treatment plants and collection systems. Provided emergency service and trouble shooting for treatment processes.

1976 - 1985: George W. Noyes & Associates, Inc. - Sales Engineer Representative. Initially responsible for valve sales development in power generating boilers and petroleum heaters. Major accounts included ENTEC, Inc. and ARAMCO. Later sales efforts were broadened to include the wastewater treatment and transfer market. Major accounts were the City of Austin, City of Houston, City of Corpus Christi, and the Rio Grande Valley. Set sales records in the field of Wastewater pumping systems. Water and wastewater systems sales, design and manufacturing were later incorporated.

1975 - 1976: Copes-Vulcan, Division of White Consolidated Industries, Inc. Operated as a field technical engineer, supervising startup of boiler systems. Significant projects include the Bruce Mansfield Power Plant in Shippingsport, Pa., the Union Camp Paper mill in Savannah, Ga., and Salem Nuclear Power Plant in Salem NJ.

NOTABLE DEVELOPEMENTS

Development of Dynamic Membrane BioReactor

Development of One Moving Part Treatment Plant

Development of the Kinetic Pump having a Centerless Impeller

Development of High Efficiency Process to Entrain Gas into Solution

Development of Electrocoagulation e-Cell technology

First Small Clarifier Design to Utilize Maintenance Free Enclosed Gearbox

Development of Automatic Backwash Filter without Valves or Pumps

Assisted in Writing of City Standards for the City of Austin Lift Station Design and Odor Control

Assisted in Writing Wastewater Treatment Plant Design Criteria for the Texas Natural Resource Conservation Commission

Instructor at the Texas A&M Short School for Waste Treatment Plant Operator Certification

PROJECTS OF MERIT

SUPERFUND P.A.B. SITE IN ABBEYVILLE, LOUISIANA - This project was necessitated from Barium pollution in 6,000,000 gallons of water held in ponds from drilling waste. Conventional technology had been used over the last 5 years and unable to clean the site to EPA mandates. A 200 GPM Electocoagulation e-Cell system was designed built and utilized to perform the task in less than 6 weeks.

CLINICA MEXICO - The IMSS (Social Security in Mexico) provides hospitals across Mexico for free medical service. The IMSS was given the directive to discharge clean wastewater to EPA standards. The design problem was specific to the fact that the was no room for conventional technology. An 85,000 GPD DMR tank was designed, manufactured, and installed in an area less than 500 square feet. The unit provides treatment efficiency in excess of 99.5%, surpassing the requirements of the IMSS.

TEXAS WOMEN'S CORRECTIONAL INSTITUTE - Emergency requirements for increased prison space resulted in new correctional institution construction. This installation, located 50 miles south of San Antonio, needed wastewater treatment capacity, as there was none available. A complete wastewater treatment facility was designed, constructed, and permitted in less than 6 weeks.

SAKARA VECTOR 4, PHASE 3, AIR FORCE BASE IN EGYPT - Twenty complete package lift stations were designed, manufactured, and tested in eight weeks. The lift stations provided complete wastewater transfer capability for a new Air Force base. Noyes and his company to government requirements in Egypt provided supervision of installation and complete technical support.

Resume Of
GEORGE W. NOYES

PERSONAL:

George W. Noyes
16 W. Rivercrest
Houston, Texas 77042

Registered Professional Engineer
Texas - 8675
Louisiana - 6760

EDUCATION:

College: Texas A&M: BS Electrical Engineering

PROFESSIONAL:

'66 - Present Self-employed – Engineering and sales of sewage treatment equipment, sewage pump stations, sewage process equipment. These jobs involve the design and manufacture of equipment as well as assistance in the engineering of the total plant project. Design of the plants included process and electrical design of power and control systems for the proper operation of the components. The electrical design mainly was 480 V systems including layout of motor control centers, lighting and control systems. Plants ranged from 50 to as high as 2000 Hp total connected load. Designed electrical systems for water systems including wells, emergency generators with associated controls and auto transfer switches.

'60 - '65 Johnson and Associates, Inc. – Engineering and sales of pressure switches, control valves and the design of control systems for their use. Systems were designed for the electric utilities and the municipal utility districts.

'58 - '59 Self-employed – Electrical engineering for shopping centers, grocery stores and small manufacturing plants.

'56 - '57 Varec – Engineering and sales of telemetering systems for automatic custody transfer of petroleum products.

'51 - '55 Brown & Root – Electrical design of power and lighting systems for clients in the Petro-Chem, Paper Mill and Pipe Line industries. Included were Creole Petroleum, Southland Paper Mills, United Gas Pipe Line, Ceylonese Petro-Chem.

Attachment 16

'49 - '50	Bernard Johnson Engineers – Electrical design for numerous commercial buildings, churches and shopping centers.
'46 - '48	Self-employed – Engineering and layout of distribution systems for Southwestern Bell, Exxon, Gulf and Texaco.
'41 - '45	U.S. Army - Various assignments in USA, England, Africa, Sicily and Italy.

February 22, 2000

Mike Graeber
Texas Natural Resource Conservation Commission
12100 Park 35 Circle, Mail Code 124
Austin, Texas 78753

Reference: The Grease Spot, L.L.C Type V Registration Application

Dear Mr Graeber:

I have worked in the waste and wastewater treatment industry since 1981. I have known Dan Noyes since the mid 1980's. In that time, the advancements he has brought to the waste treatment industry, his designs and processes, while revolutionary when introduced, have become standards of the industry. The hallmark of his designs is that they work.

He has designed and built hundreds of waste treatment facilities in Texas and around the world. In many cases, plants were designed, built and installed, exceeding the design performance requirements, where conventional wisdom dictated that the job just could not be done.

Last year, I visited the pilot plant for grease trap waste and in the final design, saw what a pilot plant processing the grease trap waste producing stable waste sludge, clear water, and substantially no odors. The performance shattered the commonly accepted norms. The BOD5 and TSS discharge levels were below 100 mg/l. This compares to normal commercial plant effluent of 6,000 to 15,000 mg/l. FOG discharge levels were below 5 mg/l! To my knowledge, no plant has achieved this level of performance efficiency.

People have a choice. Dan Noyes has not settled on the easy way, the status quo. He has always chosen to improve existing technology and to go beyond what is required. In the future, if we are to protect our children and our environment, we must encourage and support innovators such as Dan Noyes. I strongly urge your office and the TNRCC to approve the application of The Grease Spot, L.L.C. registration and to recognize the significant contribution to cleaning the environment that this plant and its technology mean.

Sincerely,

David Alston

ecoloquip users list

Lift Stations Installation List

► No-Vault™ Submersible Lift Stations

- West Harris Co. M.U.D. #11 Willow Bridge Houston, Texas No-Vault™ Submersible Lift Station - Duplex 10hp., Non-Clog
- West Harris Co. M.U.D. #11 Willow Bridge Houston, Texas No-Vault™ Submersible Lift Station - Duplex 10hp.
- West Harris Co. M.U.D. #11 Willow Lake Houston, Texas No-Vault™ Submersible Lift Station - Duplex 10hp.
- West Harris Co. M.U.D. #11 Westbridge Houston, Texas No-Vault™ Submersible Lift Station - Duplex 5hp.
- West Harris Co. M.U.D. #11 Winchester Village Houston, Texas No-Vault™ Submersible Lift Station - Duplex 3hp.
- City of Baytown UPS Lift Station No-Vault™ Submersible Lift Station - Duplex 2hp.
- City of Morgan's Point WWTP Lift Station Morgan's Point, Texas No-Vault™ Submersible Lift Station - Triplex 7.5hp
- Harris Co. M.U.D. #21 Storm Water Lift Station Houston, Texas No-Vault™ Explosion Proof Submersible Lift Station - Duplex 3hp.
- Williamsburg M.U.D. #63 Albertsons Houston, Texas No-Vault™ Submersible Lift Station - Duplex 20hp.
- Cyclone Enterprise Houston, Texas No-Vault™ Submersible Lift Station - Duplex 20hp.
- Lake Wood Elementary Houston, Texas No-Vault™ Submersible Lift Station - Duplex 2hp.

► Package Submersible Grinder Lift Stations

- Bechtel Ethyl Lift Station #1 Pasadena, Texas Duplex 2hp., Grinder
- Bechtel Ethyl Lift Station #2 Pasadena, Texas Duplex 2hp., Grinder
- Phillips 66 Pasadena, Texas Duplex 3hp., Grinder
- Phillips 66 Pasadena, Texas Duplex 2hp., Grinder
- Harris Co. El Franco Lee Park Houston, Texas Duplex 2hp., Grinder

ecoloquip

users list

- Mt. Belvieu
  90,000 GPD
- Boulders Carefree, Arizona
  90,000 GPD
- Brazoria Cty., Detention Ctr.
  100,000 GPD
- Vidor I.S.D. & M.U.D.
  25,000 GPD
- Hardin School
  100,000 GPD
- Spicewood - Austin
  500,000 GPD
- Fina Oil & Gas
  10,000 GPD
- North West Harris Co. M.U.D. #5
  500,000 GPD
- Quantum Chemical
  11,000 GPD
- Phillips 66
  1,000 GPD
- Chevron Chemical
  1,500 GPD
- Morgans Point
  300,000 GPD
- Harris Co. M.U.D. #133
  3.0 MGD
- City of Santa Rosa
  42 ft. Clarifier
- District 99
  40 ft. Clarifier
- City of Elsa
  40 ft. Clarifier
- City of Corrigan
  35 ft. Clarifer
- Manning U.D. Concentrator
- ARCO Bio Plant
  16 ft. Flocculator
- Pine Ridge, South Dakota
  Arc Bar Screen
- Toluca, D.F. Mexico
  285,000 GPD
- Cuernavaca, Moreles, Mexico
  3,000 GPD
- Paradise, D.F. Mexico
  78,000 GPD
- Cancun, Mexico
  110,000 GPD
- Acapulco, Guerrero, Mexico
  950,000 GPD
- Campo Espejo, Argentina
  12.0 MGD
- CEAS, D.F. Mexico
  1.4 MGD

ecoloquip users list

- Plains - 45 North 50,000 GPD
- Velsicol Chemical 15,000 GPD
- Bayan Power Plant 10,000 GPD
- Brazos Co. M.U.D. #1 150,000 GPD
- Cypress Klein #111 500,000 GPD
- Harris Co. WC & ID #78 600,000 GPD
- Rancy Country 100,000 GPD
- Highland Country Terrace 50,000 GPD
- Brazoria Co. M.U.D. 100,000 GPD
- Bechtel - Convent, Louisana 12,000 GPD
- Harris Co. M.U.D. #19 35,000 GPD
- City of LaVilla Complete Water Plant
- Gilbert Crest Utilities 225,000 GPD
- Brazoria Co. Subdivision 100,000 GPD
- Nucor Steel 10,000 GPD
- N.W. Pine Mobil Park 100,000 GPD
- Lampliter - Austin 250,000 GPD
- Hermitage Oak Trailer Park 110,000 GPD
- Sommeral 100,000 GPD
- City of Tool Complete Water Plant
- Transco 10,000 GPD
- Brushy Creek South 530,000 GPD
- White Oak - Houston 50,000 GPD
- Richey Rd. M.U.D. 150,000 GPD
- Crossroads - Austin 90,000 GPD
- Bechtel Cities Services 20,000 GPD
- Chasewood U.D. 150,000 GPD
- Woodlake #II 35,000 GPD
- Addicks U.D. Rolling Green #II 100,000 GPD
- Trigg Westland Oil 35,000 GPD
- Southpoint 500,000 GPD
- Harris Co. M.U.D. #16 100,000 GPD
- Highlands Country Terrace 230,000 GPD
- Woodlake 500,000 GPD
- Hiway Water - La Grange 37,500 GPD
- Lakeside Airport 4,000 GPD
- Buttercup 220,000 GPD
- Compaq 100,000 GPD

ecoloquip

users list

Sewage & Water Treatment Plant Clarifiers, Flocculators, Bar Screens & Con-centrators

- Cypress Klein #1 50,000 GPD
- C N P #I 50,000 GPD
- C N P #II 50,000 GPD
- Southwest Chemical & Plastic 12,000 GPD
- Harris Co. WC & ID #110 50,000 GPD
- Bammel U.D. 67,000 GPD
- City of Friendswood 112,500 GPD
- City of Friends 112,500 GPD
- Cypress Klein #II 50,000 GPD
- April Sound 35,000 GPD
- Du Pont - Channelview 15,000 GPD
- Addicks U.D. Rolloing Green #1 100,000 GPD
- Woodlake #1 100,000 GPD
- Nucor Steel #1 10,000 GPD
- Lynes - Houston 15,000 GPD
- Brushy Creek South 100,000 GPD
- Brushy Creek North 100,000 GPD
- Harris Co. M.U.D. #104 100,000 GPD
- Texas Instruments 250,000 GPD
- Diamond Shamrock - Deer Park 15,000 GPD
- Shady Hollow - Austin 100,00 GPD
- Mariner - Houston 5,000 GPD
- Pyramid Derrick 30,000 GPD
- Ports Mansfield 25,000 GPD
- Aldine Forest 25,000 GPD
- Smith Industries - Columbus 50,000 GPD
- Diversified Habitat, Wadsworth 15,000 GPD
- University of Texas Lab - Smithville 50,000 GPD
- Lee Rowe - Office Building 2,000 GPD

ecoloquip

ATTACHMENT 17

ecoloquip users list

➤ *Vacuum Prime Lift Stations* (continued)

- Peace Vector IV - Phase II
  Lift Station 13
  Sakara, Egypt
  Duplex 1hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 14
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 15
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station
  SA11.1
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station SB08
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station SC03
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

➤ *Package Self Priming Lift Stations*

- City of Bowie
  WWTP Sludge Return
  Bowie, Texas
  Duplex 10hp., Self Priming

- Crystal City
  Detention Center
  Crystal City, Texas
  Duplex 7.5hp.,
  Self Priming

➤ *Package Dry Well - Wet Well Can Lift Stations*

- City of Van Alstyne
  Lift Station
  Van Alstyne, Texas
  Duplex 10hp.- 8 ft. Dia. Can ,
  Non-Clog Dry Pit

- City of Austin
  Davis Springs Lift Station
  Austin, Texas
  Triplex 60hp - 28 ft Can, Non-Clog Dry

- City of Beaver Creek
  Lift Station
  Beaver Creek, Minnesota
  Duplex 15hp.- 8 ft. Dia. Can ,
  Non-Clog Dry Pit

➤ *Package Column Sewage Pump Stations*

- Goodfellow AFB
  Fire Training Center - NPP-1
  San Angelo, Texas
  Duplex 15hp.,
  Vertical Column
  Non-Clog

- Goodfellow AFB
  Fire Training Center - NPP-2
  San Angelo, Texas
  Duplex 15hp.,
  Vertical Column
  Non-Clog

- Goodfellow AFB
  Fire Training Center - NPP-3
  San Angelo, Texas
  Duplex 15hp.,
  Vertical Column
  Non-Clog

- Goodfellow AFB
  Fire Training Center - NPP-4
  San Angelo, Texas
  Duplex 15hp.,
  Vertical Column
  Non-Clog

➤ *Package Submersible Lift Stations*

- City of Trinity
  Lift Station
  Trinity, Texas
  Duplex 15hp,
  Submersible
  Non-Clog

- City of Trinity
  Lift Station
  Trinity, Texas
  Duplex 10hp.,
  Submersible
  Non-Clog

ecoloquip users list

► ***Package Submersible Grinder Lift Stations*** (continued)

- Chemical Services
  Baytown, Texas
  Duplex 2hp., Grinder

- Texas A & M University
  College Station, Texas
  Duplex 2hp., Grinder

- City of Rosenberg
  Rosenberg, Texas
  Duplex 2hp., Grinder

- Pizza Hut
  Shenandoah, Texas
  Duplex 2hp., Grinder

- Montgomery Co. M.U.D. # 18
  Bentwater Section 25
  Lake Conroe, Texas
  Duplex 5hp., Grinder

- Texaco
  Texaco Mart
  Houston, Texas
  Duplex 2 hp., Grinder

- Goodfellow AFB
  Fire Training Center - SP1
  San Angelo, Texas
  Duplex 5hp., Grinder

► ***Vacuum Prime Lift Stations***

- City of LaGrange
  Mobil Home Lift Station
  Duplex 1hp., Non-Clog Dry Pit

- Klein I.S.D.
  Hildebrandt Lift Station
  Duplex 7.5hp; Non-Clog Dry Pit

- Klein I.S.D.
  Wunderlich Lift Station
  Duplex 2hp; Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 1
  Sakara, Egypt
  Duplex 15hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 2
  Sakara, Egypt
  Duplex 20hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 3
  Sakara, Egypt
  Duplex 5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 4
  Sakara, Egypt
  Duplex 1.5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 5
  Sakara, Egypt
  Duplex 3hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 6
  Sakara, Egypt
  Duplex 2hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 7
  Sakara, Egypt
  Duplex 1.5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 8
  Sakara, Egypt
  Duplex 1.5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 9
  Sakara, Egypt
  Duplex 1.5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 10
  Sakara, Egypt
  Duplex 1hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 11
  Sakara, Egypt
  Duplex 1hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 12
  Sakara, Egypt
  Duplex 1hp., Non-Clog Dry Pit

27 January 2000

Mr. Michael D. Graeber
MSW Permits Section
Texas Natural Resources Conservation Commission
P.O. Box 13087
Austin, Texas 78711-3087

Re: MSW Application No. 43006

Dear Mr. Graeber,

This letter is in support of the above registration application. There is opposition from the members of the Our Lady of Czenstochowa Catholic Church. The letters all complain about the facility not being suitable for the residential nature of the neighborhood yet the neighborhood has many schools, hospitals, restaurants, and fast food establishments that produce grease waste that has to be collected by pumper trucks and conveyed to existing overloaded disposal sites. The grease proposed for disposal is being produced in the area already and the trucks required to haul it away are producing traffic impact on the neighborhood. The new facility will only have positive impact on the area. As you know, it is a small totally enclosed plant with state of the art odor control equipment. There will be no nuisance odor produced from this operation, the traffic associated with the hauling of the waste will not be any greater than the current levels of grease hauling from the neighborhood establishments. The obvious benefit being that the trucks will have a far shorter distance to travel causing less pollution and congestion on the freeways.

The proposed grease treatment facility is a step forwards in solid/liquid waste management the implementation of a more advanced technology that will be of benefit to the whole community. Innovation is frequently viewed with suspicion and lack of understanding. Based on experiences with old technology the public can not imagine anything but the old smelly way of doing things and springs into action. NIMBY they yell and yet they have not taken the time to talk to Mr. Noyes about the project or educate themselves about the realities of what they are opposing.

Dan Noyes has spent his 25-year career as an innovator in the wastewater business. He has a proven track record of implementing wastewater facilities in residential areas with no detrimental effect to neighborhoods. As a associate engineer responsible for review and inspection of wastewater package treatment plan and lift stations with the City of Austin in the 80's, I worked with Mr. Noyes on at least a dozen successful projects. Mr. Noyes always brought technical innovation and concern for the impact to the neighborhood on all his projects. The odor control facilities were always a step above what was considered industry standard at the time and the facility were always constructed to minimize visual and noise impacts on the neighborhood. This facility is designed to even higher standards and more advanced technology. There is no reason for the residents to be concerned, they will be getting a good neighbor. Please approve the above mentioned registration.

Very Truly Yours,

Kristina Garwacka

Kristina Garwacka
CEO 3-Waters Technical Services

671 Solana Circle E.
Solana Beach Ca 92075

ATTACHMENT 17

CITY OF HOUSTON
Health and Human Services Departm
8000 N. Stadium Dr. Houston, Texas 77

Bob Lanier, Mayor

CITY COUNCIL MEMBERS: Helen Huey Ernest McGowen, Sr. Vince Ryan Alfred J. Calloway Frank O. Mancuso John G. Goodner Christin Ho
Dale M. Gorczynski Ben T. Reyes Gracie Guzman Saenz Eleanor Tinsley Jim Greenwood Sheila Jackson Lee Judson W. Robinson, III CITY CONTROLLER: George Gre

Ing. J. Edgar E. Legorreta
Grupo Perfotec
Pacifico #468 Of-F
Rosedal Coyoacan
C.P. 04330
Mexico, D.F.

August 21, 1992

Dear Ing. Legorreta:

Thank you for your visit in early August with Ing. Federico Lopez de Alba. It was quite an honor to have such a distinguished member of the Mexican Government visit our offices. I thoroughly enjoyed meeting him and hope we can continue to exchange information in the environmental arena that is so important to both of our countries.

I am writing this letter per our previous conversation. Mr. Noyes and I have been acquainted for 5 years by way of the excellent work he has done for the City of Houston through his companies, Noyes and Associates, Inc. and Ecoloquip. Noyes has been involved in the design of over 100 plants throughout the city. During the years we have worked together I have found Mr. Noyes to be a very innovative and practical individual who has helped us immensely to find effective solutions to our city's wastewater problems.

Our experience has been that plants designed and constructed by Noyes have the highest quality and performance standards. The City of Houston requires effluent waters to have a maximum of 10 ppm BOD and 15 ppm TSS. All Noyes plants meet these norms on a consistent basis. His older plants have successfully withstood the test of time and continue to perform well.

The City of Houston has approved the use of the One Moving Part Plant (Om-Pa-Pa)) for its outlying areas. They are particularly suited for these areas because of their high reliability and low maintenance. Furthermore, their unique design permits us to reduce capital investment by 40% and operating costs by over 50% when compared to plants of traditional design, while not sacrificing the quality of effluent water. The extended aeration process that the plants use has proven that it can clean up to 99% of the impurities found in wastewater streams. We feel very comfortable with the Om-Pa-Pa's design and performance.

I hope that the Om-Pa-Pa design is approved in Mexico. Its use would leapfrog your country past the learning stages of water treatment by providing leading edge technology, thus, allowing Mexico to greatly improve its environmental standards at a significantly reduced cost.

Very truly yours,

E.M. Quevedo, PE
Assistant Director
Health and Human Services

HRS

Edminster, Hinshaw, Russ and Standley, Inc.

April 29, 1993

Re: Noyes and Associates
Om-Pa-Pa Design

Gentlemen:

Noyes & Associates has been involved in several wastewater treatment plant projects with our firm. These plants range in capacity from 400,000 gallons per day (gpd) (Northwest Harris County MUD No. 5) to one with a peak flow capacity of 9,000,000 gpd (Harris County WCID No. 133). Their involvement in the design, fabrication and supply of equipment has contributed to the satisfactory completion of these projects.

We are particularly intrigued by and supportive of their new plant concept dubbed the Om-Pa-Pa. The construction costs savings alone makes this a preferred design, but when you factor in the simplicity of operations and the energy savings, it really becomes the plant of choice.

Sincerely,

EDMINSTER, HINSHAW, RUSS AND STANDLEY, INC.

Bart C. Standley, P.E.
Vice President

BCS/ngh

00077

ATTACHMENT 17

10555 Westoffice Drive Houston, Texas 77042 713/784-4500 FAX 713/784-4577

Texas Engineering Extension Service
The Texas A&M University System
Technology Resource Center

recognizes

DAN NOYES

for excellent service as instructor at the

TEEX

Annual Municipal Inspectors Training School

August 10, 1988

Date

Paul Causey

Course Director

James Bradley

Director, Texas Engineering Extension Service

82008

ATTACHMENT 17

1995

100 Private Companies Making the Greatest Impact on Houston

ATTACHMENT 17

6200

Ecoloquip

has been recognized as

THE HOUSTON 100®

#18 Company

October 5, 1995

This distinction represents success in achieving outstanding sales growth from 1992 to 1994.

UNIVERSITY of HOUSTON
SMALL BUSINESS DEVELOPMENT CENTER

Southwestern Bell Telephone

GREATER HOUSTON PARTNERSHIP
Chamber of Commerce • Economic Development • World Trade

Houston BUSINESS JOURNAL
STRICTLY HOUSTON. STRICTLY BUSINESS.

1994

THE HOUSTON 100

Private Companies Making The Greatest Impact On Houston

Noyes & Associates Inc.

has been recognized as the

#25

company in The 1994 Houston 100 on this 6th day of October 1994.

This distinction represents success in achieving outstanding sales growth from 1991 to 1993.

sponsored by

UNIVERSITY of HOUSTON
SMALL BUSINESS DEVELOPMENT CENTER

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08000

ATTACHMENT 17

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

REGISTRATION FOR MUNICIPAL SOLID WASTE MANAGEMENT SITE
issued under provisions of Texas Health & Safety Code Ann. Chapter 361 (Vernon)

Registration No. MSW-43008

Name of Registrant:	Downstream Environmental, LLC 2044 Bissonnett Drive Houston, Texas 77005
Site Owner:	Don McGuirt, Jack Christy and Trey Wing, Tenants in Common 12330 Tealwood N. Circle Houston, Texas 77024
Facility Name:	Downstream Environmental Liquid Waste Processing Facility
Classification of Site:	Type VGG Liquid Waste Processing Facility
Wastes to be Accepted:	Grease Trap Waste, Grit Trap Waste, Septic Waste, or a Combination of these Liquid Wastes from Municipal Source.

The registrant is authorized to store and process wastes and to recycle recovered materials in accordance with the limitations, requirements, and other conditions set forth herein. This registration is granted subject to the rules and Orders of the Commission and laws of the State of Texas. Nothing in this registration exempts the registrant from compliance with other applicable rules and regulations of the Texas Natural Resource Conservation Commission. This registration will be valid until canceled, amended, or revoked by the Commission, or until the site is abandoned or rendered unusable, whichever occurs first.

APPROVED, ISSUED AND EFFECTIVE in accordance with 30 Texas Administrative Code Section 330.71.

ISSUED DATE: MAR 28 2001

00081 For the Commission

TABLE OF CONTENTS
Downstream Environmental, LLC
Downstream Environmental Liquid Waste Processing Facility
Registration Nº. MSW-43008

This registration consists of the following: (1) Signature Sheet, (2) Registration Provisions, and (3) Attachment A, which is the registration application and supporting documents.

I. Size and Location of Facility

A. This Type VGG municipal solid waste processing facility is located 10400 Westpark Drive, in Houston, Harris County, Texas. The facility contains 2.5 acre.

B. The legal description is contained in the Engineering Report, Attachment A.

C. Coordinates and Elevation of Site Permanent Benchmark:

Latitude: N 29.720205°
Longitude: W 95.56°
Benchmark Elevation: 80 feet above msl

II. Facilities and Operations Authorized

A. Days and Hours of Operation

The operating hours of this municipal solid waste facility will be 24 hours per day, seven days a week. The business hours of the facility shall be anytime between the hours of 7:00 am and 7:00 pm, on Monday through Saturday. The business hours correspond to the hours that the facility is open to the public for the receipt of waste. The operator shall post the actual operating hours on the site sign.

B. Wastes Authorized at this Facility

The registrant is authorized to store and process grease trap waste, grit trap waste, septic waste, or a combination of these three liquid wastes resulting from or incidental to municipal, community, commercial, institutional, recreational activities, and food preparation facilities located on industrial sites; and as identified in Section 3.2 of the Engineering Report contained in Attachment A.

C. Wastes Prohibited at This Facility

Any other liquid waste or solid waste from a municipal or industrial source.

D. Waste Acceptance Rate

Liquid waste may be accepted for processing at this facility at a rate of up to 150,000 gallons-per-day of grit trap waste, grease trap waste, septic waste, or a combination of these three waste materials.

E. Maximum Volume Available for Storage

Total available liquid waste storage capacity of this facility is 150,000 gallons with a maximum storage limit of 48 hours for untreated waste materials and processed waste materials. Materials recovered for beneficial reuse may be stored onsite for up to 30 days

F. Facilities Authorized

The registrant is authorized to operate the facilities related to the processing and storage of the wastes authorized, and related to the recycling of the recovered materials, which shall include units, structures, appurtenances, or improvements as described in the Engineering Report of Attachment A.

G. Changes, Additions, or Expansions

Any proposed facility changes must be authorized in accordance with Texas Natural Resource Conservation Commission (TNRCC) registration amendment or modification rules, 30 TAC Chapter 330 (Municipal Solid Waste Rules), and 30 TAC Chapter 305 (Consolidated Permits).

III. Facility Design, Construction, and Operation

A. Facility design, construction, and operation must comply with this registration, Commission Rules, including 30 TAC §§330.71, 330.150-330.159, 330.171, and Special Provisions contained in this registration, and must comply with the provisions of the Engineering Report contained in Attachment A.

B. The entire waste management facility shall be designed, constructed, operated, and maintained to prevent the release and migration of any waste, contaminant, or pollutant, and to prevent inundation or discharge from the areas surrounding the facility components. This site must be designed, constructed and maintained to collect spills and incidental precipitation in such a manner as to:

1. preclude the release of any contaminated runoff or spills; and

2. prevent washout of any waste by a 100-year storm.

C. The site shall be designed and operated so as not to cause a violation of:

1. the requirements of the Texas Water Code, §26.121;

2. any requirements of the Federal Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, §402 as amended;

3. the requirements under the Federal Clean Water Act, §404, as amended; and

4. any requirement of an area wide or statewide water quality management plan that has been approved under the Federal Clean Water Act, §208 or §319, as amended.

D. All facility employees and other persons involved in facility operations shall be qualified, trained, and experienced to perform their duties so as to achieve compliance with this registration. The permittee shall further ensure that personnel are familiar with safety procedures, contingency plans, the requirements of the Commission's rules, and this registration, commensurate with their levels and positions of authority.

IV. Financial Assurance

A. General. Authorization to operate the facility is contingent upon compliance with provisions contained in this registration and maintenance of financial assurance in accordance with Subchapter K of 30 TAC Chapter 330 and 30 TAC Chapter 37.

B. Closure Financial Assurance. The amount of financial assurance posted for closure shall be provided annually in current dollars in an amount equal to closing the entire facility pursuant to 30 TAC Section 330.282(a).

C. Closure Financial Assurance Amount. Within 60 days after the date of the registration and prior to the initial receipt of waste, the registrant shall provide financial assurance instrument(s) for demonstration of closure in an amount equal to, but not less than $44,303.62 for closure in 2001 dollars. The amount of financial assurance to be posted annually shall be determined as described in Section IV.B. of this registration.

D. The owner and/or operator shall annually adjust the closure cost estimate and the dollar amount of the financial assurance for inflation within 60 days prior to the anniversary date of the registration pursuant to 30 TAC Section 330.282.

E. Modifications. If the facility's closure plan is modified, pursuant to 30 TAC §305.70, the registrant shall provide a new cost estimate in current dollars, which meets the requirements of Section IV.C of this registration. The amount of the financial assurance mechanism shall be adjusted within 20 days after the modification is approved. Adjustments to the cost estimates and/or financial assurance instrument to comply with any financial assurance regulation that is adopted by the TNRCC subsequent to the issuance of this registration, shall be initiated as a modification within 30 days after the effective date of the new regulation.

V. Facility Closure

Closure shall commence:

1. Upon direction by the Executive Director of the TNRCC for failure to comply with the terms and conditions of this registration or violation of State or Federal regulations.

   The Executive Director is authorized to issue emergency orders to the registrant in accordance with §§5.501 and 5.512 of the Texas Water Code regarding this matter after considering whether an emergency requiring immediate action to protect the public health and safety exists;

2. Upon abandonment of the site;

3. Upon direction of the Executive Director for failure to secure and maintain adequate financial assurance as required; or

4. Upon registrant's notification to the TNRCC that the facility will no longer operate.

5. Site Completion Requirements:

   Within sixty (60) days prior to site closure, the registrant shall submit a closure plan to the Executive Director. At a minimum, the closure plan shall require the following:

VII. Incorporated Regulatory Requirements

A. The registrant shall comply with all applicable Federal, State, and local regulations and shall obtain any and all other required permits prior to the beginning of any operation authorized by this registration.

B. To the extent applicable to the activities authorized by this registration, the requirements of 30 TAC Chapters 37, 281, 305, and 330, and future revisions are adopted by reference and are hereby made provisions and conditions of this registration.

VIII. Special Registration Provisions

None.

IX. ATTACHMENT A

The Registration Application.

PART I

(11) APPOINTMENTS

Attached is the Notice of Appointment required by 30 TAC §330.52(E)(10).

(A) Letter of delegation of authority
(B) Notice of Appointment

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
MaryWimbish@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

August 8, 2002

Mr. Jeffrey Saitas, Executive Director
TNRCC - MC-100
P.O. Box 13087
Austin, TX 78711-3087

RE: Permit Application No. MSW 2298

Dear Mr. Saitas:

I hereby delegate and assign to George W. Noyes, Engineer, the authority to sign Downstream Environmental's Application for a Type V MSW Permit. George W. Noyes meets the requirements of Sec. 305.44.

Sincerely,

Mary Wimbish

Mary Wimbish, CEO

MW:gs

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com **(713)520-8113**
Fax: (713)520-0138

August 8, 2002

Director
Municipal Solid Waste Division
MC-124 TNRCC
P.O. Box 13087
Austin, TX 78711-3087

Dear Director:

This is to advise you that Mary Wimbish has duly appointed George W. Noyes as the Consulting and Design Engineer for the purpose of submitting the supporting documentation for an Application for a Municipal Solid Waste Facility, including, but not limited to engineering drawings, calculations, reports, planning material, plans and specifications and other required documents, and for supervision of construction of a grease and grit trap processing facility for Mary Wimbish. Mr. Noyes is a professional engineer in Louisiana, in good standing in accordance with State Statutes and has had experience in the design and construction of the following waste treatment plant facilities at the following locations:

Permit #:	Pending	-	Oak Crest of Manuel - Phillips Utilities
	12704-01	-	Ashley Oaks - Phillips Utilities
	Pending	-	Oaks Development Co. - George Cobb
	12849-01	-	Raintree Acres - CMH Homes
	12848-06	-	Beacon Estates
	12822-01	-	Trace
	12780-01	-	Southwood Estates
	12978-001	-	Sommersetshire Estates
	12923-01	-	Meadowland
	12669-001	-	George C. Cobb

We hereby authorize George W. Noyes to act on our behalf during your review of the Application and the supporting documentation for a grease and grit trap processing facility for Mary Wimbish.

This is to further advise you that Dan Noyes of Ecoloquip and Noyes & Associates shall

be acting on my behalf during the review of this Application, as Chief of Plant Operations. Mr. Dan Noyes has had experience in the design and construction of a Type V grease facility:

Pilot Plant Study TNRCC Permit No. 101134-02, TNRCC Log No. 108/080 - Grease Plant Pilot at Pearland, Texas

MSW Type V Registration No. 43008, Grease, Grit and Septage Plant, Houston, Texas

Sincerely,

Mary Wimbish

MW:gs

PART I

(12) EVIDENCE OF FINANCIAL ASSURANCE

In accordance with §330.282 (b), the owner has provided financial assurance to the Executive Director in the form of a Letter of Credit in the amount consistent with the closure cost projection. The Letter of Credit was submitted to the Executive Director at least 60 days before the date on which waste is first received by Applicant's Registered Type V Facility, MSW No. 43008.

Upon issuance of the proposed permit, Applicant will, in accordance with §330.282 (b), provide the Executive Director with a new financial assurance by a Letter of Credit from the same bank as the attached Bank's Letter of Credit for Closure at least sixty (60) days prior to requesting that Registration No. 43008 be revoked.

Details of the closure cost projections are attached.

Attached;

(A) Engineer's Cost Estimate ***See: Part I, Pages 00093 and 00094***

(B) Bank's Letter of Credit for Closure ***See: Part I, Page 00095***

WESTPARK DRIVE CLOSURE COST ESTIMATE

The following is a description of closure activities that would be required to be performed by a third party to close the facility. The closure cost estimate assumes worst case conditions exist at the facility at the time of closure. Closure activities would include at a minimum the following activities:

1. Removal of all waste material stored on site. Closure cost assumes that the receiving tanks and storage tanks are full of unprocessed waste that would have to be disposed of at an approved off-site facility;

2. Dismantling all process equipment and tankage;

3. Removal of all dismantled equipment; and

4. Final cleanup of the site with disposal of all litter, debris and any contaminated soils at an approved landfill.

Removal of Unprocessed Waste

To estimate a closure cost, it is assumed that both the receiving tanks and storage tanks will contain unprocessed waste material. This could account for as much as ~~20,000~~ 10,000 gallons of material, ~~including~~or 200 cu. yds. of waste ~~sludge~~, that would have to be removed, transported and disposed at an approved facility. Currently the nearest approved facility site would be located in Houston, Texas. Costs to remove, transport and dispose of ~~50,000 gallons of unprocessed waste, including~~ 200 cu. yds. of waste sludge would ~~be 25¢ per gallon for a total~~cost $26,803.62 (See attached cost ~~of $12,500~~sheet.~~00~~)

Dismantling of Process Equipment and Tankage

This closure cost estimate includes dismantling and removing the plant itself, which includes all receiving tank, storage tanks, recycling tanks, equipment, roll-off cars and mobile offices. No demolition would be required to vacate the site. Estimated moving costs of removing all equipment and tankage from the site is $15,000.00;

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

Final Site Cleanup

Cost of this phase of facility closure assumes that only litter and debris remain on site that require removal and disposal. Costs also include removal and disposal off-site of up to 40 cubic yards of contaminated soil resulting from accidental spillage. Estimated costs for this phase of the facility closure is $2,500.00

Over-site of Facility Closure by a Third Party

Cost of over-site by a third party are included in each of the cost elements described above.

Summary of Facility Closure Costs

Removal of Unprocessed Waste	~~$7,500.00~~26,803.62
Dismantling & Removal of Equipment & Tankage	15,000.00
Final Site Cleanup	2,500.00
TOTAL CLOSURE COSTS	~~$25,000.00~~$44,303.62

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PROFESSIONAL ENGINEER

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

3/5/01

PROSPERITY BANK℠

January 18, 2002

Mr. Jeffrey Saitas, Executive Director
TNRCC – MC-100
P.O. Box 13087
Austin, TX 78711-3087

Re: Municipal Solid Waste – Harris County – Downstream Environmental, LLC – Registration No. MSW – 43008

Dear Mr. Saitas:

We hereby establish our Irrevocable Standby Letter of Credit No. 203 in your favor, at the request and for the account of Downstream Environmental, LLC, Registration No. MSW-43008 in the amount of $44,500.00 for closure, post-closure and/or corrective action, up to the aggregate amount of FORTY FOUR THOUSAND FIVE HUNDRED AND NO/100 U.S. DOLLARS $44,500.00, available upon presentation of:

1. Your sight draft, bearing reference to this letter of credit No. 203, and

2. Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of the Resource Conservation and Recovery Act of 1976 as amended."

This letter of credit is effective as of January 21, 2002 and shall expire on January 21, 2003; but such expiration date shall be automatically extended for a period of at least 1 year on January 21, 2003, and on each successive expiration date, unless, at least 120 days before the current expiration date, we notify in writing both you and Downstream Environmental, LLC by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by both you and Downstream Environmental, LLC, as shown on the signed return receipts.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of Downstream Environmental, LLC in accordance with your instructions. We certify that the wording of this letter of credit is identical to the wording specified in 31 Texas Administrative code § 330.281(e) as such regulations were constituted on the date shown immediately below.

PROSPERITY BANK

BY: Bob Benter
Bob Benter

DATE: 1/18/02

DOWNSTREAM ENVIRONMENTAL, LLC

BY: M Wimbish
Mary Wimbish

This credit is subject to the most recent edition of the Texas Uniform Commercial Code.

PART I
ADDITIONAL REQUIREMENTS

§330.51(6) DOCUMENTATION OF COORDINATION FROM AGENCIES

(a) Endangered Species & Wildlife Approval Letter
(b) Federal Aviation Administration Approval Letter
(c) Fire Marshal Coordination
(d) Wetlands Determination Coordination
(e) Watershed Management Review Coordination
(f) Flood Impact Fee Receipt
(g) Regional Solid Waste Plan Coordination
(h) TxDOT Coordination
(i) Texas Historical Commission Approval Letter
(j) NPDES Coordination
(k) EPA Report on Proposed Site
(l) Data Base of EPA Permitted Sites Within ½ Mile
(m) City's Zoning Approval Letter
(n) The Site's Deed Restrictions
(o) City's Traffic Approval Report
(p) City of Houston Coordination Regarding Facility Compatibility
(q) Wastewater Agreement and Wastewater Capacity Reservation Letter
(r) BFI's Letter Stating Landfill Capacity

TEXAS PARKS & WILDLIFE

March 2, 2001

Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

RE: Proposed Grease, Grit, and Septage Processing Facility, Harris County

Dear Ms. Wimbish:

This letter is in response to your request for clarification of my letter dated February 1, 2001. After several conversations with Gwen Scarborough with Downstream Environmental, LLC and Texas Parks and Wildlife Department (TPWD) botanist Jackie Poole, it is unlikely that Texas prairie dawn (*Hymenoxys texana*) would be impacted by the proposed project activities.

The Texas prairie dawn is found at the base of mima (pimple) mounds along poorly drained and sparsely vegetated areas (slick spots). The Texas prairie dawn also prefers slightly saline soils with a soil structure that would not be found in disturbed soils. Because the proposed project site is located on a developed property and the soil has been graded and disturbed over much of the area, the required habitat for the Texas prairie dawn should not be present within the project area.

Please note that the reference to the branched gayfeather was a typographical error and should have referred to the Texas prairie dawn.

I appreciate the opportunity to review and comment on this project.

Sincerely,

Danny Allen
Wildlife Habitat Assessment Program
Wildlife Division

DLA:pmo.8334

TEXAS PARKS & WILDLIFE

February 1, 2001

Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

RE: Proposed Grease, Grit, and Septage Processing Facility, Harris County

Dear Ms. Wimbish:

This letter is in response to your request for information to comply with state and federal laws regarding the Endangered Species Act as set forth in the Texas Natural Resource Conservation Commission's Municipal Solid Waste Regulations, 30 TAC §330.51(b)(8). Texas Parks and Wildlife Department (TPWD) staff have reviewed the project and offer the following comments concerning this project.

Given the small proportion of public versus private land in Texas, the TPWD Biological and Conservation Data System (BCD) includes less than a representative inventory of rare resources in many areas of the state. Although it is based on the best data available to the state regarding rare species, the data from the BCD do not provide a definitive statement as to the presence or absence of rare and threatened and endangered (T&E) species within the project areas. These data cannot substitute for an on-site evaluation by your qualified biologists. The BCD information is intended to assist you in avoiding harm to species that may occur on site.

Populations of the federally endangered Texas prairie dawn (Hymenoxys texana) are known to occur in areas surrounding the project site. The branched gayfeather occurs in poorly drained depressions, at the base mima mounds in open grasslands, or almost barren areas on slightly saline soils. If appropriate habitat exists on the project site, a survey should be conducted for the Texas prairie dawn during the flowering season (March through early April).

Enclosed is a copy of the TPWD rare and T&E species list for Harris County. Please review this list, as other species could be present depending upon habitat availability. If rare plant or animal species are found within or near the project area, precautions should be taken to avoid adverse impacts to them.

I appreciate the opportunity to review and comment on this project.

Sincerely,

Danny Allen
Wildlife Habitat Assessment Program
Wildlife Division

DLA.pmc.8334

4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
512-389-4800
www.tpwd.state.tx.us

Attachment 14g

HARRIS COUNTY

	Federal Status	State Status
***** AMPHIBIANS *****		
Houston Toad (*Bufo houstonensis*) – endemic; species sandy substrate, water in pools, ephemeral pools, stock tanks; breeds in spring especially after rains; burrows in soil when inactive; breeds February-June; associated with soils of the Sparta, Carrizo, Goliad, Queen City, Recklaw, Weches, and Willis geologic formations	LE	E
***** BIRDS *****		
American Peregrine Falcon (*Falco peregrinus anatum*) - potential migrant; nests in west Texas	DL	E
Arctic Peregrine Falcon (*Falco peregrinus tundrius*) - due to similar field characteristics, treat all Peregrine Falcons as federal listed Endangered; potential migrant	DL	T
Attwater's Greater Prairie-chicken (*Tympanuchus cupido attwateri*) - this county within historic range; endemic; open prairies of mostly thick grass one to three feet tall; from near sea level to 200 feet along coastal plain on upper two-thirds of Texas coast; males form communal display flocks during late winter-early spring; booming grounds important; breeding February-July	LE	E
Bald Eagle (*Haliaeetus leucocephalus*) - found primarily near seacoasts, rivers, and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	LT-PDL	T
Black Rail (*Laterallus jamaicensis*) – salt, brackish, and freshwater marshes, pond borders, wet meadows, & grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous year's dead grasses; nest usually hidden in marsh grass or at base of Salicornia		
Brown Pelican (*Pelecanus occidentalis*) - largely coastal and near shore areas, where it roosts on islands and spoil banks	LE	E
Henslow's Sparrow (*Ammodramus henslowii*) - wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking; likely to occur, but few records within this county		
Mountain Plover (Charadrius montanus) - shortgrass plains and plowed fields (bare, dirt fields); primarily insectivorous; winter resident in this area	PT	
Piping Plover (*Charadrius melodus*) – wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats	LT	T
Reddish Egret (*Egretta rufescens*) – resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear		T
Snowy Plover (*Charadrius alexandrinus*) - wintering migrant along the Texas Gulf Coast beaches and bayside mud or salt flats		
Swallow-tailed Kite (*Elanoides forficatus*) - lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees		
White-faced Ibis (*Plegadis chihi*) – prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats		T
White-tailed Hawk (*Buteo albicaudatus*) - near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed		

Attachment 14g

	Federal Status	State Status
savanna-chaparral; breeding March-May		
Whooping Crane *(Grus americana)* - potential migrant	LE	E
Wood Stork (*Mycteria americana*) - forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960		T

*** BIRDS-RELATED ***

Colonial waterbird nesting areas - many rookeries active annually

*** FISHES ***

Creek Chubsucker (*Erimyzon oblongus*) - small rivers and creeks of various types; seldom in impoundments; prefers headwaters, but seldom occurs in springs; young typically in headwater rivulets or marshes; spawns in river mouths or pools, riffles, lake outlets, upstream creeks — T

*** MAMMALS ***

Plains Spotted Skunk (*Spilogale putorius interrupta*) - catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Rafinesque's Big-Eared Bat (*Corynorhinus rafinesquii*) - roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures — T

Southeastern Myotis (*Myotis austroriparius*) - roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures

*** REPTILES ***

Alligator Snapping Turtle (*Macroclemys temminckii*) - deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October — T

Atlantic Hawksbill Sea Turtle *(Eretmochelys imbricata)* - Gulf and bay system	LE	E
Green Sea Turtle *(Chelonia mydas)* - Gulf and bay system	LT	T
Gulf Saltmarsh Snake (*Nerodia clarkii*) - saline flats, coastal bays, & brackish river mouths		
Kemp's Ridley Sea Turtle *(Lepidochelys kempii)* - Gulf and bay system	LE	E
Leatherback Sea Turtle *(Dermochelys coriacea)* - Gulf and bay system	LE	E
Loggerhead Sea Turtle *(Caretta caretta)* - Gulf and bay system	LT	T
Smooth Green Snake (*Liochlorophis vernalis*) - Gulf Coastal Plain; mesic coastal shortgrass prairie vegetation; prefers dense vegetation		T

Texas Diamondback Terrapin (*Malaclemys terrapin littoralis*) - coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water; burrows into mud when inactive; may venture into lowlands at high tide

Texas Garter Snake (*Thamnophis sirtalis annectens*) - wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August

	Federal Status	State Status
Texas Horned Lizard (*Phrynosoma cornutum*) - open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
Timber/Canebrake Rattlesnake (*Crotalus horridus*) - swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto		T

*** VASCULAR PLANTS ***

Coastal gay-feather *(Liatris bracteata)* - endemic; black clay soils of prairie remnants; flowering in fall		
Houston machaeranthera *(Machaeranthera aurea)* - endemic; seasonally wet, saline barren areas, around the base of mima mounds in coastal prairies, or barren to somewhat vegetated openings in grasslands, including pastures and roadsides, on loamy to sandy loam soils; flowering October-November		
Texas windmill-grass (*Chloris texensis*) - endemic; sandy to sandy loam soils in open to sometimes barren areas in prairies and grasslands, including ditches and roadsides; flowering in fall		
Texas meadow rue *(Thalictrum texanum)* - endemic; mesic woodlands or forests, including wet ditches on partially shaded roadsides; flowering March-May		
Texas prairie dawn *(Hymenoxys texana)* - endemic; in poorly drained depressions or base of mima mounds in open grasslands or almost barren areas on slightly saline soils; flowering March-early April	LE	E
Threeflower broomweed *(Thurovia triflora)* - endemic; black clay soils of remnant grasslands, also tidal flats; flowering July November		

LE,LT - Federally Listed Endangered/Threatened
PE,PT - Federally Proposed Endangered/Threatened
E/SA,T/SA - Federally Endangered/Threatened by Similarity of Appearance
C1 - Federal Candidate, Category 1; information supports proposing to list as endangered/threatened
DL,PDL - Federally Delisted/Proposed Delisted
E,T - State Endangered/Threatened
"blank" - Rare, but with no regulatory listing status

Species appearing on these lists do not all share the same probability of occurrence. Some species are *migrants or wintering residents only, or may be historic or considered extirpated.*

ATTACHMENT 14g

	Federal Status	State Status
Texas Horned Lizard (*Phrynosoma cornutum*) - open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
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*** VASCULAR PLANTS ***

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Threeflower broomweed (*Thurovia triflora*) - endemic; black clay soils of remnant grasslands, also tidal flats; flowering July November		

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PE,PT - Federally Proposed Endangered/Threatened
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"blank" - Rare, but with no regulatory listing status

Species appearing on these lists do not all share the same probability of occurrence. Some species are *migrants or wintering residents only, or may be historic or considered extirpated.*

U.S. Department
of Transportation
**Federal Aviation
Administration**

Southwest Region
Arkansas, Louisiana,
New Mexico, Oklahoma,
Texas

Fort Worth, Texas 76193-0000

JAN 11 2001

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

Dear Ms. Wimbish:

We have reviewed the proposed grease, grit, and septage processing facility about seven nautical miles northeast of the Sugarland Municipal Airport in Harris County, Texas, as described in your January 5, 2001 letter. We have no objection to the proposal from the standpoint of potential bird hazards to aircraft.

This site has been assigned our File No. 21-001TX. Please refer to this number in any future correspondence regarding this site. Thank you for coordinating it with us.

Sincerely,

Joseph G. Washington
Manager, Safety and Standards Branch

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
GScarborough@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

March 3, 2001

Inspector Connors
Houston Fire Department
Plan Checkers Division
3300Main
Houston, Texas 77002

RE: Downstream Environmental; The "B.R. Perrin" - Type V - GG Treatment Plant; Wastewater Compatibility

Dear Inspector Connors:

Downstream Environmental has submitted an application for registration to the TNRCC in Austin, Texas to build and operate an industrial wastewater treatment facility. The location of the "B.R. Perrin" - Type V - GG Treatment Plant site is Tract 2, of Restricted Reserve "D" of which the address is 10400 Westpark Drive, Houston Texas 77042.

No improvements currently exist on the property and it is my understanding from your office that at the time the new building itself has a final inspection by City officials, a fire prevention plan will be established and reviewed by your staff.

We will need to provide confirmation of an approved fire prevention plan to the TNRCC when it becomes available.

Thank you for your attention to this matter. If there are any questions concerning this letter, or clarifications required, please feel free to call.

Sincerely,

Gwendolyn Scarborough
Vice-President

GS/dgn

ATTACHMENT 14i

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS 77553-1229

March 21, 2001

REPLY TO
ATTENTION OF
Compliance Section

SUBJECT: D-12116; 2.5231-acre Tract 2, Harris County, Texas.

Ms. Gwendolyn Scarborough
Downstream Environmental, LLC.
2044 Bissonnet
Houston, Texas 77005

Dear Ms. Scarborough:

This is in regard to your February 21, 2001, letter, requesting a jurisdictional determination on a 2.5231-acre tract (Tract 2). This property is located south of Westpark Drive in Houston, Harris County, Texas.

Based on review of recent maps, aerial photography, and soils data, we have determined that this property does not contain wetlands subject to Corps' jurisdiction. A Department of the Army permit under Section 404 of the Clean Water Act will not be required for the deposition or redistribution of dredged or fill material on this site.

This approved determination is valid for 5 years from the date of this letter unless new information warrants a revision of the determination prior to the expiration date. Please reference the determination number **D-12116** in future correspondence pertaining to this subject. If you have any questions concerning this determination or possible appeal of this determination, please contact Mr. David Rosen at the letterhead address or by telephone at 409-766-3105. The enclosed sheet provides information regarding the administrative appeal process.

Sincerely,

Kenny Jaynes
North Unit Leader

Enclosure

Attachment 14j

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Downstream Environmental, LLC	File Number: D-12116	Date: 3/21/2001
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg/ or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.**
- **OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.**

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved jurisdictional determination (JD) or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION

If you have questions regarding this decision and/or the appeal process you may contact:
David Rosen, Regulatory Specialist
CESWG-PE-RC, P.O. Box 1229
Galveston, Texas 77553-1229
Telephone: 409-766-3105; FAX: 409-766-3931

If you only have questions regarding the appeal process you may also contact:
James E. Gilmore, Appeal Review Officer
CESWD-ETO-R, 1100 Commerce Street
Dallas, Texas 75242-0216
Telephone: 214-767-2457; FAX: 214-767-9021
Email: James.E.Gilmore@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or authorized agent.

Date:

Telephone number:

U.S. Army Corps of Engineers
Galveston District
Regulatory Branch, SWG-PE-R
P.O. Box 1229
Galveston, TX 77553-1229

Ms. Gwendolyn Scarborough
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

33

Acknowledgement

This is to acknowledge receipt of your request for wetlands determination on site located at 10400 Westpark, Houston, Harris County, TX.

Project Manager David Rosen, telephone (409) 766-3105 has been assigned to your project.

___ We will be coordinating your project with Federal and State agencies.

X We will not be coordinating your project with Federal and State agencies.

Should a Department of the Army permit be issued, the following fee will be required:
X No Fee ___ $10 ___ $100.

Your project has been assigned File Number D-12116. Please reference this file number in future correspondence with our office.

U.S. Army Corps of Engineers, Galveston District
P.O. Box 1229, Galveston, Texas 77553-1229
(409) 766-3930

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com

(713)520-8113
Fax: (713)520-0138

February 20, 2001

Mr. David Rosen
U.S. Army Corps of Engineers
Regulatory Compliance 248G
2000 Fort Point Road
Galveston, TX 77553

Dear David:

Regarding our phone conversation this morning, I am submitting to you a request for a wetlands determination in accordance with 30 TAC §330.51(b)(7), regarding our proposed Type V GG Disposal and Processing Facility site, located at 10400 Westpark, Houston, Texas 77042.

In addition to furnishing you with a copy of a General Location Map (TxDot), Survey with Metes and Bounds, I would like to bring your attention to the nearby Crystal Chemical Superfund Site, for which I have attached a small map showing that site specifically, and have highlighted where our site is located in conjunction with it.

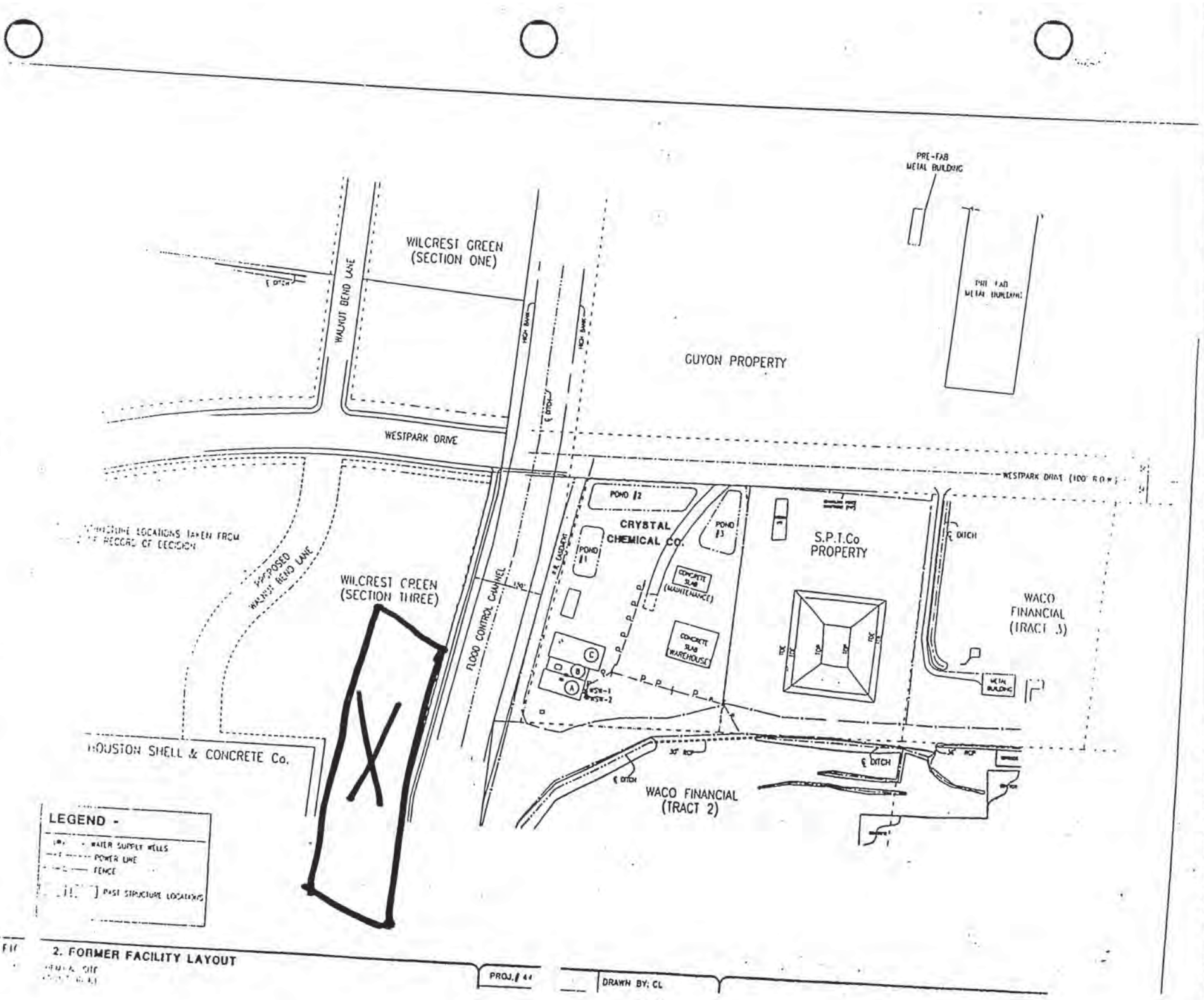
Please let me know if you need additional information on the site and I can fax or FedEx it to you at once.

Sincerely,

Gwendolyn Scarborough

GS
Encls.

ATTACHMENT 14



00111

ATTACHMENT 1-J

FIG 2. FORMER FACILITY LAYOUT

PROJ. # 44

DRAWN BY: CL

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

February 28, 2001

Ms. Gwendolyn Scarborough
Downstream Environmental, LLC
2044 Bissonet
Houston, TX 77005

Re: Water Quality Management Plan Conformance Review
Proposed Municipal Solid Waste Facility 10400 Westpark Drive,
City of Houston, Harris County

Dear Ms. Scarborough:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed the information you provided related to a Type VGG municipal solid waste processing/recycling facility in Houston, Harris County for conformance with Section 208 of the federal Clean Water Act.

If the facility is constructed and operated in accordance with TNRCC rules and guidelines, it will comply with the requirements in Section 208 of the federal Clean Water Act.

If you need additional information, please contact Bill Carter of my staff at 512-239-6771.

Sincerely,

Linda Brookins

Linda Brookins, Leader
Watershed Management Team
Technical Analysis Division

LB/ph

00112

ATTACHMENT 14k

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

February 27, 2001

VIA E-MAIL & U.S. MAIL
Ms. Linda Brookins
TNRCC
Watershed Management Team
Technical Analysis Division
P.O. Box. 13087, MC147
Austin, TX 78711-3087

RE: Registration Application No. MSW-43008

Dear Ms. Brookins:

Downstream Environmental, LLC has submitted to the TNRCC a Registration Application for a Type V GG facility located at 10400 Westpark Drive, Houston, Harris County, Texas. In accordance with the Texas Administrative Code (TAC) §330.51(b)(6)(A), we are requesting a letter form the Watershed Management Division indicating the proposed Type V GG will be in compliance with Section 208 of the Clean Water Act.

Attached hereto is a copy of our Registration Application (without attachments) for your review.

If you have questions or need additional information regarding this request, please do not hesitate to call.

Sincerely,

Gwendolyn Scarborough

See: Attached

COUNTY AUDITOR'S FORM 181
HARRIS COUNTY, TEXAS (REV. 8/91)

HARRIS COUNTY
Official Receipt

A 47259
R# 115908

STATE OF TEXAS
COUNTY OF HARRIS }

U 651093

2-23-00

Received of Don McGuirt $62,034.00

Sixty-two thousand thirty-four & 00/100 Dollars

For: Impact Fee – Wilcrest Grove, Sec. 3

CHECK NO. 0001503458 OR CASH ☐

HC 70
CODE NO.
ISSUING DEPARTMENT OR OFFICE

INSTRUCTIONS: This form is to be issued in triplicate—the original detached and given to remitter, second copy retained by issuing office, and third copy left in book for return to County Auditor. Do not erase on this form. If an error is made, void the receipt and leave all voided copies intact. This receipt form is to be used only for type (s) of revenue indicated on cover.

RECEIVED BY

WHEN HELD TO LIGHT, IF CIRCULAR WATERMARKS ARE NOT PRESENT, DO NOT CASH. SEE BACK FOR ADDITIONAL SECURITY FEATURES.

Frost National Bank
Member: Cullen/Frost Bankers, Inc.
P.O. Box 1600 San Antonio, Texas ... Member FDIC

CASHIER'S CHECK 0001503458

A-47259
R-115908 R#651093

February 23, 2000

DON McGUIRT

30-1/1140

Sixty Two Thousand Thirty Four Dollars and 00/100 $ $62,034.00

PAY TO THE ORDER OF **HARRIS COUNTY FLOOD CONTROL**

VICE PRESIDENT

⑈002038 2⑈ ⑆114000093⑆01503458 203218⑈0902

Attachment 14I

maryww

From: "marywww" <marywww@flash.net>
To: <lbrookin@tnrcc.state.tx.us>
Sent: Tuesday, February 27, 2001 3:01 PM
Attach: 022701 Linda Brookins Watershed Mgmt Team.wpd; 011501 Application for
Subject: MSW Review

Dear Ms. Brookins:

Please open the two (2) attachments per our discussion.

Thank you. G. Scarborough

Houston-Galveston Area Council
PO Box 22777 • 3555 Timmons • Houston, Texas 77227-2777 • 713/627-3200

March 22, 2001

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, Texas 77005

RE: Registration Application for MSW Grease and Grit Trap Waste Disposal Facility (Type V GG #43008)

Dear Ms. Wimbish:

I have received your letter dated February 27, 2001 requesting H-GAC's review of the registration application for MSW Grease and Grit Trap Waste Disposal Facility (#43008). At this time, the Houston-Galveston Area Council can not determine consistency with the regional solid waste management plan, *Resource Responsibility: Solid Waste Management Plan for the H-GAC Region, 1992-2012*.

H-GAC will receive the permit application for review when it is sent to other state agencies and local governments for comment. This typically occurs once the TNRCC has determined that the application is technically complete. H-GAC staff completes a review based on the technical merits of the application and receives comments from affected local governments. The staff review of the permit application is presented to the Board of Directors Projects Review Committee who then present their finding to the Board of Directors. The results of the review are included as part of the TNRCC decision record concerning the permit application.

H-GAC staff recommends that the permit application specifically discuss *Resource Responsibility* and how the permit meets the recommended goals and objectives for Project Review/Siting Criteria and discuss how the application fulfills the actions in appropriate planning subregion. You may also mention capacity and service area issues in the subregion that the proposed facility will be serving.

Please contact me at 713.993.4520 or cmergo@hgac.cog.tx.us if you need any additional information concerning the review process please.

Sincerely,

Cheryl C Mergo

Cheryl Mergo
Solid Waste Program Manager

Recycled

ATTACHMENT 14m

00116

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

February 27, 2001

Ms. Cheryl Mergo
Solid Waste Program Coordinator
Houston-Galveston Area Council
P.O. Box 22777
Houston, TX 77227-2777

RE: Compliance with Regional Solid Waste Management Plan
Proposed Type V Grease and Grit Registration, Harris County, Texas

Dear Ms. Mergo:

Downstream Environmental, LLC is an innovative technology company that has filed a Registration Application for a Municipal Solid Waste grease and grit trap waste disposal facility located at 10400 Westpark Drive between Rogerdale and Walnut Bend Lane, Houston, Harris County, Texas, immediately west of Beltway 8. Attached is a general site location map.

In accordance with the Texas Administrative Code (TAC) §330.51(b)(10), we are requesting a letter from the Houston-Galveston Area Council (HGAC) indicating that the proposed Type V GG facility is in compliance with HGAC Regional Solid Waste Plan.

Attached to this letter is a copy of Downstream Environmental, LLC's Registration Application (without attachments) for your review.

Downstream Environmental, LLC's Type V GG facility will include the following design components to provide for ground and surface water protection:

1. All waste will be handled in areas over concrete pads that are graded and have drains. All tanks will be placed on concrete pads with retainer walls for vessel failure protection.
2. All disposal activities will be in covered areas, including all outdoor tanks being covered. All separation processes contained within a building. Truck offloading will be in a covered area with a concrete drive.

3. A network of monitoring wells are already present in the area to monitor for possible arsenic contamination from a nearby superfund site, Crystal Chemical Company. Enclosed is a letter from the Dallas Regional EPA Office regarding the superfund site.

If you have questions or need additional information regarding this request, please do not hesitate to call. I appreciate your assistance in this matter.

Sincerely,

Mary Wimbish

MW:gs
Attachments: Map
Application
EPA letter re: Crystal Chemical
Sample letter from Cheryl Mergo

ATTACHMENT 14m

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005

(713)520-8113
Fax: (713)520-0138
e-mail: marywww@flash.net

February 21, 2001

VIA FAX: 512.239.6166
Mr. Steve Dayton
TNRCC
P.O. Box 13087
MC-206, Bldg. F
Austin, TX 78711-3087

FAXED 2/21/01

RE: Houston/Galveston Area Regional Solid Waste Planning; 30 TAC §330.51(b)(7)

Dear Mr. Dayton:

This letter is to ascertain compliance with the Regional Solid Waste Plan of our proposed MSW Type V GG Registration. Does Downstream Environmental, LLC's proposed MSW Type V GG facility, located at 10400 Westpark Drive, Houston, Texas 77042, comply with the Houston/ Galveston Area Regional Solid Waste Plan? Mike Lindner in MSW has our Application.

We need your response as soon as possible. Sorry to trouble you.

Sincerely,

Mary Wimbish

MW:gs
Encl.

ATTACHMENT 14m

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

February 13, 2001

Ms. Mary Wimbish, General Counsel
Downstream Environmental, LLC
2044 Bissonnet
Houston, Texas 77005

Re: Municipal Solid Waste (MSW) - Harris County
Downstream Environmental, LLC - Registration Application No. MSW-43008
First Notice of Deficiency (NOD)
Mail Log File No. 5181

Dear Ms. Wimbish:

This is in response to a letter from Mr. Dan Noyes, submitting an application for a liquid waste processing facility registration. We have completed the first review of the application. The following points must be addressed in order for us to continue review of the application. All rule references are from 30 Texas Administrative Code (30 TAC).

It is recommended that the response to this NOD include a cover letter, in the following format, transmitting the revised application. This is to ensure that we identify the responses to each item of concern:

A. Each item of concern identified in the review below should be typed in the transmittal letter, immediately followed by the applicant's response to that item.

B. In your response, please indicate where in the revised application the revisions have been made, by referring to the part, section, and page number.

As required by 30 TAC §330.51(c)(4), please submit corrections in redline/strikeout format.

30 TAC §330.60 (which refers to 30 TAC §330.51)

1. 30 TAC §330.51(b)(5): Please submit demonstration of compliance with National Pollution Discharge Elimination System (NPDES) under the Clean Water Act, §402, as amended. This provision is now under the Texas Pollution Elimination Discharge Elimination System (TPDES), for which Mr. Stephen Ligon of the Water Permits and Resource Management Division is the contact, at (512) 239-4527.

Re: Downstream Environmental, LLC, Registration Application No. MSW-43008

2. 30 TAC §330.51(b)(6)(A): Please submit documentation of coordination with the Texas Natural Resource Conservation Commission's (TNRCC) Watershed Management Team. You should send the letter regarding the cited provision to Ms. Linda Bookins, MC 147, P.O. Box 13087, Austin, Texas 78711-3087.

3. 30 TAC §330.51(b)(6)(C): Please submit documentation of coordination with the Texas Department of Transportation.

4. 30 TAC §330.51(b)(7): Please submit a wetlands determination under applicable federal, state, and local laws.

5. 30 TAC §330.51(b)(8): Please submit an Endangered Species Act compliance demonstration under state and federal laws.

6. 30 TAC §330.51(b)(9): Please submit a review letter from the Texas Historical Commission (formerly the Texas Antiquities Committee).

7. 30 TAC §330.51(b)(7): Please submit demonstration of compliance with the regional solid waste plan.

8. 30 TAC §330.51(d)(1): Please ensure that the responsible engineer signs the closure cost estimate. Please ensure that the responsible engineer places the date of execution and states the intended purpose on each sheet of engineering plans, drawings, and on the title or contents page of the application.

9. 30 TAC §§330.51(e) and (f): Please ensure that all pages in the application contain a number and date. Please ensure that revisions have the revision date and note that the sheet is revised in the header or footer of each sheet revised. Please ensure that each drawing have a dated title block, e.g. on the map of property owners within 500 feet. Please ensure that each drawing or map have a bar scale at least one inch long, e.g. on the map of property owners within 500 feet and Attachment 3c. 100-Year Flood Impact. Please ensure that each map or drawing have a north arrow, e.g. on the metes and bounds description. Preferred orientation is to have the north arrow pointing toward the top of the page. Please ensure that each map or drawing have a legend, e.g. on the map of property owners within 500 feet of the site.

Texas Department of Transportation

P.O. BOX 1386 • HOUSTON, TEXAS 77251-1386 • (713) 802-5000

March 6, 2001

CONTACT: DOM

Harris County
Proposed Type V Facility
10400 Westpark Drive, Houston Texas 77042
West of BW 8

Ms. Gwendolyn Scarborough
Downstream Environmental, LLC
2044 Bissonnet
Houston, Texas 77005

Dear Ms. Scarborough:

This is in reference to your letter dated February 20, 2001, concerning your registration application to the Texas Natural Resource Conservation Commission for the Type V plant in Harris County. We have reviewed the attached request and have found the following:

1. The highways in the area (BW 8 and US 59) have a load limit of 100,000 pounds and FM 1093 has a limit of 80,000 pounds which is an adequate design to accommodate the traffic that may be generated by the subject location.

2. The additional traffic should not have an effect on highway facilities.

3. We recommend that the applicant be required to remove all litter from the highway right-of-way attributable to the operation of the facility. Provisions should also be made to prevent the tracking of mud onto the highway.

This letter will serve as your official documentation of coordination with the Texas Department of Transportation. If you have additional questions, please contact Ms. Alexine Stittiams-Ward, P.E., Maintenance Support Engineer, at (713) 802-5554.

Sincerely,

M. W. Alford, P.E.

Michael W. Alford,, P.E.
Director of Maintenance
Houston District

ASW:rs
Attachments
cc: Ms. Alexine Stittiams-Ward, P.E.

00122

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com

(713)520-8113
Fax: (713)520-0138

February 20, 2001

Mr. Gary Trietsch
District Engineer
Texas Department of Transportation
P.O. Box 1386
Houston, TX 77251-1386

Dear Mr. Trietsch:

Downstream Environmental, LLC, would like to take this opportunity to inform you of our Company's pending Application for a Type V grease, grit and septage processing facility. The proposed site is located at 10400 Westpark Drive, Houston, Texas, 77042. See: Attached TxDot Map.

The Texas Natural Resource Conservation Commission's Municipal Solid Waste Regulation, 30 TAC §330.51(b)(6)(C), states that Applicant shall submit documentation of coordination with Texas Department of Transportation for traffic and location restrictions.

Please find enclosed a copy of investigative findings of the City of Houston's Douglas W. Wiersig, Senior Assistant Director, Traffic Management and Maintenance Branch, regarding the nonexistence of "Weight Limit" and "No Thru Trucks" signs on Westpark Drive between Beltway 8 and Walnut Bend. Also attached to this letter are Harris County Toll Road Authority Daily Traffic statistics for area of the proposed site.

Please acknowledge, in writing, that our proposed facility is in compliance with all TxDot traffic and location restrictions for the surrounding access roads.

Sincerely,

Gwendolyn Scarborough

GS
Encls.

CITY OF HOUSTON

Lee P. Brown, Mayor

Public Works and Engineering Departmer
Post Office Box 1562 • Houston, Texas 77251-156

CITY COUNCIL MEMBERS: Bruce Tatro Carol M. Galloway Mark Goldberg Jew Don Boney, Jr. Rob Todd Mark A. Ellis Bert Keller Gabriel Vasque
John E. Castillo Annise D. Parker Gordon Quan Orlando Sanchez Chris Bell Carroll G. Robinson CITY CONTROLLER: Sylvia R. Garci

February 9, 2000

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

Dear Ms. Wimbish:

This is in response to your letter requesting written confirmation as to whether or not there are any NO THRU TRUCKS signs or WEIGHT LIMIT signs on Westpark Drive between Beltway 8 and Walnut Bend. An investigation by our Traffic Management and Maintenance Branch revealed no such signs on this roadway segment.

Sincerely,

Douglas W. Wiersig

Douglas W. Wiersig, Ph.D., P.E.
Senior Assistant Director
Traffic Management and Maintenance Branch

DWW/WH/SS/ss

xc: Jerry King
Thomas J. Rolen
William Hlavacek

H[illegible]OLL ROAD AUTHORITY
DAILY TRAFFIC - SAM[illegible]STON SOUTH - FISCAL 1999-2000
SECOND HALF

WEEK	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	TOTAL
FY 1988	0	0	0	0	0	0	0	0
FY 1989	568,177	976,181	1,067,677	1,077,385	1,097,075	1,199,039	831,083	6,836,617
FY 1990	1,357,111	2,279,231	2,398,203	2,522,621	2,467,271	2,695,776	1,801,622	15,541,837
FY 1991	2,031,843	3,406,149	3,547,322	3,631,952	3,765,010	4,027,451	2,671,493	23,081,220
FY 1992	2,361,950	4,042,854	4,203,640	4,203,729	4,269,992	4,757,613	3,124,288	26,964,076
FY 1993	2,536,130	4,309,473	4,526,801	4,585,655	4,632,575	4,879,375	3,237,710	28,707,719
FY 1994	2,636,014	4,643,847	4,793,625	4,859,355	4,917,339	5,228,341	3,384,274	30,462,795
FY 1995	2,858,654	4,891,769	5,273,206	5,262,928	5,359,048	5,712,776	3,745,577	33,103,860
FY 1996	2,957,099	5,183,679	5,477,712	5,759,070	5,842,921	6,063,901	3,873,442	35,157,824
FY 1997	3,090,335	5,546,115	5,789,905	5,883,520	5,913,347	6,511,836	4,133,225	36,868,283
FY 1998	3,687,173	6,351,239	6,674,275	6,585,687	6,809,902	6,986,994	4,914,179	41,809,449
FIRST HALF TOTALS	2,548,213	4,154,261	4,387,732	4,282,174	4,455,856	4,611,729	3,251,003	27,690,968
SEP 1								
SEP 5	92,716	93,489		169,655	175,602	191,932	117,313	
SEP 12	96,819	162,699	164,586	168,891	170,639	186,968	129,761	654,502
SEP 19	106,377	162,311	166,777	170,600	172,702	186,460	132,858	1,007,040
SEP 26	97,963	163,464	165,112	168,191	175,261	185,911	131,879	1,090,915
OCT 3	99,701	162,490	165,854	168,478	175,911	188,940	129,407	1,093,042
OCT 10	99,824	160,376	167,911	169,826	174,548	186,815	127,559	1,088,017
OCT 17	102,120	161,976	168,621	171,759	174,623	193,084	134,407	1,086,650
OCT 24	105,267	165,396	165,845	171,222	176,749	189,231	135,285	1,102,694
OCT 31	106,120	164,729	169,965	173,050	175,966	189,987	132,516	1,102,428
NOV 7	104,052	164,629	169,460	170,866	175,436	186,466	134,863	1,112,147
NOV 14	104,316	167,441	168,085	172,629	173,913	185,136	133,902	1,109,942
NOV 21	100,146	164,011	170,085	172,956	177,453	189,861	133,964	1,102,346
NOV 28	97,172	163,892	175,779	179,708	102,469	112,610	111,304	1,116,075
DEC 5	101,043	166,562	170,591	174,136	170,462	184,848	126,465	946,227
DEC 12	98,085	167,599	172,184	172,950	173,839	190,764	137,588	1,087,568
DEC 19	111,158	165,808	173,548	179,583	164,067	195,068	145,780	1,114,930
DEC 26	94,666	138,994	173,430	176,051	156,636	122,347	92,787	1,143,750
JAN 2	85,281	147,004	147,533	155,392	162,433	121,367	81,404	1,000,217
JAN 9	90,715	162,980	160,859	164,696	166,047	176,067	117,260	901,979
JAN 16	99,928	160,266	166,644	171,101	171,124	186,343	127,389	1,021,233
JAN 23	96,016	162,744	169,293	170,225	174,467	185,308	127,176	1,075,296
JAN 30	95,428	163,654	168,071	168,075	163,191	180,277	121,320	1,068,685
FEB 6	96,382	163,268	163,319	167,352	176,149	190,255	133,484	1,059,593
FEB 13	100,009	174,502	170,048	173,080	177,201	188,677	132,748	1,089,641
FEB 20			176,047	168,520	177,893	189,715	132,286	1,103,404
FEB 27								1,118,954
								0
								0
SECOND HALF TOTALS	2,383,490	3,830,304	4,029,647	4,284,793	4,258,805	4,469,657	3,160,679	26,417,375
FISCAL YEAR TOTALS	4,931,703	7,984,565	8,417,379	8,546,967	8,714,661	9,101,386	6,411,682	54,108,343
CUMULATIVE	26,487,686	49,503,895	51,985,655	52,840,424	53,423,277	57,310,374	38,001,860	331,915,131

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com

(713)520-8113
Fax: (713)520-0138

December 28, 2000

To: Mark Denton
~~Mr. Sergio Irvegas~~
Texas Historical Commission
Department of Antiquities Review
P.O. Box 12276
Austin, TX 78711

RE: Grease, Grit & Septage Processing Facility

Dear Mr. Irvegas:

This letter is being submitted to obtain a review letter from the Texas Antiquities Committee in accordance with requirements set forth in the Texas Natural Resource Conservation Commission's Municipal Solid Waste Regulations, 30 TAC §330.51(b)(9).

Downstream Environmental is preparing a Type V GG registration application to be located in Houston, Harris County, Texas. A portion of a General Location Map depicting the location of the project is attached. We would appreciate your review of all cultural resources of interest in the area.

Thank you for your assistance. If you have any questions, please feel free to call me at (713) 520-8113.

Sincerely,

Mary W. Wimbish

Mary Wimbish

MW:gs
Encl.

...listed properties
...landmarks
PROCEED
William A. Martin
... Officer
1/31/01

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005

(713)520-8113
Fax: (713)520-0138
e-mail: marywww@flash.net

February 27, 2001

Mr. Steve Ligon
TNRCC
Water Permits and Resource
Management Division
P.O. Box 13087
MC-148, Bldg. F
Austin, TX 78711-3087

RE: Municipal Solid Waste Harris County; Downstream Environmental's First NOD; Mail Log File No. 5181

Dear Mr. Ligon:

Thank you for your response to my February 21st inquiry.

While you were out of town, I spoke with Charles Eanes from your office with regard to obtaining a "No Exposure" exclusion form from the EPA or TNRCC. You referred me to the EPA's web page to no avail. The web page referred me to the Dallas office. I spoke with Charles Eanes and he advised me that nothing can be done right now to comply with the requirements for "No Exposure Certificates", exclusion as an alternative to obtaining a permit coverage. Because of new rules, government administration responsibilities are being passed from the EPA to the TNRCC level. Charles advised me that in sixty (60) days the TNRCC will have the forms for Applicants who need to obtain NOE coverage under the new law. Since we are not operating an existing facility, we will need to comply with the new Rules and file a "No Exposure" exclusion form at the TNRCC office on the new form available in sixty (60) days.

Thank you for your assistance.

Sincerely,

Mary Winbish

MW:gs

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

February 21, 2001

Mr. Dale Burnett
TNRCC
P.O. Box 13087
MC-126, Bldg. F
Austin, TX 78711-3087

RE: Municipal Solid Waste Harris County; Downstream Environmental's First NOD; Mail Log File No. 5181

Dear Mr. Burnett:

Please be advised that Downstream Environmental, LLC's application for Municipal Solid Waste Type 5 GG Facility will discharge its wastewater into a City of Houston wastewater treatment facility and therefore there will be no open water discharge requiring NPDES or TPDES permits. Watershed Management is therefore not required in this case.

Insofar as surface storm water discharge is concerned, an EPA Storm Water Discharge Permit is not required due to the fact that all operations are covered, by a building, covered tank, or covered parking for offloading. The above information was received by phone from Stephen Ligon, 512.239.4430. Note*

A local Storm Water Discharge permit has already been obtained from Harris County Flood Control District and a Storm Water Impact Fee has been paid by the Seller of the property, Don McGuirt. See Attachment No. 14(l); receipt for HCFCD Impact Fee.

Any further questions can be directed to the attention of Mary Wimbish, Dan Noyes or George W. Noyes, P.E. at 713.520.8113.

Sincerely,

Mary Wimbish

MW:gs
Encl.
cc: Steve Ligon MC 2/23/1
(Initial & Return by Fax)

* Containing all industrial activities "under roof" and isolated from storm water is not the defining criteria for permit coverage. If an industrial activity is described by a standard industrial classification (SIC) code listed in the federal regulations at 40 CFR Part 122.26(b)(14) as requiring a permit for storm water runoff, the facility is subject to permit requirements. If all activities are isolated from storm water and runoff, a facility may submit a "No Exposure Exclusion" form as an alternative to obtaining permit coverage. You may visit our storm water web page at www.tnrcc.state.tx.us or EPA's page at www.epa.gov/earth1r6/sw or call me directly at (512) 239-4527 to obtain more information on the SIC code that best describes this facility.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

June 5, 2000

Ms. Mary Wimbish
Attorney
2044 Bissonnet
Houston, Texas 77005

Re: Wilcrest Green Property near the Crystal Chemical Company Superfund Site
Houston, Texas

Dear Ms. Wimbish:

I am writing in response to your January 12, 2000, letter concerning the property referenced above. My response is based upon the facts presently known to the United States Environmental Protection Agency (EPA) and is provided solely for informational purposes.

In response to growing concern over health and environmental risks posed by hazardous waste sites, Congress passed the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and established the Superfund program to clean up these sites. The Superfund program is implemented by EPA in cooperation with individual states and local and tribal governments. Sites are discovered by citizens, businesses, and local, state and federal agencies. After a potential hazardous waste site is reported to EPA, the site-specific information is recorded in the Superfund database, the Comprehensive Environmental Response and Liability Information System (CERCLIS). Sites are added to CERCLIS when EPA believes that there may be contamination that warrants action under Superfund.

EPA initially screens a potential hazardous waste site to determine what type of action, if any, is necessary. The Superfund program may then perform a preliminary assessment and site investigation to determine whether contamination at a property is likely to require a federal cleanup response, an evaluation to determine if a short term response action to eliminate or reduce contamination is needed, and add the site to EPA's list of high priority hazardous waste sites known as the National Priorities List (NPL).

EPA has addressed the Wilcrest Green property in connection with the Crystal Chemical Company Superfund site (site). EPA has completed a Superfund Remedial Design/Remedial Action (RD/RA) for the site which addressed arsenic contaminated soil and has commenced an arsenic contaminated groundwater RD/RA. The soil RA was conducted in conformance with EPA's June 16, 1992, *Amended Record of Decision* (ROD). The Amended ROD identified consolidation and capping as the most appropriate remedy for the arsenic-impacted soils. Specifically, the amended ROD stated, "Removing all offsite soils and sediments with arsenic

greater than 30 ppm (parts per million) will eliminate threat of exposure from direct contact with the contaminated soils outside of the current boundaries of the site." These arsenic-impacted soils were consolidated onsite in a compacted monofill and covered with a multi-layer cap. As discussed in the amended ROD, "the residual contamination outside the current boundaries of the site after completion of the offsite portion of this remedial action will constitute a one in one hundred thousand (10^{-5}) cancer risk level. The construction of the cap over the entire site will eliminate all threats relating to direct contact with and inhalation of the residual contamination, and will act as a barrier restricting the flow of water through the soils. This will reduce the risk posed by the site to less than one in one million (10^{-6}). This risk is associated with anticipated soil exposure based on the assumption that future land use will be residential and commercial/industrial. EPA policy calls for remediation levels that range from a cancer risks of one in ten thousand to one in one million (10^{-4} to 10^{-6})." Based on existing information, the EPA has no anticipated soil remediation activities planned within or outside the current site boundaries other than activities associated with maintaining the compacted soil monofill's cap.

Based on the information and figure you provided, the area you identified as Track 2 (2.53 acres in Wilcrest Green) is an offsite area where arsenic contaminated soils have been excavated and backfilled with clean soils. This area is identified in the *Soil Remedial Action Construction Documentation Report Crystal Chemical Company Site* (Industrial Compliance, December 22, 1995) as Wilcrest Green Section Three (see enclosed figures). The following information regarding construction procedures and activities on this property was taken from the *Soil Remedial Action Construction Documentation Report Crystal Chemical Company Site* (Industrial Compliance, December 22, 1995). Please note, dates which are referenced below occurred in 1995.

Wilcrest Green (Sections One and Three)

The initial excavation of the Wilcrest Green Properties was started on Section One (north of Westpark Drive) on April 9 and excavation on both properties was completed on April 13. Six inches of soil were excavated from within the impacted soils limits. Of the 29 sampling grids on the two Wilcrest properties, six grids (21%) required additional excavation. An additional six inches of soil were excavated from each of the six failing grids and the grids were retested. Each of the re-excavated grids tested below the 30 ppm arsenic site action level. Backfilling of the excavations was completed on April 30.

Enclosed for your information are figures pertaining to the Soil Remedial Action. These figures were taken from the *Soil Remedial Action Construction Documentation Report Crystal Chemical Company Site* (Industrial Compliance, December 22, 1995). The following is the list figures provided and a description of the information presented in the figures:

Figure #	Description
1	**CRYSTAL CHEMICAL PROPERTY AND ADJACENT LANDOWNERS** This figure shows the area you identified as Track 2 (2.53 acres in Wilcrest Green) being located within WILCREST GREEN SECTION THREE.
2	**FIGURE 2. FORMER FACILITY LAYOUT** This figure shows the location of previous structures on the Crystal Chemical Company Superfund site.
3	**FIGURE 3. OFF-SITE SURFACE SAMPLING RESULTS** This figure shows the locations were soil samples were collected and the arsenic concentrations that were detected.
4	**FIGURE 4. DEPTH TO CLEAN** This figure shows how deep soil excavation was required to reached soils that had arsenic concentrations less than 30 parts per million.
5	**EXCAVATION PLAN** This figures shows the areas where soils were to be excavated to a depth 0.5 feet below existing grade or as indicated in the drawing.
6	**OFFSITE VERIFICATION RESULTS - NORTH** This figure shows areas where soil excavation was performed, the depth of excavation, and arsenic concentration at that depth.
7	**OFFSITE VERIFICATION RESULTS - SOUTH** This figure shows areas where soil excavation was performed, the depth of excavation, and arsenic concentration at that depth.

The ground water RA is being conducted in conformance with EPA's March 19, 1997, *Explanation of Significant Differences* (ESD) (copy enclosed). The ESD explains the differences between the ground water remedy being implemented and the ground water remedy identified in the September 1990, ROD for the site. During the course of the design for the extraction and treatment ground water remedy identified in the 1990 ROD, the EPA and Texas Natural Resource Conservation Commission determined that restoration of the ground water is technically impracticable for portions of the site. Therefore, EPA has determined that the applicable or relevant and appropriate requirement for groundwater restoration to the Maximum Contaminant Level (MCL) of 50 parts per billion (ppb) for arsenic will be waived and a slurry wall will be constructed around the portions of the site where groundwater cannot be restored.

MCLs are the highest permissible concentrations of a substance allowed in drinking water, as established by EPA. The extraction and treatment system will be implemented on the remainder of the site, as specified in the 1990 ROD.

It is important to note that sections of the slurry wall have been installed. These installed sections of the slurry wall border the site to the south and west and underlie two sections of Westpark Drive (see enclosed Ground Water Remedial Action Figure 5 - Slurry Wall Plan and Details). These sections of the slurry wall were constructed prior to construction of the compacted soil monofill. Construction of the slurry wall north of Westpark Drive has been delayed due to an access issue with a former property owner. This access issue has recently been resolved and a groundwater investigation is scheduled for this summer. The purpose of this investigation will be to identify the current extent of groundwater contamination.

As you may be aware, in November 1999, groundwater sampling was conducted on property located east and west of the site. Specifically, two wells located on the Wilcrest Green property (wells MW-9 and MW-6) and one well immediately east of the Wilcrest Green property (well MW-33) were sampled. The analytical results indicated that each groundwater sample had a reported arsenic concentration less than 5 ppb - the laboratory detection limit. These wells have been plugged and abandoned. Additional information regarding the sampling of these wells is enclosed (see December 15, 1999, letter from Environmental Resources Management).

Enclosed for your information are figures pertaining to the ground water remedial action. These figures were taken from the *Ground Water Remedial Design Addendum Slurry Wall Design Crystal Chemical Company Site* (Terranext, June 21, 1996). The following is a description of the information presented in the figures:

Figure #	Description
2	**Existing Site Layout** This figure shows the location of the compacted soil monofill.
3	**15' Sand Zone Isopleth** This figure shows the extent of 50 ppb arsenic impacted groundwater in the 15 foot groundwater zone. The dotted lines on this figure represent the location of a old stream channel.
4	**35' Sand Channel Isopleth** This figure shows the extent of 50 ppb arsenic impacted groundwater in the 35 foot groundwater zone. As presented in this figure, the extent of groundwater impacted with greater than 50 ppb arsenic extends both north and south of the site.

Figure #	Description
5	**Slurry Wall Plan and Details** This figure shows the location where slurry wall has been constructed and were it is proposed for construction.

The extraction and treatment system has been constructed and is operational. The goal of the extraction and treatment system is to remove arsenic contamination in the 35 foot groundwater zone to arsenic levels less than 50 ppb. This area is located immediately south of the site and is not encompassed by the slurry wall (see Figure 4 - 35' Sand Channel Isopleth). The EPA does not know how long the pump and treat system will be required operate. However, this system is anticipated to be operating from five to 30 years. EPA will evaluate and document the effectiveness of the groundwater remedial alternative at least every five years.

In regards to the specific questions in your letter, the following answers are based on information currently available to EPA.

Question 1. Will Tract 2 (2.53 acres in Wilcrest Green) be subjected to any remediation orders by the EPA for soil or ground water?

Response The EPA does not anticipate further soil remediation activities within or outside the current site boundaries other than activities associated with maintaining the cap for contaminated soil monofill. In regards to groundwater remediation, since the remedial action goals for groundwater discussed in the original *Record of Decision* (EPA 1990) and the *Explanation of Significant Differences of the Record of Decision* (EPA, 1997) have not been attained, additional work may be required on Tract 2. For example, additional extraction wells may be required to remove arsenic contamination in the 35 foot groundwater zone not encompassed by the slurry wall.

Question 2. What remediation, if any, has been done with regard to Tract 2 in Wilcrest Green?

Response: Excavation of soil contaminated with arsenic concentrations greater than 30 ppm has occurred on the Wilcrest Green Tract.

Question 3. What remediation orders do you expect in the future that would impact a future property owner of Tract 2 with regard to soil and/or ground water?

Response: In general, no remediation orders with regard to soil and/or groundwater are presently anticipated. However, please note, the ability of the current groundwater remediation system (i.e., slurry wall, pump & treat system) to meet the groundwater remedial objectives cannot be determined presently. Access may be required to Tract 2 in the future for additional investigation and/or the installation of additional extraction wells to remove arsenic contamination in the 35 foot groundwater zone not encompassed by the slurry wall. If additional actions are required to ensure the long-term protectiveness to human health and the environment, the EPA will likely pursue such actions.

EPA hopes that the above information is useful to you. Further, we direct your attention to the Judson-Robinson Westchase Library located at 3223 Wilcrest in Houston at which EPA has placed a copy of the Administrative Record for this site. If you have any questions, or wish to discuss this letter, please feel free to contact me at (214) 665-6758.

Sincerely,

Chris G. Villarreal

Chris G. Villarreal
Remedial Project Manager

Enclosures

cc: Anne Foster
EPA Legal Counsel

Environmental
Resources
Management

16300 Katy Freeway
Suite 300
Houston, Texas 77094-1611
(281) 579-8999
(281) 579-8988 (fax)

December 15, 1999

Mr. Chris G. Villarreal
Project Manager
Superfund Division (6SF-AT)
U.S. Environmental Protection Agency, Region 6
1455 Ross Avenue, Suite 1200
Dallas, Texas 75202 -2733

W.O. #422-040

ERM

Subject: EPA Docket No. CERCLA VI-15-92 - Crystal Chemical Site, Houston, Texas: Request to Plug and Abandon Select Ground Water Monitoring Wells

Dear Mr. Villarreal:

Environmental Resources Management (ERM) has completed the sampling and analysis of ground water from the four offsite ground water monitoring wells that Union Pacific Railroad (UPRR) would like to plug and abandon since they are no longer a part of the remedial or monitoring activities for the Crystal Chemical NPL Site. The activities were performed in accordance with our letter request, dated November 8, 1999, which was approved by the U.S. Environmental Protection Agency (EPA) on November 10, 1999. As stated in the November 8 letter, the work performed at this time was the first phase of abandonment and it included four monitoring wells. The monitoring wells sampled included one, MW-12, for the 15-foot sand zone and three for the 35-foot sand zone - MW-6, MW-9 and MW-34. The locations of these wells are shown in Figure 1.

The ground water samples were collected on November 16, 1999 and analyzed for total arsenic. The analytical results indicated that each sample had a laboratory reported concentration of arsenic which was below the detection limit of 5 ppb, thereby confirming that these monitoring wells will not be required in future ground water monitoring programs since the MCL for arsenic is 50 ppb. A copy of the analytical results is included in Attachment 2.

Therefore, on behalf of UPRR, ERM respectively requests that monitoring wells MW-6, MW-9, MW-12 and MW-34 be plugged and abandoned. ERM will mobilize a drilling subcontractor to perform the work within 10 days of receipt of your authorization to plug and abandon the wells. The second phase of well abandonment will commence in early 2000 once access to the Levy estate property has been obtained.

ANALYTICAL REPORT

TO: MARSHA LUTZ
LAB ORDER ID: 99111812
LOCTION CODE: CRYSTAL CHEMICAL
CONSULTANT JOB#: 422-40
LOCATION: 3502 ROGERDALE RD., HOUSTON TX
DATE: DECEMBER 02, 1999

PREPARED BY

TRACEANALYSIS, INC.
6701 ABERDEEN AVENUE, SUITE A
LUBBOCK, TX 79424
(806)-794-1296

ANALYTICAL REPORT INDEX

CONTENTS

ANALYTICAL REPORT SUMMARY

This report contains the result for four miscellaneous samples received on November 18, 1999, under Lab Order ID 99111812.

The determinations of Total Arsenic was done by inductively coupled plasma-atomic emission spectromery (ICP-AES) according to the TraceAnalysis Laboratory Standard Operating Procedure SOP-6010B.

A "U" qualifier indicates the analyte was not detected.

A "B" qualifier indicates the analyte is above detection but below reporting limits.

Expect as noted, all laboratory quality control requirements were met.

RELEASE OF THE DATA CONTAINED IN THIS PACKAGE HAS BEEN AUTHORIZED BY THE LABORATORY MANAGER OR THE MANAGER'S DESIGNEE.

Blair Leftwich 12-6-99

LABORATORY MANAGER: DATE

SAMPLE CROSS REFERENCE

TRACEANALYSIS ANALYTICAL LABORATORY

LAB ORDER ID: 99111812

CUSTOMER ID	LAB ID
MW-6	135743
MW-34	135744
MW-12	133745
MW-9	133746

Attachment 2b

SECTION I

INORGANICS

TraceAnalysis

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: TraceAnalysis, Inc.

Case No.: 99111812

FIELD CODE:	Lab Sample ID.
MW-6	135743
MW-34	135744
MW-12	135745
MW-9	135746

Were ICP interelement corrections applied? Yes/No NO

Were ICP backgrounds corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No YES

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Blair Leftwich Name: Blair Leftwich

Date: 12-2-99 Title: Director

Attachment 2b

TraceAnalysis
1
INORGANIC ANALYSIS DATA SHEET

TRACEANALYSIS
SAMPLE NO.

135743

Lab Name: TraceAnalyisis, Inc.

SDG: 99111812

Matrix (soil/water): Water

Date Received: 11/18/99

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.005	U		P

Comments:

FORM I - IN

ILM02

Attachment 2b

TraceAnalysis
1
INORGANIC ANALYSIS DATA SHEET

TRACEANALYSIS SAMPLE NO.

135744

Lab Name: TraceAnalyisis, Inc.

SDG: 99111812

Matrix (soil/water): Water Date Received: 11/18/99

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.005	U		P

Comments:

FORM I - IN

Attachment 2b

TraceAnalysis
1
INORGANIC ANALYSIS DATA SHEET

TRACEANALYSIS SAMPLE NO.

135748

Lab Name: TraceAnalyisis, Inc.

SDG: 99111812

Matrix (soil/water): Water

Date Received: 11/19/99

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.005	U		P

Comments:

FORM I - IN

ILM02.

Attachment 2b

TraceAnalysis

1

INORGANIC ANALYSIS DATA SHEET

TRACEANALYSIS
SAMPLE NO.

135746

Lab Name: TraceAnalyisis, Inc.

SDG: 99111812

Matrix (soil/water): Water

Date Received: 11/18/99

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.005	U		P

Comments:

FORM I - IN

Forms by ChemSW [illegible]

ILM02.

Attachment 2b

TraceAnalysis

2B

CRDL STANDARD FOR AA AND ICP

Lab Name: TraceAnalysis, Inc.

SDG No.: 99111812

AA CRDL Standard Source:

ICP CRDL Standard Source: Ultra Scientific

Concentration Units: mg/L

	CRDL Standard for AA				CRDL Standard for ICP				
						Initial		Final	
Analyte	True	Found	%R	%R(1)	True	Found	%R	Found	%R
Arsenic					0.02	0.023	115.0	0.022	110.0

TraceAnalysis, Inc.

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Initial Calibration Source: Leeman

Continuing Calabration Source: Ultra Scientific

Concentration Units: mg/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	1.0	1.02	102.0	1.0	1.02	102.0	1.03	103.0	1

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

Forms by ChemSW

ILM02.0

Attachment 2b

TraceAnalysis
3
BLANKS

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Preparation Blank Matrix (soil/water): Water

Preparation Blank Concentration Units (mg/L or mg/kg): mg/L

Analyte	Initial Calib. Blank (mg/L)	C	Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Arsenic	0.001	B	-0.001	B	0.001	B	0.002	U	-0.004	U	P

TraceAnalysis

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: TraceAnalysis, Inc.

SDG No.: 99111812

ICP ID Number: P&E Optima 3000 XL ICS Source: Ultra Scientific

Concentration Units: mg/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Arsenic	0	0.100	0	0.097	97.0	0	0.100	100.0

FORM IV - IN

Forms by ChemSW ... ILM02.0

Attachment 2b

*CORRECTED
TraceAnalysis, Inc.
5A
SPIKE SAMPLE RECOVERY

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Matrix (soil/water): Water

TRACEANALYSIS SAMPLE NUMBER: 133109

Concentration Units (ug/L or mg/kg dry weight): mg/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Arsenic	80-120	0.98		0.0050	U	1.00	98		P

Comments:

FORM V (PART 1) - IN

ILM02.0

00149

Attachment 2b

*CORRECTED

TraceAnalysis
6
DUPLICATES

TRACEANALYSIS
SAMPLE NUMBER

133109

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Matrix (soil/water): Water

Concentration Units (mg/L or mg/kg dry weight): mg/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Arsenic	20%	0.005	U	0.005	U	0.0		P

FORM VI - IN

ILM02.0

TraceAnalysis
7
LABORATORY CONTROL SAMPLE

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Aqueous LCS Source: Ultra Scientific

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Arsenic	1.0	0.96	96.0						

TraceAnalysis
10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: TraceAnalysis, Inc.

ICP ID Number: 069N5042501

SDG: 99111812

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Arsenic	188.98	-.017,.017	10	3	

Comments:

FORM X - IN

ILM02.0

Attachment 2b

TraceAnalysis

12

ICP LINEAR RANGES (QUARTERLY)

Lab Name: TraceAnalysis, Inc. SDG: 99111812

ICP ID Number: 069N542501

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Arsenic	10-30*	10,000	

Comments:

*Integration times determined by instrument automatically in response to intensifies of emissions from specific analytes.

FORM XII - IN

Forms by ChemSW (707)864-0845 p/n11014; v3.21, 1/1/94

ILM02.0

Attachment 2b

*CORRECTED

TraceAnalysis

14

ANALYSIS RUN LOG

Lab Name: TraceAnalysis, Inc.

SDG: 99111912

Instrument ID Number: C69NS043031 Method: 200.7

Start Date: 11/20/99 End Date: 11/20/99

Lab Sample No.	D/F	Time	S R	Analytes																								
				AL	SB	SA	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	NI	NI	K	SE	AG	NA	TL	V	ZN	CN	
Calib Blank	1.00	9:12				X																						
Calib Std 3	1.00	9:15				X																						
ICS	1.00	9:18				X																						
ICB	1.00	9:22				X																						
ICV	1.00	9:26				X																						
CRI	1.00	9:30				X																						
PB	1.00	9:34				X																						
ICS-A	1.00	9:39				X																						
ICS-A&B	1.00	9:42				X																						
CCV	1.00	9:46				X																						
CCB	1.00	9:51				X																						
LCS	1.00	9:55				X																						
133109	1.00	9:59				X																						
1331090	1.00	10:03				X																						
1331098	1.00	10:07				X																						
1331097[1]	10.00	10:12				X																						
CCV	1.00	10:16				X																						
CCB	1.00	10:20				X																						
LCS	1.00	10:24				X																						
LCS-A	1.00	10:28				X																						
LCS-A&B	1.00	10:32				X																						
CRI	1.00	10:36				X																						
CCV	1.00	10:39				X																						
CCB	1.00	10:44				X																						
133743	1.00	10:49				X																						
133744	1.00	10:53				X																						
133745	1.00	10:57				X																						
133746	1.00	11:02				X																						
CCV	1.00	11:06				X																						
CCB	1.00	11:10				X																						

FORM XIV - IN ICM02.0

Attachment 2b

EPA Superfund Explanation of Significant Differences for Record of Decision:

Crystal Chemical Company Superfund Site
Houston, Texas
03/19/97

CRYSTAL CHEMICAL COMPANY SUPERFUND SITE

TABLE OF CONTENTS

EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE SEPTEMBER 1990 RECORD OF DECISION CRYSTAL CHEMICAL COMPANY SUPERFUND SITE HOUSTON, TEXAS

I. STATEMENT OF PURPOSE

This document explains the differences between the ground water remedy being implemented and the ground water remedy identified in the September 1990 Record of Decision (1990 ROD) for the Crystal Chemical Company Superfund Site.

During the course of the design for the extraction and treatment of arsenic-contaminated ground water remedy identified in the 1990 ROD, the U. S. Environmental Protection Agency (EPA) and the Texas Natural Resource Conservation Commission (TNRCC) determined that restoration of the ground water is technically impracticable for portions of the Crystal Chemical Company Superfund site. Therefore, EPA has determined that the applicable or relevant and appropriate requirement (ARAR) for ground water restoration to the Maximum Contaminant Level (MCL) of 50 µg/l for arsenic will be waived and a slurry wall will be constructed around the portions of the site where ground water cannot be restored. The extraction and treatment of arsenic-contaminated ground water remedy will be implemented on the remainder of the site, as specified in the 1990 ROD.

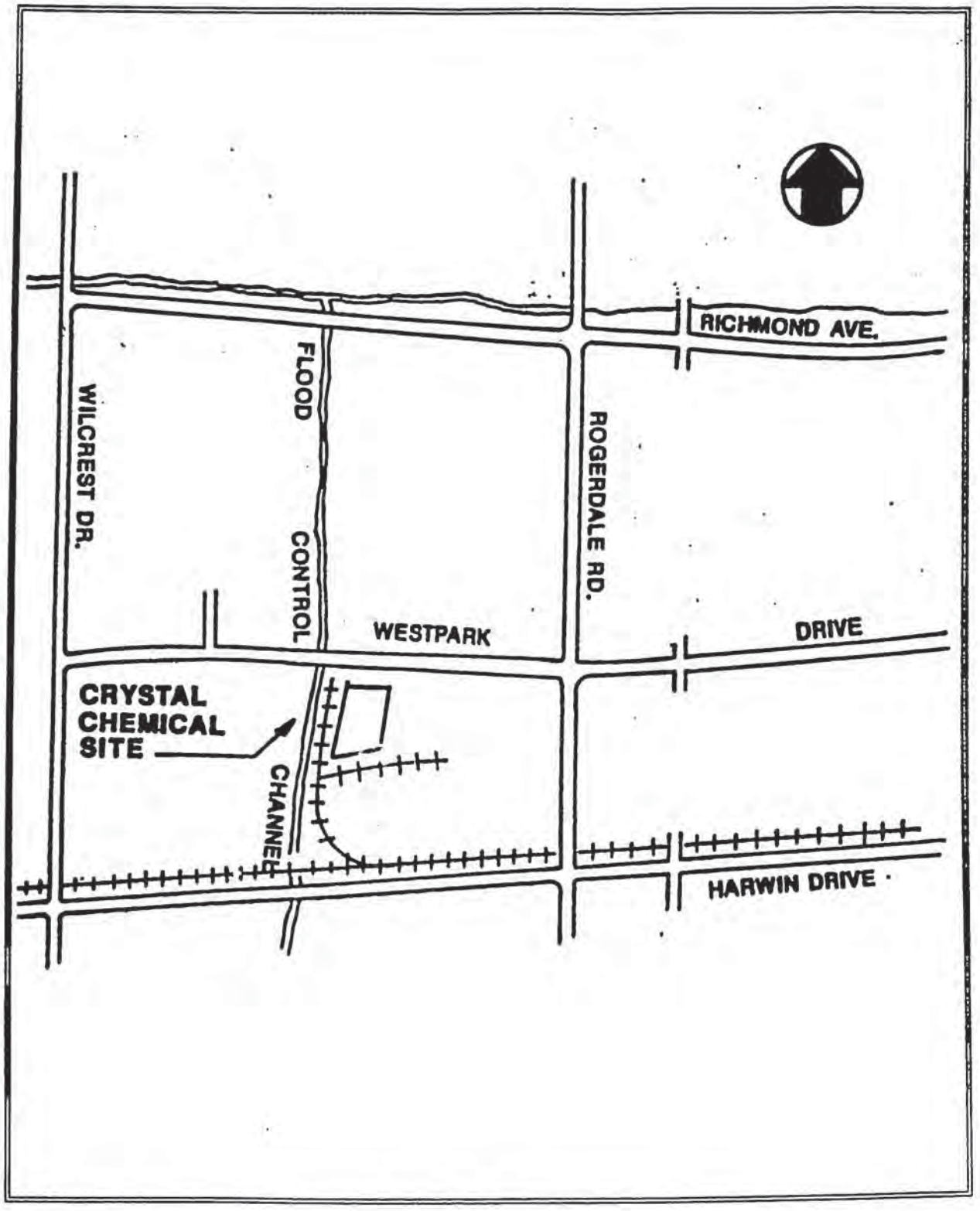
II. INTRODUCTION

The Crystal Chemical Company Superfund site (Crystal Chemical site) is located at 3502 Rogerdale Road, in southwestern Houston, Harris County, Texas. The Crystal Chemical site is bound on the west by the Harris County Flood Control Channel and lies immediately south of the Westpark Drive extension (Figure 1).

EPA is the lead agency for the Crystal Chemical site, and the State of Texas, through TNRCC, has been involved in all aspects of site activities. Southern Pacific Transportation Company has been identified as one of the potentially responsible parties for the Crystal Chemical site, and EPA has authorized Southern Pacific Transportation Company through an Administrative Order on Consent and an Unilateral Administrative Order to design and implement the ground water remedy for the Crystal Chemical site, as set forth in the 1990 ROD.

This Explanation of Significant Differences (ESD) is prepared in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by Superfund Amendments and Reauthorization Act, 42 U.S.C. § 9617(c), which provides that, after adoption of a final remedial action plan, if any remedial action is taken and if such action differs in any significant respects from the final plan, EPA shall publish an explanation of the significant differences and the reasons such changes were made.

FIGURE 1
SITE AREA MAP



This ESD is necessitated by the findings made during the course of the remedial design of the ground water extraction and treatment remedy. The results of the design investigations and the findings are presented in the **Assessment of the Technical Impracticability of Ground-Water Remediation, February 1996** for the Crystal Chemical site (**TI Assessment**). Specifically, it has been determined that restoration of the arsenic-contaminated ground water is technically impracticable due to hydrogeologic as well as contaminant-related factors for portions of the Crystal Chemical site. Therefore, EPA has determined that the ARAR for the ground water restoration to the MCL of 50 µg/l for arsenic will be waived and a slurry wall will be constructed to protect human health and the environment on the portions of the site that cannot be restored. These alternative remedial strategies were selected from the list of ground water contingency measures identified in the 1990 ROD (pages 95 and 96). The ground water extraction and treatment remedy will be implemented on the remainder of the site, as specified in the 1990 ROD.

In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR §300.825(a)(2), this ESD and the supporting information EPA relied upon in preparing the ESD, including the **TI Assessment,** will become part of the Administrative Record for the Crystal Chemical site. The Administrative Record file for the Crystal Chemical site is available at the following locations:

U.S. EPA, Region 6
Library, 12th floor (6MD-II)
1445 Ross Avenue
Dallas, Texas 75202-2733
(214) 665-6424 or 665-6427
facsimile (214) 665-2146
Hours of Operation: Monday through Friday 7:30 am-4:30 pm

Judson Robinson-Westchase Library
3223 Wilcrest
Houston, Texas 77042
(713) 784-0987
Hours of Operation: Monday 12:00 pm-9:00 pm; Tuesday 10:00 am- 9:00 pm; Wednesday 10:00 am-6:00 pm; Thursday 12:00 pm-9:00 pm; and, Friday/Saturday 10:00 am-6:00 pm

Texas Natural Resource Conservation Commission
12118 North IH 35
Technical Park Center, Room 190, Building D
Austin, Texas 78753
(512) 239-2920
Hours of Operation: Monday through Friday 8:00 am-5:00 pm

III. SITE HISTORY AND ORIGINALLY SELECTED REMEDIES

Crystal Chemical Company produced arsenical, phenolic, and amine-based herbicides from 1968 to 1981. Operation and maintenance problems at the Crystal Chemical facility during the late 1970s resulted in several violations of the State of Texas' environmental standards, and in September 1981, Crystal Chemical Company filed for bankruptcy and abandoned the site. In 1983, the Crystal Chemical property was added to the National Priorities List, qualifying the site for investigation and remediation under CERCLA, more commonly known as Superfund.

In September 1990, EPA issued the ROD that addressed soil and ground water contamination. The selected remedy for soil called for the excavation of offsite soils contaminated with arsenic greater than 30 parts per million (ppm), treating all the soils contaminated with arsenic greater than 300 ppm with a process called in-situ vitrification, and capping the entire site after the soils treatment had been completed. Due to the unavailability of the in-situ vitrification technology, EPA selected a new soil remedy in a ROD amendment issued in June 1992. The soil consolidation and capping remedy was completed in September 1995.

The remedy selected in the 1990 ROD for ground water called for the extraction and treatment of arsenic-contaminated ground water. The remediation goal specified in the 1990 ROD for the affected ground water zones is 50 µg/l, the MCL for arsenic. The 1990 ROD also included several contingency measures that could be implemented if an extraction and treatment system would not produce the remediation goals set for the Crystal Chemical site.

IV. DESCRIPTION OF AND BASIS FOR THE SIGNIFICANT DIFFERENCE

The 1990 ROD states that the goal of the ground water remedy is to restore the ground water to a useable state, i.e., removing the arsenic to the MCL of 50 µg/l. However, the 1990 ROD indicates that due to the uncertainty as to whether the remedy will be able to meet the remediation goal of the MCL for arsenic, contingency measures and goals may replace the selected remedy and goals. The contingency measures specified in the 1990 ROD were:

1) discontinuing operation of extraction wells in areas where remediation goals have been attained;

2) alternating pumping at wells to eliminate stagnation points; and/or,

3) establishing an Alternative Concentration Limit for arsenic provided compliance with CERCLA Section 121 (d)(2)(B)(ii) can be demonstrated;

4) waiving the ground water ARAR for those portions of the aquifer based on the technical impracticability of achieving further contaminant reduction;

5) implementing low level pumping as a long-term gradient control or construction of a containment measure such as a slurry wall; and/or,

6) implementing additional source control treatment to further reduce arsenic migration to ground water.

At the time of the 1990 ROD, EPA called for investigations and evaluations necessary to design the extraction and treatment system for the ground water remedy. Through an Administrative Order on Consent, EPA authorized Southern Pacific Transportation Company to undertake, with EPA oversight, the investigations and evaluations necessary to design an efficient and effective ground water extraction and treatment system.

During the course of the design investigations and evaluations, data indicated that portions of the site's contaminated ground water zones could not be restored. The portions of the site that cannot be remediated (the technical impracticability (TI) zone) consists of splay deposits, or off-channel deposits. These splay or off-channel deposits consist of sandy material with an abundance of fine-grained material (clay and/or silt). The other portion of the site, which is not part of the TI zone and is therefore not affected by this ESD, consists of a subsurface stream channel. The subsurface stream channel contains more sand and less fine-grained material, and this portion of the site can likely be restored through the extraction and treatment remedy based on the information collected and evaluated (Figures 2 and 3).

The findings of the investigations and evaluations are presented in the **TI Assessment** for the Crystal Chemical site. Factors providing the basis for the TI waiver include the following:

1) The complexity of the site geology;

2) the majority of the arsenic is in the fine-grained splay or off-channel deposits;

3) lab and field testing indicates that the arsenic has adsorbed on to the fine-grained sediments of the splay or off-channel deposits;

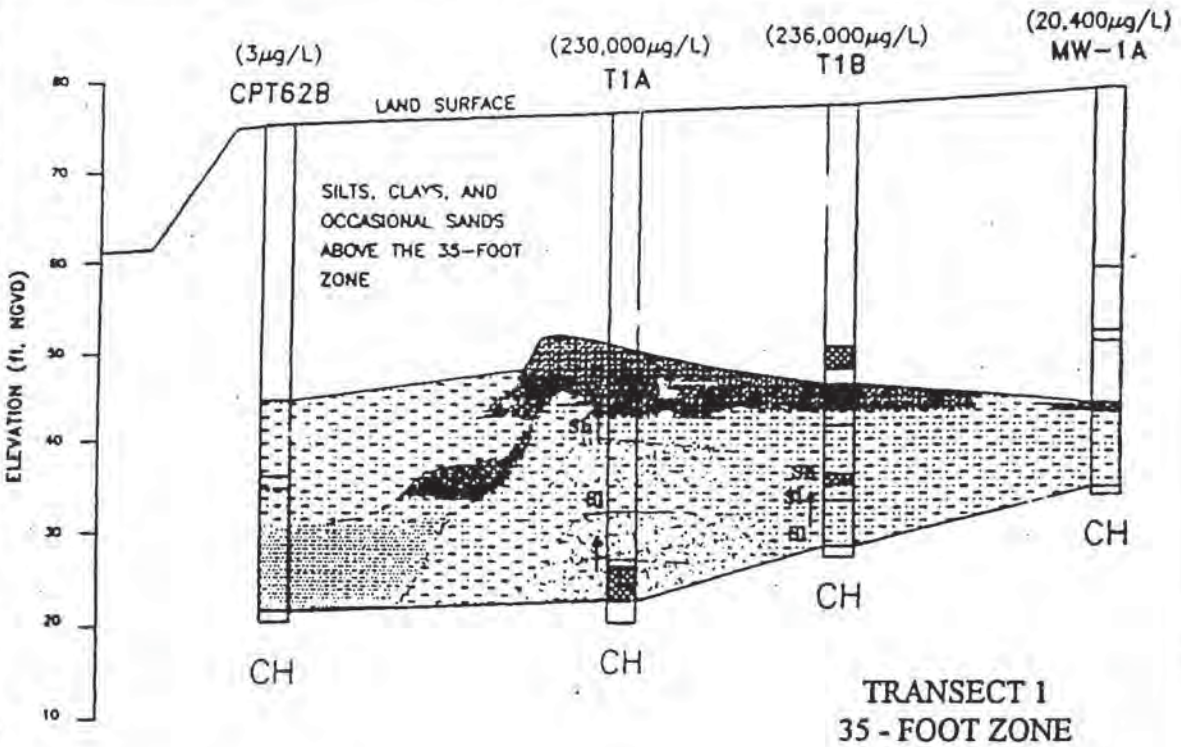
4) over 700 million gallons of water would have to be extracted to try to achieve the remediation goal;

5) the slow release of arsenic from the fine-grained sediments will limit the rate and quantity of arsenic that can be removed by extracting the ground water; therefore,

6) a range from 200 to 650 years is the minimum time estimated to restore the ground water zones, if they could be restored at all.

The timing of this TI decision is consistent with EPA's current program guidance on such waivers, "*Guidance for Evaluating the Technical Impracticability of Ground Water Restoration (OSWER Directive 9234.2-25, September, 1993)*. The guidance states that a TI decision may be

FIGURE 2
GEOLOGIC CROSS-SECTION



TRANSECT 1
35 - FOOT ZONE

CHANNEL AND DISTRIBUTARY-MOUTH BAR

LEVEE AND BAR

EXPLANATION

- SC - CLAYEY SANDS
- SM - SILTY SANDS
- SP - POORLY GRADED SANDS
- CL - CLAYS
- ML - INORGANIC SILTS AND VERY FINE SANDS
- DISTRIBUTARY MOUTH DEPOSIT (SP/SM)
- NO RECOVERY

(20,400 ug/L) CONCENTRATION OF ARSENIC IN WATER

Sh HORIZONTAL BEDDED SANDS

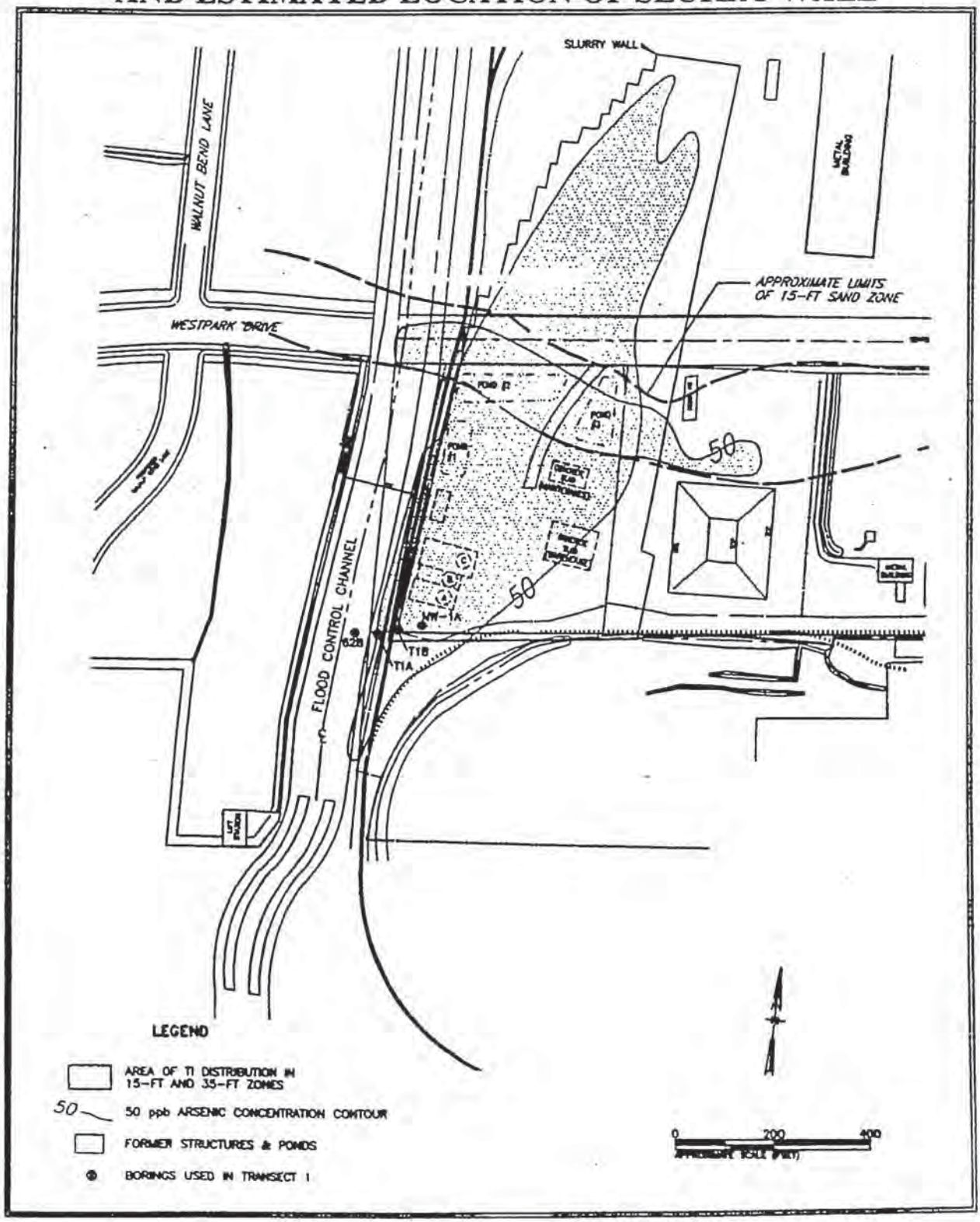
Sl LAMINATED SANDS

↑ FINING-UPWARD SEQUENCES

0 20 ft

NO VERTICAL EXAGGERATION

FIGURE 3 - AREAL EXTENT OF TI ZONE AND ESTIMATED LOCATION OF SLURRY WALL



made prior to implementing the remedy provided such a TI decision is adequately supported by detailed site-specific data and analyses.

The detailed technical demonstration that serves as the basis for the TI decision at the Crystal Chemical site is provided in the **TI Assessment**, prepared by Southern Pacific Transportation Company. The **TI Assessment** presents a detailed analysis of information collected prior to the issuance of the ROD, as well as information collected during the design investigations.

During the course of the implementation of the soil remedy (completed in September 1995), contaminated soils associated with two of the three onsite wastewater storage/treatment ponds were excavated and placed under the engineered, low permeability cap that was constructed over the entire Crystal Chemical site. Based on the depth of contamination, excavation from the third pond was not necessary. All source control measures that could reduce the migration of arsenic to the ground water have been implemented at the Crystal Chemical site. Therefore, according to the ROD, the ground water contingency measure calling for the implementation of additional source control (*ROD ground water contingency measure #6*) has been carried out.

As a result of EPA's conclusion that restoration of the ground water is technically impracticable for portions of the Crystal Chemical site, EPA has determined that the ARAR for ground water restoration will be waived (*ROD ground water contingency measure #4*) and a slurry wall will be constructed around the portions of the site where ground water cannot be restored (*ROD ground water contingency measure #5*). See Figure 3 for the illustration of the TI zone and location of the slurry wall. The extraction and treatment of arsenic-contaminated ground water remedy will be implemented on the remainder of the site.

Although the 1990 ROD indicates that there will be operation and monitoring of the extraction and treatment system for 10 years prior to consideration of the contingency measures, implementation of the extraction and treatment remedy and monitoring for a 10-year period is not necessary to determine that the remedy is incapable of achieving the remediation goal in the TI zone. EPA already has adequate information to support its determination that a TI waiver is appropriate.

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed the **TI Assessment** and agrees that the data support the findings that ground water restoration on portions of the Crystal Chemical site is technically impracticable. TNRCC has also concurred with EPA regarding the construction of the slurry wall around the TI zone.

V. PUBLIC PARTICIPATION ACTIVITIES

During the preparation of the ROD, EPA held a public comment period from June 11, 1990 through July 11, 1990. Informal open houses were held in the Houston area on two separate occasions: April 10 and June 5, 1990. Additionally, a public meeting was held on June 21, 1990. EPA responded to comments received during the public meeting as well as the public comment period in the Responsiveness Summary, which is an attachment to the ROD.

During the preparation of the ROD amendment for the soil remedy, EPA held a public comment period from February 24, 1992 through March 24, 1992. An informal open house was held on February 20, 1992, with the public meeting being held on March 19, 1992. EPA responded to comments received during the public meeting as well as the public comment period in the Responsiveness Summary, which is an attachment to the June 1992 ROD amendment for the soil remedy.

An open house was held on October 13, 1994 to update the community on the remedial designs for the soil and ground water remedies for the Crystal Chemical site.

A notice of this Explanation of Significant Differences and a summary of the differences between the ground water remedy being proposed and the ground water remedy identified in the 1990 ROD was published in the **Houston Chronicle** on July 12, 1996. Approximately 1300 fact sheets summarizing the proposed changes and requesting public participation were mailed, and EPA invited public comment from July 15, 1996 until August 15, 1996. All written comments submitted have been responded to in the attached Responsiveness Summary.

VI. STATE COMMENTS

The State's letter expressing its concurrence with this ESD is attached.

VII. STATUTORY DETERMINATION

Considering the new information developed during the remedial design for the ground water remedy described in the ROD, specifically the technical impracticability of restoring the ground water on portions of the site, EPA believes that the remedy remains protective of human health and the environment. Furthermore, the 1990 ROD remains protective and continues to meet ARARs identified in the 1990 ROD that are not being waived. The revised remedy utilizes permanent solutions to the maximum extent practicable for this site and is cost-effective. It complies with the National Oil and Hazardous Substances Pollution Contingency Plan and other federal and state requirements that are applicable or relevant and appropriate to this remedial action.

Jerry Clifford

Jane N. Saginaw
Regional Administrator

3/19/97

Date

APPENDIX A

EXPLANATION OF SIGNIFICANT DIFFERENCES FOR THE CRYSTAL CHEMICAL COMPANY SUPERFUND SITE RECORD OF DECISION RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY FOR EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE SEPTEMBER 1990 RECORD OF DECISION CRYSTAL CHEMICAL COMPANY SUPERFUND SITE HOUSTON, TEXAS

The public comment period for the Explanation of Significant Differences to the Crystal Chemical Company Superfund site September 1990 Record of Decision was held from July 15, 1996 to August 15, 1996. The EPA received no requests for a public meeting during the public comment period. The only comments received during the public comment period were submitted by Vinson & Elkins, Attorneys at Law, on behalf of their client Mr. Theodore Levy. Mr. Levy, now deceased, owned property north of the site. These comments are being addressed in this Responsiveness Summary.

Comment 1: EPA must use the [Record of Decision] Amendment process to grant the [technical impracticability] waiver.

The "*Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration*" (OSWER Directive 9234.2-25, September 1993) identifies an Explanation of Significant Differences (ESD) as a mechanism by which a technical impracticability (TI) waiver can be invoked. The directive does state that public notice and opportunity for comment should be provided if an ESD is used to grant the TI waiver. Pursuant to the directive, the EPA has provided public notice and opportunity for comment since an ESD is being used to invoke the TI waiver.

The requirements for issuing an ESD and issuing a Record of Decision (ROD) Amendment pursuant to the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) differ essentially in that a ROD Amendment is subject to public comment. The ROD issued in September 1990 for the Crystal Chemical Company Superfund site identified several ground water contingency measures that could be implemented if an extraction and treatment system would not attain the remediation goals set for the Crystal Chemical Company site, and opportunity for public comment was provided for the ground water contingency measures identified in that 1990 ROD. The contingency measures in the 1990 ROD included containment through use of a slurry wall. The EPA also issued a notice of availability and brief description of the proposed ESD for the Crystal Chemical Company site ground water remedy in the ***Houston Chronicle***, a major local newspaper of general circulation. Approximately 1300 fact sheets summarizing the changes and requesting public participation were mailed. The proposed ESD and supporting information were available to the public in the administrative record.

Unfortunately, property adjacent to the site has been affected by the ground water contamination associated with the Crystal Chemical Company site. Regardless of whether the TI waiver was invoked or the 1990 ROD extraction and treatment remedy was implemented on all portions of the site, the adjacent property would be affected by the remedial action for the ground water contamination. Under the design plan for the extraction and treatment remedy, installation of two or three extraction wells were planned on the adjacent property for long-term operation. During the development of this design, however, it was determined that the extraction and treatment remedy would be unable to attain EPA's goal of restoring contaminated ground water at the Crystal Chemical Company site within a reasonable time frame. Therefore, after careful consideration, the EPA has selected an alternative remedial strategy that is technically practicable, protective of human health and the environment, and satisfies the statutory and regulatory requirements of the Superfund program. This alternative remedial strategy includes the construction of a slurry wall across Westpark Drive and onto the adjacent property. The slurry wall will contribute to the long-term management of contaminant migration by limiting the further contamination of ground water. Effective source containment will permit restoration of the portion of the aqueous plume that lies outside the containment area.

Comment 2: **The TI waiver cannot be granted because EPA has not demonstrated that an enhancement or augmentation of the selected remedy could not attain the groundwater cleanup standard.**

With the issuance of this ESD, the EPA concludes the culmination of approximately thirteen years of investigations and studies in connection with the Crystal Chemical Company site. Pursuant to the "*Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration* " (OSWER Directive 9234.2-25, September 1993), the ***Assessment of the Technical Impracticability of Ground-Water Remediation for the Crystal Chemical Superfund Site, February 1996 (TI Assessment)*** was drafted by Southern Pacific Transportation Company in consultation with EPA, and was ultimately approved by the EPA. EPA representatives from this regional office as well as from EPA's headquarters in Washington, D.C., participated in the evaluation and review of the Crystal Chemical Company site and of this document. Representatives from EPA's Office of Research and Development, Technical Support Project at the Robert S. Kerr Environmental Research Laboratory also fully participated in the evaluation and review of the site, the ground water remedy, the ground water contingency measures, and the TI waiver request.

In pursuit of the statutory preference for treatment and a permanent solution to the Crystal Chemical Company site, EPA has been receptive to new technologies as well as innovative approaches to addressing the contamination at the Crystal Chemical Company site during the past thirteen years. In portions of the site where it has been determined that restoration of the ground water is technically practicable, a contaminated ground water extraction and treatment system has

been constructed and is operational. It is estimated that to reach the ground water remediation goals for areas outside the proposed slurry wall, the water treatment plant will be treating the extracted ground water (at approximately 5 - 10 gallons per minute) for the next 15 years.

During the development of the ***TI Assessment*** for areas of the site where groundwater restoration is not technically practicable, initial bench tests (e.g., soil column leaching tests) to assess the viability of aquifer extraction enhancement were conducted. In fact three methods for the in-situ treatment of arsenic-bearing ground water were postulated: 1) a soluble ferric iron complex would be injected into the contaminated aquifer; breakdown of the complex would allow precipitation of ferric hydroxide at near-neutral pH, and arsenic would be coprecipitated; 2) ground water pumped from the aquifer would be treated on the surface to produce a ferric hydroxide precipitate containing arsenic; the ferric hydroxide, if present as a colloidal suspension (a hydrosol), could be injected into the contaminated aquifer; and 3) aqueous ferric sulphate would be injected into the aquifer in a geometric pattern with compressed air to oxidize resident arsenite to arsenate while reacting with both inorganic and organic arsenic species. The testing and studies concluded that arsenic could not be recovered from saturated soils to any significant degree. A multi-year testing program (from further lab and bench scale tests to actual field pilot tests) would be needed in order to design a full-scale aquifer remediation program using chemically enhanced desorption or dissolution and mobilization of the arsenic at the Crystal Chemical Company site. Even after designing a full scale system, uncertainties regarding the ability of this remedial strategy to achieve the ground water remedial goals in the field would remain due to hydrogeologic factors (i.e., subsurface heterogeneities and abundance of fine grain materials [clay and/or silt]) and contaminant-related factors.

As an attachment to the comments, a contractor provided a document which discussed the possibility of similar enhancements to the extraction and treatment remedy for the Crystal Chemical Company site. The contractor indicated that its "analysis and groundwater-flow modeling of the Crystal Chemical situation clearly showed that hydraulic control of ground water flow and transport could be achieved at the Crystal Chemical site through proper design, number, and placement of wells." Previous modeling done for the Crystal Chemical Company site in relation to the TI evaluation showed that a range from 200 to 650 years is the minimum time estimated to restore the ground water zones, if they could be restored at all. Although the modeling done in relation to the TI evaluation did not include the addition of a chemical agent to aid in the extraction of contamination, the fact that it predicted very long restoration time frames (e.g., longer than 250 years) seems to indicate the presence of hydrogeologic and/or contaminant-related constraints to remediation. In addition, nowhere in the contractor's document is a single example cited where arsenic of any form has been successfully removed from an aquifer to the Crystal Chemical Company site remediation goal or to any other goal. Therefore, until the conclusion and evaluation of a multi-year testing program as discussed above, the ability of the contractor's proposed insitu extraction enhancements to attain the ground water remediation goals would not be known. The EPA has determined that it is more appropriate to go forward with a remedy which has been demonstrated to be effective.

Comment 3: **The administrative record does not support the action EPA proposed because it does not include any evidence indicating an enhanced desorption remedy is impracticable.**

The administrative record does contain [as required in CERCLA § 113(k)(1)] the documents that form the basis for the selection of the response action. As discussed in the Office of Solid Waste and Emergency Response Directive # 9833.3A-1 (Final Guidance on Administrative Records for Selecting CERCLA Response Actions), the administrative record file has been amended to include all of the comments submitted during the formal public comment period. The information submitted during the formal public comment period does not support the proposition that enhanced desorption is practicable for the Crystal Chemical Company site. The speculative nature of the technology and the lack of specific and/or demonstrated application to the Crystal Chemical Company site does not justify the additional time and resources needed to pursue enhanced desorption, especially given the thirteen years already expended in studying the Crystal Chemical Company site in pursuit of a remedy. The EPA has selected an alternative remedial strategy that is technically practicable, protective of human health and the environment, and satisfies the statutory and regulatory requirements of the Superfund program.

APPENDIX B

STATE OF TEXAS CONCURRENCE LETTER

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

June 27, 1996

SENT VIA FACSIMILE & CERTIFIED MAIL
Mr. Chris Villarreal
Remedial Project Manager
Crystal Chemical Superfund Site
U.S. Environmental Protection Agency
Region 6, 6H-ET
Allied Bank Tower
1445 Ross Avenue
Dallas, TX 75202-2733

RE: Explanation of Significant Differences,
Crystal Chemical Site, Houston, Texas

Dear Mr. Villarreal:

This letter serves to communicate Texas Natural Resource Conservation Commission (TNRCC) concurrence with the Explanation of Significant Differences (ESD) for the Crystal Chemical Superfund Site in Houston, Texas. The TNRCC believes that the remedial strategy for the ground water presented in the ESD is supported by the contingency measures outlined in the 1990 Record of Decision. Furthermore, the TNRCC agrees with the U.S. Environmental Protection Agency's belief that the remedy utilizes permanent solutions to the maximum extent practicable, is cost-effective, and remains protective of human health and the environment.

Please contact me with any questions concerning these comments or any other issues at the Crystal Chemical site at (512) 239-2030.

Sincerely,

E. R. (Trey) Collins, III
Project Manager
Superfund Engineering Section
Pollution Cleanup Division

ERC/erc

cc: Ms. Lisa Marie Price, U.S. Environmental Protecton Agency (6PD-NB)

CITY OF HOUSTON

Planning and Development Department
Post Office Box 1562 Houston, Texas 77251 713/837-7701

January 26, 2000

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissosnnet
Houston TX 77005

Dear Ms. Wimbish:

SUBJECT: Zoning - in the City of Houston and it's Extra Territorial Jurisdiction Area

LOCATION: 10400 Westpark Drive, Between Walnut Bend and Rogerdale, Houston TX

There is no zoning within the corporate limits of the City of Houston; nor is there in the City of Houston's extraterritorial jurisdiction area. However, your property may be subject to deed restrictions, filed separately.

Sincerely,

Marlene L. Gafrick

Marlene L. Gafrick'
Assistant Director
Development Services Division

s:\admin\wimbish

Attachment 20a

DEED RESTRICTIONS

Grantor and Grantee agree that the following covenants, conditions and restrictions shall be and are imposed against the property:

No use of the Property shall be permitted which is illegal by reason of noise, odor, pollution, dust, smoke, fumes, or hazardous by reason of excessive danger of fire or explosion, nor shall anything be done thereon which may create environmental contamination of which may be or become an environmental hazard to surrounding property owners.

In addition, no activity or use shall be permitted on or with respect to any part of the property which is obnoxious, offensive, constitutes a nuisance, or is materially out of harmony with the development of Wilcrest Green, including, but not limited to the operation of (a) a used car lot, car repair lot or car detail lot, or the like (b) storage yard for pipe, junk vehicles, or any other kind of junk material (c) a manufacturing or assembling facility, unless such facility is operated inside an enclosed facility with an exterior constructed of brick, stone, metal or concrete, or some combination thereof, with said facility having a proper business like front facade (exterior cannot be greater than 50% metal) and (d) any type of "adult entertainment" business catering to adults only and sexual in nature.

Expressly permitted and excepted herein is the construction and operation of a non toxic waste treatment plant for liquid transportable waste including but not limited to grease trap waste, septage and grit. Said facility will be operated wholly within the applicable laws of the T.N.R.C.C., the City of Houston, and other applicable regulatory agencies and if at any time it is not operating within their guidelines, it will be reported to one of the proper authorities for corrective action to be taken immediately.

Any question as to what constitutes any annoyance, nuisance, or is obnoxious shall be solely at the discretion of Don McGuirt, President (or any successor President) of 50 Westpark Corp., so long as 50 Westpark Corp. or Don McGuirt owns property in Wilcrest Green.

A tree buffer zone of ten feet (10') will be required on subject tracts northern property line a distance of approx. 185', along with approx. 400' on the western border. This buffer area shall fall inside the required fence and shall be planted with fast growing evergreen trees with their growth projected to be well above the fence line. Tree will be such that they are well taller than fence when planted. Spacing shall be such that it provides as dense a cover as is reasonably possible.

Buyer shall have right to cross under 20' easement to east of subject property for the purpose of installing conduit or culverts for drainage, so long as any damage to existing road is repaired by Buyer. Buyer may also tie into the wastewater line lying within this 20' easement at their expense so long as road is repaired.

No signage other than a monument sign installed on Westpark by Seller for the benefit of all 3 owners will be permitted. Seller will install the monument sign including address and Buyer will be responsible for installing their name on subject sign in lettering and material approved by Seller.

The preceding restrictive covenants shall be covenants running with the land and shall be for the benefit of and enforceable solely by Grantor by any and all equitable means, inclusive of, but without limitation, temporary restraining order, temporary injunction and permanent injunction. The preceding restrictive covenants shall be enforceable solely by Grantor and shall terminate upon the earliest to occur of the following: (a) passage of twelve years from date of the conveyance of the property to Buyer; (b) when Grantor or Don McGuirt ceases to own any land in Wilcrest Green.

DMM

CITY OF HOUSTON

Public Works and Engineering Department
Post Office Box 1562 • Houston, Texas 77251-1562

Lee P. Brown, Mayor

February 9, 2000

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

Dear Ms. Wimbish:

This is in response to your letter requesting written confirmation as to whether or not there are any NO THRU TRUCKS signs or WEIGHT LIMIT signs on Westpark Drive between Beltway 8 and Walnut Bend. An investigation by our Traffic Management and Maintenance Branch revealed no such signs on this roadway segment.

Sincerely,

Douglas W. Wiersig

Douglas W. Wiersig, Ph.D., P.E.
Senior Assistant Director
Traffic Management and Maintenance Branch

DWW/WH/SS/ss

xc: Jerry King
Thomas J. Rolen
William Hlavacek

Attachment 19

HARRIS[illegible] ...LL ROAD AUTHORITY
DAILY TRAFFI[illegible] ...TON SOUTH - FISCAL 1999-2000
SECOND HALF

WEEK	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	TOTAL
FY 1988	0	0	0	0	0	0	0	0
FY 1989	588,177	976,161	1,067,677	1,077,385	1,097,075	1,199,039	831,083	6,836,617
FY 1990	1,357,111	2,279,231	2,398,203	2,522,621	2,467,271	2,695,776	1,801,622	15,541,837
FY 1991	2,031,843	3,406,149	3,547,322	3,631,952	3,765,010	4,027,451	2,671,493	23,081,220
FY 1992	2,361,960	4,042,854	4,203,640	4,203,729	4,269,992	4,757,613	3,124,288	26,964,076
FY 1993	2,536,130	4,309,473	4,526,601	4,585,655	4,632,575	4,879,375	3,237,710	28,707,719
FY 1994	2,636,014	4,643,847	4,793,625	4,859,355	4,917,339	5,228,341	3,384,274	30,462,795
FY 1995	2,858,654	4,891,769	5,273,208	5,262,928	5,359,048	5,712,776	3,745,577	33,103,860
FY 1996	2,957,099	5,183,679	5,477,712	5,759,070	5,842,921	6,083,901	3,873,442	35,157,824
FY 1997	3,090,335	5,546,115	5,789,905	5,883,520	5,913,347	6,511,836	4,133,225	36,868,283
FY 1998	3,687,173	6,351,239	6,674,275	6,585,687	6,609,902	6,986,994	4,914,179	41,809,449
FIRST HALF TOTALS	2,548,213	4,154,261	4,387,732	4,262,174	4,455,856	4,611,729	3,251,003	27,690,968
SEP 1				169,655	175,502	191,932	117,313	654,502
SEP 5	92,716	93,489	164,586	168,891	170,639	186,968	129,751	1,007,040
SEP 12	96,819	162,699	166,777	170,600	172,702	188,460	132,858	1,090,915
SEP 19	106,377	162,311	165,112	166,191	175,261	185,911	131,879	1,093,042
SEP 26	97,963	163,464	165,654	166,478	175,911	188,940	129,407	1,088,017
OCT 3	99,701	162,490	167,911	169,626	174,548	186,615	127,559	1,088,650
OCT 10	99,824	160,376	168,621	171,759	174,623	193,084	134,407	1,102,694
OCT 17	102,120	161,976	165,845	171,222	176,749	189,231	135,285	1,102,428
OCT 24	105,267	165,396	169,985	173,050	175,966	189,987	132,316	1,112,147
OCT 31	106,120	164,729	169,460	170,866	175,438	188,486	134,863	1,109,942
NOV 7	104,052	164,629	168,085	172,629	173,913	185,136	133,902	1,102,346
NOV 14	104,315	167,441	170,085	172,956	177,453	189,861	133,964	1,116,075
NOV 21	100,146	164,011	175,779	179,708	102,469	112,810	111,304	946,227
NOV 28	97,172	163,892	170,591	174,138	170,462	184,848	126,465	1,087,568
DEC 5	101,043	166,662	172,164	172,950	173,839	190,764	137,588	1,114,930
DEC 12	98,085	167,599	173,548	179,583	184,087	195,068	145,780	1,143,750
DEC 19	111,156	165,808	173,430	176,051	168,838	122,347	92,787	1,000,217
DEC 26	94,856	138,994	147,533	166,392	162,433	121,367	81,404	901,979
JAN 2	85,281	147,004	160,859	164,695	168,047	178,087	117,260	1,021,233
JAN 9	90,715	162,980	166,644	171,101	171,124	185,343	127,389	1,075,296
JAN 16	99,928	160,286	169,293	170,225	174,467	185,308	127,178	1,086,685
JAN 23	96,015	162,744	168,071	168,075	163,191	160,277	121,320	1,059,693
JAN 30	95,428	163,654	163,319	167,352	176,149	190,255	133,484	1,089,641
FEB 6	98,382	163,266	170,048	173,080	177,201	186,677	132,748	1,103,404
FEB 13	100,009	174,502	176,047	168,520	177,893	189,715	132,268	1,118,954
FEB 20								0
FEB 27								0
SECOND HALF TOTALS	2,383,490	3,830,304	4,029,647	4,264,793	4,258,805	4,469,657	3,160,679	26,417,375
FISCAL YEAR TOTALS	4,931,703	7,984,565	8,417,379	8,546,967	8,714,661	9,101,386	6,411,682	54,108,343
CUMULATIVE	26,467,666	49,503,695	51,985,655	52,640,424	53,423,277	57,310,374	38,001,860	331,915,131

00326

Attachment 19

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005

GScarborough@DownstreamEnvironmental.com

(713)520-8113
Fax: (713)520-0138

March 3, 2001

Paul R. Nelson,
Deputy Asst. Director
Utility Analysis Section
City of Houston
P.O. Box 131927
Houston, Texas 77219-1927

RE: Downstream Environmental; The "B.R. Perrin" - Type V - GG Treatment Plant; Wastewater Compatibility

Dear Paul:

The TNRCC, in its review of our registration application, has requested that we obtain from the City of Houston the acceptability of our discharge into the City's sewer system.

Downstream Environmental has submitted an application for registration to the TNRCC in Austin, Texas to build and operate an industrial wastewater treatment facility. The location of the "B.R. Perrin" - Type V - GG Treatment Plant site is Tract 2, of Restricted Reserve "D" (See Attached Survey) of which the address is 10400 Westpark Drive, Houston Texas 77042. The site is adjacent to H.C.C.F. No. H819158 Lift Station Site. The anticipated maximum daily flow will not exceed 150,000 GPD (gallons per day).

The Impact Fee and Wastewater Capacity Reservation were paid for and obtained by the prior Owner of the property. Wastewater Capacity will be transferred to Downstream Environmental from the prior landowner as a condition of purchase. See: Attached receipts.

Downstream will install a sampling well for monitoring and will comply with City Ordinances regarding affluent.

Your immediate attention to this matter is greatly appreciated. If there are any questions concerning this letter, or clarifications required, please feel free to call.

Sincerely,

Gwendolyn Scarborough
Vice-President

GS:dgn
enc.

Pink Copy - Wastewater
Goldenrod Copy - Controllers
White Copy - Permits
Canary Copy - Customer

Check No. 1105

City of Houston
Wastewater Capacity
Name Transfer Receipt

Collection of the applicable fees listed below is required before processing a Wastewater Capacity Reservation Transfer, and is authorized per Chapter 49; Article X. (Wastewater Capacity Reservation Application); Section 49-739 (Fees) of the City of Houston Code of Ordinances.

Transfer of a Wastewater Capacity Reservation from one person to another without changing the Proposed Development.

Capacity to be transferred from

The Enterprise Company to
Name

Fifty Westpark Corp.
Name

2540 Fondren #110
Street

Houston, Texas 77063
City State Zip

Wastewater Capacity 673085 GPD

Wastewater Capacity Reservation 0 0 5 6 4 4 - 0 0 0

Transfer Filing Fee ($10.00) 10.00

Administrative Fee ($ 5.00) 5.00

Total Paid 15.00

Received by: Christine Pryce Lee

Date: 11/29/93

112 N 1563

Rev. 10-29-84

Fifty Westpark Corporation

Schedule of Assets Distributed to Shareholders in Exchange for Stock

December 1, 1999

The following assets and liabilities were received in exchange for the indicated shares to be issued by the corporation:

Cash:

- None

Real Estate:

- 3.35 acres
- 3.36 acres
- 1.98 acres
- 2.5 acres
- 25.2 acres

Wastewater capacity:

- Balance remaining of 673,085 gallons per day

Liabilities:

- Reserve for environmental cleanup

Don McGuirt

Jack Christie

Trey Wing

Attachment 21a

Pink Copy - Wastewater
Goldenrod Copy - Controllers
White Copy - Permits
Canary Copy - Customer

City of Houston
Wastewater Capacity
Name Transfer Receipt

Check # 1019

Collection of the applicable fees listed below is required before processing a Wastewater Capacity Reservation Transfer, and is authorized per Chapter 49; Article X. (Wastewater Capacity Reservation Application); Section 49-739 (Fees) of the City of Houston Code of Ordinances.

Transfer of a Wastewater Capacity Reservation from one person to another without changing the Proposed Development.

Capacity to be transferred from

Don McGuirt and Jack Christie to
Name

Group Two Partners, LLP, a Texas Limited Liability Partnership
Name

2044 Bissonnet
Street

Houston, Texas 77005
City State Zip

ok CPH -

Wastewater Capacity 28,333 gallons per day GPD

Wastewater Capacity Reservation 005644-000

Transfer Filing Fee ($10.00) 10.00

Administrative Fee ($ 5.00) 5.00

Total Paid 15.00

Received by: [signature]

Date: 2-28-07

00181

Rev. 10-29-84

Attachment 21a

Ms Mary Wimbish

Downstream Environmental
2044 Bissonnet
Houston, Texas 77005

Re: Landfill Capacity

Dear Ms. Wimbish,

I write to you in response to your inquiry regarding landfill capacity for your Company's proposed disposal facility for 150,000 gpd grease and grit trap waste, located in Houston, Texas, west of Beltway 8. Your disposal site located at Beltway 8 and Harwin – Westpark area would be served by the McCarty Road Landfill owned by BFI / Allied.

It is our understanding that your Company's anticipated sludge disposal needs consist of 2-30 yd roll-off boxes a day of Class B sludge, meeting the paint filter test requirements. This letter is to confirm that BFI / Allied has sufficient landfill space to meet Company's needs and more. We currently have ample facilities for Class B sludge that meets the paint filter test requirements. For an additional charge, we will solidify all loads that are too wet to meet the paint filter test requirements. In either case, we are more than capable of meeting your Company's sludge disposal needs with sufficient landfill space.

Sincerely,
BFI Waste Systems of North America, Inc.

Brian Cormier
Major Account Executive
Manufacturing Marketing and Sales

Part II

(Redline Copy)

PART II

TITLE PAGE - MSW #2298

Project Name:

DOWNSTREAM ENVIRONMENTAL, LLC

B. R. Perrin Plant

3737 Walnut Bend

Houston, Harris County, Texas 77042

Prepared for:

THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
MUNICIPAL SOLID WASTE DIVISION

NAME OF APPLICANT:	**DOWNSTREAM ENVIRONMENTAL, LLC** 2044 Bissonnet Houston, TX 77005
PROPERTY OWNER:	Group Two Partners, LLP 2044 Bissonnet Houston, Texas 77005
CONSULTING ENGINEER:	George W. Noyes 1657 Oak Tree Drive Houston, Texas 77080
TYPE OF FACILITY:	Type V Municipal Solid Waste Processing Grit, Septage and Grease Trap Treatment Facility
WASTE TO BE ACCEPTED:	Grease Trap Waste, Grit Trap Waste and Septage
ORIGINALLY SUBMITTED:	April 3, 2002
REVISED AND SUBMITTED:	October 17, 2002

00001

Revised
4/24/02

PART II

TABLE OF CONTENTS

[330.53]

TECHNICAL REQUIREMENTS OF PART II

STATE OF TEXAS
GEORGE W. MOYES
86495
LICENSED
PROFESSIONAL ENGINEER

Completely Revised 080902

PART II
Supplemental Technical Report

§330.52(b)(3) and §330.53(b)(3)

In the event the recycling goals of a Type V Registration cannot be met due to changes in the market, Applicant requests that the facility in question be allowed to operate under a Type V MSW Permit, and files this application as follows:

Subtitle D of the Resource Conservation and Recovery Act (RCRA) bans liquid waste from being disposed of at landfills. Since the ban on liquid waste receipt at landfills became effective in 1993, a lack of disposal service for commercial liquid waste streams is a problem in some Texas cities. Two of the waste streams which have been historically disposed of in landfills are grease trap waste and grit trap waste. The major constituent of both of these waste steams is water. Downstream Environmental, LLC is an innovative technology company that is committed to the urban friendly processing of grease and grit trap waste. Downstream Environmental's patented technology generates clean water and eliminates odor and land use problems.

Downstream Environmental, LLC is making application to obtain a Type V MSW Permit to operate a stationary Type V G municipal solid waste processing facility. The facility is designed to process septage, great trap waste and grit trap waste.

For the purpose of this Type V MSW Permit Application, the Applicant shall be referred to as "Downstream Environmental, L.L.C." or "Applicant".

PART II
Supplemental Technical Report

§330.52(b)(3) and §330.53(b)(3)

In the event the recycling goals of a Type V Registration cannot be met due to changes in the market, Applicant requests that the facility in question be allowed to operate under a Type V MSW Permit, and files this application as follows:

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For the purpose of this Type V MSW Permit Application, the Applicant shall be referred to as "Downstream Environmental, L.L.C." or "Applicant".

PART II

(4) DESCRIPTION OF EXISTING MSW FACILITY WITH A TYPE V REGISTRATION, AND WITH APPLICATION TO OPERATE UNDER TYPE V MSW PERMIT

This Type V facility is designed to process grease and grit trap waste in such a way as to physically separate the greases, fats, oils and solids form the waste streams. This separated material will then be recycled. The facility is primarily designed to recover fats, greases and oils which consist of at least 10% of the grease tap waste ad is considered material for beneficial use. The recycling plan, is to reuse fats, oil and grease removed form the grease trap waste stream for resale to the brown grease industry. Applicant also intends to recover the solids from the grease trap and septage waste stream and the grit trap waste stream for recycling. Applicant plans to recycle the recovered solids for reuse in geotextile structures, for land and beach reclamation.

Upon receipt of organically polluted waste form grease traps and septic tanks, the waste will be heated to a temperature, no less than 180°F. At this temperature, all pathogens are destroyed. In addition, brown grease recovered for recycling will be filtered, using food grade filtration, to remove any organics and debris, thus insuring uniformity of the brown grease product and suitability for recycling purposes.

In the event the recycling goals of a Type V Registration cannot be met due to changes in the market, Applicant requests that the facility in question e allowed to operate under a Type V MSW Permit, and files this application as follows:

Subtitle D of the Resource Conservation and Recovery Act (RCRA) bans liquid waste from being disposed of at landfills. Since the ban on liquid waste receipt at landfills became effective in 1993, a lack of disposal service for commercial liquid waste streams is a problem in some Texas cities. Two of the waste streams which have been historically disposed of in landfills are grease trap waste and grit trap waste. The major constituent of both of these waste steams is water. Downstream Environmental, LLC is an innovative technology company that is committed to the urban friendly processing of grease and grit trap waste. Downstream Environmental's patented technology generates clean water and eliminates odor and land use problems.

Downstream Environmental, LLC is making application to obtain a Type V MSW Permit to operate a stationary Type V G municipal solid waste processing facility. The facility is designed to process septage, great trap waste and grit trap waste.

For the purpose of this Type V MSW Permit Application, the Applicant shall be referred to as "Downstream Environmental, L.L.C." or "Applicant".

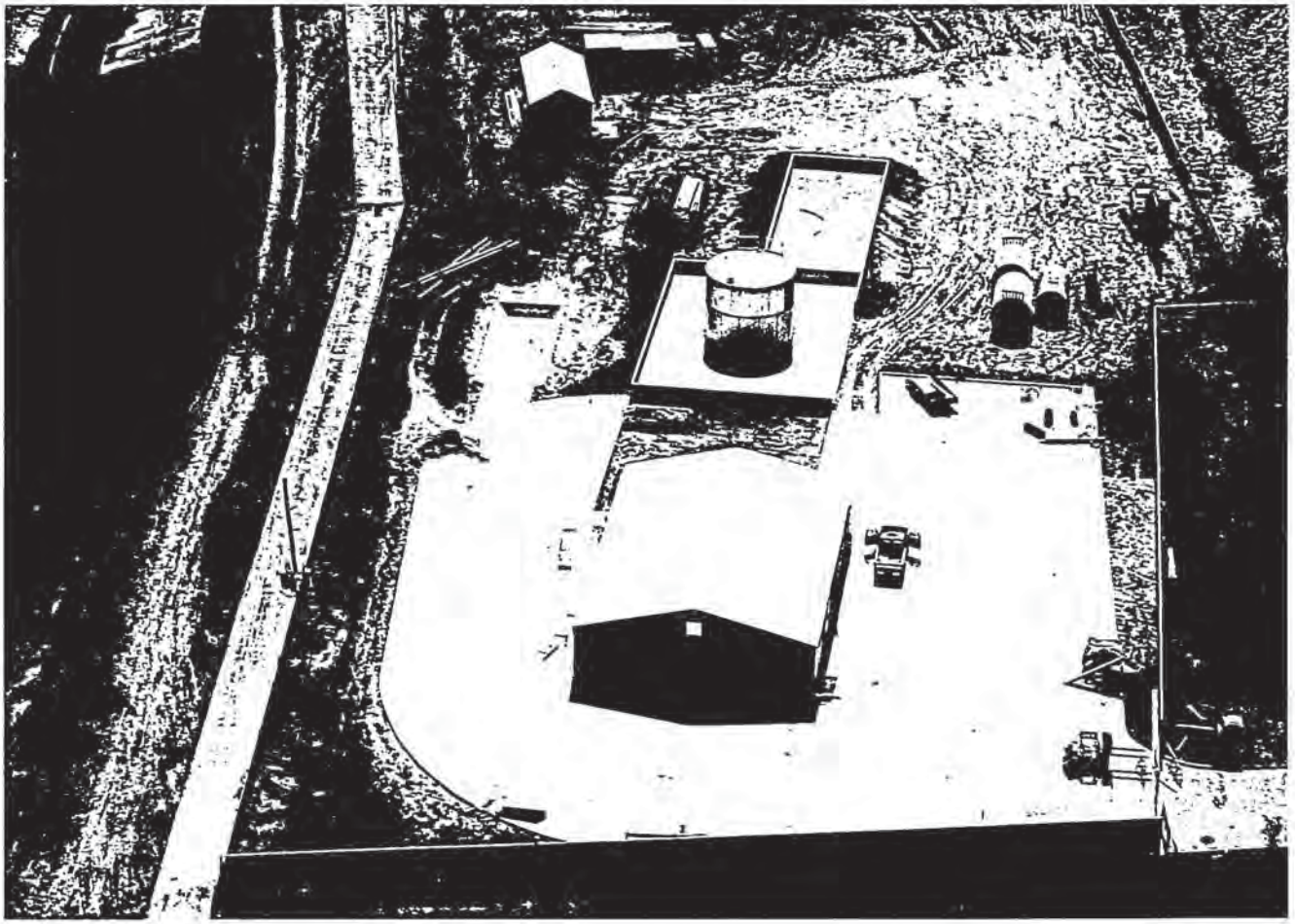
PART II

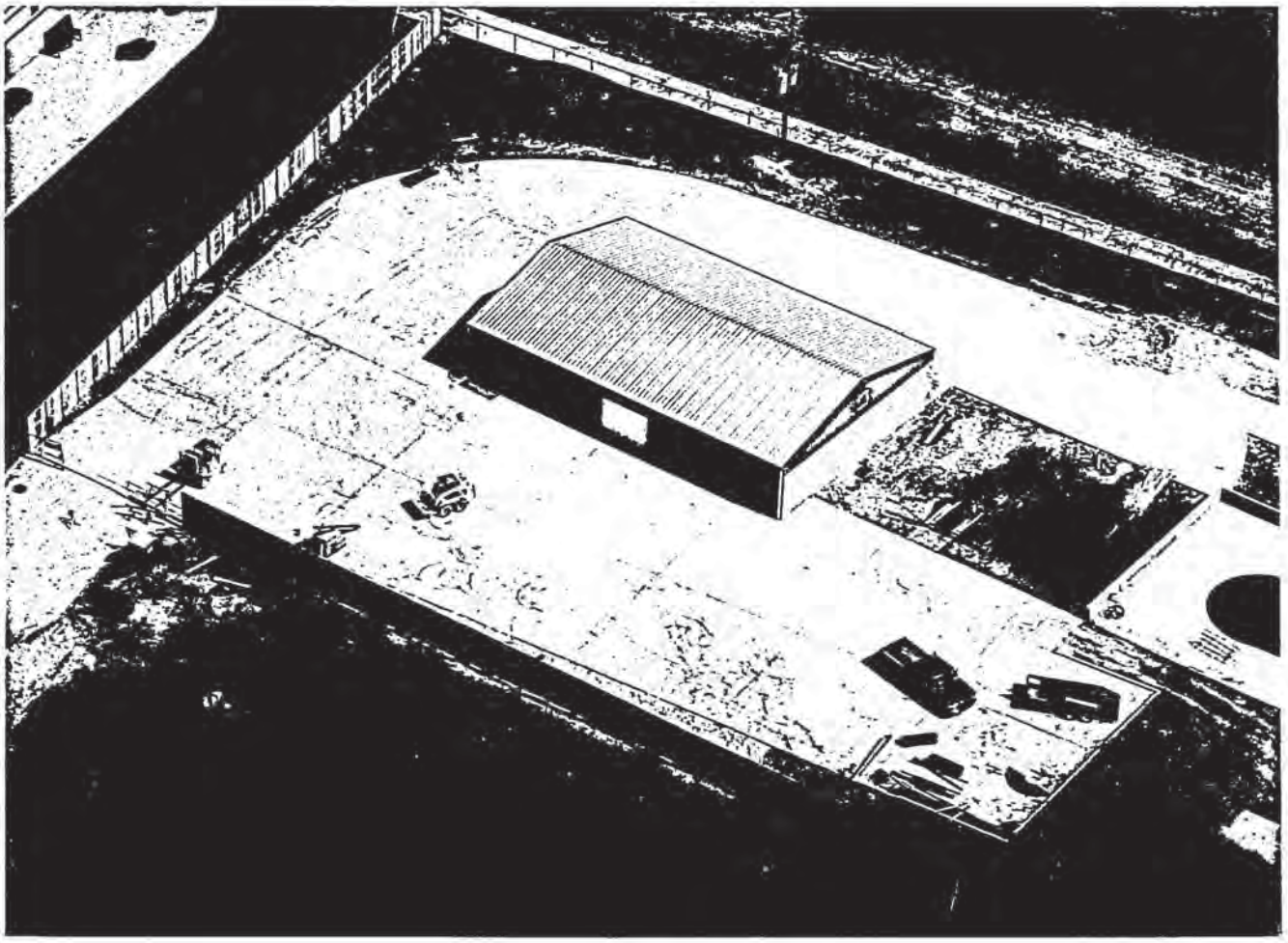
(5) GENERAL LOCATION MAP - See: TxDOT Map contained in Part I, Page 29A.

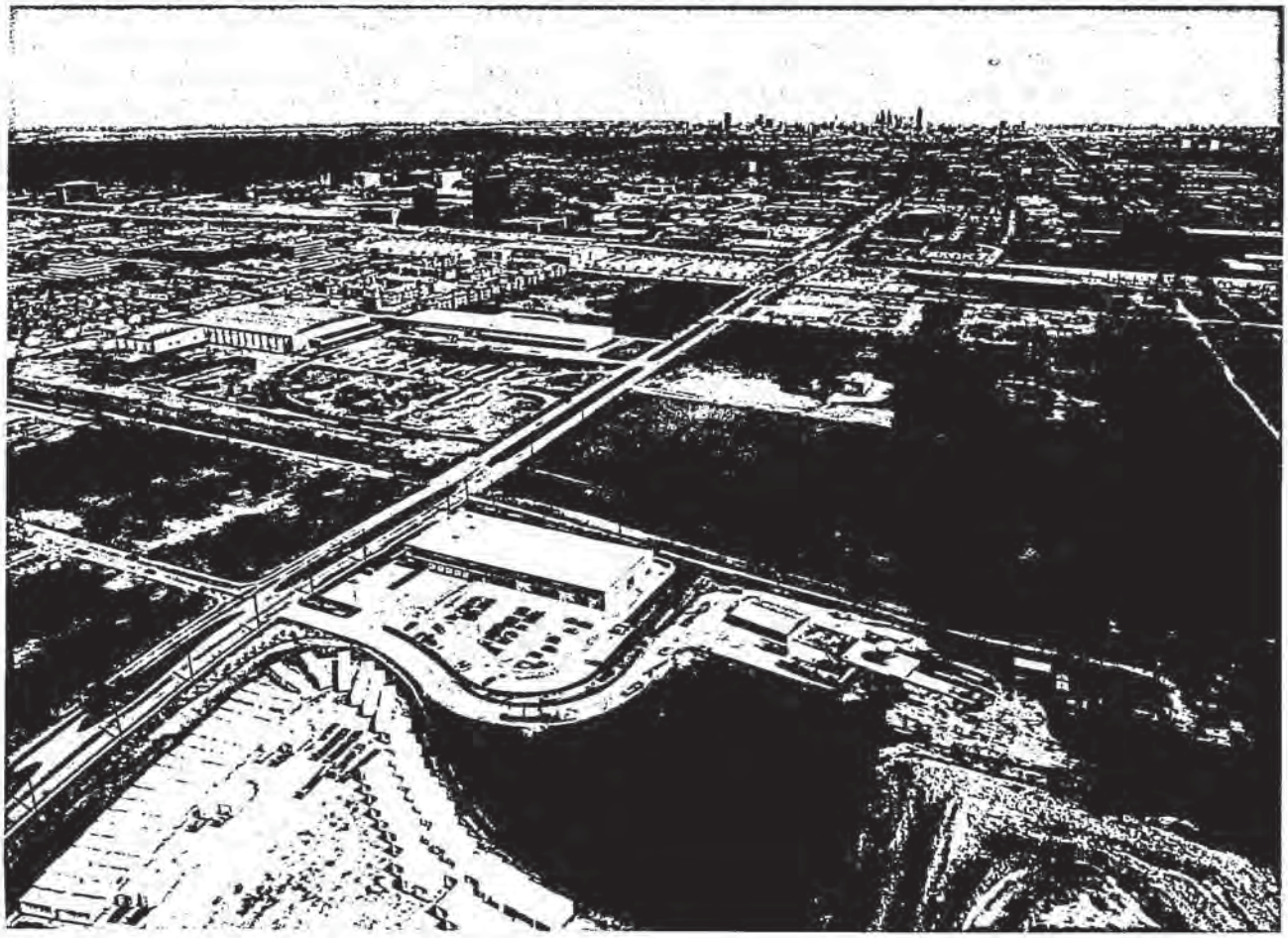
PART II

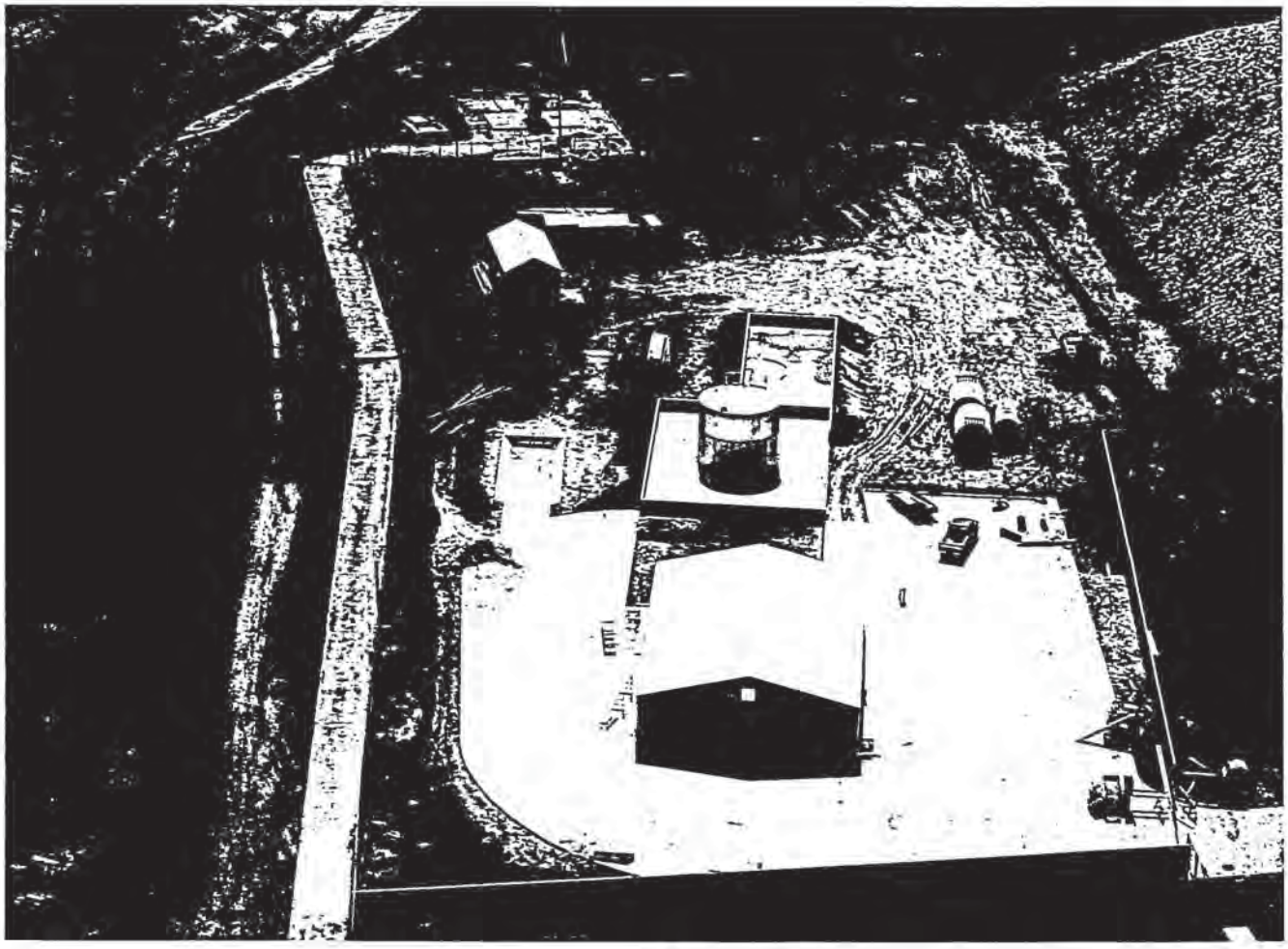
(6) AERIAL PHOTO

Attached:
~~1 inch = 1,667 feet color aerial, in front pocket~~
as Attachment 1









PART II

(7) LAND USE MAPS - 1 MILE RADIUS

Contained in Part I - Page 00022

PART II

(8) LAND USE

(A) ZONING CONCERNS

It is important to note that there is no zoning in this area. Houston has no zoning ordinance. The voters have refused to pass zoning ordinances in Houston in two elections. Also, the deed restrictions affecting the property were specifically written to allow the property's use as a non-hazardous waste facility. The Houston Planning and Development Map classifies the affected area as undeveloped land with heavy industry to the immediate west (concrete company) and undeveloped land , a flood control bayou and a hazardous waste superfund site to the immediate east, undeveloped land to the immediate north and an HL&P and railroad easement to the immediate south.

30 TAC SECTION 330.538 LAND USE REQUIREMENTS

The facility will be located in Houston, Texas in the area west of Beltway 8. Access to the facility will be from Beltway 8 west of the Beltway on Westpark between Rogerdale and Walnut Bend Drive. The facility will be located in an area that is not zoned and has deed restrictions specifically written to allow the property's use for non-hazardous waste disposal.

(B) CHARACTER OF SURROUNDING LAND WITHIN 1 MILE

Industrial
Commercial
Offices Buildings
Offices Parks
Warehouses
Businesses
1 Public Elementary School
1 Private High School (Alexander Smith Academy)
1 U.S. Post Office
Railroad Easement
Natural Gas Pipeline Easement
Telephone Easement
HL&P Easement
Superfund Site - Crystal Chemicals Arsenic Plant
Large Apartment Complexes
Residences
Retail Strip Shopping Centers
Wholesale Strip

Completely Revised 080902

Warehouse Strips
Tennis Club
Golf Driving Range
Vacant Land
Land Under Development and/or Construction for 220 Acre Office Park
Brown & Root's Office/Campus Facility
Gasoline Stations
Car Washes
Automobile Repair Shops
Auto Parts / Tire Stores
A Bayou (HCFCD No. 22.69 - Tributary of Braes Bayou)
Guyen General Piping Inc. Plant (a concrete company plant)
City of Houston Metro West Bus Operating Facility
Construction Site of Sunrise Colony Company -
(a planned country club community now under construction of infrastructure)
Royal Oaks Country Club - Section I
Beltway 8 Toll Road
Tinsel Town - Multi-Cinema Movie Complex
Oak Park at Westchase - 220 acre site office complex construction project
A Wastewater Treatment Plant
Brown & Root Fuel Station
Haliburton / Brown & Root Main Offices and Campus
Construction Mini-Mobiles
Small Retail Strip Shopping - 10 to 20 shops
Jack In The Box
Texaco Station
Car Wash
Bus Storage Lot
Home Depot
Wilcrest Baptist Church
MacGregor Medical
Harwin Pre-School
Pacesetter Academy
Abundant Life Cathedral
Airborne Express Transfer Station
Harwin Public Park
Red Roof Inn
Best Western
PS Public Storage Facility
Mini-Warehouse Business
Large Apartment Complexes
Motel 6
Holiday Inn
IHOP
Extended Stay America

Completely Revised 080902

Warehouse Leasing Businesses
High Rise Offices
Business Parks
River Oaks Academy
Churches (2 or 3)
Residences (all residences are South of Harwin)

Completely Revised 080902

(C) GROWTH TRENDS

The neighborhood (500 feet surrounding the site) is predominantly vacant lots that are undeveloped land. There will be no neighbors to the immediate east due to the fact that the old Crystal Chemical site is now a closed superfund site which can never be developed. There will be no neighbor to the immediate south due to the fact that the southern neighbor is a very large HL&P easement and Southern Pacific railroad easement. To the immediate west is the rock storage yard which takes up many acres for one of Houston's largest concrete plants.

The land to the immediate north is a transfer station for an Airborne Express facility.

DESCRIPTION OF LAND USE WITHIN 500 FEET

Crystal Chemical Superfund Site
HCFCD No. 22.69 - Tributary of Braes Bayou
Southern Pacific Railroad Easement
HL&P Easement
Concrete Plant
City of Houston Lift Station for Wastewater
Private Day Care and School and Abundant Life Cathedral
Church owned property not yet developed
Public and institutional property not yet developed
Vacant Land - Not yet developed
Airborne Express Transfer Station
Truck Parking for 18 wheelers

Within a 1 mile radius of the site there is a 220 acre office park development center being developed south of Harwin Drive West of Wilcrest and North of Westpark there will be a country club community of single family dwellings.

The immediate vicinity which is north of Harwin, east of Wilcrest, south of Westpark and west of Rogerdale will remain an industrial area due to the presence of the railroad tracks, power easement, superfund site, concrete company and Airborne Express transfer station located in the immediate area.

D. DISTANCE TO THE NEAREST RESIDENCE AND BUSINESS:

1. The nearest residences are apartments well over 500 feet away.
2. The back property line neighbor is an HL&P power easement.
3. The east property line neighbor is a Harris County Flood District Tributary 22.69 to Brays Bayou and superfund site - Crystal Chemical Company arsenic plant..

4. The property line neighbor to the west is vacant land owned by the Seller of the site in question.
5. The neighbor immediately to the west is a concrete plant facility.
6. The neighbor to the north is the site of a transfer station for Airborne Express. The neighbor to the north was notified about the planned Type V facility prior to purchasing the adjacent property. See: Attachment 20c.
7. Number of residences and businesses within one (1) mile:

Single Family Homes	2,034
Town homes & Apartment Projects	43
Office Buildings	103
Schools, pre-schools and church schools	10
Retail projects	28
Hotels	8
Churches	5
Trucking, pipe and construction yards	3
Superfund Site	1
Railroad	1
Bayou	1
HL&P Easement	1
Houston Metro	1
Post Office	1
Library	1
Retirement Homes	2
City of Houston Lift Station	1
Concrete company	1

(E) DESCRIPTION OF LOCATED WATER WELLS WITHIN 500 FEET: The properties within 500 feet were at one time on water wells, but those wells have all been closed and abandoned per superfund site management plan. The properties are now on City water.

Attached:
Record of "Located Wells"
Well Map - Contained in Part I - "Maps"
EPA Report - Contained in Part I - "Additional Requirements"

(F) VARIANCE #1: LOCATION OF GRIT PROCESSING

Downstream is requesting an approval from the Executive Director to memorialize the location of the existing grit dewatering/processing area. Currently, the grit dewatering/processing area is located approximately 26 feet from the east property line, which is within the 50-foot buffer and does not comply with the location restrictions set forth in 30 TAC §330.543 (b)1. However, the east property line shares a border with a shared use path and a tributary to the Brazos Bayou. As such, the closest private property owner with development potential is nearly 200 feet east of the current grit dewatering/processing area.

WRD Exp. (GW)
April 1966

Well No. LJ-65-20-201
65-20-201

U. S. DEPT. OF THE INTERIOR — **WELL SCHEDULE** — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

MASTER CARD (G. Brown) G.M.(1963)

Record by AGW, FTAF (3-16-52) Source of data FILES Date 3-5-68 Map Alief Texas 1970 1:24000

State TEXAS 48 County (or town) HARRIS LJ

Latitude: 294259N Longitude: 0953352 Sequential number: 1

Lat-long accuracy: L T. ___ S. R. ___ W. Sec. ___

Local well number: LJ-65-20-201 Other number: West Well # 1 W-47

Local use: ______

Owner or name: R E SMITH Owner or name: R.E. SMITH Address: Houston, Texas

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private (circled), (S) State Agency, (W) Water Dist PRIVATE P

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (H) Dom, (I) Irr (circled), (M) Med, (N) Ind, (P) P S, (R) Rec, (S) Stock, (T) Instit, (U) Unused, (V) Repressure, (W) Recharge, (X) Desal-P S, (Y) Desal-other, (Z) Other Formerly used Irr. ~~[illegible]~~ I U

Use of well: (A) Anode, (D) Drain, (G) Seismic, (H) Heat Res, (O) Obs, (P) Oil-gas, (R) Recharge, (T) Test, (U) Unused (circled), (W) Withdraw (circled), (X) Waste, (Z) Destroyed W U

DATA AVAILABLE: Well data 2 Freq. W/L meas.: 1948 - -70 Quarterly Q Field aquifer char.

Hyd. lab. data: (deep cored?)

Qual. water data; type:

Freq. sampling: 9-16-52 Ø Pumpage inventory: yes no. period:

Aperture cards: yes

Log data: E-Log # Z-11 E

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 603 ft 603 Meas. Rept. Driller accuracy 3

Depth cased: (first perf.) 80 ft 80 Casing type: S ; Diam. 20-13 3/8 in 20

Finish: (C) porous concrete, (F) gravel w. (perf.) (circled), (G) gravel w. (screen), (H) horiz. gallery, (O) open end, (P) perf., (S) screen, (T) sd. pt., (W) shored, (X) open hole, (Z) other SLOTTED F

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot. (circled), (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other H

Date Drilled: APRIL-1948 948 Pump intake setting: 160 ft

Driller: TEXAS WATER WELLS CO., INC HOUSTON, TEX.

Lift (type): (A) air, (B) bucket, (C) cent., (J) jet, (L) multiple (cent.), (M) multiple (turb.), (N) none (circled), (P) piston, (R) rot, (S) submerg, (T) turb (circled), (Z) other NT Deep Shallow D

Power (type): diesel (circled), elec, gas, gasoline, hand, gas, wind; H.P. ~~150HP T-D~~ NONE N Trans. or meter no.

Descrip. MP Lower Edge of Port Hole +0.5 ft above below LSD Alt. MP

Alt. LSD: 80± 80 Accuracy: (source) TOPO 5' 3

Water Level 77.65 ft above below MP; ft above below LSD 77 Accuracy: MC&S A

Date meas: 1-5-52 252 Yield: — gpm Method determined

Drawdown: — ft Accuracy: — Pumping period — hrs

QUALITY OF WATER DATA: Iron ppm Sulfate ppm Chloride ppm Hard. ppm

Sp. Conduct K x 10^6 Temp. °F Date sampled

Taste, color, etc.

Well No. LJ-65-20-201

Attachment 14c

Well No. LJ-65-[illegible]-201

Latitude-longitude 29, 42, 59 (N) S 095, 33, 52
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD | Physiographic Province: COASTAL PLAINS | 03 | Section:

F | Drainage Basin: | 51 R | Subbasin:

Topo of well site: (D) depression, (C) stream channel, (E) ducas, (F) flat, (H) hilltop, (K) sink, (L) swamp, (O) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat

MAJOR AQUIFER: system, series Q, aquifer, formation, group C

Lithology: | Origin: | Aquifer Thickness: ft

Length of well open to: 310 ft | Depth to top of: 310 ft

MINOR AQUIFER: system, series, aquifer, formation, group

Lithology: | Origin: | Aquifer Thickness: ft

Length of well open to: ft | Depth to top of: ft

Intervals Screened: 80-105, 175-230, 250-305, 355-385, 420-440, 460-480, 495-600

Depth to consolidated rock: ft | Source of data:

Depth to basement: ft | Source of data:

Surficial material: | Infiltration characteristics:

Coefficient Trans: gpd/ft | Coefficient Storage:

Coefficient Perm: gpd/ft²; Spec cap: gpm/ft; Number of geologic cards:

250' – 20" csg.
353' – 13" csg.

Well No. LJ-65-20-201

GPO 857-700

Attachment 14c

Apr 12, 2000

TEXAS WATER DEVELOPMENT BOARD
GROUND WATER DATA SYSTEM

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Harris

WELL	OWNER	LATITUDE	LONGITUDE	DATE COM-PLETED	DEPTH OF WELL (FT.)	CASING AND SCREEN DATA: CASING OR SCREEN	CASING AND SCREEN DATA: DIAM-ETER (IN.)	CASING AND SCREEN DATA: TOP DEPTH (FT.)	CASING AND SCREEN DATA: BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	WATER LEVEL: MEASURE-MENT FROM LSD (FT.)	WATER LEVEL: DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
65-20-201	R.E. Smith	294259	953352	1948	603					112CHCT	80	-107.90 -96.80	06-16-1966 12-09-1969	N	U	310 ft of slotted casing beteen 80 and 600 ft. Formerly used for rice irriagion.
65-20-202	R.E. Smith	294305	953306	1948	618					112CHCT	80			N	U	282 ft of slotted casing between 90 and 615 ft. Formerly used for rice irrigation.
65-20-203	Andrau Airpark	294333	953432	1949	699					112CHCTL	81	-81.20 -209.01	09-21-1949 01-27-1986	T G	N R	275 ft of slotted casing between 177 and 693 ft. Reported yield 1950 with 45 ft drawdown when drilled. Fills canal for float airplane. Formerly used for rice irrigation.
65-20-208	City of Houston Briargrove Park	294427	953306	1960	750					112CHCT	88	-154.00 -341.00	07-25-1960 05-22-1998	T E 100	P	152 ft of screen between 467 and 732 ft. Measured yield 710 gpm with 49 ft drawdown Sept 30,1968.
65-20-209	Western Atlas Intl. Westheimer	294356	953316	1956	681					112CHCT	79	-137.00	11-01-1956	T E 60	N	105 ft of screen between 428 and 671 ft. Reported yield 530 gpm with 56 ft drawdown when drilled.
65-20-210	City of Houston Walnut Bend	294439	953347	1959	465					112CHCTL	78	-123.00 -210.41	06-00-1959 01-13-1986	T E 40	P	60 ft of screen between 334 and 455 ft. Measured yield 532 gpm with 12 ft drawdown Sept.30,1968.
65-20-212	J.C. Hastings	294258	953353	1913	80					112CHCT	81			N	U	Bored well. Open end well.
65-20-214	Mrs. Nellie E. Rodgers	294337	953336	1913	100					112CHCT	82			N	U	Well destoryed.
65-20-216	City of Houston Wilcrest	294440	953418	1968	1312					121EVGL	79	-241.00 -381.12	10-14-1968 01-14-1986	T E	P	160 fto of screen between 820 and 1300 ft. Reported yield 1012 gpm with 49 ft. drawdown when drilled.
65-20-217	Mike albanese	294459	953436	1937	228					112CHCT	82	-27.70	12-10-1938	N	U	Screen from 208 ot 228 ft. Well destroyed.

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Harris

WELL	OWNER	LATITUDE	LONGITUDE	DATE COMPLETED	DEPTH OF WELL (FT.)	CASING AND SCREEN DATA				WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	WATER LEVEL		METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
						CASING OR SCREEN	DIAMETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)			MEASUREMENT FROM LSD (FT.)	DATE			
65-20-218	City of Houston Walnut Bend	294439	953347	1960	1300					121EVGL	79	-193.50 -297.00	02-11-1966 01-20-1989	T E 150	P	160 ft of screen between 660 and 1265 ft. Measured yield 1225 gpm with 44 ft drawdown Sept 27,1968.
65-20-220	Houston Shell and Concrete Co.	294304	953401	1966	514					112CHCTL	80			S E 25	N	
[illegible]	Western Atlas Intnl. Westheimer	294354	953317	1971	873					112GLFC	78			T E 40	N	
65-20-223	City of Houston TW-3	294301	953336	1939	1810					121EVGL	80			N	U	Test well. Well destroyed.
[illegible]	City of Houston Braes Vill. Dist 51-1	294236	953422	1974	1075	C S	20 12	0 665	655 1065	112CEVG	77	-365.00 -261.55	01-15-1985 01-30-1998	T E	P	Reported yield 1,350 gpm with 20/ ft drawdown when drilled. Test hole drilled to 1,205 feet. Owner's well, Braes Village District 51-1.
[illegible]	City of Houston District 71	294458	953436	1972	1356					121EVGL	80	-273.00 -479.00	02-09-1972 05-22-1998	T E	P	Owner District 71, well #1. Reported yield 1500 gpm with 80 ft drawdown.
[illegible]	City of Houston Dist 51	294301	953418	1979	1610					121EVGL	80	-384.85 -394.00	02-14-1986 05-22-1998	T E	P	Owner H.U.D. 51, well #2.

000019

Attachment 14c

Apr 12, 2000

TEXAS WATER DEVELOPMENT BOARD
GROUND WATER DATA SYSTEM

TABLE OF AQUIFER CODES AND AQUIFER NAMES USED
COUNTY - Harris

USGS CODE	AQUIFER NAME
112CEVG	CHICOT AND EVANGELINE AQUIFERS
112CHCT	CHICOT AQUIFER
112CHCTL	CHICOT AQUIFER,LOWER
112GLFC	GULF COAST AQUIFER
121EVGL	EVANGELINE AQUIFER

Attachment 14c

TEXAS DEPARTMENT OF WATER RESOURCES

WELL SCHEDULE

Aquifer(s) Evangeline Project No. _____ State Well No. 65-20-222

_____ Field No./Owner's Well No. 2 County Harris

1. Location: ___ ¼, ___ ¼, Section ___, Block ___, Survey _____, Lat. _____, Long. _____

2. Owner: Oresser Ind Address: _____

Tenant (other): _____ Address: _____

Driller: Texas Water Wells Address: _____

3. Land Surface Elevation: 78 ft. above msl determined by _____

4. Drilled: Jan 19 71 ; Dug, Cable Tool, Rotary, Air, _____

5. Depth: Rept. 873 ft. Meas. _____ ft.

6. Borehole Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. _____ Type T

No. Stages ____, Bowls Diam. ____ in., Setting _____ ft.

Column Diam. _____ in., Length Tailpipe _____ ft.

8. Motor: Mfr. _____ Fuel E HP. 40

9. Yield: Flow ____ gpm, Pump ____ gpm, Meas., Rept., Est. ____ Date ____

10. Performance Test: Date 2/13/71 Length of Test ____ Made by TWW

Static Level 238 ft. Pumping Level 290 ft. Drawdown 52 ft.

Production 350 gpm Specific Capacity _____ gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.) _____

Analyses

Date _____ Laboratory _____ TDS ____ Sp Cond ____

Date _____ Laboratory _____ TDS ____ Sp Cond ____

12. Other data available (as circled): Pumping Test, Power & Yield Test, (Drillers Log), Formation Samples, (Geophysical Log(s)) @1518 (type)

CASING, BLANK PIPE & WELL SCREEN
Cemented From ____ ft. to ____ ft.

Diam. (in.)	Type	Setting (feet) from	to
10			707
6			873

13. Water Level(s): ____ ft. rept. meas. ____ 19 ___ above/below _____ which is ____ ft. above/below Land Surface

_____ ft. rept. meas. ____ 19 ___ above/below _____ which is ____ ft. above/below Land Surface

14. Use: Dom., Stock, Public Supply, (Ind.), Irr., Observation, Other (Test Hole, Oil Test, etc.) _____

15. Recorded by: _____ Source of data: _____ Date: _____

16. Remarks: _____

17. Location or Sketch:

TDWR-0308

00021

W/L Obs. Well ___ W/Q Obs. Well ___

State Well No. ___ - ___

Attachment 14c

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 12386
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 65-20-
Located on map
Received:

1) OWNER:
Person having well drilled Drasser Industries (Name) Address Houston, Texas (Street or RFD) (City) (State)
Landowner Same (Name) Address Same (Street or RFD) (City) (State)
Water Well #2

2) LOCATION OF WELL:
County Harris, miles in (N.E., S.W., etc.) direction from (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

10201 Westheimer
Gulf Oil
North
(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.
Labor Leagues
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): X New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, X Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): X Rotary, Driven, Bug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 10-3/4 in. Depth drilled 1005 ft. Depth of completed well 876 ft. Date drilled 1/1971
All measurements made from 3 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Rotary to Ground
3	30	Clay
30	42	Shale
42	52	Sand
52	57	Gravel
57	100	Shale
100	126	Sand
126	139	Shale
139	166	Sand
166	229	Sand & Shale
229	242	Sand

(Use reverse side if necessary) (OVER)

9) Casing: Type: Old, X New, Steel, Plastic, Other
Cemented from Surface ft. to 710 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
6-5/8	690	716	Blank
"	740	778	"
"	824	846	"
"	870	876	"

10) SCREEN: Type S.S. Rib Type Screen
Perforated, X Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
6"	716	740	.045 ga.
"	778	824	.045 "
"	846	870	.045 "

7) COMPLETION (Check): Straight wall, X Gravel packed, Other, X Under reamed, Open Hole

8) WATER LEVEL:
Static level 238 ft. below land surface Date 2/18/71
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 400 ft. below land surface.

11) WELL TESTS:
Was a pump test made? X Yes, No If yes, by whom? Texas Water Wells, Inc.
Yield: 350 gpm with 52 ft. drawdown after 8 hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? X Yes, No
Did any strata contain undesirable water? Yes, X No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME A. E. Fawcett, Jr. (Type or Print) Water Well Drillers Registration No. 82
ADDRESS 3611 N. McCarty (Street or RFD) Houston, Texas 77029 (City) (State)
(Signed) A. E. Fawcett Jr. (Water Well Driller) Texas Water Wells, Inc. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

Additional instructions on reverse side.

COPY MAILED TO WELL OWNER

D-1518
65-20-222

00022

Attachment 14c

2) LOCATION OF WELL:

The sketch showing the well location must be as accurate as possible, showing landmarks, in sufficient detail so that the well may be plotted on a General Highway Map of the county in which the well is located.

Reference points from which distances are measured and directions given should be of a permanent nature (e.g. highway intersections, center of towns, river and creek bridges, railroad crossings). The distance and direction from the nearest town should always be indicated.

When giving a legal description include a sketch showing location of the well within the described area, e.g. survey abstract.

Information furnished in Section 2) of the TWDBE-GW-33 is very important. Unless the well can be accurately located on a map the value of the other data contained in the Report is greatly reduced.

From	To	Formation
242	270	Shale
270	307	Sand
307	309	Hard Strks.
309	321	Shale
321	330	Sand Strks Shale
330	402	Sand
402	425	Sandy Shale
425	455	Sand
455	510	Shale
510	530	Sand & Gravel
530	577	Sand
577	595	Shale
595	618	Shale & Strks Sand
618	668	Sand
668	715	Shale
715	738	Sand
738	745	Shale
745	755	Sand
755	773	Shale
773	825	Sand
825	845	Shale
845	850	Sandy Shale
850	860	Sand
860	920	Shale
920	967	Sand
967	977	Sand & Lime Strks.
977	1005	Shale

Rev. 11 1966

U. S. DEPT. OF THE INTERIOR — WELL SCHEDULE — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

LJ 65-20-224

MASTER CARD

1:24000

Record by D. BUTLER Source of data D. RECORD Date 11-23-76 Map Alief 1970

State TEXAS 36 | 48 County (or town) HARRIS 201 | LJ

Latitude: 29 42 37 N (deg, min, sec) Longitude: 095 34 22 (degree, min, sec) Sequential number: 1

Lat-long accuracy: N E T S, R W, Sec , , ,

Local well number: LJ-65-20-224 Other number: B & M

Local use: Owner or name: HARRIS CO. M.U.D. #51

Owner or name: HCMUD NO 51 Address: 1-6 m W of city limits

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist — W

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (G) Dom, (I) Irr, (M) Ind, (N) P S, (P) Rec, (R) Stock, (S) Inactive, (T) Unused, (U) Repressure, (W) Recharge, (X) Desal-P S, (Y) Desal-other, (Z) Other — P

Use of well: (A) Anode, (D) Drain, (G) Seismic, (H) Heat Exc, (O) Obs, (P) Oil-gas, (R) Recharge, (T) Test, (U) Unused, (W) Withdrew, (X) Waste, (Z) Destroyed. — W

DATA AVAILABLE: Well data Freq. W/L meas.: Field aquifer char.

Hyd. lab. data:

Qual. water data; type:

Freq. sampling: 10-74 LAYNE WESTERN CO. Pumpage inventory: yes no Period:

Aperture cards: yes

Log data: D-log 0-1210'

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 1210 drilled 1080 compl. ft 1080 Meas. rept accuracy 3

Depth cased: (first perf.) 670 ft 670 Casing type: steel ; Diam. 20-12 in 20

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (O) open end, (P) perf., screen, (S) ed. pt., (T) shored, (W) open hole, (Z) other — G

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other — H

Date Drilled: 8-74 9 7 4 Pump intake setting: 470 ft 470

Driller: LAYNE-WESTERN CO., INC. (name) KATY, TEXAS 77450 (address)

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple (cent.), (M) multiple (turb.), (N) none, (P) piston, (R) rot, submerg, (T) turb, (Z) other — T Deep Shallow

Power (type): diesel, elec, nat gas, gasoline, hand, gas, wind; LP; H.P. 5 Trans. or meter no.

Descrip. MP ft above below LSD, Alt. MP

Alt. LSD: 77 7 7 Accuracy: (source) TOPO 5' 3

Water Level 258 ft above below MP; Ft above below LSD 2 5 8 Accuracy: REPT. G

Date meas: 10-74 0 7 4 Yield: gpm Method determined

Drawdown: ft Accuracy: Pumping period hrs

QUALITY OF WATER DATA: Iron ppm Sulfate ppm Chloride ppm Hard. ppm

Sp. Conduct K x 10^6 Temp. °F Date sampled

Casts, color, etc.

Well No.

00024

Attachment 14c

LJ65-20-224

Latitude-longitude d m s N S d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD | Physiographic Province: COASTAL PLAIN | 0 3 | Section:

F | Drainage Basin: | 5 1 K | Subbasin:

Topo of well site: (D) depression, (C) stream channel, (E) dunes, (F) flat, (H) hilltop, (K) sink, (L) swamp, (O) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat | F

MAJOR AQUIFER: system, series | Evangeline aquifer, formation, group | E

Lithology: | Origin: | Aquifer Thickness: ft

Length of well open to: 400 ft | 4 0 0 | Depth to top of: ft

MINOR AQUIFER: system, series | Lower Chicot aquifer, formation, group | C L

Lithology: | Origin: | Aquifer Thickness: ft

Length of well open to: ft | Depth to top of: ft

Intervals Screened: 670-1070' SSWW

Depth to consolidated rock: ft | Source of data:

Depth to basement: ft | Source of data:

Surficial material: | Infiltration characteristics:

Coefficient Trans: gpd/ft | Coefficient Storage:

Coefficient Perm: gpd/ft^2; Spec cap: gpm/ft; Number of geologic cards:

20" OD TO 660'
12" from 670-1070'.

storage tank + fence
Gate Locked.

Well No.

GPO 857-700

Attachment 14c

Dup

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 65-20-226
Located on map yes
Received: 75

1) OWNER:
Person having well drilled L. C. Loper & Associates (Name) Address 4189 Bellaire Blvd. (Street or RFD) Houston (City) Texas (State)

Landowner Harris Co. MUD No. 51 (Name) Address 4189 Bellaire Blvd. (Street or RFD) Houston (City) Texas (State)

2) LOCATION OF WELL:
County Harris, 1.6 miles in W (N.E., S.W., etc.) direction from Houston City Limits (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey Reynolds-Reynol
Abstract No. 662
[redacted] of Section _____

3) TYPE OF WORK (Check):
New Well X | Deepening | Reconditioning | Plugging

4) PROPOSED USE (Check):
Domestic | Industrial | Municipal X | Irrigation | Test Well | Other

5) TYPE OF WELL (Check):
Rotary X | Driven | Dug | Cable | Jetted | Bored

6) WELL LOG:
Diameter of hole 24 in. Depth drilled 1210 ft. Depth of completed well 1080 ft. Date drilled 6/74
All measurements made from 5 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
		SEE ATTACHED

(Use reverse side if necessary)

9) Casing:
Type: Old | New X | Steel X | Plastic | Other
Cemented from 0 ft. to 660 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
20	0	660	.375 W.T.

10) SCREEN:
Type Stainless Steel Wire Wrapped
Perforated | Slotted X

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
12	670	1070	.035

7) COMPLETION (Check):
Straight wall | Gravel packed X | Other
Under reamed X | Open Hole

8) WATER LEVEL:
Static level 258 ft. below land surface Date 10/74
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 470 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes X No If yes, by whom? Layne-Western Company, Inc.
Yield: 1,350 gpm with 865 ft. drawdown after 48 hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes X No
Did any strata contain undesirable water? Yes No X
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME James O'Connor (Type or Print) Water Well Drillers Registration No. 999

ADDRESS P. O. Box 278 (Street or RFD) Katy (City) Texas 77450 (State)

(Signed) James O'Connor (Water Well Driller) Layne-Western Company, Inc. Katy Division (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDB-GW-53

L GW

65-20-224

00026

Attachment 14c

2) LOCATION OF WELL:

The sketch showing the well location must be as accurate as possible, showing landmarks, in sufficient detail so that the well may be plotted on a General Highway Map of the county in which the well is located.

Reference points from which distances are measured and directions given should be of a permanent nature (e.g. highway intersections, center of towns, river and creek bridges, railroad crossings). The distance and direction from the nearest town should always be indicated.

When giving a legal description include a sketch showing location of the well within the described area, e.g. survey abstract.

Information furnished in Section 2) of the TWDBR-CH-33 is very important. Unless the well can be accurately located on a map the value of the other data contained in the Report is greatly reduced.

DRILLER'S LOG

Job M 144

0 - Surface
4 - Clay
39 - Sand
45 - Clay & Sand Stripes
80 - Sand
128 - Clay & Rock
135 - Clay & Sand
160 - Clay
185 - Sand & Rock
195 - Clay
215 - Sand
360 - Clay & Rock
370 - Sand & Rock
545 - Clay
555 - Sand & Rock
617 - Clay
625 - Sand
649 - Clay
665 - Sand & Clay Stripes
720 - Clay
730 - Sand & Rock
810 - Clay
826 - Sand & Rock
875 - Clay
903 - Sand & Rock
927 - Clay & Sand Stripes
980 - Sand & Rock
1027 - Clay
1170 - Sand & Rock
1209 - Clay

PART II

(9) TRANSPORTATION/TRUCKS

(A) Access Roads - Adequate. Westpark is sixty foot wide concrete City road, built to withstand heavy truck traffic.

(B) Current truck volume on Westpark - Heavy due to concrete industry next door, heavy bus traffic, heavy 18 wheeler traffic due to piping industry across the street, and double axle trucks at Airborne Express transfer facility next door. It is estimated that thousands of trucks enter the one mile area each day, via Beltway 8.

(C) Trucks per day at proposed facility - Thirty to fifty trucks (single axle bobtails and double axle tandem - 2,000 to 5,000 gallon capacity) are anticipated each business day. The proposed site has had heavy truck traffic going past the site on Westpark due to one of Houston's largest concrete facilities being the immediate neighbor to the west and the freight handled by Airborne express and the pipe company. The truck traffic, in terms of the number of trucks will not be significantly different than the status quo. The facility will generate less than 1% of the truck traffic in the area of a one mile radius.

(D) Impact of Facility upon Airports - None. The closest airport is more than 5 miles away. The facility will not generate any airport traffic or use.

PART II

(10) GENERAL GEOLOGY AND SOILS STATEMENT

(A) Geology and soils statement - EPA Report
(B) Fault areas - None
(C) Seismic impact zones - None
(D) Unstable areas - None

Contained in Part I - "Additional Requirements":
EPA Report on neighboring Superfund Site and surrounding sites - contains soils tests.

Completely Revised 080902

PART II

(11) GROUND AND SURFACE WATER STATEMENT

(A) Ground water conditions - EPA Report
(B) Surface water - None

Contained in Part I - "Additional Requirements":
EPA Report on neighboring Superfund Site and surrounding sites - contains ground water tests.

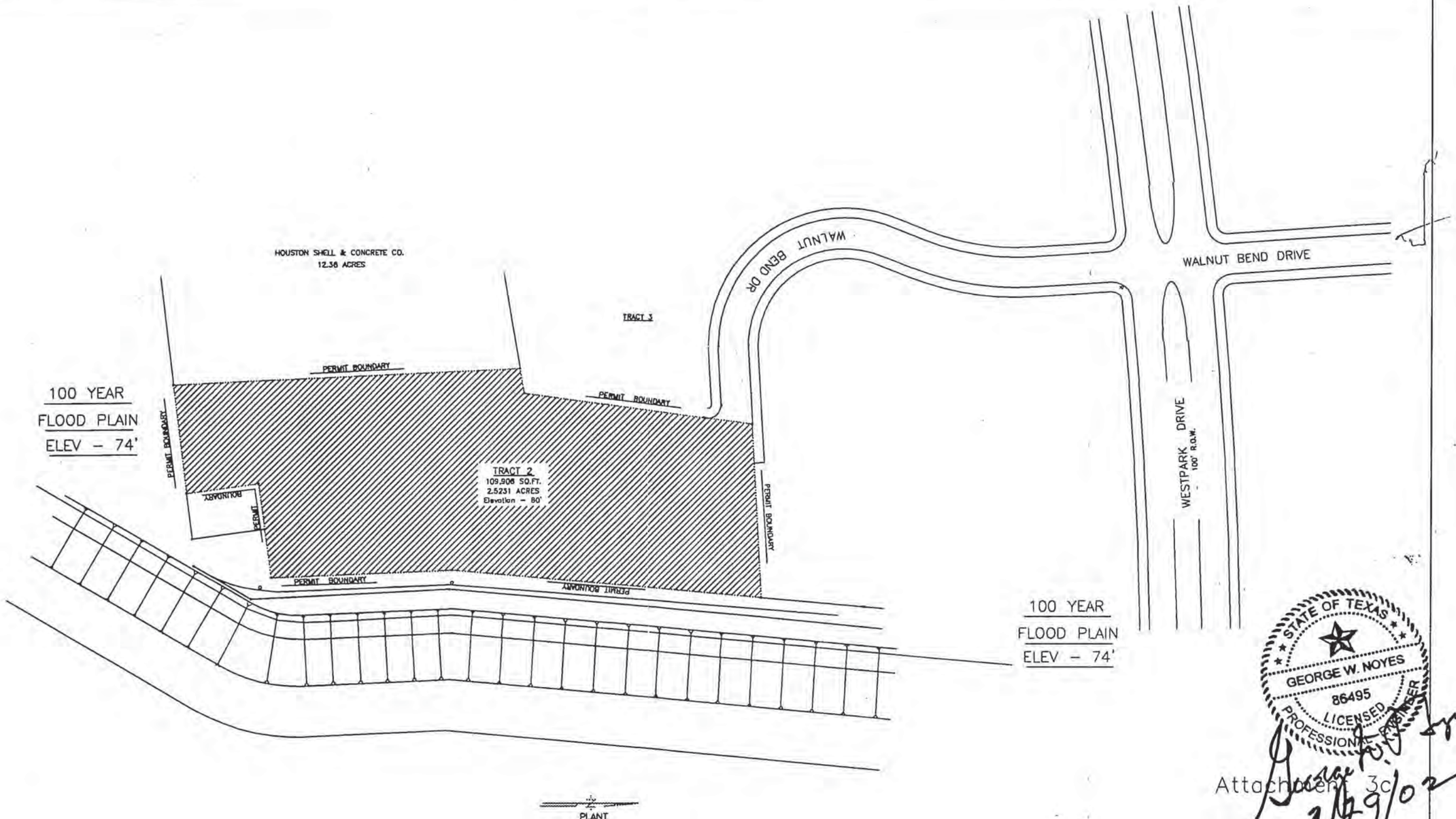
Completely Revised 080902

PART II

(12) FLOOD PLAINS AND WETLANDS

(A) Flood plain - Not in 100 year flood plain
(B) Wetlands - None

Contained in Part I - "Additional Requirements":
Flood Plain Map



SITE PLAN

SCALE: 0'-1" = 40'-0"

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

3/19/02

Attachment 3c

This Document is Sealed
for Permitting Purposes Only

NO.	REVISION	DATE
-	-	-

B.R. PERRIN PLANT
100 Year Flood Plain
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMETAL, L.L.C.

SCALE: AS SHOWN	DRAWN BY: DCN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE105

PART II

(13) IMPACT ON ENDANGERED SPECIES & WILDLIFE - None

No impact on wildlife. The site was already cleared for construction when leased by the Applicant. A MSW Type V Facility has been built on the site in question. There is no wildlife on the site.

Part III

(Redline Copy)

PART III

TITLE PAGE - MSW #2298

Project Name:

DOWNSTREAM ENVIRONMENTAL, LLC

B. R. Perrin Plant

3737 Walnut Bend

Houston, Harris County, Texas 77042

Prepared for:

THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
MUNICIPAL SOLID WASTE DIVISION

NAME OF APPLICANT:	**DOWNSTREAM ENVIRONMENTAL, LLC** 2044 Bissonnet Houston, TX 77005
PROPERTY OWNER:	Group Two Partners, LLP 2044 Bissonnet Houston, Texas 77005
CONSULTING ENGINEER:	George W. Noyes 1657 Oak Tree Drive Houston, Texas 77080
TYPE OF FACILITY:	Type V Municipal Solid Waste Processing Grit, Septage and Grease Trap Treatment Facility
WASTE TO BE ACCEPTED:	Grease Trap Waste, Grit Trap Waste and Septage
ORIGINALLY SUBMITTED:	April 3, 2002
REVISED AND SUBMITTED:	October 17, 2002

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

Revised
4/24/03

PART III - §330.54(a)

TABLE OF CONTENTS

TECHNICAL REQUIREMENTS OF THE APPLICATION

PART III - §330.55(a)

SITE DEVELOPMENT PLAN

TABLE OF CONTENTS

[Note: The format of this material follows that given in the regulations, sections 330.55 & 330.59, regardless of whether any particular part does not apply to this proposed facility. If something does not apply, it is simply so stated.]

Revised 4/24/03

		Page
(B)	Color - N/A	6
(C)	Boundary - N/A	6
(D)	Buffer Zone - N/A	6
(E)	Easements - N/A	6
(F)	Grade - N/A	6
(G)	SLER & FMHER - N/A	6
(H)	Flood - N/A	6
(I)	Trenches - N/A	6
(J)	Benchmark - N/A	6

Revised
4/24/03

PART III - §330.55(a)

SITE DEVELOPMENT PLAN

NOTE: The format of this material follows that given in the Regulations, §330.55 and 330.59, regardless of whether any particular part does not apply to this proposed facility. If something does apply, it is simply stated so and if something does not apply, it is noted by "N/A" not applicable.

(a) Elements of the Site Development Plan

(1) Landfill method proposed - N/A

(2) All weather road - concrete driveways are used throughout the facility and a concrete road is used for ingress and egress. Because the site is less than 200 acres, the applicable section is 330.55(b)(5)(a), which calls for "Time of run-off concentration as defined within the said manual generally shall not be less than 10 minutes for rainfall intensity determination purposes," i.e., 10 minute, 24 hour Storm Event.

(3) Fencing - Fencing will be used on the entire parameter of the facility. A six foot chain link fence with an addition two foot of barbed wire strand barrier will be used on the east boundary and on the south boundary. On the west boundary and on the north boundary, a six foot privacy fence will be used to comply with deed restrictions.

(4) Estimated rate of SW deposition and life of facility - N/A.

(5) Drink water protection - N/A. No active water wells are on or around the site. City water is provided to the entire Westchase area.

(b) Information necessary to document compliance.

(1) This facility will not cause:

(A) Discharge of MSW or pollutants into off site waters

(B) Discharge of pollutants into U.S. waters

(C) Discharge of dredged or filled material into U.S. waters

(D) Discharge of non-point source pollution into U.S. waters

(2) Runoff prevention on to the project site - Surface drainage in and around the facility will be controlled to minimized surface water running into and off the process areas. There will be virtually no risk of ground water contamination due to concrete containment system per tank, storage and loading areas. Wash waters will be collected and treated by the facility itself and discharged into the City of Houston's wastewater system. All wash waters will be confined to grated areas with concrete. Concrete spill containment walls and pads will surround tankage process and loading areas. No contaminated waters will be discharged from this site. Ground water monitoring is not applicable to this site. The facility itself is not in a 100 year flood plain. All waste water discharged from the facility to the City of Houston's wastewater plant will meet the requirements for discharge in the City of Houston.

Completely Revised
08/09/02

(3) Runoff management and runoff prevention from the project site - Any plant wash water or spillage will be washed into a closed loop drainage and pumped back into the plant's storage tank. High pressure wash hoses will be used for site clean up. Vacuum equipment will be available to clean up any spills whether they are on the site itself or on the ingress or egress road. The facility will include a truck washing area, where truck tanks will be washed out. The wastewater from truck washings will be collected and pumped back into the facilities' intake receiving tank. In the event of a large amount of spillage from a truck on the ingress or egress road or on the loading area or driveway area, a commercial vacuum truck will be dispatched to pump up the spill and the waste will be discharged and processed in the facility itself

(4) Protective dike sizing - ~~N/A~~Secondary containment calculations are provided in Appendix 23 and show that existing dikes are adequately sized for outside tank storage volumes.

(5) Drainage calculations - For 2.5~~4~~ acre site~~ N/A~~

(A) Details of calculation procedure - ~~N/A~~Peak stormwater flow was calculated using WinTR-55 software published by the Natural Resources Conservation Service (NRCS) (formerly Soil Conservatio n Service [SCS]). The calculation assumed an average curve number of 87 over the 2.5-acre site and a rainfall depth of 9.6 inches corresponding to the 25-year, 24-hour storm. The peak flow rate based on these conditions is 14.1 cubic feet per second (cfs), assuming a single stormwater discharge point.

(B) Calculations - ~~N/A~~Output from the WinTR-55 software is provided.

(C) Dike design details – ~~N/A~~Dike heights required to satisfy secondary containment requirements are provided in Attachment 23.

(D) Sample drainage calculations – ~~N/A~~Output from the WinTR-55 software is provided in.

(E) Erosion control practices - ~~N/A~~Stormwater run-off is routed to one of two discharge points located along the eastern fenceline for the facility. Where stormwater velocities are the highest, crushed rock 3 to 6 inches in diameter has been placed to dissipate energy from stormwater flow and minimize potential erosion and scour. Stormwater is routed directly to a tributary to the Brazos Bayou, located approximately 75 feet east of the fenceline, across a shared use path.

(6) Waste disposal of collected surface water shall be accomplished by pumping the wastewater back into the facility intake receiving tank.

(7) Flooding protection - ~~N/A~~The facility is designed to control rainfall run-off. Minimal run-on is anticipated based on surrounding topography.

(A) Solid ~~stash wash out protection~~ waste detention - ~~N/A~~Solid wastes generated during processing of liquid feedstock are stored within 30-cubic yard rolloff containers. These containers mitigate the potential for solid waste to be conveyed off-site during a rainfall event.

(B) Freeboard provided - ~~N/A~~Secondary containment is provided sufficient to hold the largest tank volume and the volume of precipitation expected in a 25-year, 24-hour storm. Freeboard is provided above the design secondary containment volume.

(C) Levies and any 100 year flooding potential - According to the Federal Emergency Management Agency (FEMA) map, Panel 48201C0830L, panel 830 of 1150, dated June 18, 2007, the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.~~The facility is not in the 100 year flood plain. N/A~~

(8) Design and final cover - N/A

(A) Estimated peak velocities - N/A

(B) Top surfaces and slopes - N/A

(C) Details for final cover - N/A

(9) Endangered species concerns - None, site already has an existing MSW facility on it

(10) Landfill markers.

(A) Marker placement - N/A

(B) Marker color - N/A

(C) Site boundary marker- N/A

(D) Buffer Zone - N/A

(E) Easements - N/A

(F) Grid System - N/A

(G) SLER & FMLER markers - N/A

(H) Flood Protection Markers - N/A

(I) Trenches - N/A

(J) Permanent Benchmark - N/A

PART III

330.59 ADDITIONAL TECHNICAL REQUIREMENTS OF THE APPLICATION FOR SOLID WASTE PROCESSING TYPE V SITES

(a) This Section applies to all Type V sites that require a permit.

(b) The Site Development Plan includes the following:

(1) Process Description

(A) Narrative -FACILITY OPERATION

During operation (i.e., unloading, loading or processing) of this facility, the owner, plant manager, site supervisor, or trained plant personnel will be on site at all times. Registered transporters will bring waste to the facility in enclosed trucks. ~~Waste may be received by pumping or gravity flow, depending upon type and solid content~~. Grease trap waste will be processed for separation of the contained greases and oils, solids and water. Grit trap and septage wastes will be processed to separate water, solids and oils.

Waste will be ~~brought~~ transported to the facility and off-loaded ~~using the truck pump to blow waste and/or by pumping to the receiving dock~~in the three-bay truck unloading area under a canopy cover. ~~Waste in storage will be pumped to a separator~~ Trucks will be hooked up, by a flex hose, to a manifold that transfers the contents of the truck to a rotating screen for solids removal.

~~A primary concern is to remove, as early as possible in each of the two primary processes, all solids, oils, fats and extraneous materials that are not liquid waste. A classifier process eliminates any rocks or other foreign matter from the waste stream into the roll-off box. This protects the subsequent pumps from damage. Upon off-loading from the trucks, the waste material is sent immediately into the dewatering system. The dewatering system is a mechanical screen system. The screen system is described in detail in the specifications.~~

~~30,000~~ Solids separated by the rotating screen are collected in a hopper. Liquids are transferred to 21,000-gallon storage tanks ~~will be~~ used to accept the raw material. From these receiving tanks, wastewater is pumped to a mix tank for pH adjustment through amendment with lime. The adjusted wastewater is then transferred to a belt press for additional solids removal. Polymers are added to this waste stream, as needed, to improve belt press performance. Located immediately outside the main process containment area but inside a curbed containment area, roll-off boxes accept solids

from the belt press process. Roll-off boxes are covered with a tarp when not actively receiving solids.

Wastewater from the belt press process is pumped to aerated equalization tanks, which gravity drain to a dissolved air flotation (DAF) system rated for a maximum flow of 250 gallons per minute (gpm). Treated effluent from the DAF is routed either directly to the City of Houston sewer or to a recycled water tank, as needed to clean the belt press. ~~The wastewater stream is skimmed to remove the available free oil for recycling. After the solids are separated, using mechanical screening and centrifugal separation, the wastewater stream is then sent to an oil/water separator and two (2) DMR tanks specifically designed for high strength wastewater. The DMR aerobic systems biologically oxidized the volatile contaminants while continuously filtering the throughput. The aerobic systems biologically raise the pH to 7.8. From there, the water is continuously recirculated in the final discharge storage tank and durther reduced using Ozone technology.~~

Grit wastes are received in a separate dewatering area, which is also covered with a canopy. The area is lined in concrete, including a new 6-inch berm located at the edge of the facility pavement, and is sloped from north to south. Wastewater flows over a concrete weir into a sump in the southern end of the containment area, which is then transferred through the grit treatment system using a sump pump. Rated for a maximum flow of 50 gpm, the grit treatment system includes an oil-water separator, bag filters for solids removal, and a sand filter. Treated wastewater is discharged directly to the City of Houston sewer. Solids are transferred to a roll-off box located immediately west of the dewatering area.

Fat, oil, and grease (FOG) waste is collected and processed within the process building. Solids are removed from incoming waste using either a filter or a decanter centrifuge. Liquids are then transferred to process tanks, which are heated with a boiler. FOG materials slowly separate from water and other materials and are ultimately transferred to finish tanks located between the process building and the covered truck unloading area.

(B) Alternate Plan - N/A

(C) Incineration - N/A

(2) Sanitation. Proper cleaning will be accomplished as follows:

(A) Adequate surface drainage control

(B) Construction of walls - is concrete block that can be scrubbed or hosed down

(C) Necessary Cleaning of Equipment - Will be provided as follows: Water hoses, steam cleaning machine, high pressure hoses, standard mops, brooms and detergents for bath, lab and shower, sump pumps, rubber boots for workers.

(D) Adequate floor drains to wash the area will be provided. The drains are in a closed loop system so that wash water will be disposed of in the facility itself.

(3) Water pollution control.

(A) All liquids resulting from the operation of solid waste processing facilities shall be disposed of in a manner that will not cause surface or ground water pollution. The facility shall provide for the treatment of its own wastewaters resulting from the process or from cleaning and washing. The procedure for wastewater disposal is in compliance with the Rules and Regulations of the Commission.

(B) Surface drainage in and around the facility will be controlled to minimize surface water running onto, into and off the process areas. There will be virtually no risk of ground water contamination due to concrete containment system for tank, storage and loading areas. Wash waters will be collected and treated by the facility itself and discharged to the City of Houston's wastewater system. All wash waters will be confined to graded areas with concrete. Concrete spill containment walls and pads will surround tankage, process and loading areas.

No contaminated waters will be discharged from this site. Groundwater monitoring is not applicable to this site. This facility itself is not in the 100 year flood plain.

All wastewater discharged from the facility to the City of Houston's wastewater plant and will meet the requirements for discharge in the City of Houston. Any plant wash water or spillage will be washed into closed loop drainage and pumped back into the plant's storage tank. High pressure wash hoses will be on site for clean-up. Vacuum equipment will be available to clean-up any spills.

The facility will include a truck washing area, where truck tanks will be washed out. The wastewater from truck washings will be collected and fed back into the facility's grit basin.

All tankage associated with waste processing are inside the building or surrounded with a secondary containment capable of holding the contents of the tank plus rain from the 24-hour 25-year storm event plus reasonable freeboard. The waste receiving/pre-treatment solid separation area is

covered so that no direct precipitation will come in contact with waste material. During the construction of the facility, the area will be graded such that surface runoff from the operating area is directed to drainage conveyances designed to handle the flow from the 24-hour 25-year storm event. The rest of the facility will be contoured such that direct precipitation will sheet flow off the facility towards the street. Facility drawings shows the drainage patterns and the drainage conveyances.

Completely Revised
08/09/02

(4) AIR POLLUTION CONTROL AND ODOR CONTROL

(A) The construction and operation of Type V sites may require a Texas Air Control Board Permit. However, in the case of this Applicant, a Texas Air Control Board Permit is not required.

(B) The facility has been designed to prevent nuisance odors from leaving the property boundary. The area of the facility with the greatest potential to generate odor is the receiving tank, into which the waste is unloaded from the trucks and solids are separated. To control odors, the receiving tank is covered. The tanks are immediately evacuated into the separation area. The roll-off box handling the sludge materials is also covered. The roll-off box will be in a building that has a roof and has no open sides. Within the roof area of the building will be odor control equipment. The odor control equipment as well as the ventilation will provide air exchanges approximately every six minutes. Air discharges from the building will be routed through an odor control system. The odor control system will be operated at all times that waste unloading operations are occurring or during waste processing operations.

Maintenance and cleaning of odor control equipment shall be performed on a contract basis as recommended by the manufacturer to maintain equipment efficiency.

Additionally, to control the generation of odors, the roll-off box will remain covered when not in use.

A sufficient volume of a suitable biological deodorant, HTH or lime will be retained on-site at all times to treat any accidental spills of untreated waste material.

Odors will be completely controlled by a combination of 50 foot buffer zones, a proprietary fast new process, a building with odor control and tanks that are covered and vented into the building. All areas of the process that have the potential to generate odor shall be controlled by the odor control system. The facility will be designed and built to prevent nuisance odors from leaving the property boundary. Additionally, the Odor Control System designed for the

waste receiving area will comply with all applicable requirements contained in 30 TAC §330.71(f)(5) and other applicable Texas Natural Resource Conservation Commission regulations.

This Applicant's innovative wastewater process will use proprietary technology that reduces odors by 90%. The remaining odors will be eliminated by 50 foot buffer zones, a building and an odor control system.

Municipal solid waste processing facilities are subject to Texas Natural Resource Conservation Commission Office of Air Quality jurisdiction concerning air pollution control. As such, the processing facility will be designed to minimize the production of odor and those odors that are produced will be captured and treated. Residual odors will be eliminated by state of the art odor control. The main source of odor at the facility will be the inlet structure that receives the raw material for initial separation of the solids and the oil and grease that is skimmed off initially from the raw material. All other water materials taken into the system will be quickly treated. The treatment process is oxidizing the pollutants so that the water will not have an odor problem. To assist in controlling odors, the roll-off boxes, grit basin and oil skimming will be inside a building enclosed on all sides and an exhaust hood will be in-place and operating at all times that the waste unloading operations are occurring. Outdoor tanks will be covered, sealed and vented back into the building. Additionally, the exhaust hood shall be in operation at all times that waste material is being stored. Exhaust from the ventilation system will be duct through an odor control system. Odors will not pass the facility's property line.

30 TAC 330.71(e)(6)(T) Air Quality Permit - Permit by Rule. The proposed facility utilizes a combination of heat sources: electric and natural gas. The proposed gas fired water heater is rated at 7.0 mm btu/hr and is covered by the following Permit by Rule: 30 TAC §106.183(g)(2), 30 TAC §106.183(g)(2)(A), 30 TAC §106.183(g)(4), 30 TAC §116.150(c)(2).

(5) STORAGE OF SOLID WASTE

(a) Storage Requirements - All materials, grease, grit, septage, sludge, oil and discharge effluents will be properly stored and covered for odor control, except as necessary for separation, processing and removal. Recycled material is stored in dedicated storage which are enclosed tanks. The three outside tanks are vented into the odor control system. All other storage is inside the building.

(6) VENTILATION - ODOR CONTROL.

See: (4) Air Pollution Control and Odor Control above.

(7) NOISE POLLUTION

(A) There will be little noise except for separation machinery (inside a building), truck and pump/blower noise. Proper maintenance and operation of machinery will minimize noise. The area is not zoned and is inhabited by noisy industry including the railroad, pipe manufacturer and the concrete company. Noise from Applicant's facility should be no problem. The buffer zone is large since the land parcel exceeds one acre. Adequate separation spacing between the facility and adjacent property owners prevents noise from becoming a nuisance to the adjoining property or area. Inside the building, there is sound proofing separating the office and lab from the processing area.

(8) EMPLOYEE SANITATION FACILITIES

(A) A rest room including a sink with potable water will be provided for use of all employees and visitors in the office area. The receiving building will contain a sanitary wash basin. The mobile office building will have a shower, sink, washer/dryer and changing room for plant workers.

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08/09/02

(c) COMPOSTING SITE - N/A - No composting.

(1) Composting System - N/A
  (A) Composting Engineering - N/A
  (B) Site Layout - N/A
  (C) Sludge Analysis - N/A
  (D) Process Design - N/A
  (E) Odor and Vector Control - N/A
(2) Final Product Specs - N/A
(3) Disposition - N/A

(d) SITES FOR PROCESSING GREASE, GRIT AND SEPTAGE

Completely Revised
08/09/02

(1) Waste Identification

Sources of waste streams are untreated grease trap waste, untreated grit trap waste and untreated septic tank waste.

Chemical characteristics of the waste are grease trap waste, up to 100,000 BOD/COD, untreated grease trap waste, 1,000 to 3,000 BOD/COD, untreated septage, 5,000 to 6,000 BOD/COD. The general characteristics of each waste stream proposed to be handled are as follows:

~~The general characteristics of each waste stream proposed to be handled are as follows:~~

Waste Streams	**Fats, Oils, Greases (%)**	**Solids (%)**	**Water (%)**	**pH**	**BOD/COD**
Untreated Grease Trap	10%	20%	70%	5.2	up to 100,000 / 100,000
Grit Trap Waste	0%	15%	85%	6.4	≤ 10,000 COD ≤ 500 BOD
Septage	≤ 0.01%	3%	97%	5.2	≤ 3,000 COD ≤ 6,000 BOD

Waste Data - This facility will accept and process non-hazardous grease trap, grit trap waste, and septage for the purpose of separation into its various constituents; solids, oil and grease and water. These and similar wastes have historically been accepted by the City of Houston and surrounding landfills and the materials are currently transported by local vacuum truck companies.

Total grease trap wastes, grit and septage will be collected from restaurants and septic tanks and are expected to approach 150,000 gallons per day.

The maximum amount of waste to be stored at any time at the facility is equivalent to the capacity of the 150,000 gallons per day with a maximum storage limit of 48 hours. ~~It is not anticipated that quantities of waste will be stored over night. The process is immediate and continuous.~~ The anticipated operational flow rates are controlled by the belt press and dissolved air flotation (DAF) processes~~,~~ and are expected to~~will~~ be between ~~8~~220 ~~to~~ and ~~11~~250 gallons per minute (gpm). ~~The average time that waste will remain on-site prior to processing will be less than 24 hours. In the event of mechanical failure, the maximum time that waste will remain on-site prior to processing will be 48 hours. The system will be designed to operate at 110 gallons per minute (gpm)~~ ~~a~~Assuming maximum ~~capacity~~ daily throughput of 150,000 gallons ~~per day~~, waste can be processed in 12 hours or less~~.~~ so that ~~O~~overnight storage of waste materials will be minimized. ~~I~~in the event of mechanical failure, the maximum time that waste will remain on-site prior to processing will be 48 hours. ~~The water treatment system is continuous and will run 24 hours per day. The separator side of the plant will run 8 to 12 hours per day.~~

The facility is intended to have two separate waste stream facilities, one for grease and septage and the other for grit. The grit process can ~~run~~ operate at ~~variable speeds of 80-110~~ a maximum throughput of 50 gpm.

All non-recyclable solids removed in processing the waste streams will be ~~recycled or~~ disposed ~~of~~ at a permitted landfill. All waste waters generated during processing of the waste will be discharged to the City of Houston's collection system, which flows to the City of Houston's wastewater treatment plant. All grease and oils recovered will be sold to ~~Gold Coast Commodities, Inc. or another competing business~~facilities permitted to accept these types of materials. ~~According to the owner of Gold Coast Commodities, Inc., Tom Douglas, the r~~Recyclable brown grease will not be used as animal feed in the U.S. and will not be used in any manner that violates Section 402 of the Federal Food, Drug and Cosmetic Act. ~~The brown grease will be used as an additive to granulated fertilizer for dust control and anti-caking according to Tom Douglas at Gold Coast Commodities, Inc.~~ In the event recycling goals cannot be met, the oil and sludge will be taken by box load to the landfill.

Using heated vessels to facilitate the gravity separation of the greases and oils from the waste streams, it is anticipated that 10% of the waste constitutes fats, greases and oils will be removed/recovered prior to the separation process. Specifically, a skimmer will be used to recover the fat, greases and oils prior to the raw material being separated into sludge and water streams. Other waste streams handled at the facility will also be recycled material for beneficial use. ~~Specifically, the sludge will be recycled by a Houston geotextile company, Windrush Corporation.~~

(2) Processed Waste

Following processing to remove oils, greases and solids, the water fraction that remains will be treated and discharged to the City of Houston's wastewater treatment plant in accordance with an Industrial Discharge Permit (Permit No.10946) as required by Houston's Industrial Waste Program, Chapter 47, Article V of the Code of Ordinances and in accordance with effluent limitations, monitoring requirements, and other conditions set forth in the permit. ~~An Industrial Wastewater Capacity has been purchased by the property's former owner in the amount of 600,000 gallons in accordance with their Pretreatment Ordinance No. 85-1180. Additionally, the City of Houston requires the periodic testing of the discharge effluent be done.~~

~~A copy of the property owner's Wastewater Capacity Evidence of Ownership is attached. The City of Houston has accepted the application for 600,000 gallons of capacity and that capacity has been paid for by the property's previous owner. Applicant has successfully negotiated a transfer of wastewater capacity to Applicant, allowing Applicant to own 100,000 gallons of wastewater capacity that will be discharged to the City of Houston wastewater treatment plant upon payment and transfer from the current owner and placement of a sampling well.~~

The other waste stream generated as a result of material processing is the solids fraction removed during waste processing. All waste solids removed will be stored on-site in covered roll-off boxes. The solid material will be recycled ~~by Windrush Corporation~~ or ~~the solid material will be~~ transported via disposal contractor to a permitted Type I landfill~~,~~ ~~(BFI or Waste Management) which~~ that is ~~a permitted Type I facility and~~ capable of handling the type of sludge waste generated at the facility. In the event recycling goals cannot be achieved, solid material will be taken by box load to the landfill. See: Part III, Pages 00048A and 00048B for documentation.

~~The remaining waste stream will be discharged as a water stream. Treatment of the waste water will be accomplished by the use of innovative technology developed by the company; specifically, the DMR Bio-Reactor. The company expects the pollutant factors~~ Contaminant concentrations of the treated wastewater stream are expected to be exceedingly low: ~~(Wastewater Effluent Labs).~~

1.	Oil and grease	< 50 ppm
2.	Total Suspended Solids	< 100 ppm
3.	BOD (5-day)	< 350 ppm
4.	COD	< 1000 ppm
5.	pH	4-11

Waste solids will be removed by means of centrifugal separation, screening and filtering. Solids will be placed in a roll-off box and stored on-site until transported off-site for disposal. It is expected that 20 percent of the volume of material received will be removed as a waste solid. Waste solids will be sampled on a periodic basis to meet all State and local permitting and disposal requirements. The waste solids will be periodically sampled to meet the parameters required by local landfills and for sludge disposal: (TCLP Test - Toxicity Characteristics Leachate Profile, Total Hydrocarbon, Pathogen Reduction Qualification and Vector Attraction Qualification).

Sampling will be carried out in accordance with quality control standards set forth in the Project Sampling Plan.

The solids will be profiled for disposal at a permitted landfill and/or recycled for geotextile manufacturing raw material. Each load of waste sent off-site will be sampled and analyzed to ensure that the material meets the Paint Filter Liquids Test (EPA method 9095).

(3) OTHER PERMIT REQUIREMENTS

(1) The City of Houston has authorized the discharge of 600,000 gallons of wastewater at the proposed site and has authorized construction of an MSW Type V facility. Applicant has purchased 100,000 gallons of capacity from the previous owner.

(4) PROCESS DESIGN - (In the very back of this Section III, out of order to facilitate copying and avoid multiplicity)

A-G:

§330.59(d)(4)(G) Storage Plans for Processed Materials:

1) Trash screened from inlet off-loading from the trucks;
2) Sludge produced by the process itself; and,
3) Fats, Oils, and Grease recovered from the wastewater.
4) Wastewater

1) Non-Putrescent trash is screened from the wastewater and stored in a conventional three cubic yard "Dumpster Style box. The maximum time to fill the box is 10 calendar days;
2) Sludge produced by the process is discharged and stored in a 25 cubic yard "Roll-Off" Box. Approximately 100,000 – 125,000 of process flow fills one of these boxes is filled with sludge. Maximum time to fill the box is 3 calendar days (assuming a daily flow of 30,000 gallons per day).
3) Fats, Oils and Grease that are recovered from the process are directly transferred to a 5,000 gallon trailer tank provided by the recycler. Based upon a 10% recovery rate, the maximum time to fill one of these trailers is 1.5 calendar days (assuming a daily flow of 30,000 gallons per day).
4) After water has been removed from the raw waste, the water goes to the Bio-Reactor for and average storage time of 3 to 4 hours before discharging into approved City of Houston wastewater lines.

4.(H) PROPOSED DISPOSITION OF EFFLUENT

All solids sent for final disposal will pass the Paint Filter Liquids Test (EPA method 9095). Annually, a representative sample of the solids routinely sent for off-site disposal will be analyzed for the following parameters:

(1) Total benzene
(2) Total lead
(3) Petroleum hydrocarbons
(4) BOD (5 day)
(5) COD

All records of analysis will be retained on-site for a minimum of three years.

Wastewater discharged from the facility will be tested periodically by the City of Houston for the following parameters:

(1) Fats
(2) Oil and grease
(3) Total petroleum hydrocarbons
(4) BOD
(5) Total Suspended Solids

All records of analysis will be retained on-site for a minimum of three years, provided the City forwards the results to the facility.

Revised
10/17/02

PART III

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Has been moved to

PART IV
PAGE 00022

In accordance with Second NOD #17

PART III

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PART IV
PAGE 00023

In accordance with Second NOD #17

PART III

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PART IV
PAGE 00024

In accordance with Second NOD #17

PART III

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PART IV
PAGE 00025

In accordance with Second NOD #17

PROJECT SAMPLING PLAN

Downstream Environmental, LLC

Sampling requirements are needed to insure that the proper type and number of samples are collected to facilitate an effective evaluation of the discharge water. The basic sample collection procedures to be followed during the remediation process are described in the following sections.

QUALITY CONTROL PROCEDURES

Quality control procedures will provide for collection of contingency samples and will describe sample equipment preparation (pre-cleaning, etc.), and sample handling (pre-treatment, preservation, etc.). Quality control efforts to be applied in general to all sampling activities of are outlined below.

- All non-disposable sampling equipment will be thoroughly cleaned before sampling and between sampling of different sources.
- All non-disposable sample containers will be cleaned in accordance with specific sampling method requirements. Containers are to be obtained from a known source. These containers are to be cleaned to EPA protocols and QC analyzed.
- Sample containers will <u>not</u> be pre-rinsed with the sample stream for samples taken for organic analysis to prevent concentration of organics on the containers inner walls.
- All samples will be preserved as required. FOR LIFE
- Duplicate field samples will be collected for at least 10 percent of the total samples collected. These duplicate samples will be reserved as contingency samples.

FIELD SAMPLING PROCEDURES

The following procedures represent the standard operating procedures common to all samples to be collected.

A. All samples must be labeled with a Company label and must have the following information:

1. Name - Name of person taking sample.

2. Sample # - sequential number beginning with 100 and log the sample number in the sample log located in the lab.

3. Location - Where sample was located.

4. Date - Date sample was taken.

5. Time - Time in Military (2400 hrs) that sample was placed in jar.

6. Type - Type of sample. This may be grab, composite, sequential, split, replicate or combination. If split or replicate the Sample #(3) should have a letter designation of each split. Example: #3B would be replicates or splits of the sample #3.

B. In addition to labels on the jar: each sample will be sealed with an index or file folder label cross the lid. This seal will have the following information:

1. Signature - Signature of person sealing jars or sample. Usually the collector.

2. Date - Month-day-year sample was sealed. Usually same as sample label.

3. Sample # - Sequential number beginning with 100 for the sampling effort. Same as on label.

4. Time - Time in Military (2400 hrs) that the sample was sealed.

In applying the seal, be certain that the seal goes across ½ of the lid and over onto the side of the bottle.

C. All samples must be kept on ice until analyzed. Refrigeration is equivalent to keeping on ice.

D. All samples must be accompanied by a Chain of Custody form. Several samples from a single job may be placed on a form. If samples are to be delivered to the laboratory, obtain a signed copy of the COC form from the lab.

E. Chain-of-Custody must be recorded by signature, date and time on the bottom of the form. This must be completed each time the samples change hands. Should a courier by used the COC should be signed as relinquished (Relinquished), dated and timed and sealed in a ziploc bag inside the sealed sample container. The courier's receipt will indicate transfer from you and receipt by the consignee.

F. Custody means in your physical possession or under your individual access. This may be locked in your car, or storage area where keys are limited.

DECONTAMINATION

Decontamination will be required for non-disposable sampling equipment. Field personnel will decontaminate sampling equipment after taking each sample. General decontamination procedures are described below. Site Safety Plan and Sampling Plan documents will prescribe decontamination fluids and equipment. These plans are developed by the Safety Director and the Technical Director.

Equipment Decontamination

The sampling equipment will be decontaminated after each sample as follows:

- Prior to sampling, scrub the sampling tools in a bucket using a stiff; long bristle brush and detergent solution. After sampling, brush off loose dirt with soft bristle brush or cloth and proceed washing with a non-phosphate detergent.

- Place cleaned sampling equipment and containers in their designated storage area.

Pretreatment Sampling Procedures
for
Truck Discharge Load Acceptance

This section will identify the prescribed methods for collecting sample material from transported wastes. Remember that the sample represents the entire body of wastes. The standard sampling procedure requires the owner, generator or transporter to provide a sample of each waste load to certify that it represents the entire waste stream. We require samples to be collected, the attached written sampling program will be followed. Questions or field modifications will be considered and approved by the Technical Coordinator.

Samples will be placed in the disposable plastic bags unless otherwise directed. Should more inert containers be required, glass jars will be specified. Field personnel are skilled in sampling and their judgment and common sense will determine the applicability of the containers. Standard canning jars, Ball or Mason may be used if field substitution is necessary. These containers should be washed with non-phosphate detergent, rinsed with clean water, then with the Isopropyl Alcohol used to clean respirators, and air dried. Saran wrap will be placed over the mouth of the jars prior to placing the lids.

Once collected, the samples are to be labeled and stored as described in the previous section.

Truck Load Acceptance Procedures

Truckloads received at the treatment facility are documented by a manifest system, which documents the origin of the truck contents. It is realized that additional screening of the truck contents is required to confirm the non-hazardous nature of the incoming waste to be treated. For this reason, samples from truck transfer trailers will be collected and analyzed as follows:

A. Grab sample will be taken from each truck prior to acceptance of the load. Samples should be consist of 1 - 1 liter plastic bag which is sealable.
B. Qualitative analysis for indicator testing shall be performed for appearance and odor.
C. Onsite quantitative analysis for indicator testing shall be performed. The sample shall be tested using chrome as the indicator metal. A headspace analysis for solvents and thinners shall be performed. The pH of the sample will be checked.
D. Rejection of the truckload shall be based upon qualitative and quantitative analysis according to procedural EPA standards.

Post-treatment Sampling and Testing Procedures

Samples from treatment units will be collected as follows:

A. Until city pretreatment standards are obtained, indicator testing shall be performed each day. The sample must be taken from the inlet to the discharge tank. Samples should consist of disposable plastic, liter containers.

B. Daily samples are to be taken using a four (4) hour manual composite. 200-ml samples will be collected at thirty (30) minute intervals. Quantitative onsite analysis of COD and pH will be performed as well as a qualitative analysis of appearance and odor. Should daily indicators exhibit an aberration or trend, the bi-weekly testing protocol shall be immediately implemented. Trigger levels shall be the 2-day peak values.

C. A separate set of samples are to be taken bi-weekly and sent to an outside, independent laboratory. The sample will be quantitatively analyzed for BOD5, COD, TSS, FOG and pH.

D. A separate set of samples are to be taken every 60 days. This sample is to consist of 4 - 1 liter containers.

E. Record all samples collected on the sample sheet located in the lab.

A chain-of-custody form will be filled out and placed in each package. After completion of the sampling, the packages will be sealed, and the appropriate shipping labels applied. The samples will then be transported to the designated laboratory where the samples will be submitted for analysis.

ONSITE ANALYTICAL EQUIPMENT

The following equipment shall be maintained onsite to perform the required truckload, daily, and bi-weekly testing.

A. pH paper;

B. Pocket pH meter;

C. Buffer solution at the following pH: 4.0, 7.0, 10.0;

D. Colormetric analyzer for chrome analysis. The unit shall be manufactured by Hach, LeMont, or equivalent;

E. Indicator tube vapor analyzer as manufactured by Sentex, Draeger, or equivalent;

F. COD analyzer as manufactured by Hach, LeMont, or equivalent;

G. Sealable plastic sampling bags;

H. 500ml, 1000ml sample bottles; and

I. Refrigerator.

MONITORING OF SAMPLING ACTIVITIES

The lab supervisor will supervise the sampling effort and will be responsible for adhering to proper sample collection procedures. Included among these responsibilities are to:

- Observe procedures and techniques used in the sampling and on-site measurement efforts.
- Check and verify instrument calibration records.
- Assess the effectiveness of and adherence to prescribed QC procedures.
- Assess and separate duplicate sample analysis for statistical verification.
- Review document control and chain-of custody procedures.
- Identify and correct any weakness in the sampling and analytical approaches and techniques.
- Report an evaluation of the sampling effort to the site manger.

DOWNSTREAM ENVIRONMENTAL, LLC
Daily Manifest Log
Westpark Plant

Date	Load #	Truck License #	Manifest #	Quantity

SPILL & CLEANUP PLAN

In the event of a spill, the ate material will be contained within a concrete area with a closed loop drainage system feeding back into the storage tank. Spills will be immediately cleaned up by method of vacuum and pump. Spilled material will be placed back into the facility wastewater storage unit. Spilled waste material that is washed down the drain will go into a closed loop drainage system where the facility's spillage and own wash water is pumped back into th facility's storage tank.

High pressure hoses will be kept at the facility for daily cleanup and wash down so as to prevent odors.

No material will be stored on the ground. No spillage will have any contact with the ground or ground water. All areas where material is of loaded, stored and/or precessed, are areas of graded concrete and a closed drainage system.

All areas of tankage will be placed on concrete pads with retainer walls to contain spills. The area will be kept clean. The entire plant area will be leaned on a daily basis with wash water from pressure hoses and will be inspected on a daily basis for leakage or spillage. If leakage or spillage is noted, it will be immediately removed by vacuum pump and remedial action will be taken so as to insure that leakage or spillage does not recur.

In the event of spillage in the area of ingress and egress, the spill will be handled by use of a vacuum truck hired for removing the spillage from the street or drive and disposing of spillage at the facility, followed by washing the area with a pressure hose.

SITE SAFETY PLAN

A. SITE DESCRIPTION

Project:	Westpark
Location:	Houston, Texas
Area affected:	Water treatment facility
Surrounding population:	Light Industrial
Topography:	Flat
Weather conditions:	Work will be inside and outside
Additional information:	Low risk work environment much like municipal waste treatment plant

B. OBJECTIVES

Treatment of Grit, Septic and Grease Trap wastewaters. Non-toxic.

C. ON SITE ORGANIZATION & COORDINATION

The following personnel are designated to carry out the stated job functions on site. (Note: One person may carry out more than one job function.)

PROJECT MANAGER:	George Noyes
LAB SUPERVISOR:	Dan Noyes
SITE SAFETY OFFICER:	George Noyes
PUBLIC INFO OFFICER	Mary Wimbish
SECURITY OFFICER:	George Noyes
RECORD KEEPER:	Gwen Scarborough
FINANCIAL OFFICER:	Gwen Scarborough
OPERATOR:	George Noyes
LABOR:	(to be hired)
STATE AGENCY REP:	Susan Janek
LOCAL AGENCY REP:	Paul Nelson, City of Houston

All personnel arriving or departing the site should log in and out with the Record Keeper. All activities on site must be cleared through the Project Manager.

D. ON SITE CONTROL

George Noyes has been designated to coordinate access control and security on site.

A safe perimeter has been established around the property with a 4 foot cyclone fence topped with 3 strands of barbed wire. There is two access gates. The facility is located within a covered structure. **No unauthorized person should be within this area.**

E. HAZARD EVALUATION

The following substance(s) are known or suspected to be on site. The primary hazards of each are identified.

Substances Involved	Concentrations (if known)	Primary Hazards
Caustic Lime	Variable	Skin
Acids	Variable	Vapors, Skin
Dusts	Variable	Ingestion

Hazardous substance information form(a) for the involved substance(s) have been completed and are located in the lab.

F. PERSONAL PROTECTIVE EQUIPMENT

Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks.

Location	Job Function	Level of Protection
Covered building		Level D
pH adjustment		Level C

Specific protective equipment for each level of protection is as follows:

Level A: N/A

Level B: N/A

Level C:
Tyvex Suites
Respirators
Neoprene Gloves
Rubber Safety Boots

Level D:
Work Clothes
Work Shoes
Hat
Neoprene Gloves

Comments: _____

The following protective clothing materials are required for the involved substances:

Substances	Material
Rain Suit	Acids
Tyvex	Water treatment sludge
Cloth	Dust

If air-purifying respirators are authorized, Acid and Organic vapor is the appropriate cartridge for use with the involved substances, and concentrations. A competent individual has determined that all criteria for using this type of respiratory protection have been met.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER AND THE PROJECT TEAM LEADER.

G. ON SITE WORK PLANS

Refer to Grease Spot's Standard Operating Procedures for work plans.

H. COMMUNICATION PROCEDURES

The following standard hand signals will be used in case of failure of radio communications:

Hand gripping throat.....Out of air, can't breathe
Grip partner's wrist or
both hands around waist.....Leave area immediately
Hands on top of head.....Need assistance
Thumbs up.....OK, I am alright, I understand
Thumbs down.....No, negative

I. DECONTAMINATION PROCEDURES

Personnel and equipment leaving the warehouse shall be thoroughly decontaminated. The standard level D decontamination protocol shall be used with the following decontamination supplies available:

(1) Boots (2) Outer Gloves (3) Respiration mask
(4) Tyvex Suit (5) Inner Gloves (6) _____
(7) _____ (8) _____ (9) _____
Other: Showers on site

Emergency decontamination will include the following stations:

N/A - Showers available on site.

The following decontamination equipment is required: Non-hazardous detergent, scrub brushes and cleaning tub.

J. SITE SAFETY AND HEALTH PLAN

1. George Noyes is the designated Site Safety Officer and is directly responsible to the Project Manager for safety recommendations on site.

2. **Emergency Medical Care On Site:**

George Noyes is qualified First Aid on site.

Local Emergency Contact:

Nearest Hospital

Address: _____ Phone: _____
_____ Time contacted: _____
_____ Date contacted: _____

A map of alternative routes to the site is available in the lab.

Ambulance Service

Local Ambulance Service is available from
Phone Number: 911
Response Time: 10 minutes

First Aid

First aid equipment is available on site at the following locations:

First Aid Kit	In the lab adjacent
Emergency Eye Wash	In the lab adjacent
Emergency Shower	In the lab adjacent

Emergency Medical Information
for Substances Present

Substances	Exposure Symptoms	First Aid Instructions
Lime	None	Showers
E-Coli	None	Showers
Raw waste	None	Showers

Emergency Phone Numbers

Agency/Facility	Phone #	Contact
Police	911	
Fire	911	
Hospital	911	
Airport		
Public Health Advisor		

3. Environmental Monitoring

Not required.

4. Emergency Procedures (should be modified as required for incident)

The following standard emergency procedures will be used by on site personnel. The Site Safety Officer shall be notified of any on site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury: Upon notification of an injury the Project Manger or site supervisor will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operation may continue, with the on site personnel, operations may continue, with the on site EMT initiating the appropriate first aid and necessary follow-up as stated above.

If the injury increases the risk to others, the designated emergency signal shall be sounded. Activities on site will stop until the added risk is removed or minimized.

Fire/Explosion: Upon notification of a fire or explosion on site, the designated emergency signal **FIRE!** shall be sounded and all site personnel assembled at the decontamination line. The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Personal Protective Equipment Failure: If any site worker experiences a failure ot alternation of protective eqipment tht effects the protection factor, that person and his/her buddy shall leave the site. Re-entry shall not be permitted until the equipment has been repaird or replaced.

Other Equipment Failure: If any other equipment on the site fails to operate properly, the Project Manager or Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan Tasks, all personnel shall leave the work area until the situation is evaluated and appropriate actions taken.

In all situations, when an on site emergency results in evacuation of the work area personnel shall not re-enter until:

a. The conditions resulting in the emergency have been corrected.
b. The hazards have been reassessed.
c. The Site Safety Plan has been reviewed.
d. Site personnel have been briefed on any chagnes in the Site Safety Plan.

5. Worker Monitoring

a. Breaks given at intervals to prevent heat related problems
b. Cold water available
c. Salt tablets available
d. Air-conditioned area available

FIRE PROTECTION PLAN

General Plan of Action

There are no real fire hazards involved in grease trap waste disposal. The grease as received has sufficient water content to prevent ignition or hazard. Subsequent processing is not hot enough for autoignition. Vapors that exist during separation will be sufficiently mixed with water vapor such that fire hazards will be excluded. As the grease cools after separation, no real hazard of fire exists. This can be considered minimized as the tank is completely enclosed and any vapor movement will be sufficiently mixed with air and other vapors as to be only a small part of the overall stream. All streams exist below the Lower Explosion Limit and autoignition temperature. Maintenance cleanup will be performed in such a way to minimize disruptive or unusual situations. Hand-held fire extinguishers and proper use instructions will be available to all employees. Basically, the operations of the Applicant are accepted in the industry as non-hazardous.

The community is on a 911 system and the various fire departments are sent up for mutual aid. Neighboring business phones and mobile phones can be used in the event of phone system failure.

The office building will consist of a remodeled mobile office trailer with a security system and fire alarms. The unit shall contain fire extinguishers, rubber gloves, hot water shower facilities, kitchen, washer/dryer, locker room for workers and cold water supply to optimize worker health, sanitary work clothes and worker cleanliness.

Facility Construction

The plant facility is currently specified as a building with offices. When constructed, tank and line insulation will be specified to minimize any fire hazard and permit reasonable cleaning operations. Minimal hazards will exist otherwise. The only heat necessary to the process is heating the oil filtration unit and hot water in high pressure water hoses necessary to clean equipment and hot water supply for the office. A heat shield or insulation surrounding the water heater will minimize any fire hazard. The concrete slab will have a lightly brushed surface to provide adequate grip but provide an easy to clean surface.

Fire Fighting Water Supply

For small fires, on-site water well supplies, delivered at 30 psi or higher, are available for hand lines on the site. High pressure water hoses will be on the site for equipment maintenance and clean-up. These hoses can be used for an on-site water supply for small fires if they occur.

Fire Fighting Equipment

The hand lines mentioned above will be available to the operator and site occupants. ABC hand extinguishers will be available as required by occupancy and applicable fire

codes. The hand lines will be multiple as the normal occupancy will require use at several different points for clean up.

(D) COLLECTION AND DISPOSITION OF WASH WATERS

All transport tankage wash out will be performed at the grit basin area. All wash waters will be collected and processed with the waste material. All other wash waters generated (i.e., tank cleaning, equipment cleaning, etc.) at the facility will be pumped directly to the storage tank and processed with the waste material.

(E) FACILITY OPERATION

During operation (i.e., unloading, loading or processing) of this facility, the owner, plant manager, site supervisor, or trained plant personnel will be on site at all times. Registered transporters will bring waste to the facility in enclosed trucks. ~~Waste may be received by pumping or gravity flow, depending upon type and solid content.~~ Grease trap waste will be processed for separation of the contained greases and oils, solids and water. Grit trap and septage wastes will be processed to separate water, solids and oils.

Waste will be ~~brought~~ transported to the facility and off-loaded ~~using the truck pump to blow waste and/or by pumping to the receiving dock~~in the three-bay truck unloading area under a canopy cover. ~~Waste in storage will be pumped to a separator~~ Trucks will be hooked up, by a flex hose, to a manifold that transfers the contents of the truck to a rotating screen for solids removal.

~~A primary concern is to remove, as early as possible in each of the two primary processes, all solids, oils, fats and extraneous materials that are not liquid waste. A classifier process eliminates any rocks or other foreign matter from the waste stream into the roll-off box. This protects the subsequent pumps from damage. Upon off-loading from the trucks, the waste material is sent immediately into the dewatering system. The dewatering system is a mechanical screen system. The screen system is described in detail in the specifications.~~

~~30,000~~ Solids separated by the rotating screen are collected in a hopper. Liquids are transferred to 21,000-gallon storage tanks ~~will be~~ used to accept the raw material. From these receiving tanks, wastewater is pumped to a mix tank for pH adjustment through amendment with lime. The adjusted wastewater is then transferred to a belt press for additional solids removal. Polymers are added to this waste stream, as needed, to improve belt press performance. Located immediately outside the main process containment area but inside a curbed containment area, roll-off

boxes accept solids from the belt press process. Roll-off boxes are covered with a tarp when not actively receiving solids.

Wastewater from the belt press process is pumped to aerated equalization tanks, which gravity drain to a dissolved air flotation (DAF) system rated for a maximum flow of 250 gallons per minute (gpm). Treated effluent from the DAF is routed either directly to the City of Houston sewer or to a recycled water tank, as needed to clean the belt press. ~~The wastewater stream is skimmed to remove the available free oil for recycling. After the solids are separated, using mechanical screening and centrifugal separation, the wastewater stream is then sent to an oil/water separator and two (2) DMR tanks specifically designed for high strength wastewater. The DMR aerobic systems biologically oxidized the volatile contaminants while continuously filtering the throughput. The aerobic systems biologically raise the pH to 7.8. From there, the water is continuously recirculated in the final discharge storage tank and further reduced using Ozone technology.~~

Grit wastes are received in a separate dewatering area, which is also covered with a canopy. The area is lined in concrete, including a new 6-inch berm located at the edge of the facility pavement, and is sloped from north to south. Wastewater flows over a concrete weir into a sump in the southern end of the containment area, which is then transferred through the grit treatment system using a sump pump. Rated for a maximum flow of 50 gpm, the grit treatment system includes an oil-water separator, bag filters for solids removal, and a sand filter. Treated wastewater is discharged directly to the City of Houston sewer. Solids are transferred to a roll-off box located immediately west of the dewatering area.

Fat, oil, and grease (FOG) waste is collected and processed within the process building. Solids are removed from incoming waste using either a filter or a decanter centrifuge. Liquids are then transferred to process tanks, which are heated with a boiler. FOG materials slowly separate from water and other materials~~,~~ and are ultimately transferred to finish tanks located between the process building and the covered truck unloading area.

(F) OPERATION CHARACTERISTICS OF THE EQUIPMENT

All construction material used at the facility will be compatible with the type of waste streams processed and handled at the facility. The tankage holding material will be steel construction. The pipe will be above the ground PVC piping.

(G) FACILITY MAINTENANCE

Routine facility maintenance activities will be performed by Applicant's personnel on ~~an~~ a daily basis. Maintenance activities that cannot be

performed by the Applicant's personnel will be performed by qualified subcontractors experienced in performing a specific maintenance operation such as equipment repair, grass cutting, landscaping and facility clean-up will be performed by contract personnel.

(H) EMERGENCY PROCEDURES

Tri-class fire extinguishers will be located on-site in various areas. All plant personnel will be trained to operate the fire extinguishers. Spill response equipment will be located in the waste receiving area. This will consist of hand held pumps, vacuum trucks and hoses. For emergency situations which are beyond the capabilities of facility personnel, outside resources (e.g., Fire Department, ambulance, etc.) will be called to the site by dialing 911.

(I) OPERATING HOURS

The operating hours of the facility shall be any time between the hours of 7:00 a.m. and 7:00 p.m. six days per week. (Closed for regular business on Sunday.) Recognizing extenuating circumstances such as road breakdown or equipment malfunction, or personnel limitations of the transporter, arrangements will be made to allow transporters to deliver on an "emergency only" basis after normal operating hours. For those unloading operations which occur after normal operating hours, a trained facility employee will be on-site during all operations such as unloading of waste, loading of product or waste processing.

(J) VECTOR CONTROL PROCEDURES

Wastes are fully contained within the processing site, and spills will be removed and processed immediately followed by high pressure cleaning with water and commercial bleach additive. If an insect problem develops, a pest control service will be consulted.

(K) ALTERNATE PROCESSING PROCEDURES

If the facility becomes inoperable for longer than 24 hours, no additional waste material will be received and that waste which is not processed will be transported off-site by Applicant to an approved facility, such as~~,~~ a facility permitted by SouthWaste Disposal, LLC, parent company to Downstream Environmental, LLC~~but not limited to, American Wastewater (Permit No. 2234), 250 Gellhorn, Houston, Texas 77013~~.

(L) INSPECTION OF INCOMING LOADS

A trained employee will be in attendance when the unloading of wastes is occurring. Applicant will conduct a visual inspection of all loads of waste coming into the facility to minimize the possibility that unauthorized wastes will be accepted and to verify the waste load information provided by the generator and transporter. The visual inspection will be documented on a Load Visual Inspection Form.

(M) RETENTION OF RECORDS OF LOAD INSPECTIONS

Records of load inspections will be retained on-site for three years after receipt of the load.

(N) TRAINING OF PERSONNEL TO RECOGNIZE HAZARDOUS WASTE

All of Applicant's personnel responsible for incoming load inspections will be trained to recognize the potential for the presence of hazardous wastes. This training will be performed before an individual is qualified to inspect incoming loads. Annual refresher training will be performed.

A training program will be designed by Applicant that will include methods to detect the presence of hazardous wastes. This program will include such things as identification of characteristic odors or visual signs of the presence of hazardous waste constituents within a waste stream and random sampling with on-site lab analysis. See: Attachment 30a.

(O) HANDLING PROCEDURES FOR HAZARDOUS WASTE

If an incoming load is suspected or confirmed as containing a hazardous waste, the materials will not be unloaded and the transporter will remove the waste material from the site. The facility will attempt to contact the generator of the waste to inform him/her of the load rejection.

If any hazardous wastes are inadvertently accepted, the site operator will immediately contain the accepted material by terminating process flow and will return the material to the transporter if practicable or contact a company appropriately licensed and permitted to handle and dispose of such materials.

The TNRCC will be promptly notified if any hazardous wastes are inadvertently accepted.

(P) TRIP TICKET/MANIFEST RETENTION

Trip tickets and/or manifests will be retained on-site as required by 30 TAC §12.145.

(Q) SITE ACCESS

Access to the facility will be from the east on Westpark via Beltway 8. Traffic can approach the facility from the east or west. Traffic will most likely come from the east (Beltway 8).

The interior road leading from Westpark to entrance of the facility is a concrete street. Walnut Bend Lane.

Access to the site will be controlled by the presence of an eight foot cedar fence along the boundary of the facility. A lockable gate will be placed across the entrance to the facility at the site itself. A gate will be locked at all times that the site is not in operation.

Access to the site will be limited to employees, affiliated company employees, users, shippers and authorized visitors. Accordingly, access is controlled by a receiving employee working a documents checking station at the front of the facility and will be further restricted by appropriate six foot fencing and gates. Non-affiliated users, shippers and visitors will be allowed access only when appropriate employees are present. All users must present appropriate paperwork.

FIRE PROTECTION PLAN

General Plan of Action

There are no real fire hazards involved in grease trap waste disposal. The grease as received has sufficient water content to prevent ignition or hazard. Subsequent processing is not hot enough for autoignition. Vapors that exist during separation will be sufficiently mixed with water vapor such that fire hazards will be excluded. As the grease cools after separation, no real hazard of fire exists. This can be considered minimized as the tank is completely enclosed and any vapor movement will be sufficiently mixed with air and other vapors as to be only a small part of the overall stream. All streams exist below the Lower Explosion Limit and autoignition temperature. Maintenance cleanup will be performed in such a way to minimize disruptive or unusual situations. Hand-held fire extinguishers and proper use instructions will be available to all employees. Basically, the operations of the Applicant are accepted in the industry as non-hazardous.

The community is on a 911 system and the various fire departments are sent up for mutual aid. Neighboring business phones and mobile phones can be used in the event of phone system failure.

The office building is a metal and brick building with a security system and fire alarms in accordance with the City of Houston Fire Marshal. The unit shall contain fire extinguishers, rubber gloves, hot water shower facilities, kitchen, washer/dryer, locker room for workers and cold water supply to optimize worker health, sanitary work clothes and worker cleanliness.

Facility Construction

The plant facility is currently specified as a building with offices. When constructed, tank and line insulation will be specified to minimize any fire hazard and permit reasonable cleaning operations. Minimal hazards will exist otherwise. The only heat necessary to the process is heating the oil filtration unit and hot water in high pressure water hoses necessary to clean equipment and hot water supply for the office. A heat shield or insulation surrounding the water heater will minimize any fire hazard. The concrete slab will have a lightly brushed surface to provide adequate grip but provide an easy to clean surface.

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Fire Fighting Equipment

The hand lines mentioned above will be available to the operator and site occupants. ABC hand extinguishers will be available as required by occupancy and applicable fire codes. The hand lines will be multiple as the normal occupancy will require use at several different points for clean up.

Completely Revised
08/09/02

Ms Mary Wimbish

Downstream Environmental
2044 Bissonnet
Houston, Texas 77005

Re: Landfill Capacity

Dear Ms. Wimbish,

I write to you in response to your inquiry regarding landfill capacity for your Company's proposed disposal facility for 150,000 gpd grease and grit trap waste, located in Houston, Texas, west of Beltway 8. Your disposal site located at Beltway 8 and Harwin – Westpark area would be served by the McCarty Road Landfill owned by BFI / Allied.

It is our understanding that your Company's anticipated sludge disposal needs consist of 2-30 yd roll-off boxes a day of Class B sludge, meeting the paint filter test requirements. This letter is to confirm that BFI / Allied has sufficient landfill space to meet Company's needs and more. We currently have ample facilities for Class B sludge that meets the paint filter test requirements. For an additional charge, we will solidify all loads that are too wet to meet the paint filter test requirements. In either case, we are more than capable of meeting your Company's sludge disposal needs with sufficient landfill space.

Sincerely,
BFI Waste Systems of North America, Inc.

Brian Cormier
Major Account Executive
Manufacturing Marketing and Sales

000048A

Revised
10/17/02

WINDRUSH

January 14, 2000

Downstream Environmental, LLC
Mr. Noyes
2044 Bissonnet
Houston, Texas 77005

Dear Mr. Noyes:

I write to you in response to your inquiry regarding Class II sludge recycling for your company's proposal grease and grit disposal facility located on Westpark Drive, Houston, Texas. I understand that your disposal site will be locate din the 10400 block of Westpark Drive, just west of Beltway 8, and will generate approximately 40 cubic yards of Class II sludge per day (two 20 yd. roll-off boxes).

Your company's sludge recycling needs consist of two 20 yard roll-off boxes a day, 7 days a week. It is my understanding that your Class II sludge will meet the paint filter test requirements for solidification. This volume of sludge can be recycled at one of our stabilization sites and this letter is to confirm that Windrush has sufficient solid material needs to recycle your company's sludge.

Windrush can take your solid material (40 cubic yards per day on a 7 day per week basis of Class II sludge) and reuse the same as fill for geo-textile structures to be deployed in areas of land loss caused by shoreline erosion. The solid material used can be Class II sludge since the material is treated and sterilized before final use.

Sincerely,

Thomas S. Gaylord

Thomas S. Gaylord, President
Windrush Industries, Inc. LLC

TSG/tdc

CONTROL SYSTEMS
Windrush Industries
710 West Prien Lake Road, Suite 207-A, Lake Charles, La. 70601 Fax 318/562-1127 E-Mail windrush3@aol.com Office 318/562-1128

100483

Revised 10/17/02

PART III - §330.55(a)

LIST OF ATTACHMENTS to the SITE DEVELOPMENT PLAN

NOTE: Attachments are numbered with a page number. The designation "N/A" implies that this item has no required Attachment, but instead all parts of it are presented in the body of the text.

10

PART III - §330.55(a)

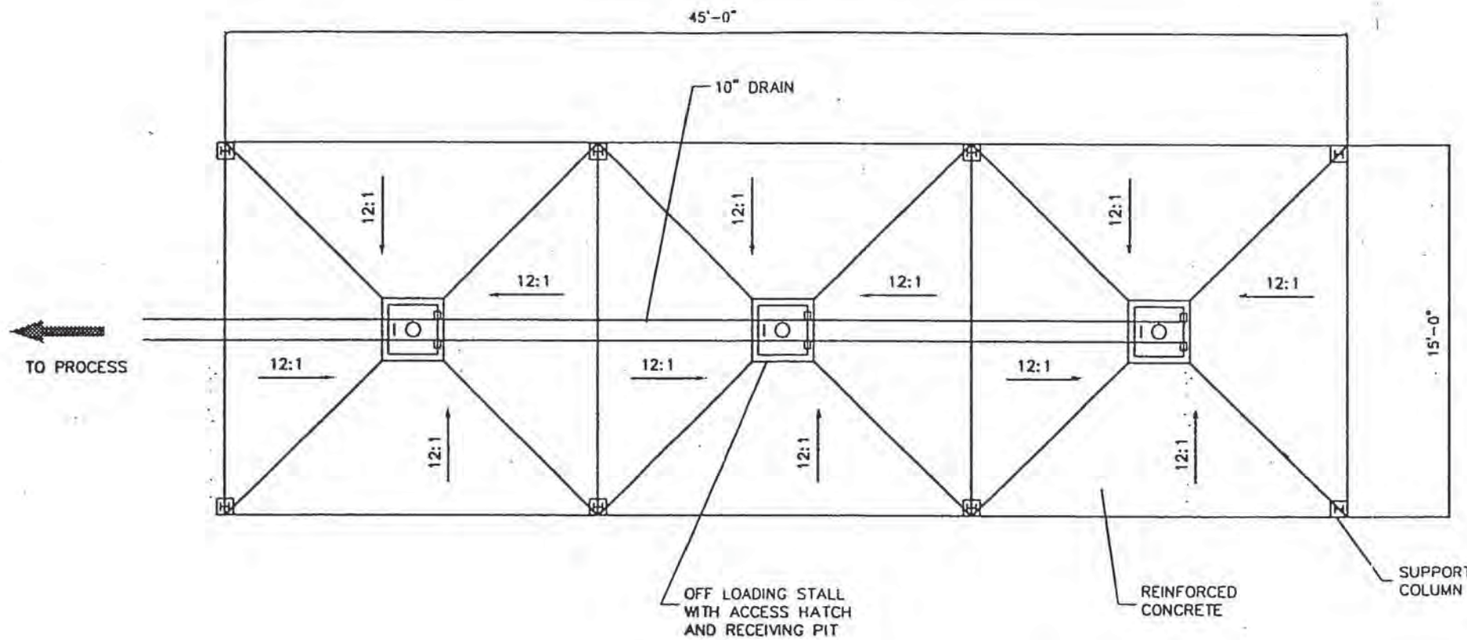
LIST OF ATTACHMENTS to the SITE DEVELOPMENT PLAN

NOTE: Attachments are numbered with a page number. The designation "N/A" implies that this item has no required Attachment, but instead all parts of it are presented in the body of the text.

PART III ATTACHMENTS

Revised 10/17/02

		Page
(m)	Drawings:	
(a)	Plant Layout	129
(b)	Site Plot	130
(c)	Utilities	131
(d)	Site Layout	132
(e)	Mechanical	133
(f)	Unloading	134
(g)	Signage	135
(h)	Schematic Block	136
(i)	Solids Disposal	137
(j)	Odor Control	138
(k)	Building Layout	00014A
(l)	Turning Pad	142
(m)	Secondary Containment	143
(n)	Drainage	144
(o)	Enlarged Plant Layout	145



PLAN

SCALE 1/4"=1'-0"

SCALER IN FEET

This Document is Sealed for Permit Purposes Only

No.	REVISION	DATE

B.R. PERRIN PLANT
SITE LAYOUT
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE-B11

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

Attachment 3f

3/29/02

00132

49A

ATTACHMENT 2

Fill Cross Section Profiles - N/A

ATTACHMENT 4

Geology Report - N/A

ATTACHMENT 5

Groundwater Characterization Report - N/A

User: Downstream
Project: BRPerrin
SubTitle: 25 Year, 24 Hour, Stormwater Runoff
State: Texas
County: Harris

Date: 10/17/2002
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
3737 Site		Outlet	2.52	87	.406

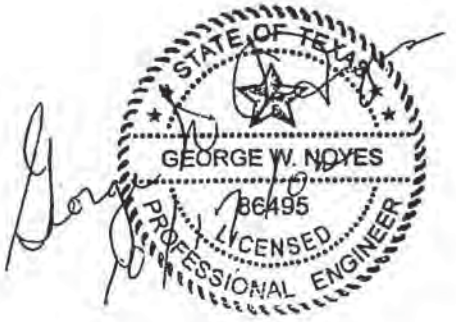
Total area: 2.52 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
5.0	6.8	8.3	9.6	11.0	12.5	3.75

Storm Data Source: Harris County, TX (NRCS)
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>



00150

49c

Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 25-Yr (cfs)
SUBAREAS	
3737 Site	14.08
REACHES	
OUTLET	14.08

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 25-Yr (cfs)	(hr)
SUBAREAS		
3737 Site	14.08	12.26
REACHES		
OUTLET	14.08	

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
3737 Site	2.52	0.406	87	Outlet	

Total Area: 2.52 (ac)

Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
3737 Site							
SHEET	99	0.0032	0.150				0.270
SHALLOW	99	0.0005	5				0.076
SHALLOW	99	0.0005	5				0.060
CHANNEL	200						
						Time of Concentration	.406

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
3737 Site	Open space; grass cover 50% to 75% (fair)	D	1.935	84
	Paved parking lots, roofs, driveways	D	.587	98
Total Area / Weighted Curve Number			2.52	87

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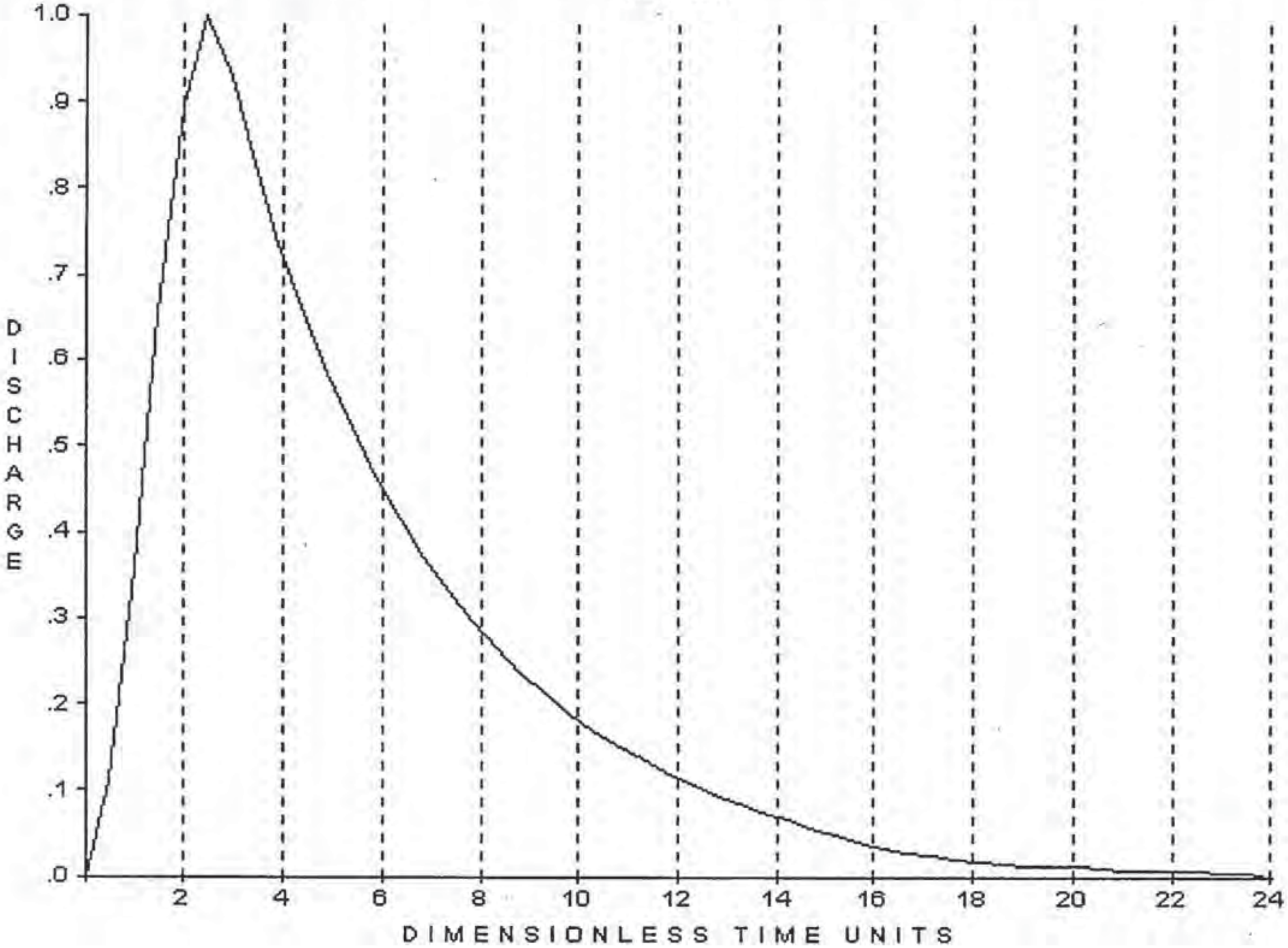
WinTR-55 **Dimensionless Unit Hydrograph** 10/17/2002

C:\Program Files\USDA\WinTR-55\DimensionlessUnitHydrographs\delmarva.duh

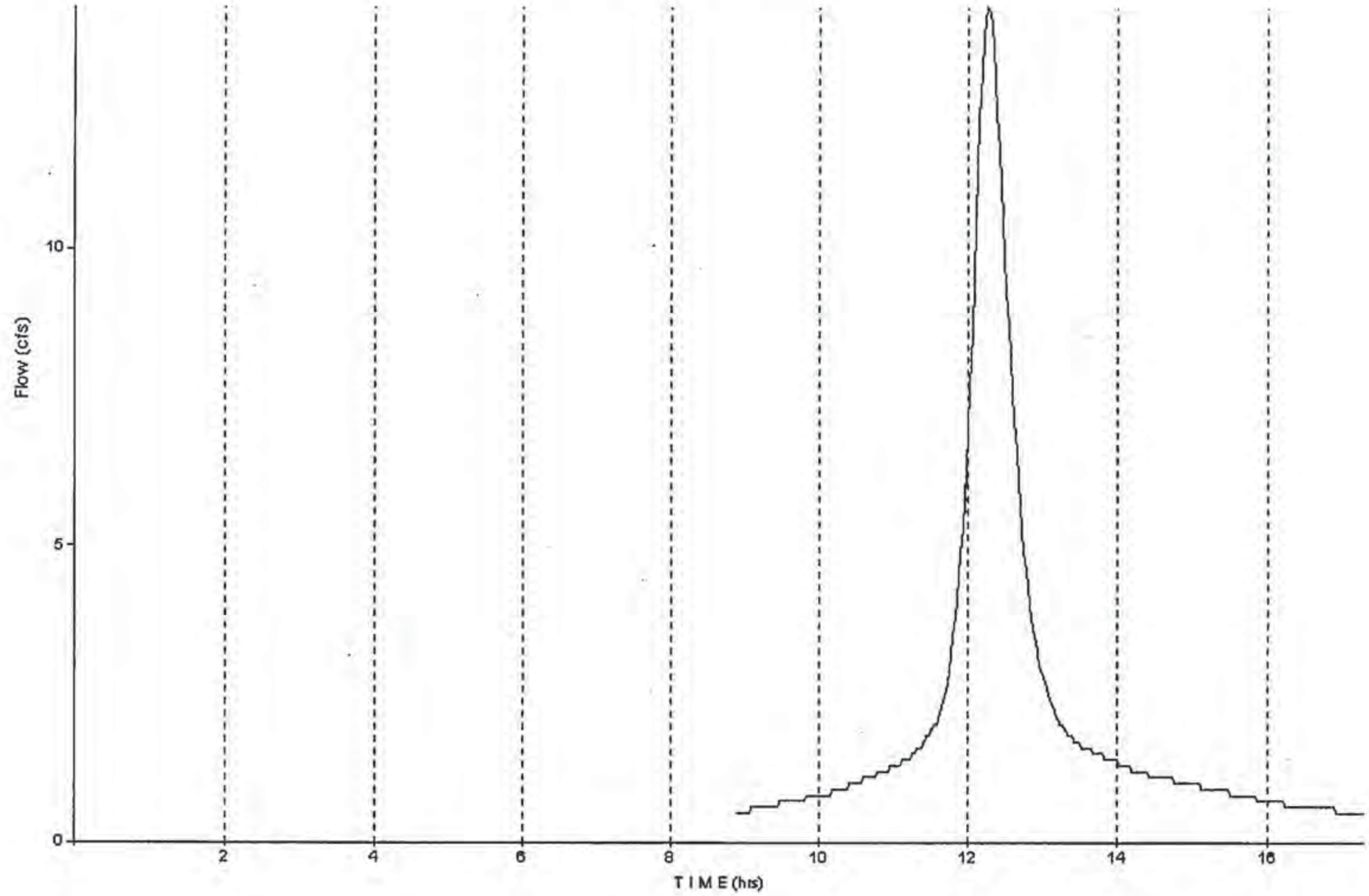
<new file>



WinTR-55 Output Hydrograph

Project: BRPerrin
Subarea: (3737 Site) Storm: 25-Yr
<new file>

10/17/2002



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ATTACHMENT 7

Final Contour Map - N/A

WESTPARK DRIVE CLOSURE COST ESTIMATE

The following is a description of closure activities that would be required to be performed by a third party to close the facility. The closure cost estimate assumes worst case conditions exist at the facility at the time of closure. Closure activities would include at a minimum the following activities:

1. Removal of all waste material stored on site. Closure cost assume that the receiving tanks and storage tanks are full of unprocessed waste that would have to be disposed of at an approved off-site facility;

2. Dismantling all process equipment and tankage;

3. Removal of all dismantled equipment; and

4. Final cleanup of the site with disposal of all litter, debris and any contaminated soils at an approved landfill.

Removal of Unprocessed Waste

To estimate a closure cost, it is assumed that both the receiving tanks and storage tanks will contain unprocessed waste material. This could account for as much as ~~20,000~~ 10,000 gallons of material, ~~including~~or 200 cu. yds. of waste ~~sludge~~, that would have to be removed, transported and disposed at an approved facility. Currently the nearest approved facility site would be located in Houston, Texas. Costs to remove, transport and dispose of ~~50,000 gallons of unprocessed waste, including~~ 200 cu. yds. of waste ~~sludge~~, ~~would be 25¢ per gallon for a total~~cost $26,803.62. (See attached cost ~~of $12,500~~sheet~~.00.~~)

Dismantling of Process Equipment and Tankage

This closure cost estimate includes dismantling and removing the plant itself, which includes all receiving tank, storage tanks, recycling tanks, equipment, roll-off cars and mobile offices. No demolition would be required to vacate the site. Estimated moving costs of removing all equipment and tankage from the site is $15,000.00;

STATE OF TEXAS
GEORGE W. NOYES
68495
LICENSED
PROFESSIONAL ENGINEER

3/

Final Site Cleanup

Cost of this phase of facility closure assumes that only litter and debris remain on-site that require removal and disposal. Costs also include removal and disposal off-site of up to 40 cubic yards of contaminated soil resulting from accidental spillage. Estimated costs for this phase of the facility closure is $2,500.00

Over-site of Facility Closure by a Third Party

Cost of over-site by a third party are included in each of the cost elements described above.

Summary of Facility Closure Costs

Removal of Unprocessed Waste	~~$7,500.00~~26,803.62
Dismantling & Removal of Equipment & Tankage	15,000.00
Final Site Cleanup	2,500.00
TOTAL CLOSURE COSTS	~~$25,000.00~~$44,303.62

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86495
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1/5/01

GARY TIPTON ENTERPRISES
SOLIDIFICATION DIVISION

DATE
BID #

COMPANY	Downstream Env.	MATERIAL	Waste Sludge
CONTACT	Dan Noyes	QUANTITY	200 cu. yds.
PROJECT	Grease Trap Sludge	# PEOPLE	3
LOCATION	Houston, Texas	JOB DAYS	10
AGE/DAY	20 MARGIN 30%		PAGE 1 OF 1

MATERIAL OR SERVICES	QTY.	UNIT COST	COST DAY	BASE COST	BID PRICE
PERSONNEL					
LABOR	3	135.00	405.00	20.25	26.63
TAXES	3	33.75	101.25	5.06	6.58
PER DIEM	3	35.00	105.00	5.25	6.83
CHEMICALS/ADDITIVES					
FLY ASH(#'S / BASE)	300.00	0.04	240.00	12.00	15.60
CEMENT(#'S / BASE)	100.00	0.05	100.00	5.00	6.50
URRICHEM(GAL / BASE)	2.00	1.65	66.00	3.30	4.29
SULFIDE(# / BASE)	0.25	1.00	5.00	0.25	0.33
SULFURIC ACID(GAL/BASE)	0.2	5.34	26.70	1.34	1.74
LIME(#/BASE)	100.00	0.05	100.00	5.00	6.50
RENTALS(PER DAY)					
FORKLIFT (proj days 10)	1	75.00	75.00	3.75	4.88
BACKHOE/LOADER (days 10)			0.00	0.00	0.00
PICKUP (proj days 10)	1	50.00	50.00	2.50	3.25
TRAILER (proj days 10)	1	25.00	25.00	1.25	1.63
MIXER (proj days 10)	1	50.00	50.00	2.50	3.25
			0.00	0.00	0.00
			0.00	0.00	0.00
SAFETY EQUIPMENT					
FOOD (PER MAN/ DAY)	3	25.00	75.00	3.75	4.88
FREIGHT(PER PROJ)					
FUEL(PER DAY)		0.00	0.00	0.00	0.00
		5.00	5.00	0.25	0.33
SUPPLIES					
FORMS/BAGS(UNITS/BASE)		16.00	0.00	0.00	0.00
PLYWOOD(PER PROJ)		3.50	0.00	0.00	0.00
PLASTIC(PER PROJ)		50.00	0.00	0.00	0.00
MISC.					
TCLP(TESTS/PROJ)	5.00	40.00	20.00	1.00	1.30
SUBTAL			$1,449	$72.45	94.18
LANDFILL					
DISPOSAL/YD	200	15.00			3000.00
LANDFILL TAX		6.00			1200.00
PROCESSING & CLEANUP		94.18			18836.35
CONTINGENCY (+20%)	20%				3767.27
TOTAL COST					$26,803.62

NOTES:

BID PRICE IS PER CUBIC YARD

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PROFESSIONAL ENGINEER

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Attachment 25b

APPLICANT'S STATEMENT

I, Mary Wimbish, General Counsel of DOWNSTREAM ENVIRONMENTAL, LLC, state that I have knowledge of the facts set forth herein and that these facts are true and correct, to the best of my knowledge and belief. I further state that, to my knowledge and belief, the project for which application is now being made will not in any way violate any law, rule, ordinance, or decree of the duly authorized governmental entity having jurisdiction. I further state that I am the applicant or am authorized to act for the application.

Mary Wimbish

Mary Wimbish, General Counsel of
DOWNSTREAM
ENVIRONMENTAL, LLC,
Applicant

April 2, 2002

(Date)

Subscribed and sworn to before me, by the said MARY WIMBISH, this 2nd day of April, 2002, to certify which witness my hand and seal of office.

Gwendolyn Scarborough

Notary Public in and for
The State of Texas

(Seal)

GWENDOLYN SCARBOROUGH
NOTARY PUBLIC
STATE OF TEXAS
EXPIRES
MAY 1, 2005

Attachment 26

00052

49E

ATTACHMENT 10

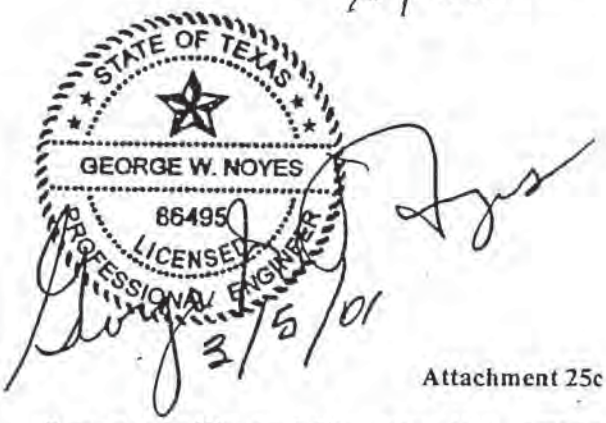
Soil & Liner Quality Control Plan - N/A

ATTACHMENT 11

Groundwater Sampling & Analysis Plan - N/A

CLOSURE SCHEDULE

CLOSURE ITEM DESCRIPTION	SCHEDULE
Initiate final closure activities (detailed in Closure Cost Estimate)	No later than 30 days after the date on which site receives notice of closure.
Complete final closure activities in accordance with the final closure plan.	Within 180 days following the initiation of final closure activities.
Submit "Affidavit to the Public" to the executive director in accordance with §330.7	Within 10 days after completion of final closure activities at the facility.



PART III
POST-CLOSURE PLAN
Attachment 13

§330.463254 Post-Closure Care Maintenance Requirements.

(a) Post-closure care maintenance requirements for The B.R. Perrin Plant.

(1) For a minimum of the first five years after professional engineer certification of the completion of closure as accepted by the executive directorthe completion of final closure, the owner or operator shall retain the right of entry to and maintain all rights-of-way of a closed MSW site management unit in order to conduct periodic inspections of the closed unit or site. The owner or operator shall correct, as needed, erosion of cover material, lack of vegetative growth, leachate or methane migration, and subsidence or ponding of water on the unit or site. If any of these problems occurs after the end of the five-year post-closure maintenance period or persists for longer than the first five years of post-closure care maintenance, the owner or operator shall be responsible for their correction until the executive director determines that all problems have been adequately resolved. The executive director may reduce the post-closure maintenance period for MSW sites the unit if all wastes and waste residues have been removed during closure.

(2) Any monitoring programs (ground water monitoring, resistivity surveys, methane monitoring, etc.) in effect during the life of the MSW site unit shall be continued during the post-closure care maintenance period.

(3) If there is evidence of a release from a municipal solid waste unit, the executive director may require an investigation into the nature and extent of the release and an assessment of measures necessary to correct an impact to groundwater.

(2) N/A. No post-closure monitoring programs at the B. R. Perrin Plant.

§330.255 Post-Closure Land Use

(a) The owner or operator shall submit any plans for proposed construction activities or structural improvements located on closed municipal solid waste (MSW) sites and not associated with approved solid waste disposal activities, with supporting documentation in accordance with subsection (b) of this section, to the executive director for review and approval. To date, no plans for proposed construction activities or structural improvements located on the B .R. Perrin Plant after closure exist.

(b) N/A. No plans for proposed construction activity or structural improvements to be located on the B.R. Perrin Plant after closure exists.

(c) N/A. No plans for proposed construction activity or structural improvements to be located on the B.R. Perrin Plant after closure exists.

~~(d) N/A. No post-closure alteration or disturbances plans exist at this time.~~

~~(e) N/A. No cover or liner at the B.R. Perrin Plant exist.~~

~~(f) N/A. No plans for proposed construction activities or structural improvements after closure of the B.R. Perrin Plant exist.~~

§330.465~~256~~ Completion of Post-Closure Care and Maintenance

(a) Following completion of the post-closure care maintenance period for each municipal solid waste landfill unit ~~or municipal solid waste site~~, the owner or operator shall submit to the executive director for review and approval a ~~documented~~ certification, signed by an independent ~~registered~~ licensed professional engineer, verifying that post-closure care ~~maintenance~~ has been completed in accordance with the approved post-closure plan. The submittal to the executive director shall include all applicable documentation necessary for the certification of completion of post-closure care ~~maintenance~~. ~~Once approved, this certification shall be placed in the operating record.~~

(b) Upon completion of the post-closure care period for the final unit at a facility, the owner and operator shall also submit to the executive director a request for voluntary revocation of the facility permit.

ATTACHMENT 14

Landfill Gas Management Plan - N/A

PART III
ATTACHMENT 15

~~"Plans to Handle Contaminated Water"~~Surface Water Protection Plan

The Facility is designed to control rainfall run-on and run-off. Surrounding site topography will minimize the amount of run-on to the site. Perimeter ditches and swales collect and route stormwater around the facility to one of two outfalls located along the eastern fenceline. Where stormwater velocities are the highest, 3- to 6-inch-diameter crushed rock dissipates energy from the stormwater flow before discharging off-site. Stormwater ultimately flows to a tributary to the Brazos Bayou, located approximately 75 feet east of the fenceline, across a shared use path.

Stormwater collection ditches will be periodically inspected, cleaned, and regraded as necessary to maintain unobstructed flow. Outfall structures will be inspected following each rain event. Sediment and other materials trapped at the rock outfall will be removed as necessary. In addition, the outfalls are sampled in accordance with Texas Pollutant Discharge Elimination System (TPDES) permit number WQ0005200000 issued March 8, 2017.

On-site pavement, curbing, and secondary containment dikes mitigate the potential for contact stormwater to be conveyed off-site. However, ~~I~~if contaminated ~~waste~~stormwater is detected at an outfall at unacceptable levels, the process will be shut down~~,~~ and the local wastewater authority will be contacted. Waste materials producing contact stormwater will then be collected using either vacuum trucks or other equipment. Depending on the nature of the materials, wastes will either be returned to the on-site receiving tanks or transported off-site to a facility licensed to accept that type of waste.~~The recent load samples will be retested to discern with accuracy the transporter that offloaded contaminated wastewater. Specifically, Owner has a pollution insurance policy covering first party claims. AIG Insurance Company's claims department will be contacted, so that an adjuster can evaluate the cost of a plant clean-up which would involve removing all hazardous material from the plant with vacuum trucks licensed to transport hazardous liquid waste to the nearest disposal site for hazardous liquid waste, Gulf Coast Waste Authority. The plant's~~ Any equipment and machinery used in the cleanup effort will be washed down on-site using standard operating procedures.~~ would have to be washed down and the wash water would have to be hauled way to Gulf Coast Waste Authority in vacuum trucks licensed to handle hazardous waste. Once the clean-up is complete, the plant can reopen.~~

PART III
POST-CLOSURE PLAN
Attachment 13

§330.254 Post Closure Care Maintenance Requirements.

(a) Post-closure care maintenance requirements for The B.R. Perrin Plant.

(1) For minimum of the first five years after the completion of final closure, the owner or operator shall retain the right of entry to and maintain all rights-of-way of a closed MSW site in order to conduct periodic inspections of the closed unit or site. The owner or operator shall correct as needed subsidence or ponding of water on the unit or site. If any problem occurs after the end of the five-year post-closure maintenance period or persists for longer than the first five years of post-closure care maintenance, the owner or operator shall be responsible for their correction until the executive director determines that all problems have been adequately resolved. The executive director may reduce the post-closure maintenance period for MSW sites if all waste and waste residues have been removed during closure. Any monitoring programs (ground water monitoring, resistivity surveys, methane monitoring, etc. in effect during the life of the MSW site shall be continued during the post-closure care maintenance period.

(2) N/A. No post-closure monitoring programs at the B. R. Perrin Plant.

§330.255 Post-Closure Land Use

(a) The owner or operator shall submit any plans for proposed construction activities or structural improvements located on closed municipal solid waste (MSW) sites and not associated with approved solid waste disposal activities, with supporting documentation in accordance with subsection (b) of this section, to the executive director for review and approval. To date, no plans for proposed construction activities or structural improvements located on the B.R. Perrin Plant after closure exist.

b) N/A. No plans for proposed construction activity or structural improvements to be located on the B.R. Perrin Plant after closure exists.

(c) N/A. No plans for proposed construction activity or structural improvements to be located on the B.R. Perrin Plant after closure exists.

(d) N/A. No post-closure alteration or disturbances plans exist at this time.

(e) N/A. No cover or liner at the B.R. Perrin Plant exist.

(f) N/A. No plans for proposed construction activities or structural improvements after closure of the B.R. Perrin Plant exist.

STATE OF TEXAS
GEORGE W. [illegible] OYES
86485
LICENSED
PROFESSIONAL ENGINEER

WESTPARK DRIVE CLOSURE COST ESTIMATE

The following is a description of closure activities that would be required to be performed by a third party to close the facility. The closure cost estimate assumes worst case conditions exist at the facility at the time of closure. Closure activities would include at a minimum the following activities:

1. Removal of all waste material stored on site. Closure cost assume that the receiving tanks and storage tanks are full of unprocessed waste that would have to be disposed of at an approved off-site facility;

2. Dismantling all process equipment and tankage;

3. Removal of all dismantled equipment; and

4. Final cleanup of the site with disposal of all litter, debris and any contaminated soils at an approved landfill.

Removal of Unprocessed Waste

To estimate a closure cost, it is assumed that both the receiving tanks and storage tanks will contain unprocessed waste material. This could account for as much as 10,000 gallons of material, or 200 cu. yds. of waste that would have to be removed, transported and disposed at an approved facility. Currently the nearest approved facility site would be located in Houston, Texas. Costs to remove, transport and dispose of 200 cu. yds. of waste would cost $26,803.62. (See attached cost sheet).

Dismantling of Process Equipment and Tankage

This closure cost estimate includes dismantling and removing the plant itself, which includes all receiving tank, storage tanks, recycling tanks, equipment, roll-off cars and mobile offices. No demolition would be required to vacate the site. Estimated moving costs of removing all equipment and tankage from the site is $15,000.00;

Final Site Cleanup

Cost of this phase of facility closure assumes that only litter and debris remain on-site that require removal and disposal. Costs also include removal and disposal off-site of 40 cubic yards of contaminated soil resulting from accidental spillage. Estimated costs for this phase of the facility closure is $2,500.00

Over-site of Facility Closure by a Third Party

Cost of over-site by a third party are included in each of the cost elements described above.

Summary of Facility Closure Costs

Removal of Unprocessed Waste	26,803.62
Dismantling & Removal of Equipment & Tankage	15,000.00
Final Site Cleanup	2,500.00
TOTAL CLOSURE COSTS	**$44,303.62**

GARY TIPTON ENTERPRISES
SOLIDIFICATION DIVISION

DATE
BID #

COMPANY	Downstream Env.	MATERIAL	Waste Sludge
CONTACT	Dan Noyes	QUANTITY	200 cu. yds.
PROJECT	Grease Trap Sludge	# PEOPLE	3
LOCATION	Houston, Texas	JOB DAYS	10
TYPE/DAY	20 MARGIN 30%		PAGE 1 OF 1

MATERIAL OR SERVICES	QTY.	UNIT COST	COST DAY	BASE COST	BID PRICE
PERSONNEL					
LABOR	3	135.00	405.00	20.25	27.33
TAXES	3	33.75	101.25	5.06	6.58
PER DIEM	3	35.00	105.00	5.25	6.83
CHEMICALS/ADDITIVES					
FLY ASH(#'S / BASE)	300.00	0.04	240.00	12.00	15.60
CEMENT(#'S / BASE)	100.00	0.05	100.00	5.00	6.50
URRICHEM(GAL / BASE)	2.00	1.65	66.00	3.30	4.29
SULFIDE(# / BASE)	5.25	1.00	5.00	0.25	0.33
SULFURIC ACID(GAL/BASE)	0.5	5.34	26.70	1.34	1.74
LIME(#/BASE)	100.00	0.05	100.00	5.00	6.50
RENTALS(PER DAY)					
FORKLIFT (proj days 10)	1	75.00	75.00	3.75	4.88
BACKHOE/LOADER (days 10)			0.00	0.00	0.00
PICKUP (proj days 10)	1	50.00	50.00	2.50	3.25
TRAILER (proj days 10)	1	25.00	25.00	1.25	1.63
MIXER (proj days 10)	1	50.00	50.00	2.50	3.25
			0.00	0.00	0.00
			0.00	0.00	0.00
SAFETY EQUIPMENT					
FOOD (PER MAN/ DAY)	3	25.00	75.00	3.75	4.88
FREIGHT(PER PROJ)		0.00	0.00	0.00	0.00
FUEL(PER DAY)		5.00	5.00	0.25	0.33
SUPPLIES					
FORMS/BAGS(UNITS/BASE)		6.00	0.00	0.00	0.00
PLYWOOD(PER PROJ)		8.50	0.00	0.00	0.00
PLASTIC(PER PROJ)		50.00	0.00	0.00	0.00
MISC.					
TCLP(TESTS/PROJ)	5.00	40.00	20.00	1.00	1.30
TOTAL			$1.449	$72.45	$94.18
LANDFILL					
DISPOSAL/YD	200	15.00			3000.00
LANDFILL TAX		6.00			1200.00
PROCESSING & CLEANUP		94.18			18836.35
CONTINGENCY (+20%)	20%				3767.27
TOTAL COST					$26,803.62

REMARKS:

BID PRICE IS PER CUBIC YARD

STATE OF TEXAS
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STATE OF TEXAS
GEORGE W. NOYES
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PROFESSIONAL ENGINEER

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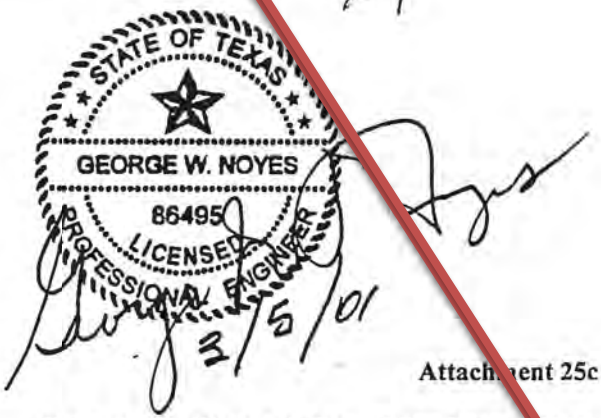
Attachment 25b

CLOSURE SCHEDULE

CLOSURE ITEM DESCRIPTION	SCHEDULE
Initiate final closure activities (detailed in Closure Cost Estimate)	No later than 30 days after the date on which site receives notice of closure.
Complete final closure activities in accordance with the final closure plan.	Within 180 days following the initiation of final closure activities.
Submit "Affidavit to the Public" to the executive director in accordance with §330.7	Within 10 days after completion of final closure activities at the facility.



FACILITY COMPLETION AND CLOSURE PROCEDURES

As required by §330.253, the following is a closure plan for the facility.

The estimated maximum inventory of waste ever on-site over the active life of the facility will be approximately 50,000 gallons. All activities necessary to satisfy closure criteria shall be completed within 180 days following the initiation of final closure activities. A detailed written cost estimate is attached.

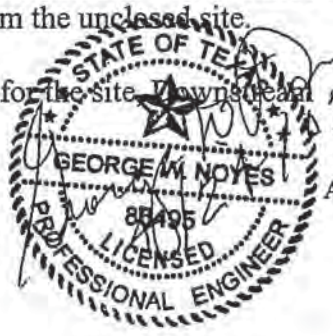
In the event that the facility is required to discontinue receiving and transferring solid waste, a site survey and file review will be conducted to determine closure activities. Closure activities will include preparation of engineering plans and bid documents, procurement of bids, and contract ward and administration of contract. All remaining wastes will be accumulated and transported to a permitted disposal facility and process units will be partially or fully dismantled. A general cleanup of the site and all processing equipment, to include wash down and disinfection of the facility, removal, transport, treatment, disposal of all wash down waters/media, and vector control procedures will be performed. The site and building will be secured as appropriate, and all utilities disconnected to the facility. Installation of a closed sign stating that the facility is closed and securing all buildings and access gates by locks and/or additional fencing will be performed. Certification of abandonment and completion of cleanup will be performed.

No later than 45 days prior to initiation of closure activities, Downstream Environmental shall provide written notification to the executive director of the intent to close the site and place this notice of intent in the operating record. No later than 90 days prior to the initiation of final facility closure, Downstream Environmental, through a public notice in the newspaper(s) of largest circulation in the vicinity of the facility, shall provide public notice for final facility closure. This notice shall provide the name, address and physical location of the facility, the registration number, and the last date of intended receipt of waste. Downstream Environmental shall also make available an adequate number of copies of the approved final closure plants for public access and review.

Downstream Environmental will begin final closure activities at the site no later than 30 days after the date on which the site receives the known final receipt of wastes.

Downstream Environmental shall complete final closure activities for the site in accordance with the approved final closure plan within 180 days following the initiation of final closure activities as specified in §330.253(e)(7). A request for an extension of the completion of final closure activities may be submitted to the executive director for review and approval and shall include all applicable documentation necessary to demonstrate that final closure will, of necessity, take longer than 180 days and all steps have been taken and will continue to be taken to prevent threats to human health and the environment from the unclosed site.

Following completion of all final closure activities for the site, Downstream



Attachment 25a

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Revised
4/24/03

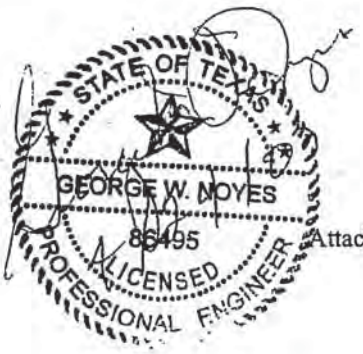
Environmental shall submit to the executive director for review and approval a documented certification, signed by an independent registered professional engineer, verifying that final closure has been completed in accordance with the approved final closure plan. The submittals to the executive director shall include all applicable documentation necessary for certification of final closure. Once approved, this certification shall be placed in the operating record.

Upon notification to the executive director of the intent to close the site, Downstream Environmental shall post a minimum of one sign at the main entrance and all other frequently used points of access for the facility notifying all persons who may utilize the facility or site of the date of closing for the entire facility or site and the prohibition against further receipt of waste materials after the stated date. Further, suitable barriers shall be installed at all gates or access points to adequately prevent the unauthorized dumping of solid waste at the closed facility or site.

A closure schedule for completing all activities necessary to satisfy the closure criteria is included in the attached.

Following receipt of the required final closure documents, as applicable, and an inspection report from the commission's district office verifying proper closure of the facility according to the approved final closure plan, the executive director may acknowledge the termination of operation and closure of the facility and deem it property closed.

Post closure requirements outlined in §330.254(a), §330.255, and §330.256 are not applicable to this facility.



PROSPERITY BANK[SM]

January 18, 2002

Mr. Jeffrey Saitas, Executive Director
TNRCC – MC-100
P.O. Box 13087
Austin, TX 78711-3087

Re: Municipal Solid Waste – Harris County – Downstream Environmental, LLC – Registration No. MSW – 43008

Dear Mr. Saitas:

We hereby establish our Irrevocable Standby Letter of Credit No. 203 in your favor, at the request and for the account of Downstream Environmental, LLC, Registration No. MSW-43008 in the amount of $44,500.00 for closure, post-closure and/or corrective action, up to the aggregate amount of FORTY FOUR THOUSAND FIVE HUNDRED AND NO/100 U.S. DOLLARS $44,500.00, available upon presentation of

1 Your sight draft, bearing reference to this letter of credit No. 203, and

2 Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of the Resource Conservation and Recovery Act of 1976 as amended."

This letter of credit is effective as of January 21, 2002 and shall expire on January 21, 2003, but such expiration date shall be automatically extended for a period of at least 1 year on January 21, 2003, and on each successive expiration date, unless, at least 120 days before the current expiration date, we notify in writing both you and Downstream Environmental, LLC by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by both you and Downstream Environmental, LLC, as shown on the signed return receipts.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of Downstream Environmental, LLC in accordance with your instructions. We certify that the wording of this letter of credit is identical to the wording specified in 31 Texas Administrative code § 330.286(e) as such regulations were constituted on the date shown immediately below.

00060

PROSPERITY BANK

BY: Bob Benter
Bob Benter

DATE: 1/18/02

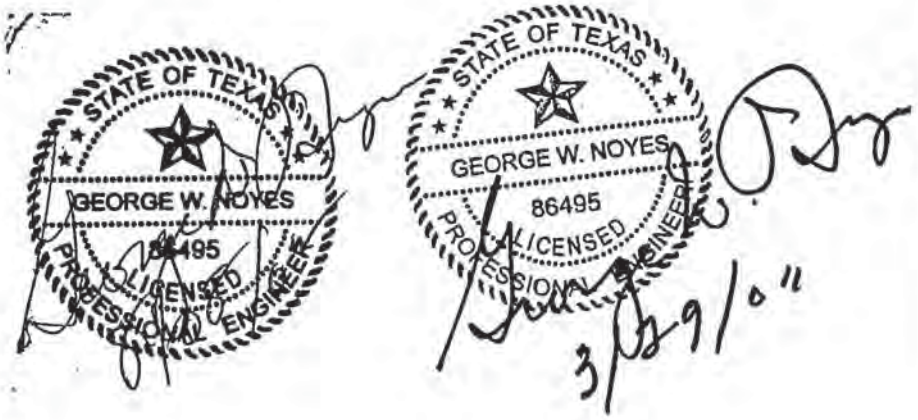
DOWNSTREAM ENVIRONMENTAL, LLC

BY: Mary Wimbish
Mary Wimbish

This credit is subject to the most recent edition of the Texas Uniform Commercial Code.

ENGINEER'S STATEMENT

I, George W. Noyes, certify that the following data from Clean Air Systems, Inc. is true and correct and will be included in this system.



ODOR CONTROL

00062

CLASSI

Clean Air Systems, Inc.
6278 N. Federal Highway, Suite 166
Ft. Lauderdale, Florida 33308
1-954-785-9911

MATERIAL SAFETY DATA SHEET

Section 01 CHEMICAL NAME & SYNONYMS

Enzymes derived from *Azotobacter*, *Bacillus* & *Clostridium* with micro-nutrients & trace minerals added.

TRADE NAME & SYNONYMS

CLASSI-100or CLASSI-100F

Section 02 HAZARDOUS INGREDIENTS

None

Section 03 PHYSICAL DATA

Boiling Point - 212°F
Vapor Pressure-N/A
Vapor Density-1.4xAir
Solubility in Water-Complete

Appearance/Color-Clear to Yellow liquid
Specific Gravity-Approximately 1, pH~3
Evaporation Rate-Slower than ether
Scented

Section 04 FIRE & EXPLOSIVE HAZARD DATA

Non-Combustible.

Section 05 HEALTH & SAFETY RECOMMENDATIONS

Eye Contact-Flush with clean water for 15 minutes. If irritation persists, consult a physician. Eye protection should be used in handling concentrate.

Skin Contact-Wash with soap and water. If irritation develops, consult a physician.

Ingestion -The LD_{50} in acute oral toxicity studies was greater than 5,000 mg/kg. Not intended for human or animal consumption. If large quantities are ingested call a physician.

Inhalation -Use in ventilated area; however, if symptomatic remove to fresh air and get medical attention if symptoms persist.

Carcinogens -This products ingredients are not found in the lists of OSHA, NTP, and IARC.

Section 06 REACTIVITY DATA

Stable.

Polymerization will not occur.

No hazardous decomposition products.

Conditions to Avoid - (1) Formaldehyde-based products.
(2) Prolonged exposure to direct sunlight.
(3) Prolonged storage above 106°F.

Section 07 SPILL, LEAK and DISPOSAL PROCEDURES

Clean up to prevent slipping or falling hazard. Follow all applicable federal, state and local regulations.

Section 08 SPECIAL PROTECTION INFORMATION

Specific Personal Protective Equipment :

Respiratory - None required.
Eye - Protective glasses or goggles required.
Gloves - Rubber gloves required.
Other Clothing and Equipment - None required.

Section 09 SPECIAL PRECAUTIONS

Avoid contact with skin and eyes.
Do not ingest.
Keep lid tightly closed.
Store in a dry area, above freezing and below 100° F, out of direct sunlight.
Keep out of the reach of children.
Mix well before using.

MATERIAL SAFETY DATA SHEET

PHONE : 954-785-9911
EMERGENCY PAGER : 800-608-7458

SECTION I

Manufacture's Name	:	Clean Air Systems, Inc.
Address	:	6278 N. Federal Highway, Fort Lauderdale, Florida 33308
Chemical Name	:	CLASSI-200
Generic Family	:	NA
Revision Date	:	1-18-99
Name Of Preparer	:	Regulatory Affairs Department

HAZARDOUS COMPONENTS NONE

Proprietary mixture :

Non-Pathogenic Odor Digesting Microbial Blend With Scented Counteractant

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Specific Gravity (H20 = 1)	: 1.0	Boiling Point	: >100 Deg. C
Vapor Pressure (mm Hg)	: =Water	Melting Point	: N/A Deg. C
Vapor Density (Air=1)	: =Water	Evaporation Rate	: 1 (Water=1)
Percent Volatile (by Volume)	: Nil	pH	: 6-7
Solubility in Water	: 99%		

Appearance:Slight brown colored liquid Odor: Perfumed

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point- Unknown
Flammable Limits: Unknown: Extinguishing Media: Carbon dioxide, dry chemical, water. Special Fire Fighting Procedures: None
Unusual Fire and Explosion Hazards: None

SECTION V - REACTIVITY DATA

Stability: Stable under normal conditions. Incompatibility (Materials to Avoid): Strong acids and oxidizing materials.
Decomposition or Byproducts: Carbon dioxide and Carbon monoxide
Hazardous Polymerization: Will Not Occur

Route(s) of Entry:
Inhalation? : yes
Skin? : yes
Ingestion? : yes
Eyes? : yes

Health Hazards (Acute and Chronic): HMIS rating H=1 F=0 R=0
Irritation of the mouth, pharynx, esophagus and stomach can develop followin ingestion.

Eye contact is painful and irritating and may cause burns.

Skin contact may cause irritation.
Dermatitis and skin sensitization can develop after repeated and/or prolonged contact with skin.

Inhalation: Mist caused by manufacturing operation may irritate nasal passages and throat.

Occupational Exposure Limits:

CAS NO.	OSHA STEL	OSHA PEL	ACGIH TLV	ACGIH CEILING	OTHER SKIN

Carcinogenicity:
NTP? : No
IARC Monographs? : No
OSHA Regulated? : No

Signs and Symptoms of Exposure:
Inhalation : Irritation.
Skin Contact : Irritation
Ingestion : Abdominal discomfort, nausea, and diarrhea may occur.
Eye Contact : Burning, irritation.

Medical Conditions Generally Aggravated by Exposure: Not known

Emergency and First Aid Procedures:
Inhalation : Remove to fresh air.
Skin Contact : Remove contaminated clothing, wash with soap and water.
Ingestion : Drink milk or water to dilute, Induce vomiting only if advised by physician.
Eye Contact : Flush with copious amounts of water for at least 15 minutes and have eyes examined and treated by medical personnel.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps To Be Taken in Case Material is Released or Spilled:
Small Spills: Mop up or absorb on inert material.
Large Spills: Contain and place in appropriate container for disposal.
Waste Disposal Method: Disposal of this product or its residues must be in accordance with all local, state and Federal requirements.

Avoid temperatures above 110 F. and keep from freezing. Keep out of direct sunlight.
Precautions To Be Taken in Handling and Storing: Follow good housekeeping and hygiene practices to help prevent accidental exposure or ingestion.
Other Precautions: Wash affected areas of body after using.

SECTION VIII - CONTROL MEASURES

Respiratory Protection: respiratory equipment not required under normal conditions.
Ventilation: Yes Local Exhaust: Yes Forced Exhaust: No
Protective Gloves: Rubber
Eye Protection: Goggles
Other Protective Clothing or Equipment: None
Work/Hygienic Practices: Wash hands and face before eating, drinking or smoking after handling material.

SECTION IX - REGULATORY INFORMATION & REFERENCES

ot subject to Proposition 65 labeling requirements.
11 non biological ingredients are listed on the TSCA inventory.

SARA TITLE III REPORTING REQUIREMENTS

CTION 302 Reporting :
CTION 304 Reporting : No
CTION 313 Reporting Required: No
CTION 312 Reporting Required: No
RCLA Reporting required if above: NA
A Reporting required: No

ER:

idian WHMIS Classification: Class D2B

T. Hazard Class: Non Regulated.

SOUTHERN SPECTROGRAPHIC LABORATORY

P.O. BOX 153469
IRVING, TEXAS 75015-3469
TEL. (214) 986-1745
METRO (214) 399-1828
FAX (214) 399-1828

LABORATORY TEST CERTIFICATE

June 27, 1996

Report#: 0696-27-256 (Page 2 of 2)

ANALYTICAL RESULTS:

Parameter	Sample # 1	2	3	4	5	6	7
Total Volatile Hydrocarbons, mg/m³	925	120	62	78	70	1,490	426
Volatile Organic Acid, mg/m³:							
Acetic Acid	139	18	5	7	8	94	25
Propionic Acid	40	13	8	5	7	26	12
Butyric Acid	240	35	22	18	12	415	59
Valeric Acid	106	2	< 1	2	6	60	11
Other Acid(Total)	210	19	10	17	12	290	66
Aldehydes, mg/m³							
Formaldehyde	<1	<1	<1	<1	< 1	2.5	<1
Butyraldehyde	79	11	2	5	8	209	71
Acetaldehyde	32	2	3	1	2	18	4
Alcohols, mg/m³							
Total, As Ethanol	29	< 1	< 1	3	5	65	12
Other Volatile Compounds Not Identified, Total, mg/m³	50	20	12	20	10	311	166

Gary Cude, CPC

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps To Be Taken in Case Material is Released or Spilled:
Small Spills: Mop up or absorb on inert material.
Large Spills: Contain and place in appropriate container for disposal.
Waste Disposal Method: Disposal of this product or its residues must be in accordance with all local, state and Federal requirements.

Avoid temperatures above 110 F. and keep from freezing. Keep out of direct sunlight.
Precautions To Be Taken in Handling and Storing: Follow good housekeeping and hygiene practices to help prevent accidental exposure or ingestion.
Other Precautions: Wash affected areas of body after using.

SECTION VIII - CONTROL MEASURES

Respiratory Protection: respiratory equipment not required under normal conditions.
Ventilation: Yes Local Exhaust: Yes Forced Exhaust: No
Protective Gloves: Rubber
Eye Protection: Goggles
Other Protective Clothing or Equipment: None
Work/Hygienic Practices: Wash hands and face before eating, drinking or smoking after handling material.

SECTION IX - REGULATORY INFORMATION & REFERENCES

Not subject to Proposition 65 labeling requirements.
All non biological ingredients are listed on the TSCA inventory.

SARA TITLE III REPORTING REQUIREMENTS

SECTION 302 Reporting :
SECTION 304 Reporting : No
SECTION 313 Reporting Required: No
SECTION 312 Reporting Required: No
CERCLA Reporting required if above: NA
RCRA Reporting required: No

OTHER:

Canadian WHMIS Classification: Class D2B

D.O.T. Hazard Class: Non Regulated.

REFERENCES

The data and recommendations presented herein are believed to be accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.

Clean Air Systems, Inc. assumes no responsibility for injury to customers or third persons caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, since actual use by others is beyond our control, no guarantee, expressed or implied, is made by Clean Air Systems, Inc. as to the effects of such use, the results to be obtained, or the safety and toxicity of the product nor does Sybron Chemicals Inc. assume any liability arising out of use, or misuse, by others, of the product referred to herein.

Information provided herein is provided by Clean Air Systems, Inc. solely for customer's assistance in complying with the Occupational Safety and Health Act of 1970 and regulations thereunder. Any other use is prohibited.

DRAGON ENVIRONMENTAL CORPORATION
903 W Third Street, Sanford, Florida 32771
Tel: (407)330-3900 Fax: (407)330-7755
(800) 726-0033 E-mail: Dragon@iag.net

DRAGON REPORT: DSR0004004082098

August 20, 1998

To: CLEAN AIR SYSTEMS, INC.
6278 N. Federal Highway, Suite 166
Ft. Lauderdale, Florida 33308

Tel: 954-785-9911
Fax: 954-783-8535

From: Dr. Hildegarde L. A. Staninger
Vice President, Scientific Research and Development
Dragon Environmental Corp.

TOXICOLOGICAL EVALUATION ANALYSIS

Introduction:

A Toxicological Evaluation Analysis (TEA) was performed on Classi-100.

Ingredients: Enzymes derived from *Azotobacter, Bacillus* & *Clostridium* with micronutrients and trace minerals added. (Information taken from MSDS Classi-100.)

Review of the Acute Oral Toxicity Screen Report for Classi-100 and Acute Inhalation Toxicity Screen Report for Classi-100 revealed that there was absolutely no ill health observations for the entire 14-days of the observation period. In addition, the test animals (rats) thrived before sacrifice for gross necropsy. No toxic symptoms were observed in any of the test animals. See attached definition sheet.

Conclusion:

The compounds found in Classi-100 are non-toxic and non-hazardous nor corrosive in levels as high as 5,000 ppm as defined by U.S. Environmental Protection Agency Regulations and U.S. Occupational Safety and Health Regulations. During the LD_{50} Acute Inhalation Test no animals died and they thrived at levels of 5,000 ppm, i.e. no true LD_{50} was established.

Signature: _____ Date: 8/20/98

Hildegarde L.A. Staninger, Ph.D., RET-1
Title: Vice President, Scientific Research and Development
Classification: Toxicologist and Industrial Hygienist

DRAGON ENVIRONMENTAL CORPORATION
903 W Third Street, Sanford, Florida 32771
Tel: (407)330-3900 Fax: (407)330-7755
(800) 726-0033 E-mail: Dragon@iag.net

DRAGON REPORT: DSR000500100099

May 10, 1999

To: CLEAN AIR SYSTEMS, INC
6278 N. Federal Highway, Suite 168
Ft. Lauderdale, Florida 33308

Tel: 954-785-9911
Fax: 954-783-8535

From: Dr. Hildegarde L.A. Staninger, RIET-1*
Vice President, Scientific Research and Development
Dragon Environmental Corp.
Note: * RIET-1 is NREP's Registered Industrial Environmental Toxicologist.

TOXICOLOGICAL EVALUATION ANALYSIS

Introduction: A Toxicological Evaluation Analysis (TEA) was performed on Classi-200.

Recommended Use: Classi-200 is recommended for waste water applications.

Ingredients: No hazardous components. A proprietary mixture of non-pathogenic odor digesting microbial blend with scented counter actant. The non-pathogenic microorganisms are made up of *Bacillus licheniformis, Bacillus amyloliquifaciens, Bacillus pastueri, and Bacillus laevolacticus. (See attached definition sheet of EPA/OSHA terms.)*

Review of a set of four toxicity studies on the mixture included acute oral, acute inhalation, eye sensitivity and dermal sensitivity for Classi-200 revealed, that there was absolutely no ill health observations for the entire 10-14 days of observation period. Test specimens (rats) thrived (experienced weight gain) before sacrifice for gross necropsy. Gross necropsy revealed no organ damage nor neoplasms. Classi-200 when diluted as specified by manufacturer would not be a sensitizer.

Conclusion: The compounds found in Classi-200 are non-toxic and non-hazardous nor corrosive in levels as high as 5,000 ppm as defined by U.S. Environmental Protection Agency Regulations and U.S. Occupational Safety and Health Regulations. During the LD_{50} Acute Inhalation and Acute Oral Tests revealed no animals died and they thrived at levels of 5,000 ppm, i.e., no true LD_{50} was established (all animals lived).

Signature: _____ Date: May 10, 1999
Hildegarde L.A. Staninger, Ph.D., RIET-1
Title: Vice President, Scientific Research and Development
Classification: Toxicologist and Industrial Hygienist

DRAGON ENVIRONMENTAL CORPORATION
905 W Third Street, Sanford, Florida 32771
Tel: (407)330-3900 Fax: (407)330-7755
(800) 726-0033 E-mail: Dragon@iag.net

DRAGON REPORT: DSR000500100099

May 10, 1999

To: CLEAN AIR SYSTEMS, INC
6278 N. Federal Highway, Suite 168
Ft. Lauderdale, Florida 33308

Tel: 954-785-9911
Fax: 954-783-8535

From: Dr. Hildegarde L.A. Staninger, RIET-1*
Vice President, Scientific Research and Development
Dragon Environmental Corp.
Note: * RIET-1 is NREP's Registered Industrial Environmental Toxicologist.

TOXICOLOGICAL EVALUATION ANALYSIS

Introduction: A Toxicological Evaluation Analysis (TEA) was performed on Classi-300.

Recommended Use: Classi-300 is recommended for solid waste applications.

Ingredients: No hazardous components. A proprietary mixture of non-pathogenic odor digesting microbial blend with scented counter actant. The non-pathogenic microorganisms are made up of *Bacillus licheniformis, Bacillus amyloliquifaciens, Bacillus pastueri, and Bacillus laevolacticus. (See attached definition sheet of EPA/OSHA terms.)*

Review of a set of four toxicity studies on the mixture included acute oral, acute inhalation, eye sensitivity and dermal sensitivity for Classi-300 revealed, that there was absolutely no ill health observations for the entire 10-14 days of observation period. Test specimens (rats) thrived (experienced weight gain) before sacrifice for gross necropsy. Gross necropsy revealed no organ damage nor neoplasms. Classi-300 when diluted as specified by manufacturer would not be a sensitizer.

Conclusion: The compounds found in Classi-300 are non-toxic and non-hazardous nor corrosive in levels as high as 5,000 ppm as defined by U.S. Environmental Protection Agency Regulations and U.S. Occupational Safety and Health Regulations. During the LD_{50} Acute Inhalation and Acute Oral Tests revealed no animals died and they thrived at levels of 5,000 ppm, i.e., no true LD_{50} was established (all animals lived).

Signature: _____ Date: May 10, 1999
Hildegarde L.A. Staninger, Ph.D., RIET-1
Title: Vice President, Scientific Research and Development
Classification: Toxicologist and Industrial Hygienist

DEFINITION

1. Corrosive - as defined by DOT, a corrosive material is a liquid or solid that causes visible destruction or irreversible alterations in human skin tissue at the site of contact or in the case of leakage from its packaging or liquid that has a severe corrosive rate on steel. The common examples are caustic acid and sulfuric acid.

2. Toxic Substance - any substance which can cause acute or chronic injury to the human body, or which is suspected of being able to cause disease or injury under some conditions.

3. Hazardous Material - any chemical which is a physical hazard or a health hazard.

4. Physical Hazard - any chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water reactive.

5. Health Hazard - a chemical for which there is "*statistically significant*" evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed individuals. The term "*health hazard*" includes chemicals which are carcinogenic, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system and agents which damage the lungs, skin, eyes, or mucous membranes. (Hematopoietic system - the blood forming Mechanisms of the human body.)

Definitions taken from The Comprehensive Handbook of Hazardous Materials: Regulations, Handling, Monitoring, and Safety by Hildegarde Sacarello. Lewis Publishers/CRC Press. Boca Raton, Florida. 1994. ISBN: 0-87371-247-1.

EFFICACY TESTS AT A TRAP GREASE RENDERING PLANT

TEST REPORT ON PERFORMANCE OF OMCO-100 (AKA CLASSI-100)

Site : MESA PROCESSORS
11115 Goodnight Lane
Dallas, Texas

Analytical Laboratory : SOUTHERN SPECTROGRAPHIC LABORATORY
Gary Cude, CPC

Report Prepared For OMCO By : CLEAN AIR SYSTEMS, Inc.
Dr. Barry Liss, PhD-ChE

ABSTRACT

Tests were conducted to evaluate the performance of OM-100 (AKA CLASSI-100) in the reduction of mal-odor emissions from the Mesa Processors facility at 11115 Goodnight Lane in Dallas, Texas.

Use of OM-100 in the existing system demonstrated superior performance and a reduction in operating costs compared to the product previously used (Ecosorb).

A substantial reduction (over 70%) in inlet loading to the existing scrubber was observed during back pack spraying of the OM-100 inside the building.

These tests also demonstrated that use of the bioenzymatic formula OM-100 destroys mal-odor molecular species rather than merely masking their odors.

The results of this testing support expectations that use of -

(1) a Scrub-Jector Exhaust Vent Treatment System and

(2) a Turbo-Jet Pipeline System inside the processing building

will result in a cost effective mal-odor abatement protocol for Mesa Processor's facility and eliminate neighbor and regulatory harassment

BACKGROUND - INTRODUCTION

Mesa Processors operates a facility at 11115 Goodnight Lane in Dallas, Texas which processes grease wastes from restaurants, grease traps, etc. .

The most significant sources of mal-odor emissions from this processing are :

(1) those generated in the receiving areas, particularly during the period when grease trap waste is being unloaded from the trucks,

(2) emissions from the shaker and the associated dumpster,

(3) the processing tanks and centrifuges, and

(4) the chlorine-caustic scrubber exhaust.

This past fall, a set of conventional two fluid (air/liquid) nozzles were installed to treat the scrubber exhaust stack. Two nozzles were installed at the base of the stack and four at the top of the stack. Each nozzle feeds a nominal rates of 0.75 gallons per hour of ready-to-spray diluted mixture (RTSDM) for a total of 4.0 gallons per hour of RTSDM. Mesa Processors was using 3.0 gallons of Ecosorb at a price of about $30.00 per gallon in a 55.0 gallon drum (reservoir) to supply the spray system consuming nearly the entire drum in the 12 or so hours the plant is operated each day.

A significant mal-odor intensity was still noted from the sniff tube which enables the stack odor intensity and quality to be monitored from the ground.

Mal-odor emissions occurring during the unloading of grease trap waste was treated with a portable mist sprayer. A 50/50 Ecosorb/water solution was required to achieve any significant extent of mal-odor reduction.

Mal-odors generated inside the building during processing would escape when the front doors were opened during receiving. The portable mist sprayer was also used at these locations to reduce nuisance emissions.

Use of the aforementioned protocol still left Mesa Processors management with many frequent complaints from their neighbors to regulatory agencies.

Dr. Barry Liss of Clean Air Systems, Inc. was retained by OMCO in May to evaluate the site and recommend product, systems and a protocol to satisfactorily abate the nuisance mal-odor emissions.

After a preliminary site inspection in May, demonstrations of OMCO's bioenzymatic formula OM-100 were made in June including :

(1) use of OM-100 in the portable mist sprayer at the same concentration as the Ecosorb was applied resulting in the OM-100 significantly outperforming the Ecosorb in subjective tests conducted by both Mesa and OMCO personnel (in fact Mesa has been able to cut the concentration from 50% to 10% using the OM-100 in the portable mist sprayer and still get effective odor control !!!)

(2) use of the OM-100 in the spray system treating the scrubber exhaust in which sniff tube testing showed a significant improvement in the reduction of mal-odor intensity in the stack.

(3) back pack spraying in the processing building in which a significant reduction in mal-odors was observed and noted by both Mesa and OMCO personnel.

The first OMCO bioenzymatic formula tested had a citrus fragrance and a surfactant in it which raised questions including whether the OM-100 was masking odors rather than destroying them.

The back pack sprayer test was repeated without any fragrance which might mask mal-odors and without a surfactant in the OM-100 formula which could cause eye or inhalation irritation. Testing was conducted at a time of peak mal-odor generation during the "cooking" process and again substantial reduction in mal-odor intensity was observed and acknowledged by both Mesa management and workers.

In order to confirm the subjective observations described above and to develop operating data on the existing systems, an analytical laboratory (Southern Spectrographic Laboratory) was retained to perform sampling and chemical analyses.

A description of the tests performed are described in the next section.

DESCRIPTION OF TESTING

Three tests were conducted to evaluate the use of OM-100 for fugitive nuisance mal-odor emissions at the Mesa Processors facility in Dallas, Texas.

The first test was performed to quantify the performance of the existing chlorine-caustic scrubber.

The stack which vents the exhaust of the scrubber is 42" in diameter and approximately 20' high. A sampling tube (consisting of 2" PVC pipe) was placed horizontal (normal to the flow of the exhaust) at the top of the stack extending radially inward approximately 12" from the stack's rim. There was a 50' run of 2" PVC pipe down to ground level where a 100 CFM exhaust fan was used to induce flow of the sampled gas. A hole was drilled just upstream of the fan in which the analytical sampling tube was inserted.

For this test the existing odor control system was shut off. At the same time that a sample was being drawn upstream of the sampling fan, a sample was drawn inside the building at the entrance to the scrubber plenum.

Southern Spectrographic Laboratory (SSL) used an aspirator to draw samples over a 15 minute period (as per below) through an inventory of charcoal in a glass sampling tube. Upon completion of sampling, the glass tube was labeled and placed in an ice chest to inhibit further biodegradation of the material sampled.

On June 17, 1996 SSL performed a preliminary sampling of the exhaust stack to determine which were the dominant volatile organic hydrocarbons (VOHC's) in the vent gas and also to determine the duration of sampling and the mass of charcoal required to assure adequate analysis. From these scoping tests it was decided to measure total VOHC's, total VOA's (volatile organic acids), total alcohols, several aldehydes and by difference compute other volatile compounds.

The second set of tests were conducted using the existing spray system in the scrubber's exhaust vent stack. There are two nozzles at the base of the stack and four nozzles at the top of the stack. Gas residence time in the stack is under one second. The dilution ratios of the enzyme concentrate (OM-100) in the spray system tested were 11/1 (gal-RTSDM/gal OM-100), 22/1 and 33/1.

The third test involved both the resampling of the inlet to the exhaust scrubber and the testing of the reduction in odorants inside the building while a backpack sprayer was being operated to simulate the effect of loading (treating) the air in the room with the bioenzymatic aerosol OM-100 by use of a Turbo-Jet Pipeline System. Fifteen minute samples were taken sequentially, first with no spraying and then with the backpack operating.

Analytical results for these tests are presented in a Laboratory Test Certificate from SSL appended to this report.

ANALYSIS OF TEST RESULTS

This section provides the basis for the reduction of the data and an analysis of the test results.

Existing Chlorine-Caustic Scrubber Performance

Samples labeled #1 and #2 in the SSL report represent the inlet and exit concentration of the scrubber. Accordingly, the inlet loading to the scrubber was at 925 mg/M³ (corresponding to 925 PPM) total VOHC's and the exit concentration was 120 mg/M³ (120 PPM). The computed percent reduction of total VOHC's in the scrubber is 87%.

Performance of OM-100 in Existing Spray System

Samples labeled #3, #4 and #5 in the SSL report correspond to exit concentrations out of the stack at 22/1, 33/1 and 11/1 dilutions (gal-RTSDM/gal OM-100) respectively. For the first two samples the same inlet loading as per sample #1 was used to compute the reduction in VOHC's. Whereas the odor intensity had increased later in the test period prior to 4:00PM (associated with normal fluctuations in plant processing) the inlet concentration used to compute the reduction of sample #5 was based on sample #6. A plot of reduction in total VOHC (in mg/M³) versus concentration of enzyme (in gal OM-100/gal-RTSDM) is presented graphically in the appendix.

Back Pack Spraying Inside the Processing Building

Samples #6 and #7 provide data on the inlet loading to the scrubber before and after the back pack sprayer was turned on respectively. The back pack was aimed at the exhaust vent. The application rate of enzyme during this period corresponds to a four gallon per 12-hr operating day consumption. A 1063 mg/M³ (73%) reduction in VOHC loading to the scrubber was computed from the data.

A lower application rate can be expected when the OM-100 is applied uniformly through out the building which will given more retention time for the enzymes to biodegrade the VOHC's inside the building.

Operating at the percent reduction observed would have a significant impact on nuisance mal-odor fugitive emissions during periods when any of the three overhead doors are required to remain open.

Further Analysis of the Data

In order to economize a minimal number of samples were taken: accordingly there was no sample taken with water only in the spray system. The trend of the data (which were collected at constant total liquid injection into the spray system) clearly shows an improvement in VOHC reduction with increasing OM-100 concentration supporting the contention that OM-100 destroys mal-odorants rather than merely masking their presence. This contention is also supported by higher concentrations of aldehydes (particularly during the back pack spraying test) which are intermediate decomposition products of VOA's.

The reader should be cautioned not to make broad generalizations or extrapolations of this data.

On the negative side it should be recognized that the sampling procedure has an inherent error in it corresponding to the zero to fifteen minute retention time the materials collected had at ambient temperature prior to chilling. This error would not change the basic trend of the data and the resulting conclusions.

On the positive side it should be noted that only two of the six nozzles in the spray system in the vent stack were located at a point below the entrance to the 2" sampling tube. Accordingly one could argue that the application rate was actually 1/3 of the four GPH-RTSDM nominal total flow rate in the spray system. Sampling of the atmosphere at a distance from the stack and a complex atmospheric dispersion modeling would be required to quantify more accurately the systems performance. However, the fact that the **OM-100** (priced roughly the same as the Ecosorb) was able to be applied at 1/5th the dilution as the Ecosorb in the portable mist system gives support to the contention that the economics of **OM-100** bioaerosol treatment is far superior to that of a masking agent. Other anecdotal evidence that supports this contention was reported to the author of this report by the Mesa plant manager who stated that his spraying of his clothes with the **OM-100** resulted in sustained deodorization as did his laboratory assistants spraying of her hair No other odor control substance to date had achieved these results.

CONCLUSIONS AND RECOMMENDATIONS

Below are the conclusions and recommendations of the author of this report.

Conclusions

The tests performed demonstrate that

(1) enzymatic bioaerosol treatment with OM-100 promotes the biodegradation of VOHC species (that are the source of nuisance mal-odor emissions complaints),

(2) OM-100 does not mask mal-odors, and

(3) use of OM-100 is more cost effective than Ecosorb in the existing equipment at Mesa Processors.

Recommendations

It is recommended that

(1) on an interim basis, OM-100 be used in the existing post scrubber spray system to reduce operating costs and minimize nuisance complaints,

(2) a Scrub-Jector Exhaust Vent Treatment System as outlined in the OMCO proposal dated June 7, 1996 be installed to reduce product consumption and reduce maintenance costs, and,

(3) a Turbo-Jet Air-Curtain Pipeline System be installed inside the processing building to minimize nuisance mal-odor emissions from escaping when any of the three overhead doors are opened.

EXHIBIT 1

SOUTHERN SPECTROGRAPHIC LABORATORY

LABORATORY TEST CERTIFICATE

DATED : June 27, 1996

SOUTHERN SPECTROGRAPHIC LABORATORY

P.O. BOX 153469
IRVING, TEXAS 75015-3469
TEL (214) 986-1745
METRO (214) 399-1828
FAX (214) 399-1828

LABORATORY TEST CERTIFICATE

June 27, 1996

OMCO, Inc.
318 W. Rusk St.
Tyler, Texas 75701

Report#: 0696-26-256 (Page 1 of 2)

RE: Air Sampling and Analysis at Mesa Corp.,11115 Goodnight Ln. Dallas, Tx.

PO#: 960626

Sampling Date: 06-20-96

Sampled By: Gary Cude

SAMPLE #	SSL #	TIME PERIOD	
#1	96256	2:00 PM	Inside building at intake to scrubber without odor control
#2	96257	2:00 PM	Top of exhaust stack without odor control
#3	96258	3:00 PM	Top of exhaust stack with odor control(22:1 dil) spraying in stack
#4	96259	3:30 PM	Top of exhaust stack with odor control(33:1 dil) spraying in stack
#5	96260	4:00 PM	Top of exhaust stack with odor control(11:1 dil) spraying in stack
#6	96261	4:30 PM	Inside building at intake to scrubber without odor control
#7	96262	5:00 PM	Inside building at intake to scrubber with odor control spraying at random

Samples are discarded 30 days after reports are mailed unless prior arrangements are made. Test results relate only to the items tested and are not necessarily indicative of the qualities of apparently identical or similar products.

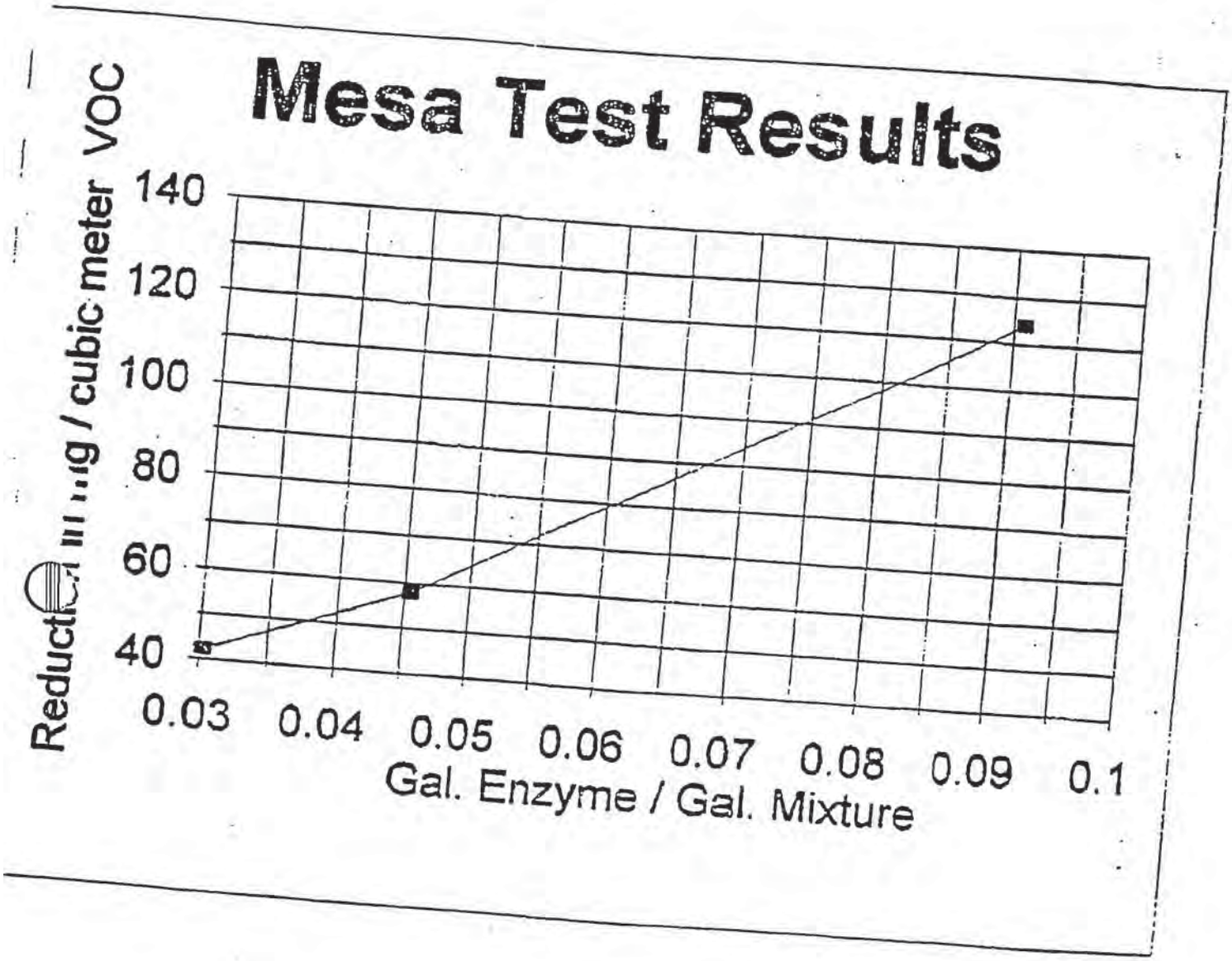
EXHIBIT 2

GRAPHICAL PRESENTATION OF DATA

Gallons OM-100 / Gallon Ready-to-Spray Diluted Mixture

versus

Reduction in Total VOHC (mg/M^3) Emissions


Mesa Test Results
Reduction in mg / cubic meter VOC
140
120
100
80
60
40
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
Gal. Enzyme / Gal. Mixture

Downstream Environmental, L.L.C.
2044 Bissonett
Project: 10400 Westpark Road
Subject: Two (2) DMR Bioreactor / Secondary Containment Calculations

Phone (713) 520-8113
Fax (713) 520-0138
January 9,200

Volume Required

Each Bioreactor is 10' Dia. X 15.5' S.W.D., Therefore,

V= 2((5X5) X 3.14159) X 15.5 X 7.481 = 18,274 Gal.

18,274 Gal. X 1.10 / 7.481 Gal./Ft. = 2,678 Cu. Ft.

8.8" = (24 Hr. – 25 Yr. Storm Event)

8.8" / 12" / Ft. X 900 Sq. Ft. = 670 Cu. Ft.

2,678 Cu. Ft. + 670 Cu. Ft. = 3,348 Cu. Ft.

Volume Supplied

Assume a Pad 30' X 30' with 4.0' Tall Concrete Walls

Area = 30' X 30' = 900 Sq. Ft.

Volume = 900 Sq. Ft. X 4.0' = 3,600 Cu. Ft.

3,600 Cu. Ft. > 3,348 Cu. Ft. Therefore, **OK**

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00089

Downstream Environmental, L.L.C.
2044 Bissonett
Project: 10400 Westpark Road
Subject: 30,000 Gallon Receiving Tank / Secondary Containment Calculations

Phone (713) 520-8113
Fax (713) 520-9138
January 9, 2001

Volume Required

The Receiving Tank is 30,000 Gallons, Therefore,

V = 30,000 Gal. X 1.10 / 7.481 Gal./Ft. = 4,411 Cu. Ft.

8.8" = (24 Hr. – 25 Yr. Storm Event)

8.8" / 12" / Ft. X 1,600 Sq. Ft. = 1,173 Cu. Ft.

4,411 Cu. Ft. + 1,173 Cu. Ft. = 5,584 Cu. Ft.

Volume Supplied

Assume a Pad 40' X 40' with 4.0' Tall Concrete Walls

Area = 40' X 40' = 1,600 Sq. Ft.

Volume = 1,600 Sq. Ft. X 4.0' = 6,400 Cu. Ft.

6,400 Cu. Ft. > 5,584 Cu. Ft. Therefore, **OK**

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Downstream Environmental, L.L.C.
2044 Bissonett
Phone (713) 520-8113
Fax (713) 520-9138

Project: 10400 Westpark Road
Subject: Final Discharge Water Storage Tank
/ Secondary Containment Calculations

January 9, 2001

Volume Required

Final Water Storage Tank is 8' Dia. X 16' S.W.D., Therefore,

V= 2((4X4)^{2}X 3.14159) X 16 X 7.481 = 6,017 Gal.

6,017 Gal. X 1.1[illegible] / 7.481 Gal./Ft. = 885 Cu. Ft.

8.8" = (24 Hr. – 25 Yr. Storm Event)

8.8" / 12" / Ft. X 400 Sq. Ft. = 293 Cu. Ft.

885 Cu. Ft. + 293 Cu. Ft. = 1,17[illegible] Cu. Ft.

Volume Supplied

Assume a Pad 15' X 15' with 4.0' Tall Concrete Walls

Area = 20' X 20' = 400 Sq. Ft.

Volume = 400 Sq. Ft. X 4.0' = 1,600 Cu. Ft.

1,600 Cu. Ft. > 1,178 Cu. Ft. Therefore, **OK**

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Attachment 9b

The Volumetric Calculations for the secondary containment is shown as Attachment 23.

DMR BioReactor

10400 Westpark Road

0.075MGD

AERATION BASIN

DESIGN CRITERIA

LOADING	310# BOD/DAY/1000 FT3
2 HR. PEAK DESIGN FLOW	1Qavg
TANK HEIGHT	16.00FT
AVERAGE FLOW	0.075MGD
BOD	600MG/L
BOD TO AERATION BASIN	375.30LB/DAY
REACTOR VOLUME	1,210.65CU. FT
WATER HEIGHT	15.50FT.
AREA	78.11SQ. FT
DIAMETER	9.97FT.
DETENTION TIME	0.12DAYS
	2.90HRS

Membrane Area

DESIGN CRITERIA

LOADING	3GPM/SQ. FT.
DESIGN FLOW	1Q
AVERAGE FLOW	0.075MGD
BOD	0.075MG/L
AREA REQUIRED	52.08SQ. FT.
FILTRATION FLOOR	1.00UNITS
DIAMETER	9.97FT.
AREA EACH	78.11SQ. FT.
TOTAL AREA PROVIDED	78.11SQ. FT.

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DMR BioReactor — 10400 Westpark Road

SOLIDS BALANCE SHEET

	100% FLOW
I. DATA	
1 WASTEWATER FLOWRATES	
AVERAGE FLO	0.075MGD
PEAK FACTOR	1
2 INFLUENT CHARACTERISTICS	
BOD	600MG/L
TSS	600MG/L
3 SOLIDS CHARACTERISTICS	
- CONCENTRATION	
WASTED ACTIVATED SLUDGE	1%
STABILIZED SLUDGE	3%
- TOTAL SOLIDS	
STABILIZED SLUDGE	%
4 EFFLUENT CHARACTERISTICS	
BOD	50MG/L
TSS	50MG/L
II. DAILY MASS VALUES	
BOD	375.3LB/DAY
TSS	375.3LB/DAY
III. PRELIMINARY TREATMENT	
- OPERATING PARAMETERS	
BOD REMOVED	0%
SS REMOVED	0%
BOD TO SECONDARY	375.3LB/DAY
SS TO SECONDARY	375.3LB/DAY
IV. SECONDARY PROCESS	
- OPERATING PARAMETERS	
MLSS	10000MG/L
MLVSS	7500MG/L
OBSERVED YIELD Yobs	0.19
- EFFLUENT MASS QUANTITIES	
BOD	31.275LB/DAY
TSS	31.275LB/DAY
- EXCESS VOLATILE SOLIDS	
Px (vss)	71.307LB/DAY
- NON VOLATILE SS	
TSS	93.825LB/DAY
- WASTE TO STABILIZATION	
WAST	133.857LB/DAY
FLOWRATE	963GAL
- EFFLUENT	0.07937MGD

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00094

10/19/10

Attachment 10

AERATION SYSTEM DESIGN BRIEF

DATE: Jan 11, 2001

BASIC DATA	10400 Westpark Road	
DESIGN FLOW	0.075	MGD
BOD RAW WASTE	600.00 mg/l 375.30 lbs./day	
PRELIMINARY TREATMENT (% BOD REMOVAL) % BOD REMAINING	0.00% 100.00%	
COEFFICIENTS: ALPHA: RATIO OF OXYGEN TRANSFER IN WASTE TO TRANSFER IN TAP WATER BETA: RATIO OF SOLUBILITY OF OXYGEN IN May	0.75 Alpha 0.95 Beta	
ALTITUDE CORRECTION FACTOR	1.00	
DISSOLVED OXYGEN LEVEL TO BE MAINTAINED IN THE AERATION BASIN	2.00 mg/l	
TEMPERATURE OF WASTE IN AERATION BASIN: WINTER TEMPERATURE (DEGREES C) SUMMER TEMPERATURE (DEGREES C)	20.00 C 35.00 C	
DESIGN BOD REMOVAL	97.50%	
CARBONACEOUS BOD(5) TO THE AERATION BASIN	375.30 lbs/day	
OXYGEN REQUIRED PER LB. OF CARBONACEOUS BOD REMOVED	2.20#/#	
CARBONACEOUS OXYGEN REQUIREMENTS FOR THE AERATION BASIN AT FIELD CONDITIONS	805.02#O2/day 33.54#O2/hr	
AMMONIA TO AERATION BASIN	20.00 mg/l 12.51#/day	
OXYGEN REQUIRED PER LB. OF AMMONIA	4.60#/#	
OXYGEN REQUIREMENTS FOR AMMONIA	57.55#O2/day 2.40#O2/hr	
AOR	862.56#O2/day	
SUBMERGENCE	7.00 FEET	
SUPER SATURATION VALUES		
AT 35 DEGREE	7.99	
AT 20 DEGREE	10.19	
AOR/SOR RATIO		
AT 35 DEGREE	0.66	
AT 20 DEGREE	0.63	
SOR		
AT 35 DEGREE	1,309.85 LB O2/DAY	
AT 20 DEGREE	1,362.05 LB O2/DAY	
SOR	34.58 LB O2/HR	
EQUIPMENT EFFICIENCY	26.00	
AIR REQUIREMENT		
SCFM	199.82 SCFM	

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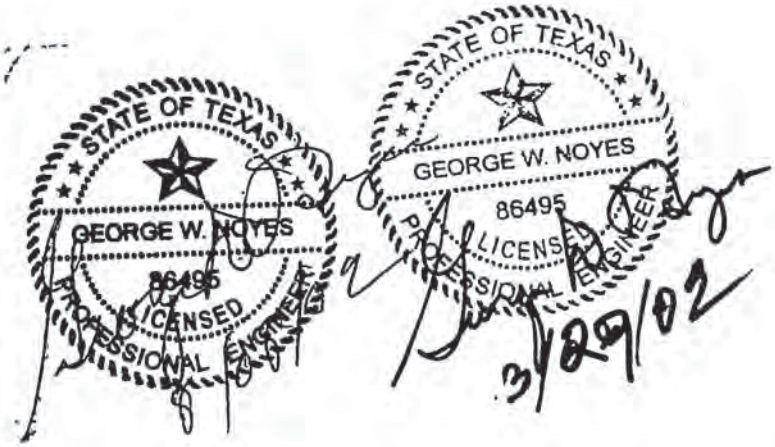
ESTIMATED SYSTEM OPERATING PRESSURE		
STATIC LIQUID HEAD	15.50	feet
PRESS. LOSS AT BLDG. AND HDR	1.50	feet
PRESS. LOSS LATERAL PIPING	1.00	feet
PRESS. LOSS THROUGH UNIT	1.00	feet
NORMAL OPERATING PRESS.	19.00	feet
NORMAL OPERATING PRESSURE	8.05	PSIG
DESIGN-OVER PRESSURE	1.06	PSIG
PEAK DESIGN PRESSURE	**9.11**	**PSIG**



A and B Environmental Services, Inc.
1643 Federal Road
Houston, Texas 77015
(713) 453-6060

May 13. 1999

LABORATORY ANALYSIS REPORT

The Grease Spot
B.R. Perrin
2044 Bissonett, 1902 1/2 Barry Rose Rd. P
Houston TX 77005

Client PO #:
Date Received: 5/3/99 3:58:00 PM
Collection Date: 5/3/99 3:00 PM
Collected By: BR Perrin

Client Project ID: Grease Spot
Client Sample Number: EFF
Sample Location/Other Info:

Matrix Type: Liquid

A and B Sample ID 34505-11

Test/Analyte	Method	Analyst	Analysis Date	Result	Units
pH by 150.2	150.2	Lwang	5/4/99	6.74	
Total Suspended Solids	160.2	Lwang	5/4/99	65.6	mg/L
BOD	405.1	Ajohn	5/5/99	84.	mg/L
COD	410.4	Ajohn	5/7/99	790.	mg/L

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Approved By: Nila T. Wilke Date: 5/13/99
Title: QA Officer

& B Environmental Services, Inc.
43 Federal Road
Houston, Texas 77015
(713) 453-6060

May, 13 1999

LABORATORY ANALYSIS REPORT

TO: Grease Spot
Attn : B R Pervin
2044 Bissonet
Houston , TX 77005

P.O. #:
Ref: Pear land

Sample ID : Clarifier Effluent Water
Lab ID : 34570.110
Date Collected : 05/05/99@14:45
By : B P
Date Received : 05/05/99

PARAMETER	METHOD/ANALYST	DATE TESTED	RESULTS	LAB ID
Biochemical Oxygen Demand	EPA405.1 AJ	05/05/99 16:00	112. mg/l	34570.11
Chemical Oxygen Demand	EPA410.4 AJ	05/07/99 14:00	340. mg/l	34570.11
pH, Standard Units	EPA150.1 LW	05/06/99 11:00	7.18	34570.11
Oil & Grease	EPA1664 AS	05/10/99 14:00	<3. mg/l	34570.11

REPORTED BY: John T. Walker
DATE: 5/13/99

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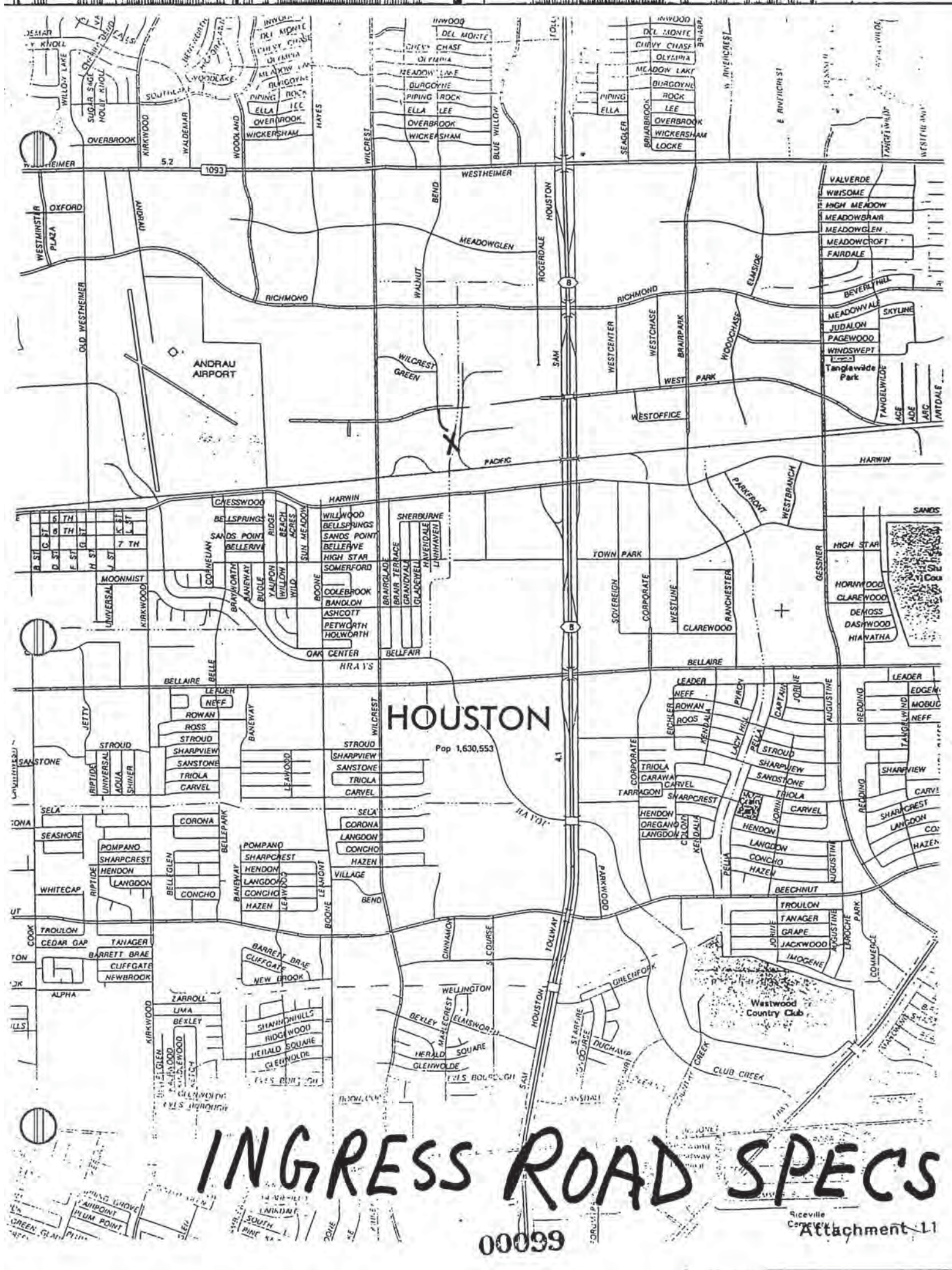
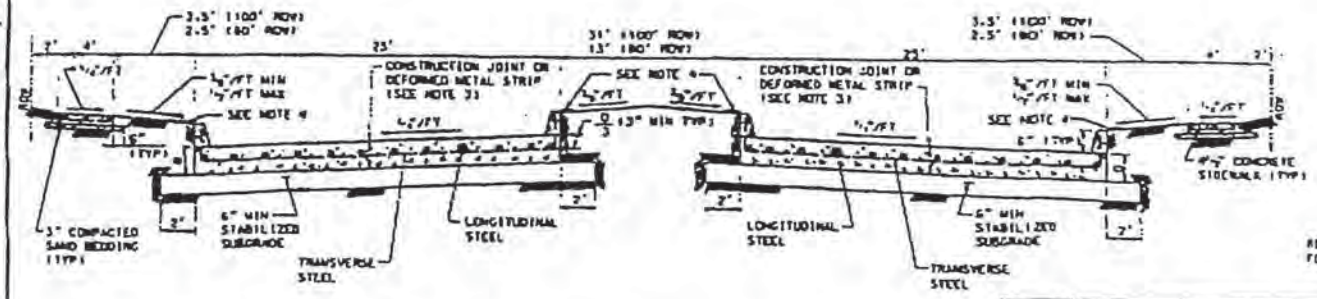
ATTACHMENT 29



INGRESS ROAD SPECS

00099

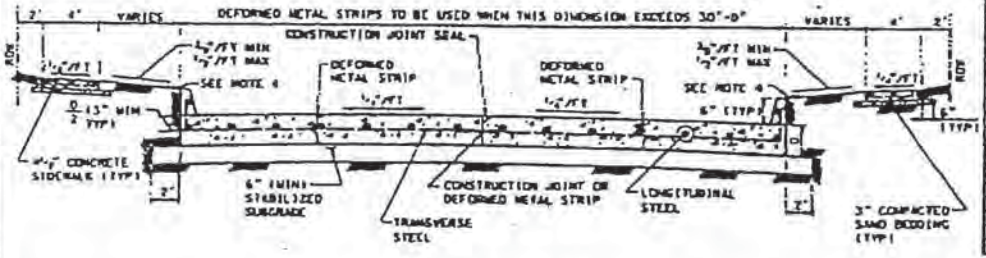
Attachment 11



TYPICAL DOUBLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

NOTES:

1. THE MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'-0".
2. ALL EARTHEN AREAS ARE TO BE HYDROMULCHED UNLESS SHOWN OTHERWISE ON DRAWINGS.
3. CONTRACTOR MAY SAW CUT IN LIEU OF DEFORMED METAL STRIP.
4. USE 1 FOOT STRIP OF SOD GRASS TO PREVENT EROSION UNTIL STAND OF GRASS IS ESTABLISHED.



TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

TABLE 1

REINFORCING STEEL BAR SIZES AND SPACINGS FOR VARIOUS PAVEMENT THICKNESSES (D) WITH EXPANSION JOINT SPACING = 90 FT f'_c = 3,000 PSI AND f_y = 60,000 PSI

PAVEMENT THICKNESS D (IN)	PAVEMENT WIDTH (FT)	LONGITUDINAL STEEL									TRANSVERSE STEEL		
		# 4 BARS			# 5 BARS			# 6 BARS			# 4 BARS	# 5 BARS	# 6 BARS
		NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	SPACING (IN)	SPACING (IN)	SPACING (IN)
6	28	17	29.50	4	-	-	-	-	-	-	36	-	-
7	25	17	18.25	4	-	-	-	-	-	-	36	-	-
7	30	29	18.00	5	-	-	-	-	-	-	36	-	-
7	36	25	17.25	3	-	-	-	-	-	-	36	-	-
7	37	25	18.25	3	-	-	-	-	-	-	36	-	-
7	44	28	18.00	3	-	-	-	-	-	-	36	-	-
7	45	31	17.25	3	-	-	-	-	-	-	36	-	-
8	25	20	15.50	3	13	24.50	3	-	-	-	36	36	-
8	34	27	13.50	2.5	17	25.00	4	-	-	-	36	36	-
8	35	27	15.00	2	18	24.25	4	-	-	-	36	36	-
8	36	28	15.75	3	18	25.00	3	-	-	-	33	36	-
8	44	34	15.75	4	22	24.75	4	-	-	-	30	36	-
8	45	35	13.75	3.5	23	24.25	3	-	-	-	30	36	-
9	33	22	14.00	3	14	27.50	4	-	-	-	36	36	-
9	34	31	13.50	2	19	23.13	3.5	-	-	-	30	36	-
9	35	31	13.75	4	20	21.63	3.5	-	-	-	30	33	-
9	36	32	13.75	3	21	21.25	3.5	-	-	-	30	33	-
9	44	33	13.75	3	23	21.75	3	-	-	-	24	33	-
9	45	33	14.00	3	25	21.25	4.5	-	-	-	24	33	-
10	33	24	12.33	3.5	17	18.25	4	-	-	-	36	36	36
10	34	33	12.50	4	21	20.00	4	-	-	-	30	36	36
10	35	34	12.50	3.5	22	18.75	4	-	-	-	30	36	36
10	36	35	12.50	3.5	24	18.50	3	-	-	-	30	36	36
10	44	44	12.00	4	29	19.00	4.5	-	-	-	24	36	36
10	45	44	12.50	3	29	19.50	3	-	-	-	24	36	33
11	33	27	11.75	3	17	18.25	4	12	24.75	3	36	36	33
11	34	36	11.50	2.5	24	17.50	2.5	17	23.00	4	24	36	33
11	35	37	11.50	3	24	18.50	3	17	23.75	4	24	36	33
11	36	40	11.00	2	25	17.75	3	17	24.50	4	24	36	33
11	44	48	11.00	4	30	19.00	3	21	24.00	4	24	36	33
11	45	49	11.00	3	31	17.75	4	22	23.50	3	24	33	33
12	33	-	-	-	19	16.25	4	13	24.50	3	36	36	33
12	34	-	-	-	26	16.00	4	18	23.50	4	24	36	33
12	35	-	-	-	26	16.50	4	19	23.00	3	24	36	33
12	36	-	-	-	27	16.75	4.5	20	22.75	4.5	24	36	33
12	44	-	-	-	33	16.25	4	24	23.50	5	24	30	33
12	45	-	-	-	35	15.75	3	25	22.75	3	24	30	33

MINIMUM LAP LENGTHS (L):
A. # 4 BARS: L = 22 INCHES
B. # 5 BARS: L = 27 INCHES
C. # 6 BARS: L = 32 INCHES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING CONTROL IN THE REAL ESTATE BRANCH

CONCRETE PAVEMENT DETAILS

NOT TO SCALE

CITY ENGINEER

DIRECTOR OF PUBLIC WORKS AND ENGINEERING

DATE: JUL-01-91

DWG. NO: 02751-0

00100

Section 02751

CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Portland cement concrete paving.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment for concrete paving is on square yard basis. Separate pay items are used for each different required thickness of pavement.

2. Refer to Section 01270 - Measurement and Payment for unit price procedures.

3. Refer to Paragraph 3.15, Unit Price Adjustment.

B. Stipulated Price (Lump Sum). If the Contract is a Stipulated Price Contract, payment for work in this Section is included in the total Stipulated Price.

1.03 REFERENCES

A. ASTM A 82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

B. ASTM A 185 - Standard Specifications for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.

C. ASTM A 615 - Standard Specification for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement.

D. ASTM C 31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.

E. ASTM C 33 - Standard Specifications for Concrete Aggregates.

F. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

G. ASTM C 40 - Standard Test Method for Organic Impurities in Fine Aggregates for Concrete.

H. ASTM C 42 - Standard Test Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.

I. ASTM C 78 - Standard Test Method for Flexural Strength of Concrete.

J. ASTM C 94 - Standard Specification for Ready-Mixed Concrete.

K. ASTM C 131 - Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

L. ASTM C 136 - Standard Method for Sieve Analysis of Fine and Coarse Aggregates.

M. ASTM C 138 - Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.

N. ASTM C 143 - Standard Test Method for Slump of Hydraulic Cement Concrete.

O. ASTM C 150 - Standard Specification for Portland Cement.

P. ASTM C 174 - Standard Test Method for Measuring Length of Drilled Concrete Cores.

Q. ASTM C 231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

R. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete.

S. ASTM C 494 - Standard Specification for Chemical Admixtures for Concrete.

T. ASTM C 618 - Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete.

U. TxDOT Tex-203-F - Sand Equivalent Test for Fine Aggregate.

V. TxDOT Tex-406-A - Loss by Decantation Test for Coarse Aggregate.

1.04 SUBMITTALS

A. Submittals shall conform to requirements of Section 01330 - Submittal Procedures.

B. Submit proposed mix design and test data for each type and strength of concrete in the Work. Include proportions and actual flexural strength obtained from design mixes at required test ages.

C. Submit for approval manufacturer's description and characteristics for mixing equipment, and for traveling form paver, if proposed for use.

D. Submit manufacturer's certificates giving properties of reinforcing steel. Include certificate of compliance with ASTM A 82 Provide specimens for testing when required by City Engineer.

1.05 HANDLING AND STORAGE

A. Do not mix different classes of aggregate without written permission of City Engineer.

B. Class of aggregate being used may be changed before or during Work with written permission of City Engineer. New class shall comply with specifications.

C. Segregated aggregate will be rejected. Before using aggregate whose particles are separated by size, mix them uniformly to grading requirements.

D. Aggregates mixed with dirt, weeds, or foreign matter will be rejected.

E. Do not dump or store aggregate in roadbed.

PART 2 PRODUCTS

2.01 MATERIALS

A. Portland Cement:

1. Sample and test cement to verify compliance with Standards of ASTM C 150, Type I or Type III.

2. Bulk cement which meets referenced standards may be used if the method of handling is approved by the City Engineer. When using bulk cement, provide satisfactory weighing devices.

3. Fly ash which meets standards of ASTM C 618 may be used as mineral fill if the method of handling is approved by the City Engineer.

B. Water: Conform to requirements for water in ASTM C 94.

C. Coarse Aggregate: Crushed stone or gravel, or combination thereof, which is clean, hard, durable, conforms to requirements of ASTM C 33, and has abrasion loss not more than 45 percent by weight when subjected to Los Angeles Abrasion Test (ASTM C 131).

1. Maximum percentage by weight of deleterious substances shall not exceed following values:

Item	Percent by Weight of Total Sample Maximum
Clay lumps and friable particles	3.0
Material finer than 75-μm (No. 200) sieve:	
Concrete subject to abrasion	3.0*
All Other concrete	5.0*
Coal and lignite:	
Where surface appearance of concrete is of importance	0.5
All other concrete	1.0

* In case of manufactured sand, if material finer than 75-μm (No. 200) sieve consists of dust of fracture, essentially free from clay or shale, these limits may be increased to 5 and 7 percent, respectively.

2. Coarse aggregate (size 1-1/2 inch to No. 4 sieve) shall conform to requirements of ASTM C 33. Gradation shall be within following limits when graded in accordance with ASTM C 136:

Sieve Designation (Square Openings)	Percentage by Weight
Retained on 1-3/4" sieve	0
Retained on 1-1/2"sieve	0 to 5
Retained on 3/4" sieve	30 to 65
Retained on 3/8" sieve	70 to 90
Retained on No. 4 sieve	95 to 100
Loss by Decantation Test *Method Tex-406-A	1.0 maximum

* In case of aggregates made primarily from crushing of stone, if material finer than 200 sieve is dust of fracture essentially free from clay or shale as established by Part III of Tex-406-A, percent may be increased to 1.5.

D. Fine Aggregate: Sand, manufactured sand, or combination thereof, composed of clean, hard, durable, uncoated grains, free from loams or other injurious foreign matter. Fine aggregate for concrete shall conform to requirements of ASTM C 33. Gradation shall be within following limits when graded in accordance with ASTM C 136:

Sieve Designation (Square Openings)	Percentage by Weight
Retained on 3/8" sieve	0
Retained on No. 4 sieve	0 to 5
Retained on No. 8 sieve	0 to 20
Retained on No. 16 sieve	15 to 50
Retained on No. 30 sieve	35 to 75
Retained on No. 50 sieve	65 to 90
Retained on No. 100 sieve	90 to 100
Retained on No. 200 sieve	97 to 100

I. When subjected to color test for organic impurities (ASTM C 40), fine aggregate shall not show color darker than standard color. Fine aggregate shall be subjected to Sand Equivalent Test (Tex-203-F). Sand equivalent value shall not be less than 80, unless higher value is shown on Drawings.

E. Mineral Filler: Class C fly ash of acceptable quality and meeting requirements of ASTM C 618 may be used as mineral admixture in concrete mixture. When fly ash mineral filler is used, it shall be stored and inspected in accordance with ASTM C 618. Fly ash shall not be used in amounts to exceed 30 percent by absolute volume of cementitious material in mix design. Cement content may be reduced if strength requirements can be met. Note: When fly ash is used, the term "cement" is defined as cement plus fly ash.

F. Air Entraining Agent: Furnish an air entraining agent conforming to requirements of ASTM C 260.

G. Water Reducer: Water reducing admixture conforming to requirements of ASTM C 494 may be used if required to improve the workability of concrete. Amount and type of such admixture shall be subject to approval by City Engineer.

H. Reinforcing Steel:

1. Provide new billet steel manufactured by open hearth process and conforming to ASTM A 615, Grade 60. Store steel to protect it from mechanical injury and rust. At time of placement, steel shall be free from dirt, scale, rust, paint, oil, or other injurious materials.

2. Cold bend reinforcing steel to shapes shown. Once steel has been bent, it may not be rebent.

3. Provide wire fabric conforming to ASTM A 82. Use fabric in which longitudinal and transverse wires have been electrically welded at points of intersection. Welds shall have sufficient strength not to be broken during handling or placing. Welding and fabrication of fabric sheets shall conform to ASTM A 185.

I. Fibrous Reinforcing: Conform to requirements of Section 03240 - Fibrous Reinforcing.

2.02 EQUIPMENT

A. Equipment shall conform to requirements of ASTM C 94.

2.03 MIXING

A. Flexural strength shall be as specified using test specimens prepared in accordance with ASTM C 31 and tested in accordance with ASTM C78 (using simple beam with third-point loading). Compressive strength shall be as specified using test specimens prepared in accordance with ASTM C 31 and tested in accordance with ASTM C 39. Contractor shall determine and measure batch quantity of each ingredient, including water for batch designs and all concrete produced for Work. Mix shall conform to these specifications and other requirements indicated on Drawings.

B. Mix design to produce concrete which will have flexural strength of 500 psi at 7 days and 600 psi at 28 days. When high-early-strength cement is used, it shall reach at least 550 psi at 7 days and 600 psi at 28 days. Slump of concrete shall be at least 1 inch, but no more than 4 inches, when tested in accordance with ASTM C 143.

1. Concrete pavement, including curb, curb and gutter, and saw-tooth curb, shall contain at least 5-1/2 sacks (94 pounds per sack) of cement per cubic yard, with not more than 6.5 gallons of water, net, per sack of cement (water-cement ratio maximum: 0.57). Cement content shall be determined in accordance with ASTM C 138. Addition of mineral filler may be used to improve workability or plasticity of concrete to limits specified.

2. Coarse dry aggregate shall not exceed 85 percent of loose volume of concrete.

3. Add air-entraining admixture to ensure uniform distribution of agent throughout batch. Base air content of freshly mixed air-entrained concrete upon trial mixes with materials to be used in Work, adjusted to produce concrete of required plasticity and workability. Percentage of air entrainment in mix shall be 4-1/2 percent plus or minus 1-1/2 percent. Air content shall be determined by testing in accordance with ASTM C 231.

4. Use retardant when temperature exceeds 90 degrees F. Proportion shall be as recommended by manufacturer. Use same brand as used for air-entraining agent. Add and batch material using same methods as used for air-entraining agent.

C. Mix design to produce concrete for sidewalks and slope paving which will have compressive strength of 2000 psi at 7 days and 3000 psi at 28 days. Slump of concrete shall be at least 2 inches, but no more than 5 inches, when tested in accordance with ASTM C 143.

1. Concrete sidewalk and slope paving shall contain at least 5 sacks (94 pounds per sack) of cement per cubic yard, with not more than 6.25 gallons of water, net, per sack of cement. Cement content shall be determined in accordance with ASTM C 138. Additions of mineral filler may be used to improve workability or plasticity of concrete to limits specified.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted base is ready to support imposed loads and meets compaction requirements.

B. Verify lines and grades are correct.

3.02 PREPARATION

A. Properly prepare, shape and compact each section of subgrade before placing forms, reinforcing steel or concrete. After forms have been set to proper grade and alignment, use subgrade planer to shape subgrade to its final cross section. Check contour of subgrade with template.

B. Remove subgrade that will not support loaded form. Replace and compact subgrade to required density.

3.03 EQUIPMENT

A. Alternate equipment and methods, other than those required by this Section, may be used provided the Contractor demonstrates that equal or better results will be obtained. Maintain equipment for preparing subgrade and for finishing and compacting concrete in good working order.

B. Subgrade Planer and Template:

1. Use subgrade planer with adjustable cutting blades to trim subgrade to exact section shown on Drawings. Select planer mounted on visible rollers which ride on forms. Planer frame must have sufficient weight so that it will remain on form, and have such strength and rigidity that, under tests made by changing support from wheels to center, planer will not develop deflection of more than 1/8 inch. Tractors used to pull planer shall not produce ruts or indentations in subgrade. When slip form method of paving

is used, operate subgrade planer on prepared track grade or have it controlled by electronic sensor system operated from string line to establish horizontal alignment and elevation of subbase.

2. Provide template for checking contour of subgrade. Template shall be long enough to rest upon side forms and have such strength and rigidity that, when supported at center, maximum deflection shall not exceed 1/8 inch. Fit template with accurately adjustable rods projecting downward at 1-foot intervals. Adjust these rods to gauge cross sections of slab bottom when template is resting on side forms.

C. Machine Finisher: Provide a power-driven, transverse finishing machine designed and operated to strike off and consolidate concrete. Machine shall have two screeds accurately adjusted to crown of pavement and with frame equipped to ride on forms. Use finishing machine with rubber tires if it operates on concrete pavement.

D. Hand Finishing:

1. Provide mechanical strike and tamping template 2 feet longer than width of pavement to be finished. Shape template to pavement section.

2. Provide two bridges to ride on forms and span pavement for finishing expansion and dummy joints. Provide floats and necessary edging and finishing tools.

E. Burlap Drag for Finishing Slab: Furnish four plies of 10-ounce burlap material fastened to bridge to form continuous strip of burlap full width of pavement. The 3-foot width of burlap material shall be in contact with pavement surface. Keep burlap drags clean and free of encrusted mortar.

F. Vibrators: Furnish mechanically operated synchronized vibrators mounted on tamping bar which rides on forms and hand-manipulated mechanical vibrators. Furnish vibrators with frequency of vibration to provide maximum consolidation of concrete without segregation.

G. Traveling Form Paver: Approved traveling form paver may be used in lieu of construction methods employing forms, consolidating, finishing and floating equipment. Requirements of this specification for subgrade, pavement tolerances, pavement depth, alignments, consolidation, finishing and workmanship shall be met. If traveling form paver does not provide concrete paving that meets the compaction, finish, and tolerance requirements of this Specification, its use shall be immediately discontinued and conventional methods shall be used.

1. Equip traveling paver with longitudinal transangular finishing float adjustable to crown and grade. Float shall be long enough to extend across pavement to side forms or edge of slab.

2. Ensure that continuous deposit of concrete can be made at paver to minimize starting and stopping. Use conventional means of paving locations inaccessible to traveling paver, or having horizontal or vertical curvature that traveling paver cannot negotiate.

3. Where Drawings require tie bars for adjacent paving, securely tie and support bars to prevent displacement. Tie bars may be installed with approved mechanical bar inserter mounted on traveling-form paver. Replace any pavement in which tie bars assume final position other than that shown on Drawings.

3.04 FORMS

A. Side Forms: Use metal forms of approved shape and section. Preferred depth of form shall be equal to required edge thickness of pavement. Forms with depths greater or less than required edge thickness of pavement will be permitted, provided difference between form depth and edge thickness if not greater than 1 inch, and further provided that forms of depth less than pavement edge are brought to required edge thickness by securely attaching wood or metal strips to bottom of form, or by grouting under form. Bottom flange of form shall be same size as thickness of pavement. Aluminum forms are not allowed. Forms shall be approved by City Engineer. Length of form sections shall be not less than 10 feet and each section shall provide for staking in position with not less than 3 pins. Flexible or curved forms of wood or metal of proper radius shall be used for curves of 200-foot radius or less. Forms shall have ample strength and shall be provided with adequate devices for secure setting so that when in-place they will withstand, without visible springing or settlement, impact and vibration of finishing machine. In no case shall base width be less than 8 inches for form 8 inches or more in height. Forms shall be free from warp, bends or kinks and shall be sufficiently true to provide straight edge on concrete. Top of each form section, when tested with straight edge, shall conform to requirements specified for surface of completed pavement. Provide sufficient forms for satisfactory placement of concrete. For short radius curves, forms less than 10 feet in length or curved forms may be used. For curb returns at street intersections and driveways, wood forms of good grade and quality may be used.

B. Form Setting:

1. Rest forms directly on subgrade. Do not shim with pebbles or dirt. Accurately set forms to required grade and alignment and, during entire operation of placing, compacting and finishing of concrete, do not deviate from this grade and alignment more than 1/8 inch in 10 feet of length. Do not remove forms for at least 8 hours after completion of finishing operations. Provide supply of forms that will be adequate for orderly and continuous placing of concrete. Set forms and check grade for at least 300 feet ahead of mixer or as approved by City Engineer.

2. Adjacent slabs may be used instead of forms, provided that concrete is well protected from possible damage by finishing equipment. These adjacent slabs shall not be used for forms until concrete has aged at least 7 days.

3.05 REINFORCING STEEL AND JOINT ASSEMBLIES

A. Place reinforcing steel and joint assemblies and position securely as indicated on Drawings. Wire reinforcing bars securely together at intersections and splices. Bars and coatings shall be free of rust, dirt or other foreign matter when concrete is placed. Secure reinforcing steel to chairs.

B. Position pavement joint assemblies at required locations and elevations, and rigidly secure in position. Install dowel bars in joint assemblies, each parallel to pavement surface and to center line of pavement, as shown.

1. Cut header boards, joint filler, and other material used for forming joints to receive each dowel bar.

2. Secure in required position to prevent displacement during placing and finishing of concrete.

3. Drill dowels into existing pavement, secure with epoxy, and provide paving headers as required to provide rigid pavement sections.

C. Chairs for steel reinforcement bars shall be of sufficient number to maintain position of bars within allowable tolerances. Reinforcement shall be placed as shown on Drawings. In plane of steel parallel to nearest surface of concrete, bars shall not vary from plan placement by more than 1/12 of spacing between bars. In plane of steel perpendicular to nearest surface of concrete, bars shall not vary from plan placement by more than 1/4 inch.

3.06 FIBROUS REINFORCING

A. Do not use fibrous reinforcing to replace structural, load-bearing, or moment-reinforcing steel.

B. Mix and place in accordance with requirements of Section 03240.

3.07 PLACEMENT

A. Place concrete only when air temperature taken in shade and away from artificial heat is above 35 degrees F and rising. Concrete shall not be placed when temperature is below 40 degrees F and falling.

B. Place concrete within 90 minutes after initial water had been added. Remove and dispose of concrete not placed within this period.

C. Concrete slump during placement shall be 1 to 4 inches, except when using traveling-form paver, slump shall be maximum of 2 inches.

D. Deposit concrete continuously in successive batches. Distribute concrete in manner that will require as little rehandling as possible. Where hand spreading is necessary, distribute concrete with shovels or by other approved methods. Use only concrete rakes in handling concrete. At placement interruption of more than 30 minutes, place transverse construction joint at stopping point Remove and replace sections less than 10 feet long.

E. Take special care in placing and spading concrete against forms and at longitudinal and transverse joints to prevent honeycombing. Voids in edge of finished pavement will be cause for rejection.

3.08 COMPACTION

A. Consolidate the concrete using mechanical vibrators as specified herein. Extend a vibratory unit across the pavement, not quite touching side forms. Space individual vibrators at close enough intervals to vibrate and consolidate entire width of pavement uniformly. Mount mechanical vibrators to avoid contact with forms, reinforcement, transverse or longitudinal joints.

B. Furnish enough hand-manipulated mechanical vibrators for proper consolidation of concrete along forms, at joints and in areas not covered by mechanically controlled vibrators.

3.09 FINISHING

A. Finish concrete pavement with power-driven transverse finishing machines or by hand finishing methods.

1. Use transverse finishing machine to make at least two trips over each area. Make last trip continuous run of not less than 40 feet. After transverse screeding, use hand-operated longitudinal float to test and level surface to required grade.

2. Hand finish with mechanical strike and tamping template in same width as pavement to be finished. Shape template to pavement section shown on Drawings. Move strike template forward in direction of placement, maintaining slight excess of material in front of cutting edge. Make minimum of two trips over each area. Screed pavement surface to required section. Work screed with combined transverse and longitudinal motion in direction work is progressing. Maintain screed in contact with forms. Use longitudinal float to level surface.

B. On narrow strips and transitions, finish concrete pavement by hand. Thoroughly work concrete around reinforcement and embedded fixtures. Strike off concrete with strike-off screed. Move strike-off screed forward with combined transverse and longitudinal motion in direction work is progressing, maintaining screed in contact with forms, and maintaining

slight excess of materials in front of cutting edge. Tamp concrete with tamping template. Use longitudinal float to level surface.

C. After completion of straightedge operation, make first pass of burlap drag as soon as construction operations permit and before water sheen has disappeared from surface. Follow with as many passes as required to produce desired texture depth. Permit no unnecessary delays between passes. Keep drag wet, clean and free from encrusted mortar during use.

3.10 JOINTS AND JOINT SEALING

D. Conform to requirements of Section 02752 - Concrete Pavement Joints.

3.11 CONCRETE CURING

A. Conform to requirements of Section 02753 - Concrete Pavement Curing.

3.12 TOLERANCES

A. Test entire surface before initial set and correct irregularities or undulations. Bring surface within requirements of following test and then finish. Place 10-foot straightedge parallel to center of roadway to bridge any depressions and touch all high spots. Do not permit ordinates measured from face of straight edge to surface of pavement to exceed 1/16 inch per foot from nearest point of contact. Maximum ordinate with 10-foot straightedge shall not exceed 1/8 inch. Grind spots in excess of required tolerances to meet surface test requirements. Restore texture by grooving concrete to meet surface finishing specifications.

3.13 FIELD QUALITY CONTROL

A. Testing will be performed under provisions of Section 01454 - Testing Laboratory Services.

B. Compressive Strength Test Specimens: Four test specimens for compressive strength test will be made in accordance with ASTM C 31 for each 150 cubic yards or less of pavement that is placed in one day. Two specimens will be tested at 7 days. The remaining two specimens will be tested at 28 days. Specimens will be tested in accordance with ASTM C 39. Minimum compressive strength shall be 3000 pounds per square inch at 7 days and 3500 pounds per square inch at 28 days.

C. When compressive test indicates failure, yield test will be made in accordance with ASTM C 138 for cement content per cubic yard of concrete. If such cement content is found to be less than that specified per cubic yard, increase batch weights until amount of cement per cubic yard of concrete conforms to requirements.

D. Minimum of one 4-inch core will be taken at random locations per 1000 feet per lane or 500 square yards of pavement to measure in-place depth. Depth shall be measured in accordance

with ASTM C 174. Each core may be tested for 28-day compressive strength according to methods of ASTM C 42. The 28-day compressive strength of each core tested shall be a minimum of 3000 pounds per square inch.

E. Contractor may, at his own expense, request three additional cores in vicinity of cores indicating nonconforming in-place depths. In-place depth at these locations shall be average depth of four cores.

F. Fill cores and density test sections with new concrete paving or non shrink grout.

3.14 NONCONFORMING PAVEMENT

A. Remove and replace areas of pavement found deficient in thickness by more than 10 percent, or that fail compressive strength tests, with concrete of thickness shown on Drawings.

B. Nonconforming pavement sections shall be replaced at no additional cost to City.

3.15 UNIT PRICE ADJUSTMENT

A. Unit price adjustments shall be made for in-place depth determined by cores as follows:

1. Adjusted Unit Price shall be ratio of average thickness as determined by cores to thickness bid upon, times unit price.

2. Adjustment shall apply to lower limit of 90 percent and upper limit of 105 percent of unit price.

3.16 PAVEMENT MARKINGS

A. Restore pavement markings to match those existing in accordance with City of Houston standard specifications and details and the City Engineer's requirements.

3.17 PROTECTION

A. Barricade pavement section to prevent use until concrete has attained minimum design strength. Cure barricade pavement section for minimum 72 hours before use. Do not open pavement to traffic until concrete is at least 10 days old. Pavement may be open to traffic earlier provided Contractor pays for testing and additional beam once 7-day specified flexural strength is obtained.

B. To provide access at driveways, city street intersections, esplanades, and other locations approved by City Engineer; Contractor may use high-early-strength cement or place an additional 2 inches of concrete pavement on untreated subgrade in lieu of specified concrete

SPECIFICATIONS
FOR

DOWNSTREAM ENVIRONMENTAL, LLC
3737 WALNUT BEND

1. GENERAL

The following specifications are for the construction of a Type V, GG pre-treatment facility using the proprietary processes developed by Downstream Environmental, LLC. The process described herein is designed to treat 110, gallons per day of grit trap, grease trap, and septage waste. In addition, the process will provide the operational flexibility to be started and stopped with a minimum effect upon the treatment efficiency.

2. TANK FABRICATION AND PIPING

The tanks shall be fabricated of carbon steel plate conforming to ASTM A-36 and structural shapes conforming to ASTM A-7. All piping shall be Schedule 40 galvanized steel pipe with fittings of either malleable iron or galvanized steel.

Tanks and structures shall be of welded on or bolted on steel construction throughout. Vessel seams shall be located to clear openings and attachment welds by at least two (2) inches. Bolt holes of flanged nozzles shall straddle a centerline parallel to the axis of the vessel or equipment mentioned in these specifications. Only qualified welders using arc fusion welding process shall perform welding. Attachment of internal baffles not subject to water pressure, hydrostatic or otherwise, or non-load bearing structural elements, may be by electric arc welding with fillets of adequate section for the joint involved or otherwise continuous full penetration single weld.

All structures and components shall be designed to withstand normal hydrostatic pressures or any partial pressures, such as when any one compartment is emptied while the other remaining compartments are full.

3. PROTECTION AGAINST CORROSION

Following shop fabrication, all surfaces shall be sandblasted to bare metal to remove dirt, rust, grease and scale. Pits shall be inspected and cleaned. Weld splatters and burrs shall be removed. Excess sand shall be flown from pockets and completely removed from all fabricated tank and structural members. Surfaces shall be completely dry prior to application of any coatings.

4. ELECTRICAL AND CONTROLS

The equipment, materials and labor for assembly and installation plus check out and start-up of the complete electrical system as shown on the drawings and stipulated in the Specifications. As a minimum requirement, the electrical system shall be in accordance with the following items.

A. American National Standards Institute/National Fire Protection Association (ANSI/NFPA), No. 70 - National Electrical Code (NEC)
B. City of Houston Building Code
C. Other applicable Codes and Standards as referenced in other Master Specifications.
D. Comply with local, county, state and federal regulations and codes in effect as of the date of purchase.
E. Equipment of foreign manufacture must meet U.S. codes and standards.
F. Equipment and materials shall conform to requirements of specification and to the criteria provided for the project.

Electrical work shall be inspected and approved by the local code inspector.

Concealed work shall be inspected before it is covered:

a) Conduit with stub-ups, underground in duct banks before concrete is poured.
b) Conduit in slabs, walls and ceilings, complete with boxes.

Controls shall be in a minimum NEMA 2 enclosure for inside installation, NEMA 3R for outside installation.

5. INLET DISPERSING GRINDER-PUMP

An inlet dispensing grinder-pump shall be provided and installed. The pump-grinder shall be capable of pumping at a rate of not less than 150 GPM at 11' TDH while grinding all particles and suspended material to a diameter no larger than 0.125". An abrasion resistant impeller of Nitrided Steel construction for exceptional hardness and durability issued. Utilizing three helical blades rotate inside a matching tubular housing to both shear and grind both organic and inorganic particulates, clogging is eliminated and pumping maintained regardless of the percentage solids or viscosity of the material being pumped. A double mechanical seal shall be used. The rotating element shall be of the cartridge style to allow easy removal and replacement with minimum downtime, without dismantling the entire pump assembly. The grinder-pump shall be driven by 10 HP, 1760 RPM, 3PH, 450 v, ODP motor.

6. PUMPS

All pumps supplied for this project shall be redundant allowing for continuous plant operation with one pump out of service. Pumps shall be installed with isolating inlet and outlet valves to allow for servicing of individual pumps without interfering with plant operation or reliability. Motors for each pump shall be ODP and suitable for 460 V, 3 phase, 60HZ, service with grease lubricated bal bearing. The motors shall not be loaded beyond the name plate rating at the design conditions required in each individual application.

7. SOLIDS

The Solids / Oil recovery tanks shall use vertical-laminar flow control plates which form a unique serpentine channel, maximizing retention time and regulating the dynamics of the fluid flow. It shall then use kinetic energy of the flow to impose spin forces on the oil particles, using this "bubble spin" action to accelerate the removal process.

The unit will be capable of handling fluids with mixtures up to a 50:50 ratio. The oil/recovery tank is designed for the treatment of specific fluids with flow rate in excess of 69 gpm. The manufacturer shall provide test data proving removal efficiency of greater than 99.9% of oil and grease from contaminated oil / water mixtures and maintaining that up to 500,000 parts per million (PPM).

8. OIL FILTRATION SYSTEM

The oil filtration system shall be of the polypropylene, food quality type capable of removing 99.98% of material 0.5 microns or greater with a Beta Ratio of 5000. The dirt holding capacity of the filtration is 11.25 pounds Fine Test Dust in water at 30 gpm and 40 psig. The housing will be constructed of %-304 stainless steel with EPR seals. Inlet and outlet confections are 2" NPT.

9. INLET MECHANICAL SCREEN

The inlet mechanical screen shall perform liquid solids separation of all suspended and settleable solids at design flows up to 400 mesh. The inlet screen shall come complete with an influent flow manifold; automatic cleaning system and an enclosed screening area to prevent spill and splatter. Construction of the screening area is to be stainless steel.

10. CENTRIFUGE

A two-phase centrifugal separating device shall be installed. The unit will be capable of a minimum flow rate of 110 gpm with a solids removal efficiency of 99.99%. An internal scroll will continually remove and dewater solids for direct discharge into the solid containment bin. The unit shall be mounted on a common heavy-duty base with the motor and V-belt drive. The motors shall be ODP and suitable for 460V, 3 phase, 60HZ, service

with grease lubricated ball bearings. The motors shall not be loaded beyond the nameplate rating at the design conditions required in each individual application.

11. DMR TANKS

Two Dynamic Membrane Reaction tanks shall be installed to remove and reduce any remaining suspended or dissolved volatile solids in the system. These systems will operate with removal efficiency in excess of 98% without the use of chemical addition. The allowable reject rate of the dynamic membranes of 0%. Each of the systems is self-contained and redundant. The dynamic membranes will automatically achieve specific flux rates 1.0 to 4.5 according to the loading placed on them. Each of the tanks shall be constructed with sample ports on the inlet and outlet of each tank for monitoring and inspection.

12. OZONATION TANK

The ozonation tank shall be designed so as to maximize both contact time and dissolution of the ozone into the liquid. The tank design shall incorporate an internal skirt arrangement, enhancing the torodial flow pattern. The hopper bottom shall facilitate the collection of any remaining debris in the system before final discharge into the city sanitary sewer.

13. VACUUM CLEANING SYSTEM

A vacuum tank with isolated inlet and discharge attachments shall be provided to positively allow for spill management without dilution or increase in volume. The vacuum vessel will have a volume of no less than 1,000 gallons. Vacuum of no less than 26" HG, will be provided from the intake blowers. A 2" diameter suction hose with control valve will facilitate transfer of any spilled liquids or debris to the tank. Discharge of the tank ill be into the plant process.

14. BLOWERS

Three positive displacement air blowers shall be furnished, each to deliver 200 CFM of air measured at the blower inlet, with a discharge pressure of 7.5 psig. Air delivered, with one blower out of service, shall be sufficient to furnish all plant air requirements. The blowers shall each be furnished with a suitable driver motor with motor V-belt drive, combination filter-silencer, pressure relief valve, check valve, flexible inlet and discharge piping sections and common base for blower and motor.

15. OZONE

An ozone generator unit, complete with air inlet dryer, shall be installed. The ozone generator shall be capable of producing 10 lbs. of reactive ozone from air at an efficiency of 6%. The unit shall be self-contained and mounted in a NEMA 1 enclosure.

16. SECONDARY CONTAINMENT WALLS

Every primary containment vessel shall be placed within secondary containment walls to prevent spill migration in case of mishap. The secondary containment walls shall be sized to allow for the contents of the primary vessel plus 10%, and in case of outdoor locations, a 25-year rain event. The containment walls shall be of cinder block and concrete construction, of adequate strength to support hydrostatic loading with the containment area full.

17. ODOR CONTROL SYSTEM

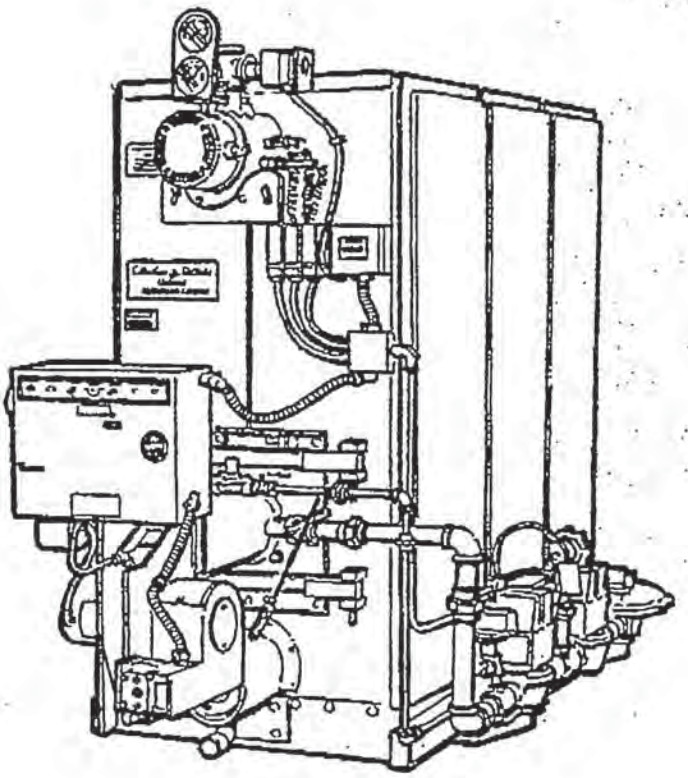
The odor control system shall be three tiered. All process tankage shall be covered and provide for closed loop ventilation. Open devices such as the screen shall be partitioned to effect closed loop ventilation. Al closed loop ventilation shall be recycled at a rate of 2,000 scfm to treat all odors and to prevent odors escaping into the building. Within the building, two recirculating fans, with plenums, operate with a total turnover rate of 28,000 SCFM. This effectively scours the building for stray mal-odors every 4 minutes. In addition, the building crown vents and exhaust fans shall be fitted with spray headers to prevent any odors from escaping the building into the environment.

All plenums, closed loops systems and exhaust ventilation points will be fitted with bioenzymatic generators which produce a uniform droplet size of 0.5 micron or less regardless of flow input to effect accurate odor control at all set points.

All material used in odor degradation shall be non-toxic, enzymatic. These enzymatics are specifically designed to capture and eliminate mal-odors including H_2S (rotten egg smell), NH_3 (ammonia), and $C_4H_8O_2$ (putrefying fat/grease odor). The manufacturer of the system shall guarantee that mal-odors are reduced to the level required by law (mal-odors will not emanate beyond the site's property lines).

Section B1

FLEXIBLE WATERTUBE BOILERS



CONTENTS

Table B1-2. Model FLX Hot Water Boiler Ratings

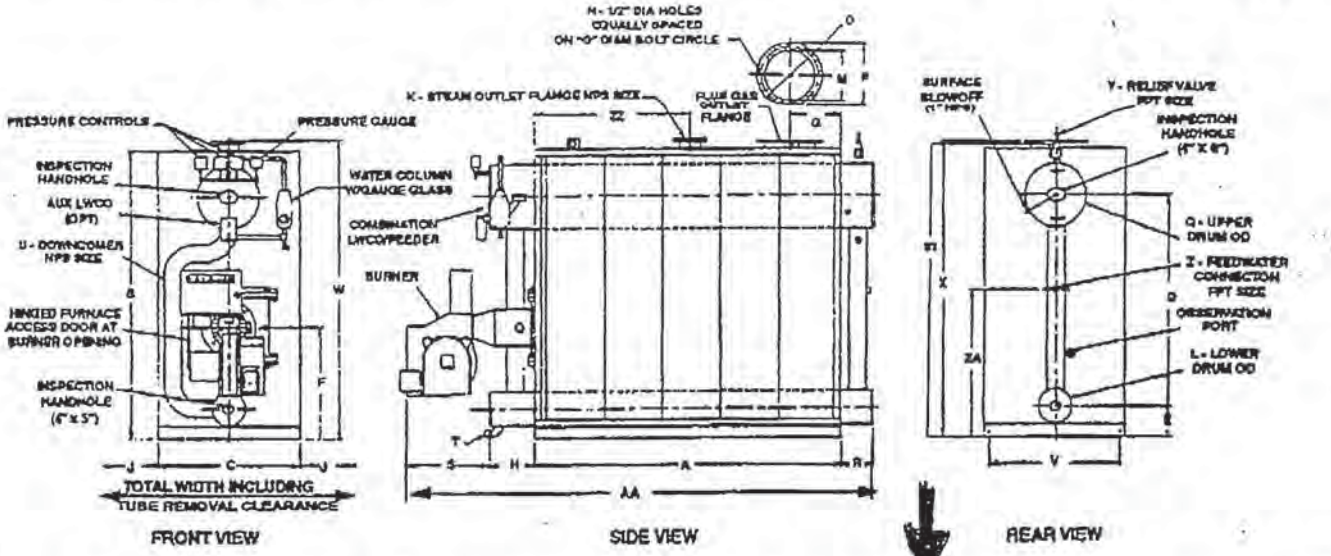
MODEL NO.		150	200	250	300	350	400	450	500	550	600	700	800	900
Fuel Consumption	Gas (cfh)[A]	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000
	Oil (gph)[B]	10.7	14.3	17.9	21.4	25.0	28.6	32.1	35.7	39.3	42.9	50.0	57.2	64.3
Output (MBH)	Gas Firing	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800	5600	6400	7200
	Oil Firing	1245	1660	2075	2490	2905	3320	3735	4250	4675	4980	5810	6640	7470
Approximate bhp.		36	48	60	72	84	96	108	119	131	143	167	191	215
Natural Gas Input: CFH (1000 Btu)		1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000
Natural Gas: Therms/Hour		15	20	25	30	35	40	45	50	55	60	70	80	90
Shipping Weight (lbs)		3900	3900	3900	5000	5000	6100	6100	6100	6100	6100	8500	8500	8500
Operating Weight (lbs)		4715	4715	4715	5930	5930	7600	7600	7600	7600	7600	10500	10500	10500
Water Content (US gal)		98	98	98	112	112	180	180	180	180	180	235	235	235
Blower Motor hp		1/3[A] 1/2[B]	1/2	3/4	1/2[A] 3/4[B]	3/4[A] 1[B]	1-1/2	1-1/2[A] 2[B]	2	3	3	5	5	5[A] 7-1/2[B]

NOTES: 212°F Feedwater.
A. Natural Gas @ 1000 Btu/cu-ft.
B. No. 2 Oil @ 140,000 Btu/gal.

Table B1-3. Model FLX Steam Boiler Ratings

MODEL NO.		150	200	250	300	350	400	450	500	550	600	700	800	900
Fuel Consumption	Gas(h)[A]	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000
	Oil (gph)[B]	10.7	14.3	17.9	21.4	25.0	28.6	32.2	35.7	39.3	42.9	50.0	57.2	64.3
Output (MBH)	Gas Firing	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800	5600	6400	7200
	Oil Firing	1245	1660	2075	2490	2905	3320	3735	4150	4565	4980	5810	6640	7470
Approximate bhp		36	48	60	72	84	96	107	119	131	143	167	191	215
Natural Gas Input: CFH (1000Btu)		1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000
Natural Gas: Therms/Hour		15	20	25	30	35	40	45	50	55	60	70	80	90
Shipping Weight (lbs)		5700	5700	5700	6155	6155	7894	7894	7894	7894	7894	10214	10214	10214
Operating Weight (lbs)		6500	6500	6500	7071	7071	9235	9235	9235	9235	9235	12030	12030	12030
Water Content (US gal)		96	96	96	110	110	157	157	157	157	157	211	211	211
Blower Motor hp		1/3[A] 1/2[B]	1/2	3/4	1/2[A] 3/4[B]	3/4[A] 1[B]	1-1/2	1-1/2[A] 2[B]	2	3	3	5	5	5[A] 7-1/2[B]

NOTES: 212 °F feedwater.
A. Natural Gas @ 1000 Btu/cu-ft.
B. No. 2 Oil @ 140,000 Btu/gal.



MODEL NO.	150	200	250	300	350	400	450	500	550	600	700	800	900
A. Length of Base	72	72	72	78	78	99	99	99	99	99	119-7/8	119-7/8	119-7/8
B. Boiler Height (Top of casing)	83-1/8	83-1/8	83-1/8	87-1/8	87-1/8	91-1/4	91-1/4	91-1/4	91-1/4	91-1/4	104	104	104
B1 - Top of Lifting Lug	87-1/8	87-1/8	87-1/8	91-1/8	91-1/8	95-1/4	95-1/4	95-1/4	95-1/4	95-1/4	108	108	108
C. Boiler Width	39-1/2	39-1/2	39-1/2	43-1/2	43-1/2	45-1/2	45-1/2	45-1/2	45-1/2	45-1/2	51-1/2	51-1/2	51-1/2
D. Center of Lower Drum - Center Upper Drum	60	60	60	64	64	67	67	67	67	67	77	77	77
E. Center of Lower Drum to Bottom	8-3/4	8-3/4	8-3/4	8-3/4	8-3/4	9-13/16	9-13/16	9-13/16	9-13/16	9-13/16	11-13/16	11-13/16	11-13/16
F. Center of Burner Opening to Bottom	24-1/2	24-1/2	24-1/2	28-1/2	28-1/2	31-3/4	31-3/4	31-3/4	31-3/4	31-3/4	36-3/4	36-3/4	36-3/4
G. Center of FG Outlet to Rear of Jacket	14-11/16	14-11/16	14-11/16	14-5/8	14-5/8	17-1/8	17-1/8	17-1/8	17-1/8	17-1/8	17-5/8	17-5/8	17-5/8
H. Drum Clearance Past Base - Front	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	16-7/16	16-7/16	16-7/16
J. Tube Removal Clearance	28	28	28	32	32	34	34	34	34	34	40	40	40
K. Steam Nozzle 15psig *	4 flg.	4 flg.	4 flg.	5 flg.	5 flg.	6 flg.	6 flg.	6 flg.	6 flg.	6 flg.	8 flg.	8 flg.	8 flg.
K. Steam Nozzle 150psig *	2 mpt	2 mpt	2 mpt	2 mpt	2-1/2 mpt	3 flg.	3 flg.	3 flg.	3 flg.	3 flg.	4 flg.	4 flg.	4 flg.
L. Lower Drum OD	8-5/8	8-5/8	8-5/8	8-5/8	8-5/8	10-3/4	10-3/4	10-3/4	10-3/4	10-3/4	10-3/4	10-3/4	10-3/4
M. Flue Gas Outlet ID	10	10	10	12	12	16	16	16	16	16	18	18	18
N. No. of Holes in Flue Gas Outlet Flange	4	4	4	4	4	8	8	8	8	8	8	8	8
O. Diameter of Bolt Circle (FG Outlet)	12-1/2	12-1/2	12-1/2	14-1/2	14-1/2	18-1/2	18-1/2	18-1/2	18-1/2	18-1/2	20-1/2	20-1/2	20-1/2
P. Flue Gas Outlet Flange OD	15	15	15	17	17	21	21	21	21	21	23	23	23
Q. Upper Drum OD	20	20	20	20	20	20	20	20	20	20	24	24	24
R. Drum Clearance Past Base - Rear	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	12-3/4	12-3/4	12-3/4
S. Burner Clearance (See Note 4, page B1-7)	19-1/4	19-1/4	19-1/4	22-1/4	22-1/4	22-1/4	22-1/4	28-1/4	28-1/4	28-1/4	26-9/16	26-9/16	26-9/16
T. Drain Connection (15 psig)	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	2	2	2	2	2	2	2	2
T. Drain Connection (150 psig)	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4
U. Downcomer (NPS) Size	4	4	4	4	4	5	5	5	5	5	6	6	6
V. Anchor Hole Width	37-1/2	37-1/2	37-1/2	41-1/2	41-1/2	43-1/2	43-1/2	43-1/2	43-1/2	43-1/2	49-1/2	49-1/2	49-1/2
W. Height of Steam Nozzle	86-3/4	86-3/4	86-3/4	90-3/4	90-3/4	94-13/16	94-13/16	94-13/16	94-13/16	94-13/16	106-13/16	106-13/16	106-13/16
X. Height of Stack Flange	85-3/8	85-3/8	85-3/8	89-3/8	89-3/8	93-1/2	93-1/2	93-1/2	93-1/2	93-1/2	106-1/2	106-1/2	106-1/2
Y. Relief Valve Outlet Size (Qty) (15 psig)	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	3	3	3	3	3	2-1/2 (2)	2-1/2 (2)	2-1/2 (2)
Y. Relief Valve Outlet Size (Qty) (150 psig)	1-1/2	1-1/2	2	2	2	2	2	2	2	2	2-1/2	2-1/2	2-1/2
Z. Feed Water Connection Size	3/4	3/4	3/4	3/4	3/4	1	1	1	1	1	1	1	1
ZA. Feed Water Location	38-3/4	38-3/4	38-3/4	42-3/4	42-3/4	46-13/16	46-13/16	46-13/16	46-13/16	46-13/16	58-13/16	58-13/16	58-13/16
ZZ. Steam Nozzle Location	36-3/8	36-3/8	36-3/8	39-3/8	39-3/8	50-3/8	50-3/8	50-3/8	50-3/8	50-3/8	60-1/2	60-1/2	60-1/2
AA. Total Length (See Note)	116-7/16	116-7/16	116-7/16	125-7/16	125-7/16	146-7/16	146-7/16	152-7/16	152-7/16	152-7/16	175-5/8	175-5/8	175-5/8
Inspection Handhole Size (Lower)	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5

Note: Contact your local Cleaver-Brooks authorized representative regarding total length for altitude-compensated boilers.
* flg = Class 150# R F
Mpt = Male Pipe Thread

Figure B1-2. Model FLX Steam Boiler Dimensions

PERFORMANCE DATA

Efficiency

Fuel-to-steam (fuel-to-water) efficiency is based on specific operating conditions (fuel, pressure, temperature). Nominal efficiency on all FLX hot water and low pressure steam boilers is 81% firing natural gas, and 84% firing No. 2 oil. For high pressure steam applications, contact your local Cleaver-Brooks representative for expected efficiencies.

Emissions

Expected emissions for natural gas fired FLX boilers are shown in Table B1-4.

Table B1-4. Expected Emissions (ppm, corrected to 3% O_2), Natural Gas Fired Boiler

FLUE GAS COMPONENT	HIGH-FIRE LEVEL[A] PPM_V	LOW-FIRE LEVEL[B] PPM_V
CO	0-50	0 - 50
NOx	40 - 60	30 - 60

NOTE: NOx levels based on standard product offering.
A. Based on 12% excess air.
B. Based on 15% excess air.

ENGINEERING DATA

Boiler Information

Flow Rates and Pressure Drops

Flow rates and pressure drops for the FLX hot water boilers are shown in Table B1-5. This table can be used to determine the boiler pressure drop in relation to full boiler output and system temperature drop.

Table B1-6 can be used to determine the maximum gpm circulating rate in relation to full boiler output and system temperature drop. The maximum gpm can be determined by knowing the boiler size and expected system temperature drop.

System Operating Parameters (Hot Water)

System over pressure requirements are shown in Table B1-7.

Minimum return water temperature is 120 °F; minimum supply (boiler outlet) water temperature is 150 °F in order to prevent fireside corrosion.

System Operating Parameters (Steam Boilers)

The following operating limitations must be observed for optimum operation of the boiler:

1. Minimum make-up temperature 60 °F.
2. Maximum make-up rate (for on/off make-up control) 2.0 times the evaporation rate.

Table B1-5. Model FLX Hot Water Boiler Flow Rates and Pressure Drops

MODEL NO.	ΔT = 20°F		ΔT = 40°F		ΔT = 60°F		ΔT = 80°F		ΔT = 100°F	
	ΔP (PSIG)	GPM	ΔP (PSIG)	GPM	ΔP (PSIG)	GPM	ΔP (PSIG)	GPM	ΔP (PSIG)	GPM
FLX-150	1.14	122.0	0.30	61.1	0.13	41.1	0.08	30.8	0.05	24.4
FLX-200	1.14	162.3	0.30	81.1	0.13	54.1	0.08	40.6	0.05	32.5
FLX-250	1.77	202.8	0.46	101.4	0.21	67.6	0.12	50.7	0.08	40.6
FLX-300	1.85	243.4	0.48	121.7	0.22	81.1	0.12	60.9	0.08	48.7
FLX-350	2.49	284.0	0.65	142.0	0.29	94.7	0.17	71.0	0.11	56.8
FLX-400	1.35	324.5	0.35	162.3	0.16	108.2	0.09	81.1	0.06	64.9
FLX-450	1.71	365.1	0.44	182.6	0.20	121.7	0.11	91.2	0.08	73.0
FLX-500	2.03	405.7	0.54	202.8	0.25	135.2	0.14	101.4	0.09	81.1
FLX-550	2.50	446.3	0.67	223.1	0.31	148.7	0.17	111.5	0.11	89.2
FLX-600	2.99	486.8	0.77	243.4	0.35	162.3	0.20	121.7	0.13	97.4
FLX-700	1.75	567.9	0.45	284.0	0.21	189.3	0.12	142.0	0.08	113.6
FLX-800	2.27	649.1	0.59	324.5	0.27	216.4	0.15	162.3	0.10	129.8
FLX-900	2.85	730.2	0.74	365.1	0.33	243.4	0.19	182.6	0.12	146.0

Table A8-1. Model CEW Steam Boiler Ratings

BOILER HP	125	150	200	250	300	350	400	500	600	700	750	800
RATINGS - SEA LEVEL TO 1000 FT												
Rated Capacity (lbs-steam/hr from and at 212 °F)	4313	5175	6900	8625	10350	12075	13800	17250	20700	24150	25875	27600
Btu Output (1000 Btu/hr)	4184	5021	6695	8369	10043	11716	13390	16738	20085	23433	25106	26780
APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY												
Light Oil gph (140,000 Btu/gal)	37.5	45	60	74.5	89.5	104.5	119.5	149.5	179.5	209	224	239
Gas CFH (1000 Btu)	5230	6280	8370	10460	12555	14650	16750	20925	25100	29300	31385	33500
Gas (Therm/hr)	52.3	62.8	83.7	104.6	125.5	146.5	167.5	209.3	251.0	293.0	313.9	335.0
POWER REQUIREMENTS — SEA LEVEL TO 1000 FT (60 HZ)												
Oil Pump Motor hp (oil firing only)	*	*	*	1/2	3/4	3/4	3/4	3/4	3/4	1	1	1
Blower Motor - Series 100/200[A]	2	3	7-1/2	5	7-1/2	10	20	25	30	40	60	60
Blower Motor - Series 700[A]	2	3	5	5	7-1/2	10	20	25	30	40	60	60
Air Comp. Motor (oil firing only)	**	**	**	3	3	3	5	5	7-1/2	7-1/2	7-1/2	7-1/2
Oil Meter. Pump Mtr (oil firing only)	N/A	N/A	N/A	N/A	N/A	N/A	1/2	3/4	3/4	3/4	3/4	3/4
BOILER DATA												
Heating Surface sq-ft (Fireside)	625	750	1000	1250	1500	1750	2000	2500	3000	3500	3500	3500

* Integral oil pump.
** No air compressor required (pressure atomized)
NOTE: All fractional hp motors will be single phase voltage except oil metering pump motor(3-phase); integral hp motors will be 3-phase voltage.
A. For altitudes over 1000 ft. contact your local Cleaver-Brooks representative for verification of motor hp.

Table A8-2. Model CEW Hot Water Boiler Ratings

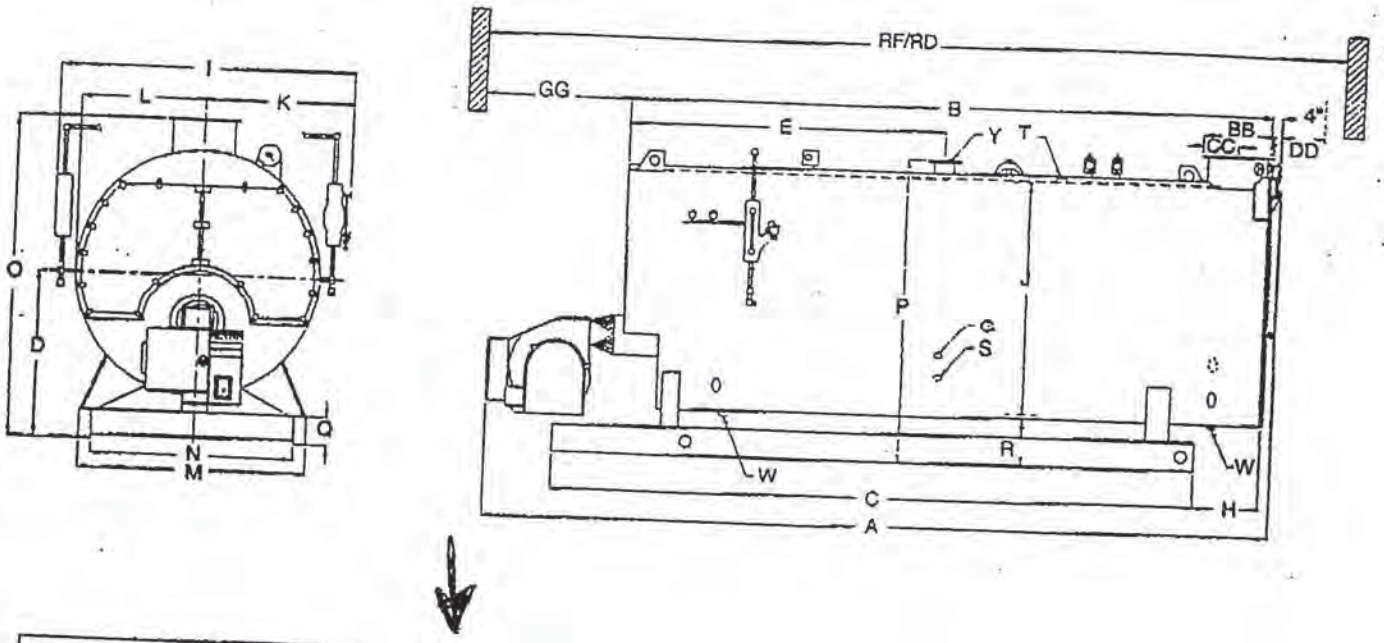
BOILER HP	125	150	200	250	300	350	400	500	600	700	750	800
RATINGS — SEA LEVEL TO 1000 FT												
Btu Output (1000 Btu/hr)	4184	5021	6695	8369	10043	11716	13390	16738	20085	23433	25106	26780
APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY												
Light Oil gph (140,000 Btu/gal)	37.5	45	60	74.5	89.5	104.5	119.5	149.5	179.5	209	224	238
Gas CFH (1000 Btu)	5230	6280	8370	10460	12555	14650	16750	20925	25100	29300	31385	33500
Gas (Therm/hr)	52.3	62.8	83.7	104.6	125.5	146.5	167.5	209.3	251	293	313.8	335
POWER REQUIREMENTS — SEA LEVEL TO 1000 FT (60 HZ)												
Oil Pump Motor hp (oil firing only)	*	*	*	1/2	3/4	3/4	3/4	3/4	3/4	1	1	1
Blower Motor - Series 100/200[A]	2	3	7-1/2	5	7-1/2	10	20	25	30	40	60	60
Blower Motor - Series 700[A]	2	3	5	5	7-1/2	10	20	25	30	40	60	60
Air Comp. Motor (oil firing only)	**	**	**	3	3	3	5	5	7-1/2	7-1/2	7-1/2	7-1/2
Oil Meter. Pump Mtr (oil firing only)	N/A	N/A	N/A	N/A	N/A	N/A	1/2	3/4	3/4	3/4	3/4	3/4
BOILER DATA												
Heating Surface sq-ft (Fireside)	625	750	1000	1250	1500	1750	2000	2500	3000	3500	3500	3500

* Integral oil pump.
** No air compressor required (pressure atomized)
NOTE: All fractional hp motors will be single phase voltage except oil metering pump motor(3-phase); integral hp motors will be 3-phase voltage.
A. For altitudes over 1000 ft. contact your local Cleaver-Brooks representative for verification of motor hp.

BOILER HP	DIM	125	150	200	250	300	350	400	500	600	700	750	800
HEIGHTS													
Base To Boiler Centerline	D	46	46	46	56	56	56	56	67	67	67	67	67
Base To Vent Outlet	O	85	85	85	106	106	106	106	126	126	126	126	126
Base To Steam Outlet	P	82-3/8	82-3/8	82-3/8	101-1/2	101-1/2	101-1/2	101-1/2	122	122	122	122	122
Base Frame	Q	12	12	12	10	10	10	10	12	12	12	12	12
Base to Bottom Boiler	R	16	16	16	17	17	17	17	19	19	19	19	19
CONNECTIONS													
Chemical Feed	G	1	1	1	1	1	1	1	1	1	1	1	1
Feedwater Inlet (Both Sides)	S	1-1/2	1-1/2	2	2	2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2
Steam Nozzle (15 psig)[A]	Y	8	8	10	10	12	12	12	12	12	12	12	12
Steam Nozzle (150 psig)[B]	Y	4	4	4	6	6	6	6	8	8	8	8	8
Drain - Front & Rear (15 psig)	W	1-1/2	1-1/2	2	2	2	2	2	2	2	2	2	2
Blowdown - Front & Rear (150 psig)	W	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	2	2	2	2	2	2
Surface Blowoff	T	1	1	1	1	1	1	1	1	1	1	1	1
Vent Stack Diameter (Flanged)	BB	16	16	16	20	20	20	20	24	24	24	24	24
Flange to Center Vent	CC	9-1/8	9-1/8	9-1/8	10-5/8	10-5/8	10-5/8	10-5/8	12-5/8	12-5/8	12-5/8	12-5/8	12-5/8
MISCELLANEOUS													
Rear Door Swing	DD	30	30	30	39	39	39	39	46	46	46	46	46
Tube Removal - Front Only	GG	124	147	195	128	152	177	202	171	206	242	242	242
Min. Boiler Room Length For Tube Removal Front	RF	312	368	454	335	383	433	483	437	507	578	578	578
Min. Boiler Room Length For Tube Removal Thru Door	RD	255	278	326	296	320	345	370	374	409	444	444	444
WEIGHTS													
Normal Water Weight		6600	8050	11000	11394	13468	15861	17936	21353	25531	29835	29835	29835
Shipping Weight (150 psig)		12950	14000	16850	21750	24300	26500	28750	38800	43950	50950	51200	51200
Shipping Weight (15 psig)		12150[C]	12950	15600	20300	22450	25250	27650	35800	40950	47850	48250	48250

NOTES:
Accompanying dimensions, while sufficiently accurate for layout purposes, must be confirmed for actual option requirements.
A. 150 psig Flange.
B. 300 psig Flange.
C. Overall width may increase with the addition of electrical options due to control panel mounting.

Figure A8-1. Model CEW Steam Boiler Dimensions (Page 2 of 2)



BOILER HP	DIM	125	150	200	250	300	350	400	500	600	700	750	800
LENGTHS													
Overall	A	201-3/4	224-3/4	272-3/4	216-7/16	240-7/16	265-7/16	300	282-1/2	319	354	356-7/8	359
Shell	B	158	181	229	168	192	217	242	219-3/4	254-3/4	289-3/4	289-3/4	289-3/4
Base Frame	C	166-3/4	189-3/4	237-3/4	179-1/2	203-1/2	228-1/2	225-7/8	203-3/4	238-3/4	273-3/4	273-3/4	273-3/4
Base Frame to Rear Flange	H	19-1/8	19-1/8	19-1/8	22	22	22	22	22	22	22	22	22
Flange to Steam Nozzle	E	56	72	108	70	90	108	118	100-3/4	110-3/4	127-1/4	127-1/4	127-1/4
WIDTHS													
Overall[C] (15 psig)	I	85	85	85	103	103	103	103	123	123	123	123	123
Overall[C] (150 psig)	I	85	85	85	103	103	103	103	123	123	123	123	123
I. D. Boiler	J	60	60	60	78	78	78	78	96	96	96	96	96
Center to Water Column	K	45	45	45	54	54	54	54	64	64	64	64	64
Center to Lagging	L	33	33	33	42	42	42	42	51	51	51	51	51
Base Outside	M	52-1/2	52-1/2	52-1/2	64	64	64	64	71-7/8	71-7/8	71-7/8	71-7/8	71-7/8
Base Inside	N	44-1/2	44-1/2	44-1/2	56	56	56	56	59-7/8	58-7/8	58-7/8	58-7/8	58-7/8

Figure A8-1. Model CEW Steam Boiler Dimensions (Page 1 of 2)

GAUMER Process Heaters

713 460-5200 or 800 460-5200
Fax 713 460-1444
sales@gaumer.com
http://www.gaumer.com

Flanged - Type IF

APPLICATIONS:

60 and 45 Watts Per Square Inch

Industrial water heating - many aqueous solutions which are compatible with steel and Incoloy.

23 and 20 Watts Per Square Inch

For heat transfer oil, cleaners, high temperature air and gas heating.

15 and 12 Watts Per Square Inch

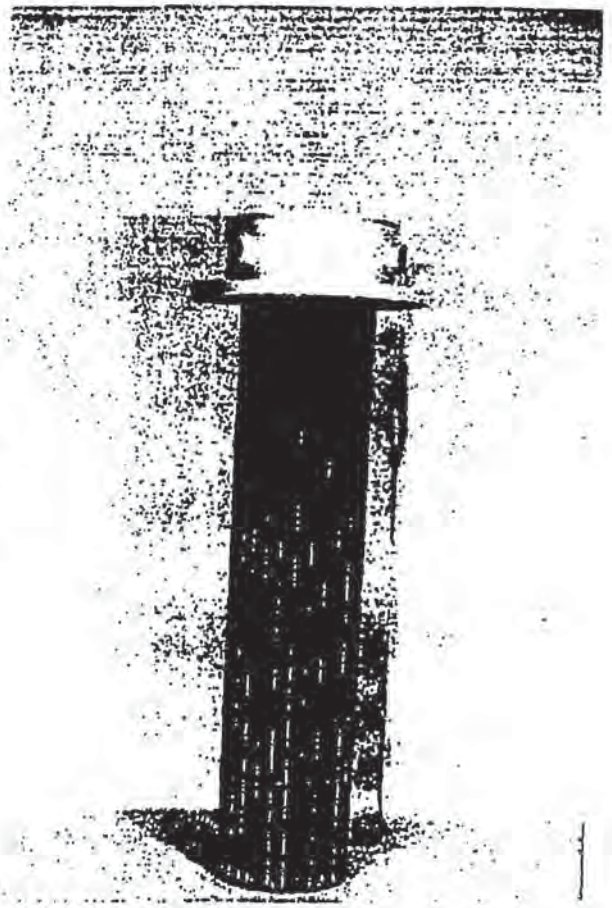
For lubricating oils, medium viscosity oils, high temperature air and gas heating.

8 and 6 Watts Per Square Inch

For #5 and #6 fuel oil heating, viscous materials, raw crude oil, residual oils, high temperature air and gas heating.

4 and 2 Watts Per Square Inch

For asphalt and other hard-to-heat substances, extra high temperature air and gas.



STANDARD FEATURES:

Heating Elements
- Incoloy 800 Sheath Material
- Heavy Wall (.035 in.)
- Large diameter (.475 in.)
- Sealed Terminals

Spacers
- High Temp Alloy Material
- Rugged Design
- "Eventlow" Configuration

Construction
- Welded Heating Elements
- Welded Terminal Housing
- Welded Spacers

Installation
- Flying Leadwires Provided
- Only Standard Materials Needed in Field

Service
- Wiring Modifiable in Field
- Assembly Repairable at Factory

SPECIAL FEATURES:

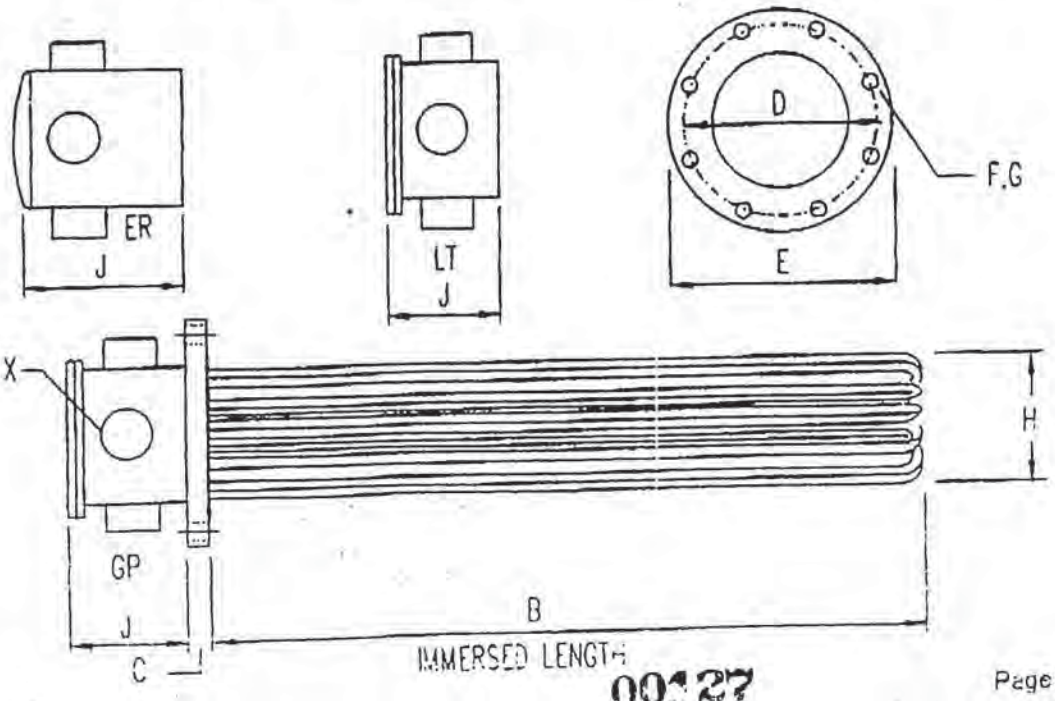
-ER	Explosion Resistant Terminal Enclosure
-LT	Moisture Resistant Terminal Enclosure
-J(K)	Sheath Sensing Thermocouple attached to one element for overheat protection
-S	Stainless Steel Flange - Type 304
-S(316)	Stainless Steel Flange - Type 316
-SpHtr	Space Heater Mounted in Terminal Enclosure
-OSTHsg	Offset (Spaced Away) Terminal Housing
-XX	Special Feature not Listed Above
3(?)-(P/N)	300(?)# ANSI Flange

Flanged Heaters

Type IF

Gaumer Drawing No. IF-200
(Dimension Flange Heater Detail)

Flange Size (in.)	Pressur Class	Flange Dimensions (inches)			Flange HoleSize	No. of Holes	Min.Hole Diam.	Housing Height (inches)			X - No and Size Conduit Connection		
(in)	(lb.)	C Thick	D Diam:	E Diam:	F	G	H	J GP:	J ER:	J LT:	GP:	ER:	LT:
3	150	0-15/16	6	7-1/2	3/4	4	2-3/4	2-5/8	5-1/2	2-5/8	1@1	1@1-1/4	1@1
3	300	1-1/8	6-5/8	8-1/4	7/8	8	2-3/4	2-5/8	5-1/2	2-5/8	1@1	1@1-1/4	1@1
4	150	0-15/16	7-1/2	9	3/4	8	3-13/16	5-1/2	6-1/2	5-1/2	3@1-1/4	2@1/2	3@1-1/4
4	300	1-1/4	7-7/8	10	7/8	8	3-13/16	5-1/2	6-1/2	5-1/2	3@1-1/4	2@1/2	3@1-1/4
5	150	0-15/16	8-1/2	10	7/8	8	4-13/16	5-1/2	6-1/2	5-1/2	3@1-1/4	2@1/2	3@1-1/4
5	300	1-3/8	9-1/4	11	7/8	8	4-13/16	5-1/2	6-1/2	5-1/2	3@1-1/4	2@1/2	3@1-1/4
6	150	1	9-1/2	11	7/8	8	5-3/4	5-1/2	8	5-1/2	3@1-1/4	2@1/2	3@1-1/4
6	300	1-7/16	10-5/8	12-1/2	7/8	12	5-3/4	5-1/2	8	5-1/2	3@1-1/4	2@1/2	3@1-1/4
8	150	1-1/8	11-3/4	13-1/2	7/8	8	7-13/16	5-1/2	9	5-1/2	3@1-1/2	3@1-1/2	3@1-1/2
8	300	1-5/8	13	15	1	12	7-13/16	5-1/2	9	5-1/2	3@1-1/2	3@1-1/2	3@1-1/2
10	150	1-3/16	14-1/4	16	1	12	9-5/8	7	11	7	3@1-1/2	3@1-1/2	3@1-1/2
10	300	1-7/8	15-1/4	17-1/2	1-1/8	16	9-5/8	7	11	7	3@1-1/2	3@1-1/2	3@1-1/2
12	150	1-1/4	17	19	1	12	11-5/8	7	11	7	3@2	3@2	3@2
12	300	2	17-3/4	20-1/2	1-1/4	16	11-5/8	7	11	7	3@2	3@2	3@2
14	150	1-3/8	18-3/4	21	1-1/8	12	12-1/2	7	11	7	3@2	3@2	3@2
14	300	2-1/8	20-1/4	23	1-1/4	20	12-1/2	7	11	7	3@2	3@2	3@2
16	150	1-7/16	21-1/4	23-1/2	1-1/8	16	14-1/2	9	13	9	4@2	4@2	4@2
16	300	2-1/4	22-1/2	25-1/2	1-3/8	20	14-1/2	9	13	9	4@2	4@2	4@2
18	150	1-9/16	22-3/4	25	1-1/4	16	16-3/8	9	13	9	4@2	4@2	4@2
18	300	2-3/8	24-3/4	28	1-3/8	24	16-3/8	9	13	9	4@2	4@2	4@2
20	150	1-11/16	25	27-1/2	1-1/4	20	18-5/16	9	13	9	4@2	4@2	4@2
20	300	2-1/2	27	30-1/2	1-3/8	24	18-5/16	9	13	9	4@2	4@2	4@2
24	150	1-7/8	29-1/2	32	1-3/8	20	22-1/8	11	15	11	6@2	6@2	6@2
24	300	2-3/4	32	36	1-5/8	24	22-1/8	11	15	11	6@2	6@2	6@2



00127

3/21/97

Houston, TX 77040 (713) 460-5200 Fax (713) 460-1444

Flanged Heaters

Type IF

WattDensity: 23

Flng Size	Lgth	KW	Volts	Catalog No.
6	52	40.0	480	6F12N52M4
6	52	50.0	240	6F15N52M2
6	52	50.0	480	6F15N52M4
6	64	50.0	240	6F12N64M2
6	64	50.0	480	6F12N64M4
6	64	62.5	240	6F15N64M2
6	64	62.5	480	6F15N64M4
6	77	60.0	240	6F12N77M2
6	77	60.0	480	6F12N77M4
6	77	75.0	240	6F15N77M2
6	77	75.0	480	6F15N77M4
6	88	67.2	480	6F12N88M4
6	88	84.0	480	6F15N88M4
6	106	79.6	480	6F12N106M4
6	106	94.5	480	6F15N106M4
6	120	93.6	480	6F12N120M4
6	120	117.0	480	6F15N120M4
8	18	18.0	240	8F18N18M2
8	18	18.0	480	8F18N18M4
8	18	24.0	240	8F24N18M2
8	18	24.0	480	8F24N18M4
8	20	22.5	240	8F18N20M2
8	20	22.5	480	8F18N20M4
8	20	30.0	240	8F24N20M2
8	20	30.0	480	8F24N20M4
8	25	27.0	240	8F18N25M2
8	25	27.0	480	8F18N25M4
8	25	36.0	240	8F24N25M2
8	25	36.0	480	8F24N25M4
8	33	36.0	240	8F18N33M2
8	33	36.0	480	8F18N33M4
8	33	48.0	240	8F24N33M2
8	33	48.0	480	8F24N33M4
8	40	45.0	240	8F18N40M2
8	40	45.0	480	8F18N40M4
8	40	60.0	240	8F24N40M2
8	40	60.0	480	8F24N40M4
8	48	54.0	240	8F18N48M2
8	48	54.0	480	8F18N48M4
8	48	72.0	240	8F24N48M2
8	48	72.0	480	8F24N48M4
8	52	60.0	240	8F18N52M2
8	52	60.0	480	8F18N52M4
8	52	80.0	240	8F24N52M2
8	52	80.0	480	8F24N52M4
8	64	76.5	240	8F18N64M2
8	64	76.5	480	8F18N64M4
8	64	102.0	240	8F24N64M2
8	64	102.0	480	8F24N64M4
8	77	90.0	240	8F18N77M2
8	77	90.0	480	8F18N77M4

WattDensity: 23

Flng Size	Lgth	KW	Volts	Catalog No.
8	77	120.0	240	8F24N77M2
8	77	120.0	480	8F24N77M4
8	88	100.8	480	8F18N88M4
8	88	134.4	480	8F24N88M4
8	106	113.4	480	8F18N106M4
8	106	151.2	480	8F24N106M4
8	120	140.4	480	8F18N120M4
8	120	187.2	480	8F24N120M4
10	18	27.0	480	10F27N18M4
10	18	36.0	480	10F36N18M4
10	20	33.7	480	10F27N20M4
10	20	45.0	480	10F36N20M4
10	25	40.5	480	10F27N25M4
10	25	54.0	480	10F36N25M4
10	33	54.0	480	10F27N33M4
10	33	72.0	480	10F36N33M4
10	40	67.5	480	10F27N40M4
10	40	90.0	480	10F36N40M4
10	48	81.0	480	10F27N48M4
10	48	108.0	480	10F36N48M4
10	52	90.0	480	10F27N52M4
10	52	120.0	480	10F36N52M4
10	64	114.7	480	10F27N64M4
10	64	153.0	480	10F36N64M4
10	77	135.0	480	10F27N77M4
10	77	180.0	480	10F36N77M4
10	88	151.2	480	10F27N88M4
10	88	201.6	480	10F36N88M4
10	106	170.0	480	10F27N106M4
10	106	226.8	480	10F36N106M4
10	120	210.6	480	10F27N120M4
10	120	280.8	480	10F36N120M4
12	18	36.0	480	12F36N18M4
12	18	48.0	480	12F48N18M4
12	20	45.0	480	12F36N20M4
12	20	60.0	480	12F48N20M4
12	25	54.0	480	12F36N25M4
12	25	72.0	480	12F48N25M4
12	33	72.0	480	12F36N33M4
12	33	96.0	480	12F48N33M4
12	40	90.0	480	12F36N40M4
12	40	120.0	480	12F48N40M4
12	48	108.0	480	12F36N48M4
12	48	144.0	480	12F48N48M4
12	52	120.0	480	12F36N52M4
12	52	160.0	480	12F48N52M4
12	64	153.0	480	12F36N64M4
12	64	204.0	480	12F48N64M4
12	77	180.0	480	12F36N77M4
12	77	240.0	480	12F48N77M4
12	88	201.6	480	12F36N88M4

3/21/97

00128

Attachment 22b

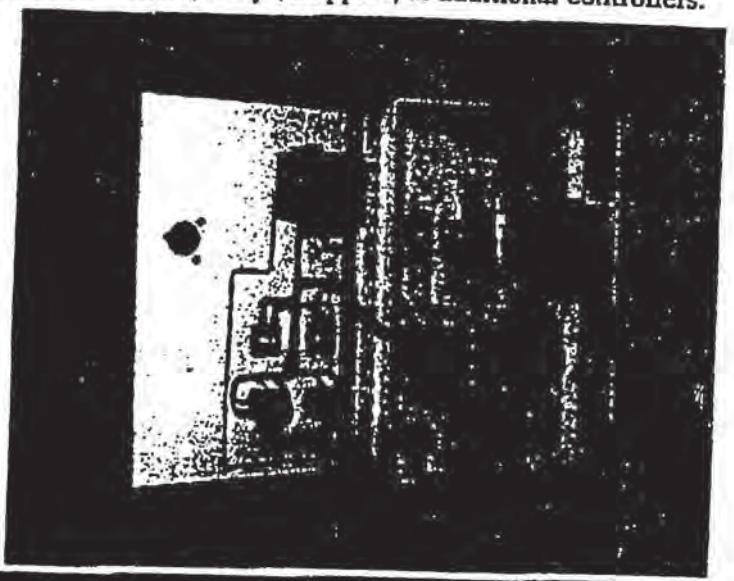
CONTROL PANELS

NEMA XII - Standard Contactor Control System

Applications:
Designed to fulfill the needs of the control systems for most process heating applications.

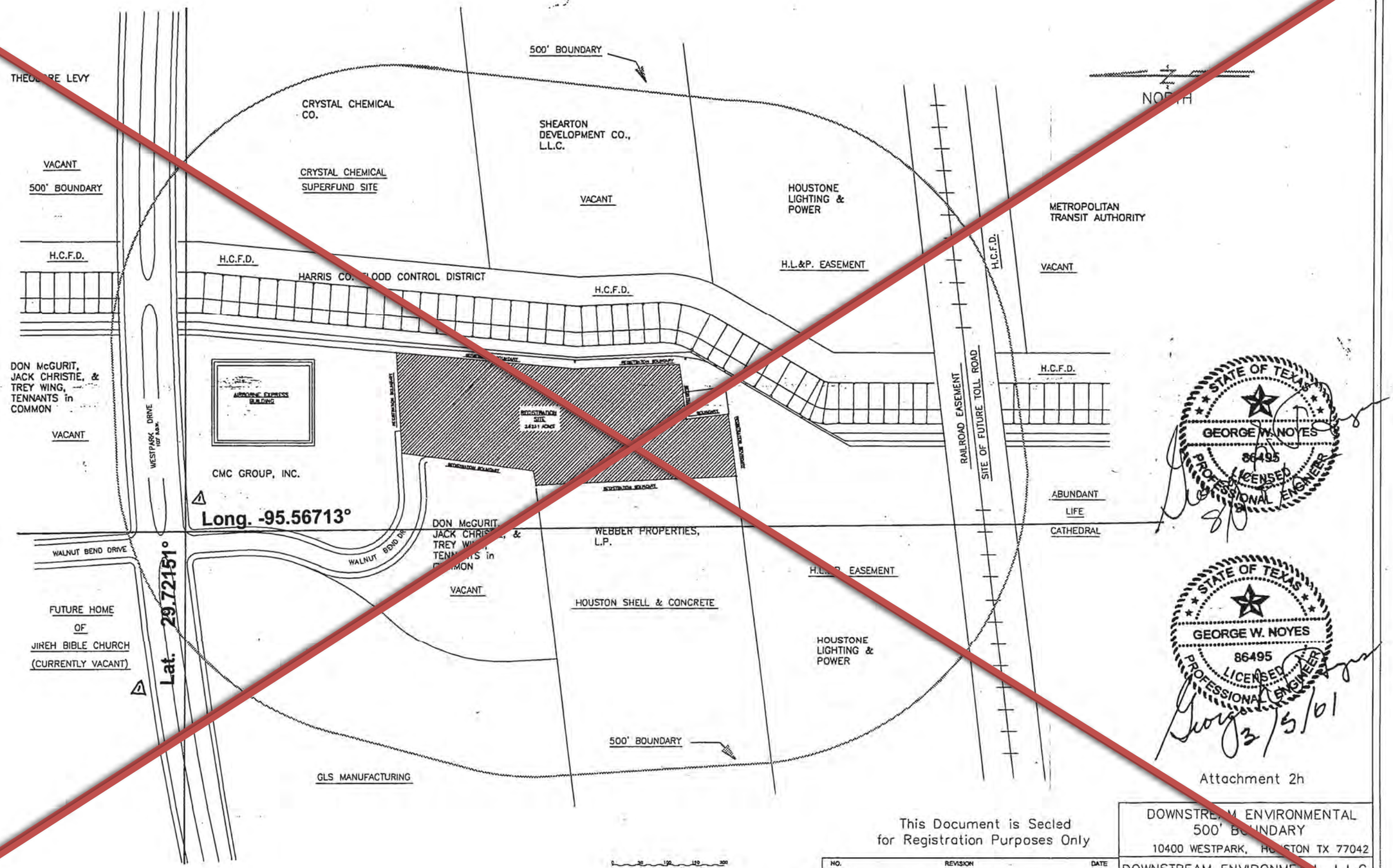
Features:
Heavy gauge gasketed enclosure finished in blue enamel with integral "Dead Front" switch, "Off-On" selector switch, "Power-On" pilot light, "Heat-On" pilot light, illuminated reset button and indicating electronic temperature controller. Internally mounted components include circuit breaker with mechanism, control transformer, control mercury contactor, safety magnetic contactor, electronic over-temperature controller, fuses and terminal strips.

Options:
Additional electrical and electronic components such as timers, relays, steppers, or additional controllers.



Model Number	KW	3 Phase Voltage	Amps	Circuit Breaker Size	No. of Circuits	Dimensions In Inches Ht.	Width	Depth	Wt.
CP12-20-2-IC	6	240	15	20	1	24	16	8	75
CP12-20-4-IC	12	480	15	20	1	24	16	8	75
CP12-40-2-IC	12	240	30	40	1	24	16	8	75
CP12-40-4-IC	25	480	30	40	1	24	16	8	75
CP12-60-2-IC	19	240	45	60	1	24	16	8	75
CP12-60-4-IC	38	480	45	60	1	24	16	8	75
CP12-70-2-IC	22	240	53	70	1	24	16	8	75
CP12-70-4-IC	44	480	53	70	1	24	16	8	75
CP12-90-2-IC	30	240	72	90	1	24	20	8	100
CP12-90-4-IC	60	480	72	90	1	24	20	8	100
CP12-100-2-2C	32	240	78	100	2	24	24	10	105
CP12-100-4-2C	65	480	78	100	2	24	24	10	105
CP12-150-2-3C	50	240	120	150	3	30	24	10	110
CP12-150-4-3C	100	480	120	150	3	30	24	10	110
CP12-250-2-3C	66	240	158	250	3	36	30	10	125
CP12-250-4-3C	132	480	158	250	3	36	30	10	125
CP12-250-4-4C	160	480	192	250	4	42	36	10	175
CP12-400-4-6C	260	480	312	400	6	60*	36	12	240
CP12-600-4-8C	400	480	480	600	8	60*	48	12	460
CP12-800-4-10C	532	480	638	800	10	60*	60	12	510

* Enclosure on 12" legs with stepper controller.



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PROFESSIONAL ENGINEER

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Attachment 2h

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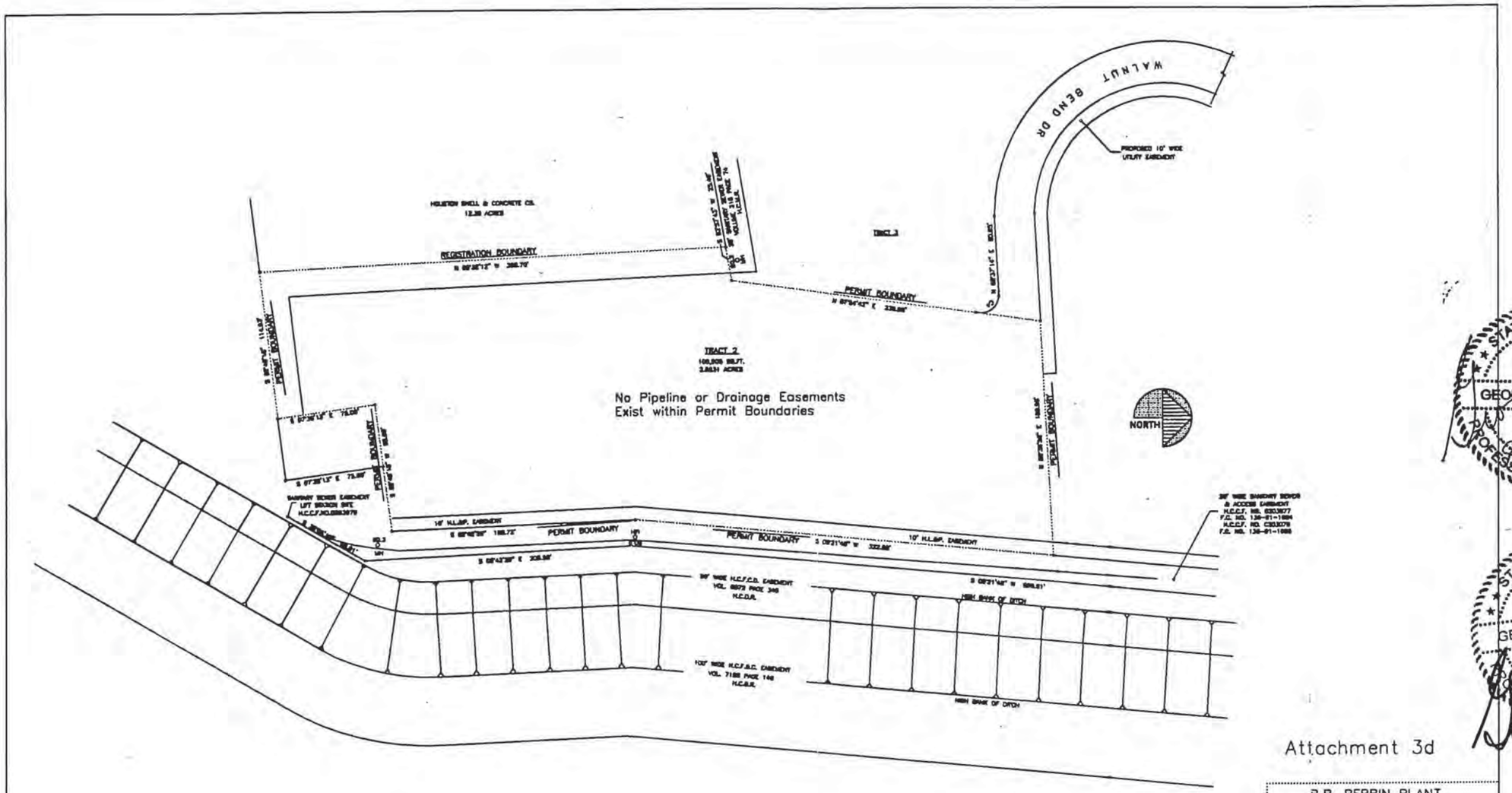
NO.	REVISION	DATE
-	-	-
1	ADD LATITUDE & LONGITUDE	7/01

DOWNSTREAM ENVIRONMENTAL
500' BOUNDARY
10400 WESTPARK, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL L.L.C.

SCALE: AS SHOWN	DRAWN BY: DGN
DATE: 24FEB01	REVISED: -
JOB NO. 00129	DRAWING NUMBER: DE115.rev1



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Attachment 3d

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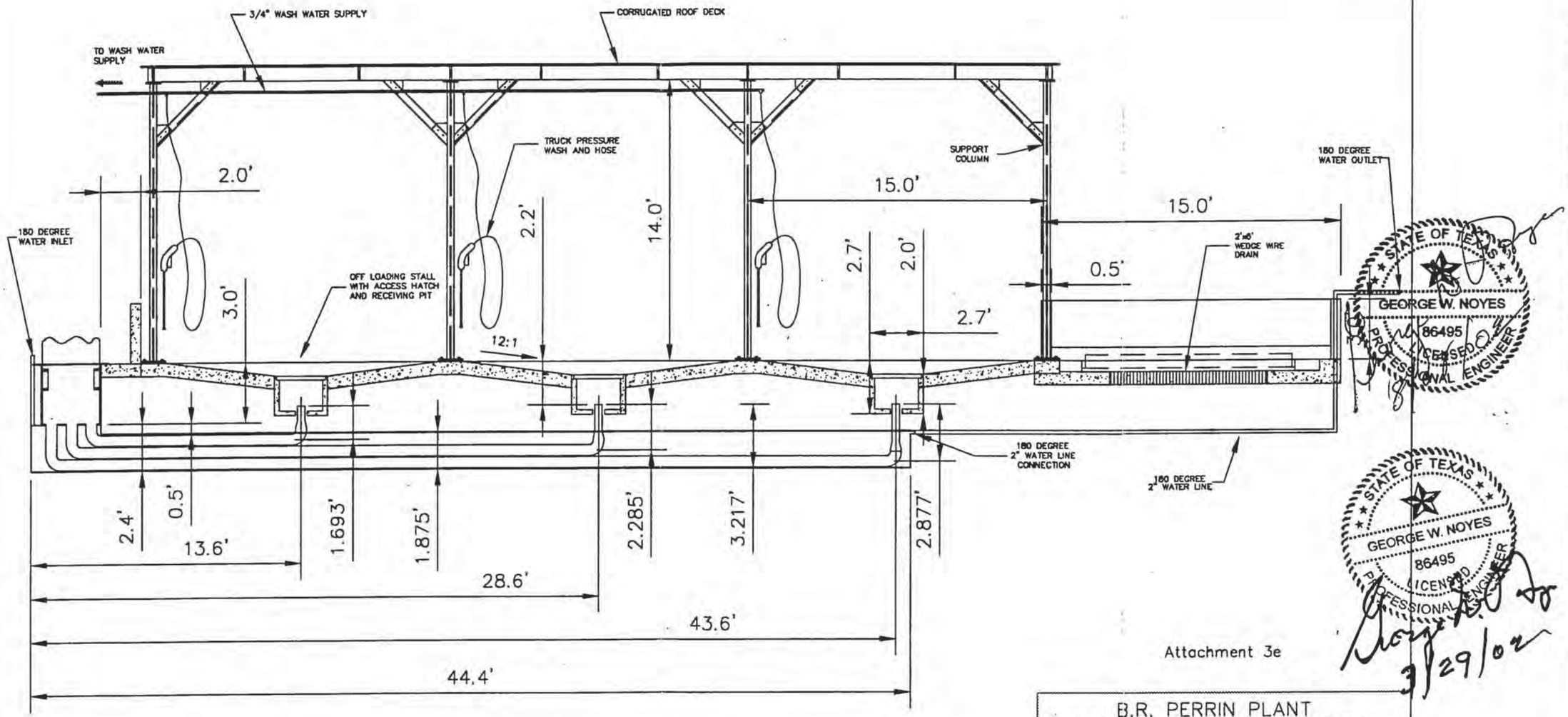
SCALE 1"=40'-0"

NO.	REVISION	DATE
-	-	-

B.R. PERRIN PLANT
SITE PLOT & UTILITIES
3737 WALNUT BEND, HOUSTON TX 77042
DOWNSTREAM ENVIRONMENTAL

SCALE: AS NOTED	DRAWN BY: DGN
DATE: FEB 02	REVISED:
	DRAWING NUMBER: DE102



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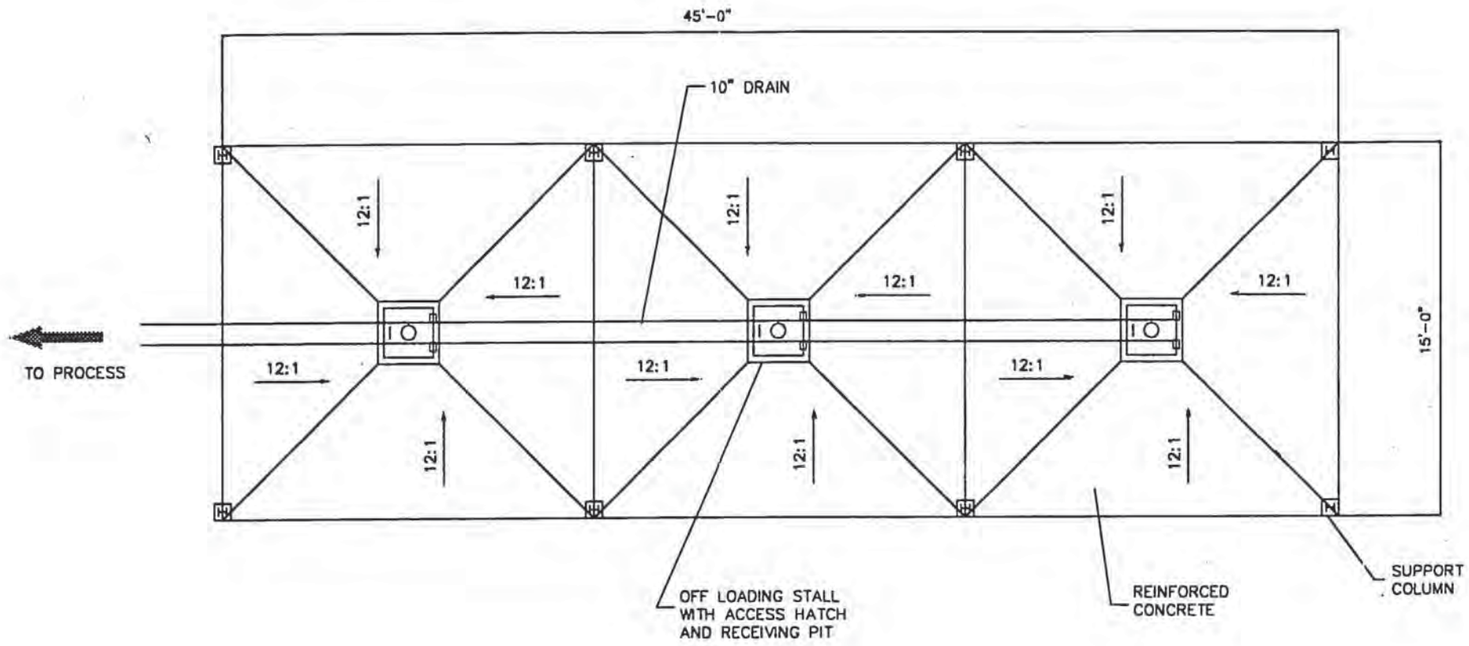
No.	REVISION	DATE

B.R. PERRIN PLANT
UNLOADING STALLS–ELEVATION
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL

SCALE: none	DRAWN BY: DGN
DATE: JAN02	REVISED:
	DRAWING NUMBER: DE–B10



PLAN

SCALE 1/4"=1'-0"

SCALER IN FEET

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George 3/29/02

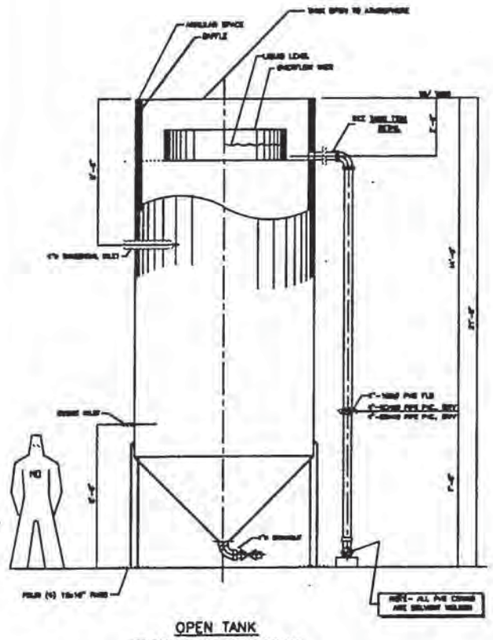
Attachment 3f

No.	REVISION	DATE

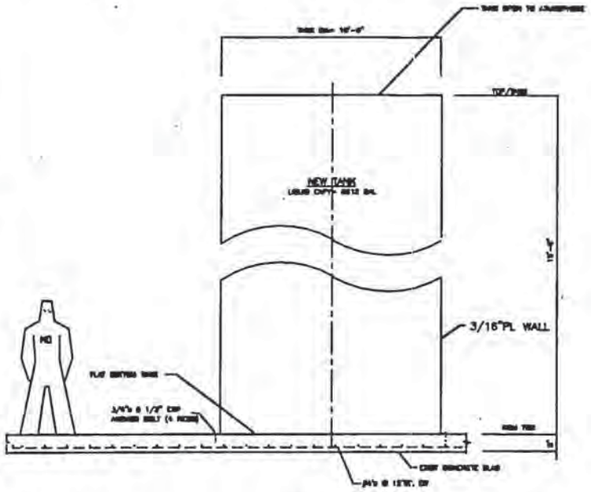
B.R. PERRIN PLANT
SITE LAYOUT
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, L.L.C.

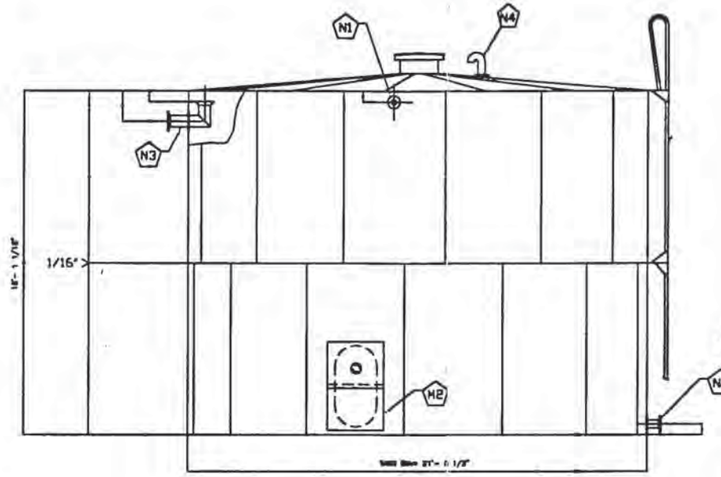
SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE-B11



OPEN TANK
TREATED WATER/OZONE
CONTACT TANK
N.T.S

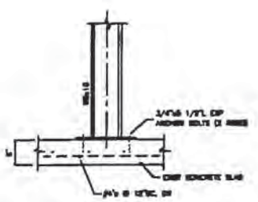


OPEN TANK
DMR TANKS #1 & #2
N.T.S.

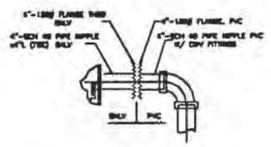


CLOSED TANK w/VENT
INLET STORAGE TANK
N.T.S.

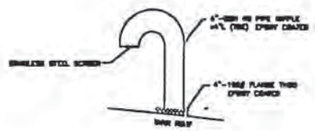
NOZZLE	ORIENTATION	ELEVATION	SIZE	DESCRIPTION
N1		187 1/16"	3"ø	INLET
N2		6"	4"ø	OULET
N3		176 1/16"	6"ø	O-FLO
N4		196 1/16"	4"ø	SCREENED VENT
H2		SHELL	24"x 46"	CLEAN-OUT



FOUNDATION DETAIL
TREATED WATER/OZONE
CONTACT TANK
NTS
(TYP/4 LEGS)



TANK DETAIL
NTS



VENT DETAIL
INLET STORAGE TANK
N.T.S.

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Attachment 3g

REV.	DATE	DESCRIPTION	DRAWN BY	APPR'D.
0				
1				

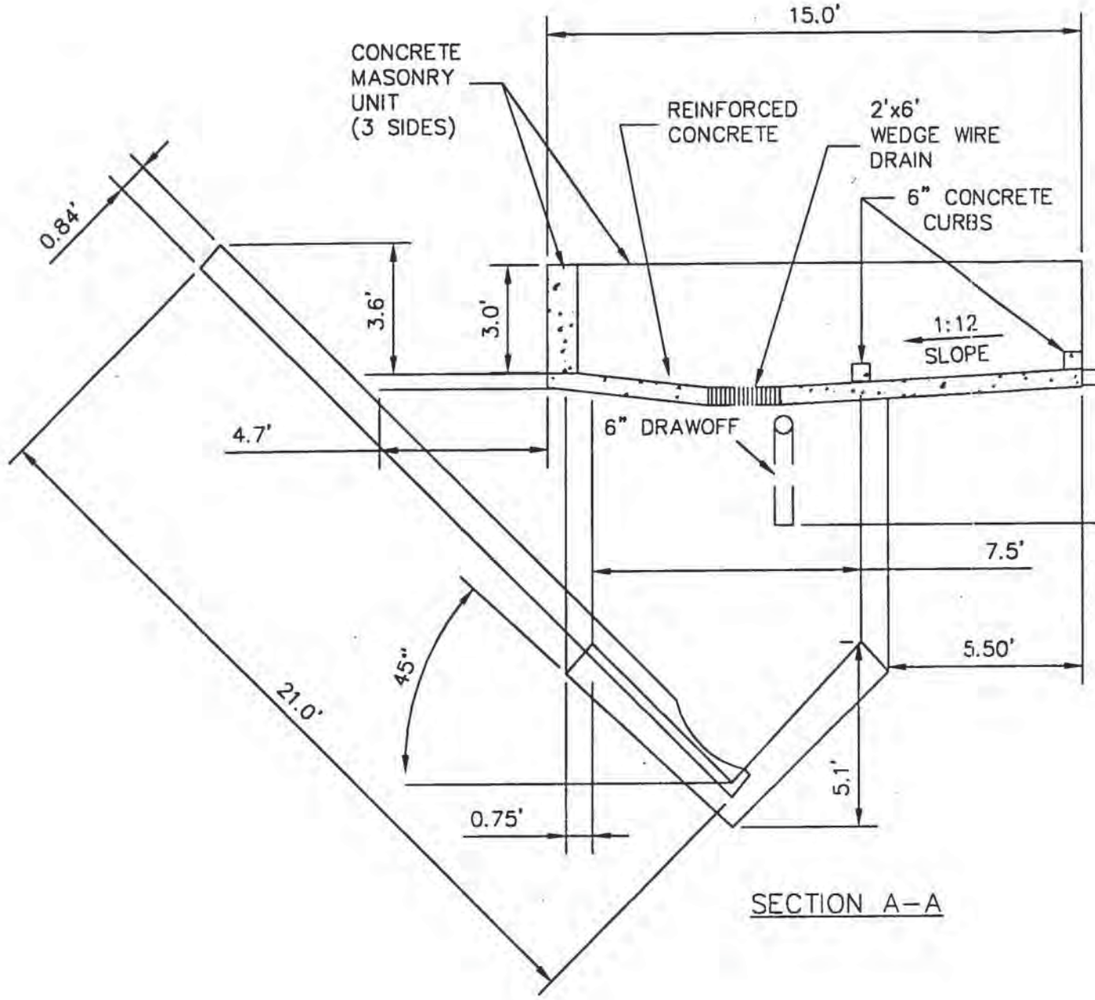
B.R. PERRIN PLANT

DOWNSTREAM ENVIRONMENTAL, L.L.C.
MECHANICAL
MISC SECTIONS & DETAILS
3737 WALNUT BEND,
HOUSTON TEXAS 77042

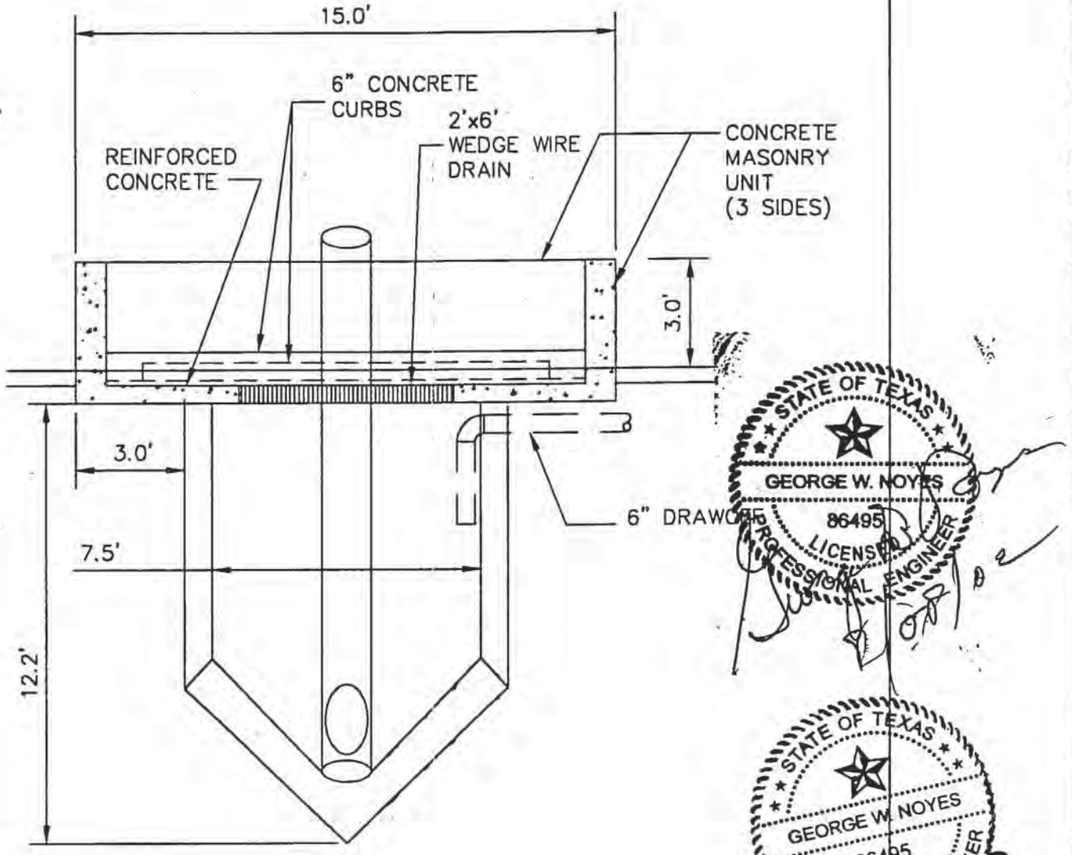
HOUSTON, TEXAS

DATE	SCALE	DRAWING NUMBER	REV.
FEB 02	NOTED	DE 011	-

00133



SECTION A–A



SECTION B–B

Attachment 3h

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STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED PROFESSIONAL ENGINEER

3/29/02

REV.	DESCRIPTION	DATE

GRIT UNLOADING BASIN SECTIONS

3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE211–01

4.00

B.R.PERRIN PLANT

DOWNSTREAM ENVIRONMENTAL, L.L.C.

HOURS OF OPERATION:
7:00am - 7:00pm
MON. - SAT.
TNRCC PERMIT #XXX-XXXX

6.00

Lettering is to be
4" Minimum

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

Attachment 3i

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For Permit Purposes Only

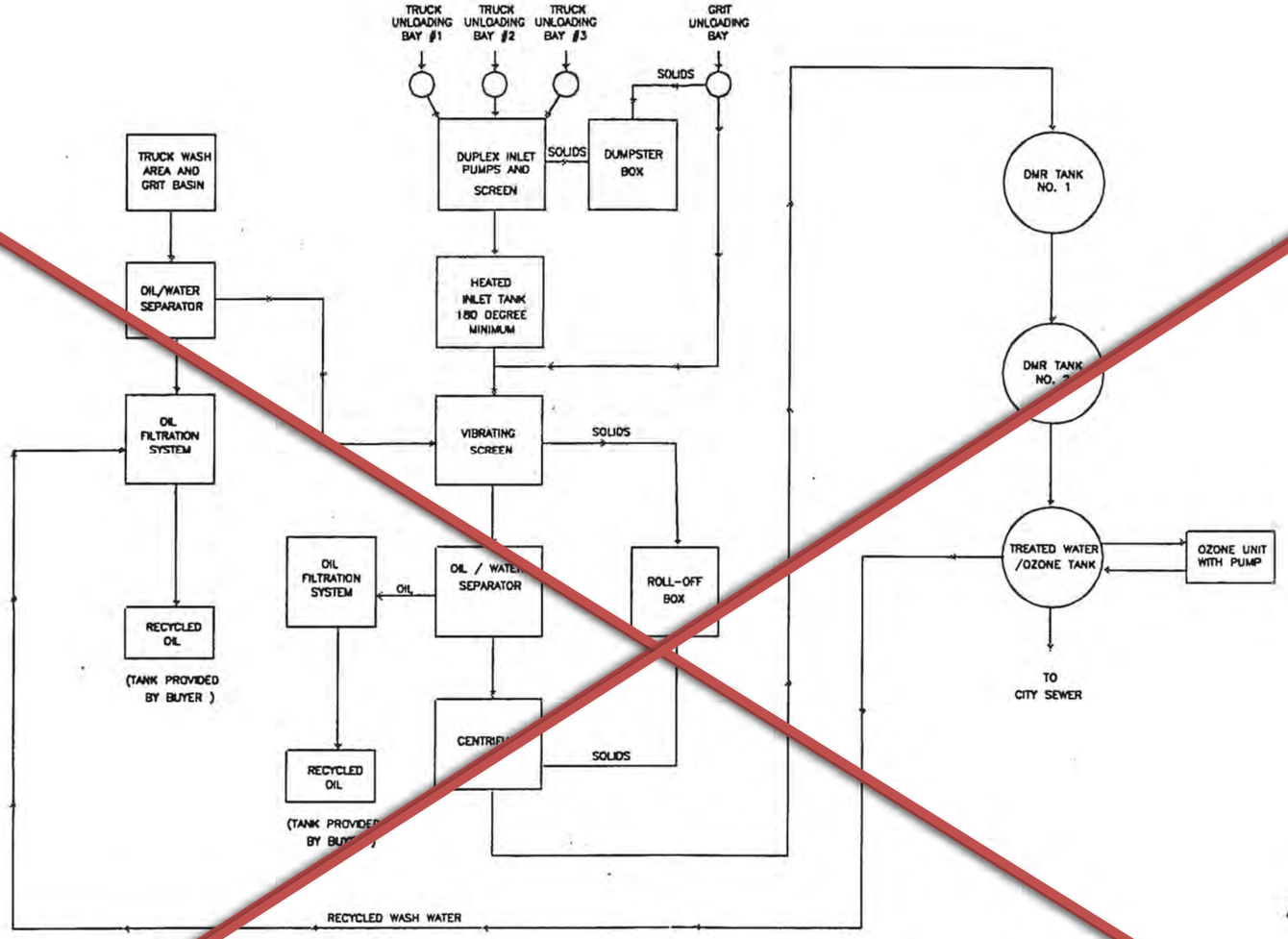
No.	REVISION	DATE

B.R.PERRIN PLANT
SIGN
3737 WALNUT BEND, HOUSTON, TEXAS 77042
DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: NONE	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE-225

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

3/29/02



Attachment 4

This Document is Sealed for Permit Purposes Only

No.	REVISION	DATE

B.R. PERRIN PLANT
SCHEMATIC BLOCK DIAGRAM
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: NONE	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE 001

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

3/29/02

00136

6" AIR

6" AIR

2 - 750 GPM
SELF-PRIMING
PUMP STATION

4" DIA

6" DIA

FEED
SUMP

GREASE/SEPTAGE
TRUCK UNLOADING

GRIT
BASIN

BLOWER

BLOWER

BLOWER

6" DIA

2-1/2" DIA

2" SUMP
PUMP

PUMP

CENTRIFUGE

CENTRIFUGE

RECEIVING
TANK

AUTOMATIC
INLET SCREEN

SHAKER
SCREEN

6" DIA

OIL/WATER
SEPARATOR

6" AIR

8" DIA

1,000 GPM
MIX PUMP

900
GPM

100
GPM

6" DIA

THROTTLING
VALVE

INLET HEAT EXCHANGER

SOLIDS
DISPOSAL

SOLIDS
DISPOSAL

SOLIDS
DISPOSAL

OIL
RECOVERY

SOLIDS
DISPOSAL

6" AIR

3" AIR

S1

S1

(2) DMR
BIOREACTORS

3" AIR

PUMP

OZONE

2" DIA

S3

6" DIA

DISCHARGE

FLOW
TOTALIZER

FINAL TANK

REV.	DATE	DESCRIPTION	DRAWN BY	APPVD.
1	7/02	OIL RECOVERY	DN	

Attachment 5

This Document is Submitted
for Permitting Purposes

STATE OF TEXAS
GEORGE W. NOYES
84498
LICENSED
PROFESSIONAL ENGINEER

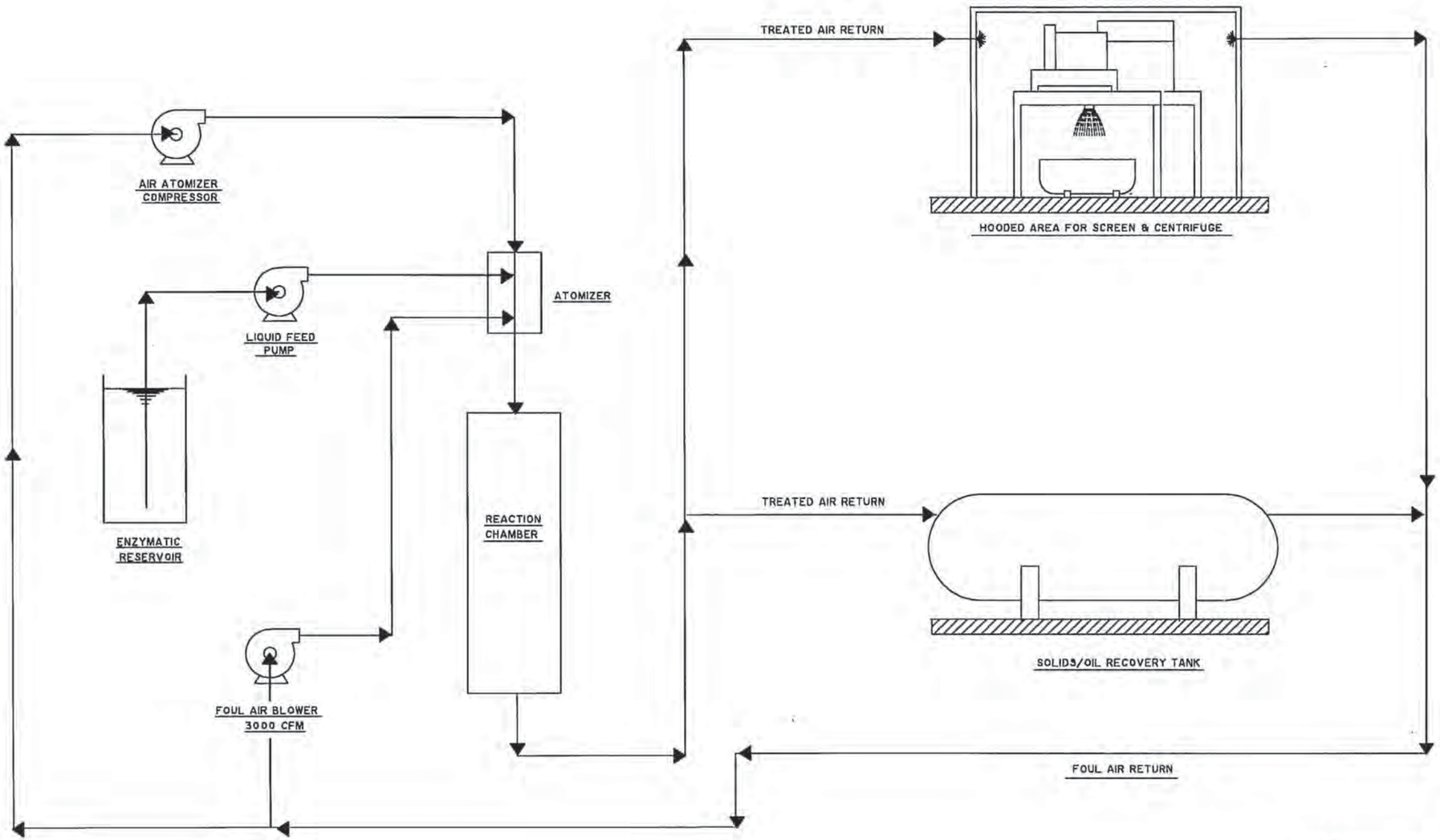
B.R. PERRIN PLANT
SOLIDS DISPOSAL DIAGRAM

3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: NONE	DRAWN BY: DGN
DATE: FEB02	REVISED: JUL02
	DRAWING NUMBER: DE002a, Rev.1

00137



Attachment 6a

This Document is Sealed for Permit Purposes Only

No.	REVISION	DATE

B.R. PERRIN PLANT
PRIMARY ODOR CONTROL
3737 WALNUT BEND, HOUSTON

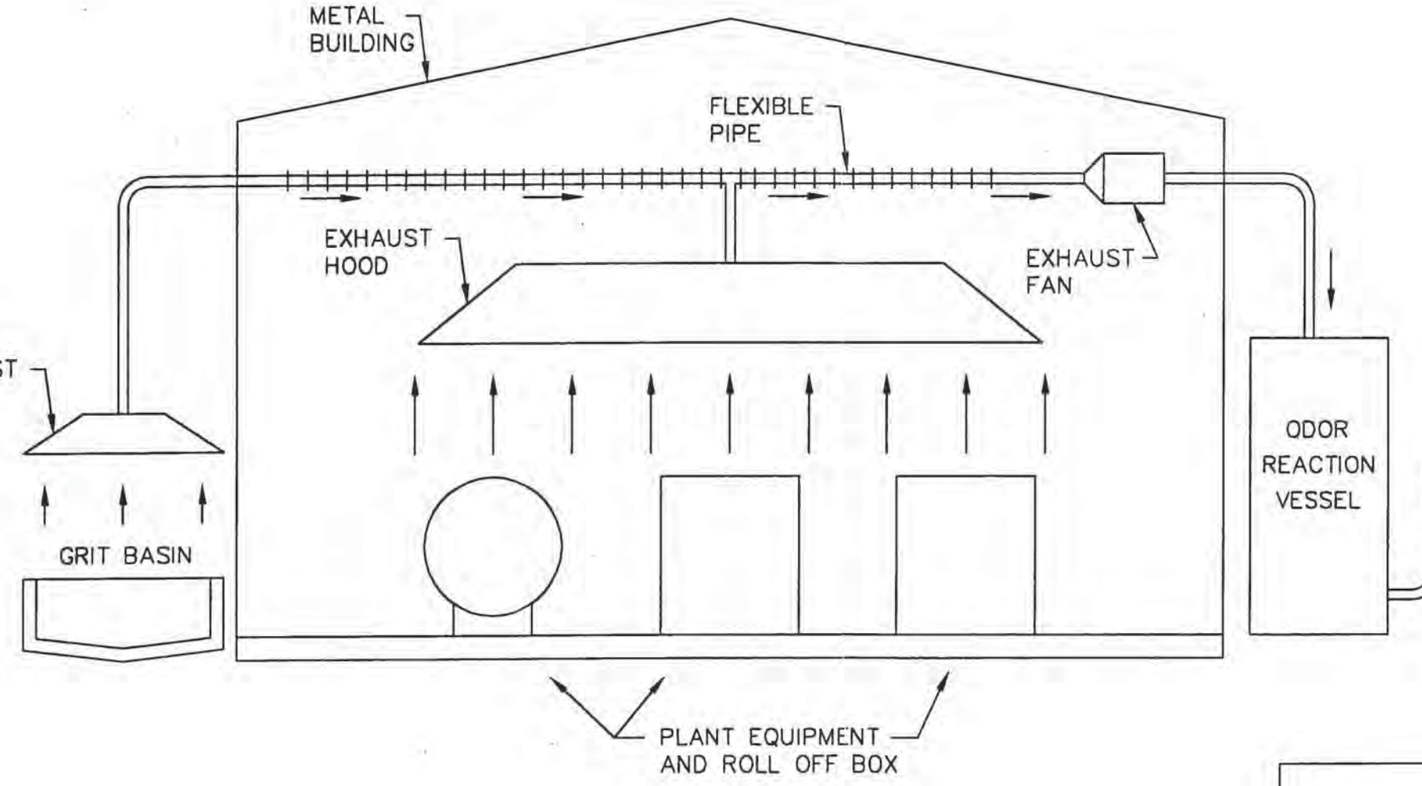
DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: NOT TO SCALE	DRAWN BY: DGN
DATE: FEB02	REVISED:

DRAWING NUMBER: DE 007

00138

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED PROFESSIONAL ENGINEER



Attachment 6b

B.R. PERRIN PLANT
ODOR CONTROL SYSTEM
SECTION

3737 WALNUT BEND, HOUSTON TX 770

DOWNSTREAM ENVIRONMENTAL,

SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: GS-A7

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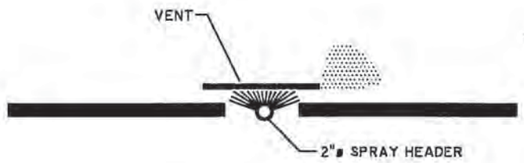
No.	REVISION	DATE

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED PROFESSIONAL ENGINEER

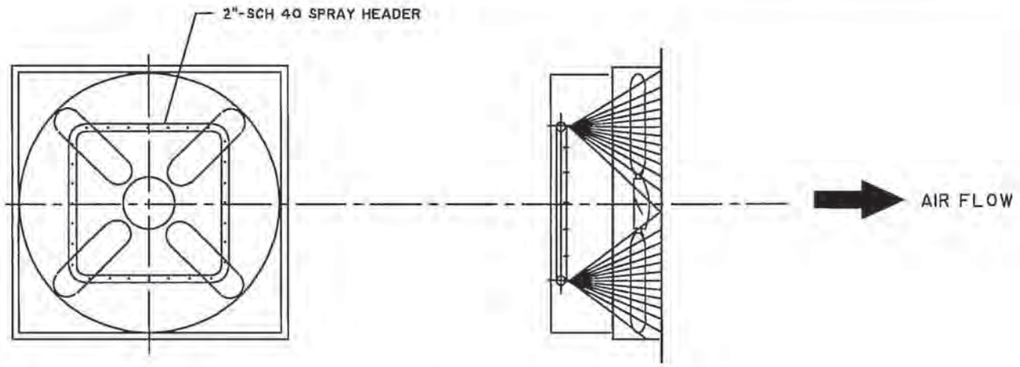
3/29/02

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED PROFESSIONAL ENGINEER

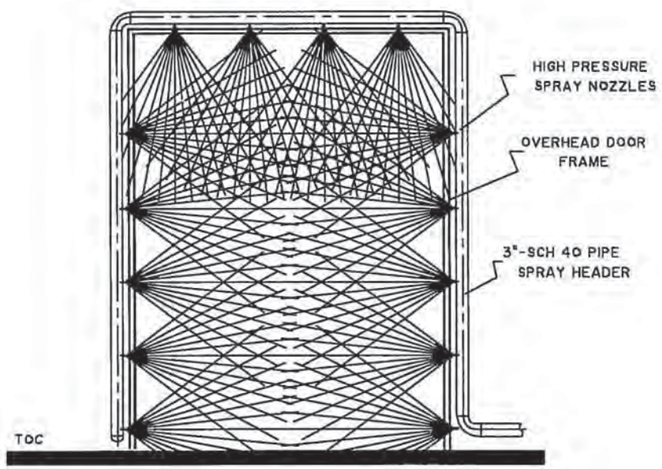
00139



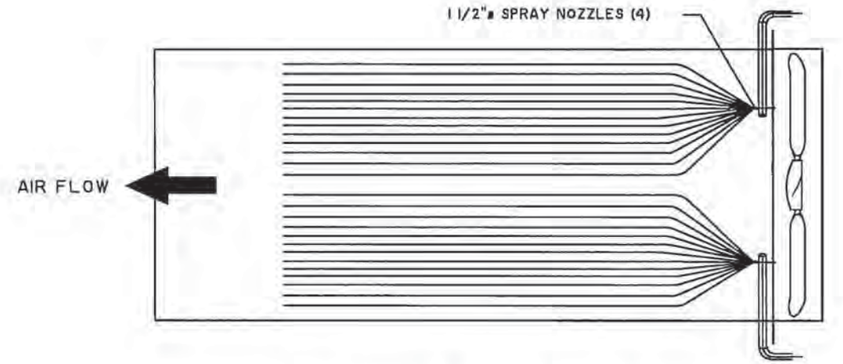
ROOF RIDGE VENT



12000 CFM
EXHAUST FAN



OVERHEAD DOOR



INTERNAL RECIRCULATION FAN
WITH PLENUM

Attachment 6c

This Document is Sealed
for Permit Purposes Only

REV	DESCRIPTION	DATE

B.R. PERRIN PLANT
BUILDING ODOR CONTROL
3737 WALNUT BEND, HOUSTON TX

DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: NOT TO SCALE	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE 009

00140

6" AIR

6" AIR

2 - 750 GPM
SELF-PRIMING
PUMP STATION

4" DIA

6" DIA

FEED SUMP

GREASE/SEPTAGE
TRUCK UNLOADING

GRIT
BASIN

6" DIA

BLOWER

BLOWER

BLOWER

2-1/2" DIA

2" SUMP
PUMP

PUMP

6" DIA

SHAKER
SCREEN

OIL/WATER
SEPARATOR

CENTRIFUGE

CENTRIFUGE

6" AIR

RECEIVING
TANK

AUTOMATIC
INLET SCREEN

8" DIA

1,000 GPM
MIX PUMP

900
GPM

6" DIA

THROTTLING
VALVE

INLET HEAT EXCHANGER

100
GPM

SOLIDS
DISPOSAL

SOLIDS
DISPOSAL

SOLIDS
DISPOSAL

OIL
RECOVERY

SOLIDS
DISPOSAL

6" AIR

3" AIR

SI

SI

(2) DMR
BIOREACTORS

3" AIR

PUMP

OZONE

2" DIA

S3

6" DIA

DISCHARGE

FLOW
TOTALIZER

FINAL TANK

Attachment 7

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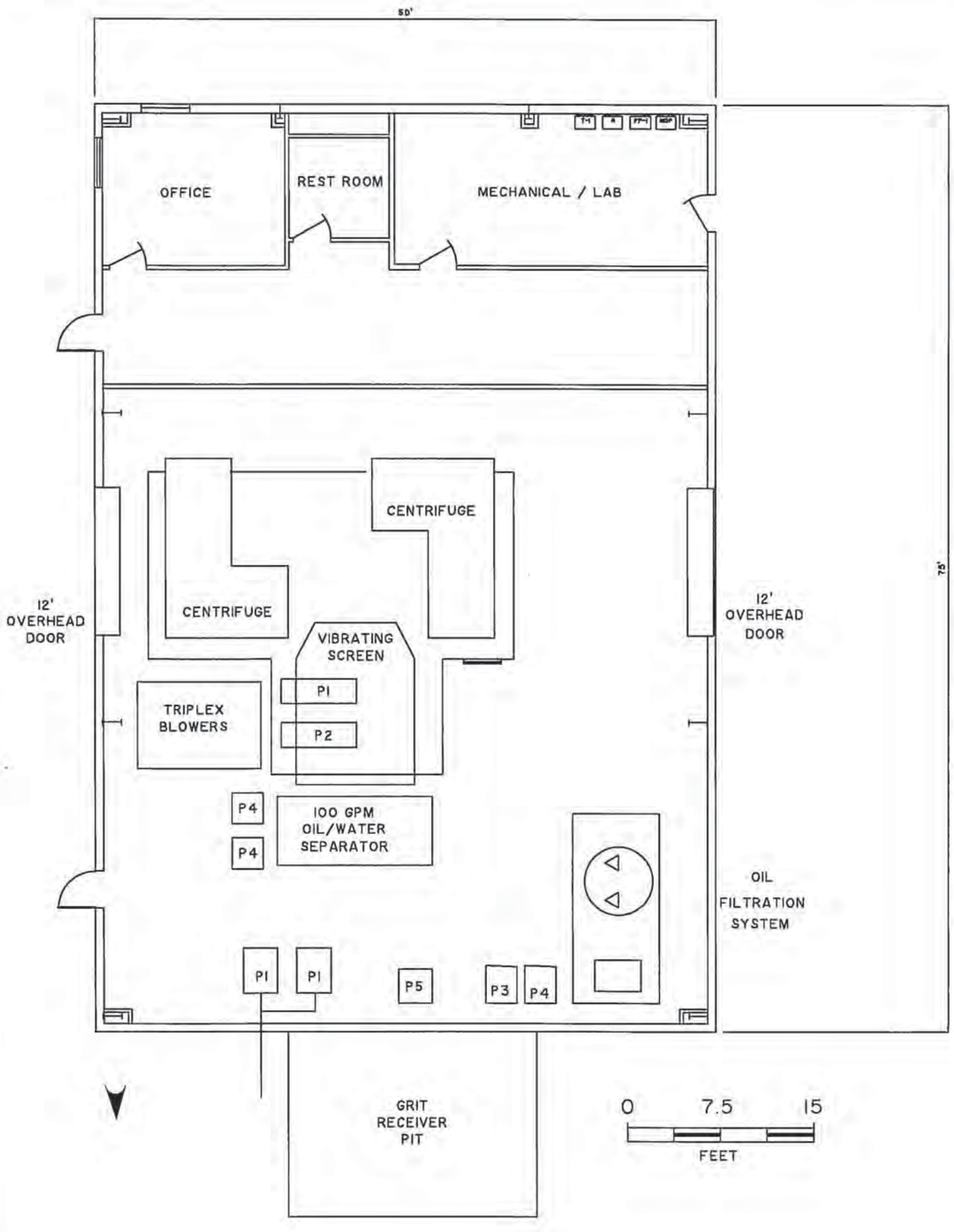
for Permitting Purposes Only

REV.	DATE	DESCRIPTION	DRAWN BY	APPVD.
1	7/02	OIL RECOVERY	DN	

B.R. PERRIN PLANT
SOLIDS DISPOSAL PROGRAM
3737 WALNUT BEND, HOUSTON
DOWNSTREAM ENVIRONMENTAL L.L.C.

SCALE: NONE	DRAWN BY: DGN
DATE: FEB02	REVISED: JUL02
	DRAWING NUMBER: DE002a, Rev.1

STATE OF TEXAS
GEORGE W. NOYES
80405
LICENSED PROFESSIONAL ENGINEER



PUMP SCHEDULE

P1 &P2 CENTRIFUGE-FEED PROGRESSIVE CAVITY, 125 GPM

P3&P4 BIO-REACTOR FEED CENTRIFUGAL, 125 GPM @ 50' TDH

P5 GRIT RECEIVER DRAIN 30 GPM

" " ROPE TYPE SKIMMER, 12 GPM

SLAB ELEV. = 81.00'

PLATFORM ELEV = 11'-0"

BUILDING HEIGHT = 20'-0"

ALL PIPING TO BE 3"-SCH40 INLUSLATED

NORTH

Attachment 8

STATE OF TEXAS
GEORGE W. NOYES
86455
LICENSED PROFESSIONAL ENGINEER

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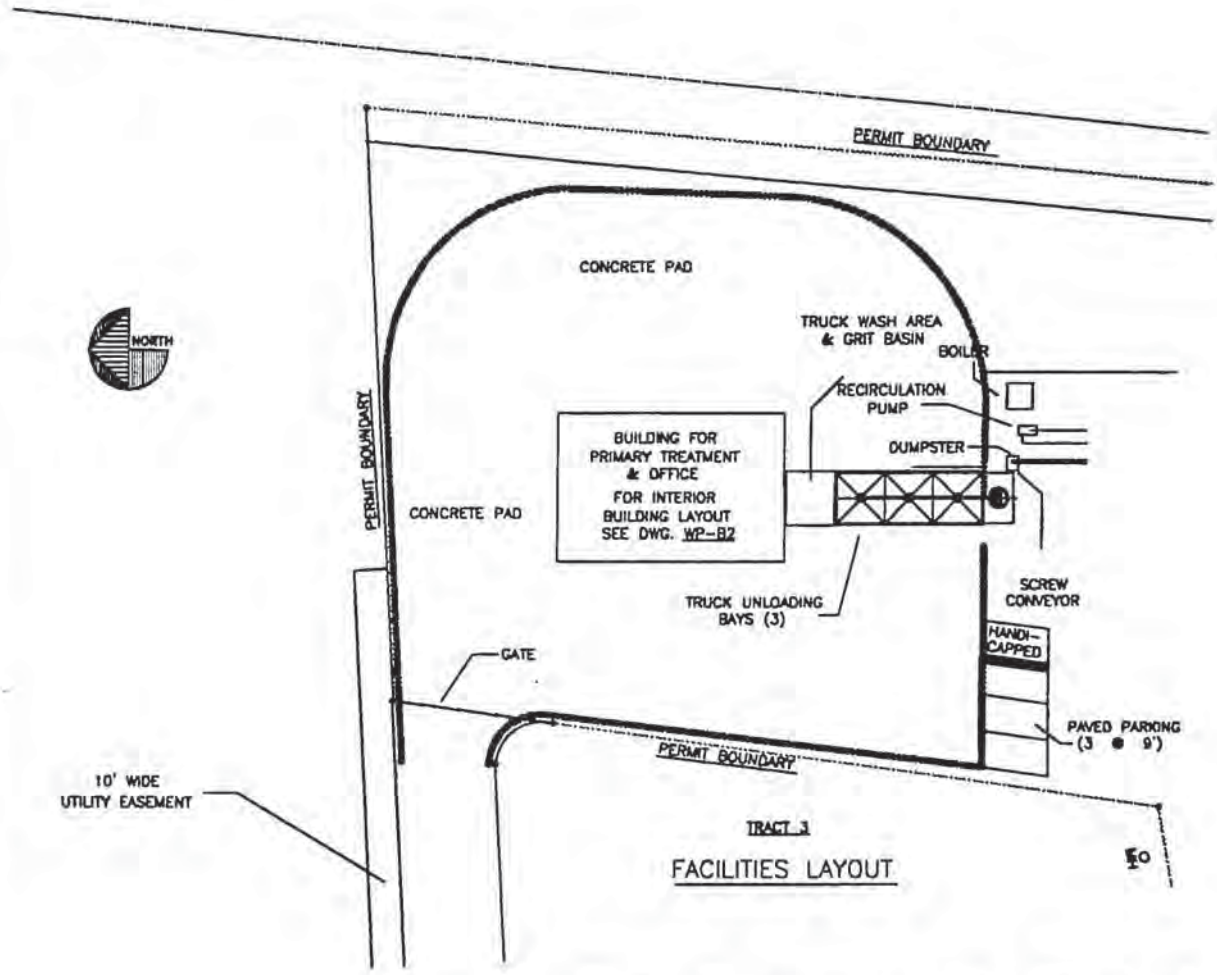
NO	REVISION	DATE
-	-	-
1	ADD SCALE	JUL02

B.R. PERRIN PLANT
BUILDING LAYOUT
3737 WALNUT BEND, HOUSTON TEXAS 77042
DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: as noted	DRAWN BY: DBN
DATE: FEB02	REVISED: JUL02
	DRAWING NUMBER: WP-B2 , Rev.1

000141
A



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0 50 100
SCALER, IN FEET

55' RIG MINIMUM TURNING RADIUS

NOTE-ALL ROADWAYS IN THIS AREA ARE BASED ON THE ABOVE

NO.	REVISION	DATE
-	-	-

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

3/29/02

B.R. PERRIN
TURNING PAD LAYOUT
3737 WALNUT BEND, HOUSTON, TEXAS 77042
DOWNSTREAM ENVIRONMENT, L.L.C.

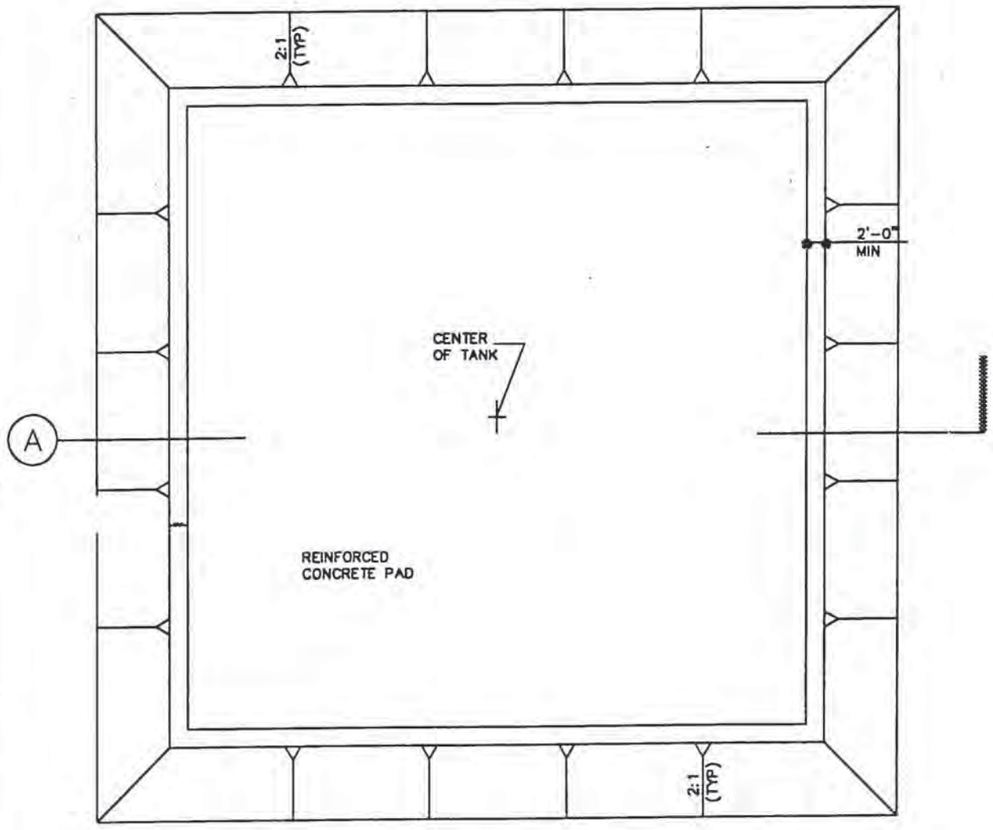
SCALE: AS NOTED
DRAWN BY: DCN
DATE: FEB02
REVISED

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

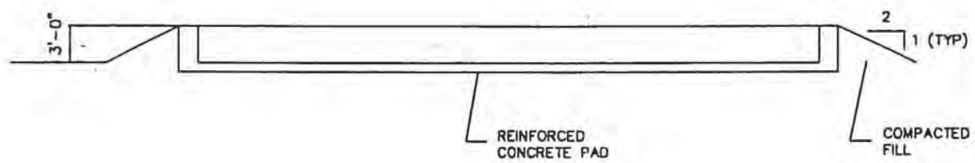
DRAWING NUMBER:
DE107

Attachment 8b

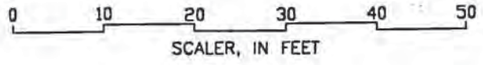
00142



PLAN VIEW



SECTION A-A



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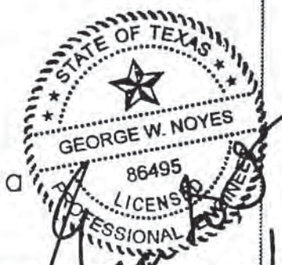
No.	REVISION	DATE

Attachment 9a



3/29/10

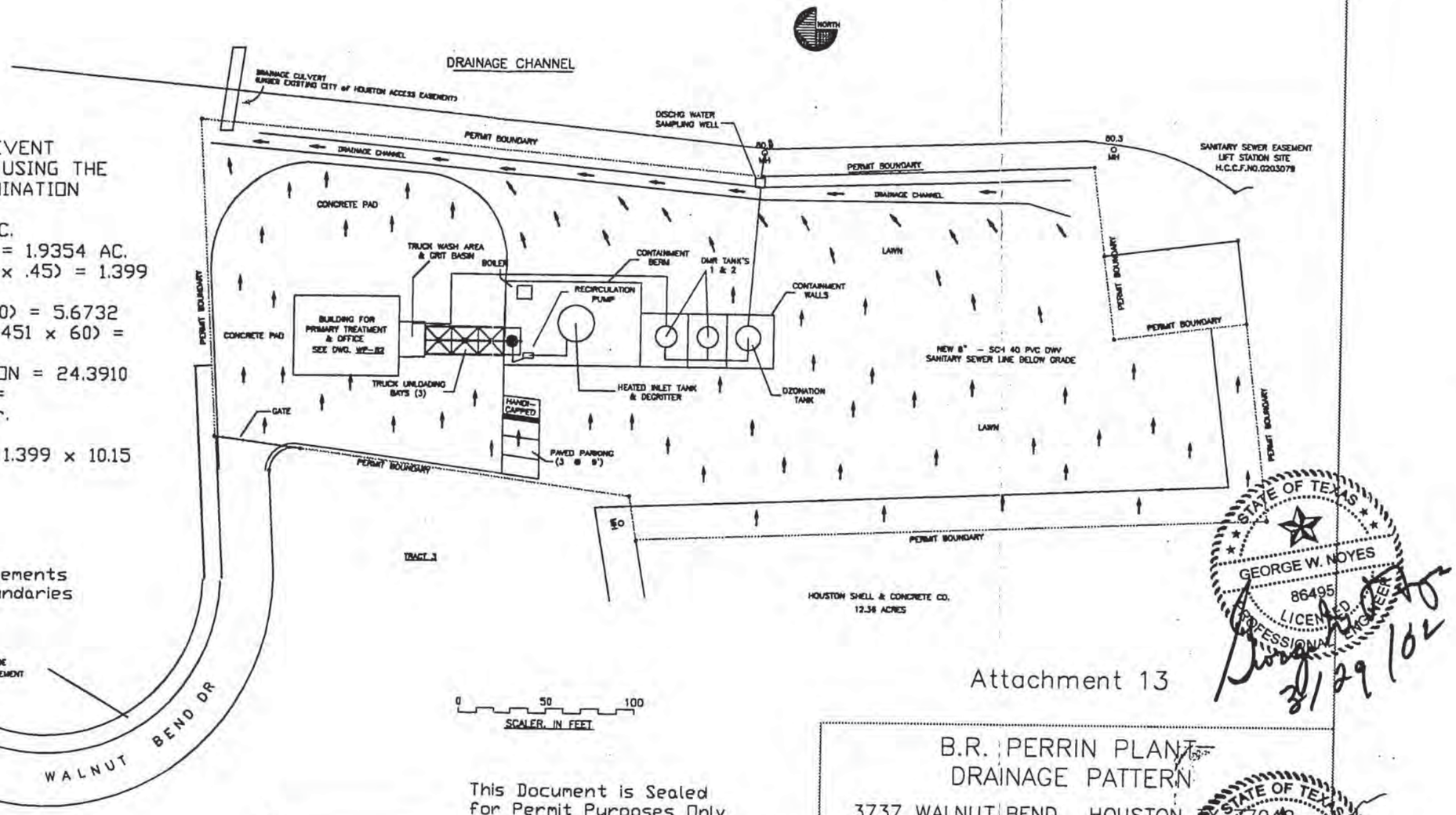
B.R. PERRIN PLANT
SECONDARY CONTAINMENT
STRUCTURE
3737 WALNUT BEND, HOUSTON TX 7704

DOWNSTREAM ENVIRONMENTAL

SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE-B6

10 MINUTE, 25 YEAR STORM EVENT
DETERMINE SURFACE RUNOFF USING THE RATIONAL METHOD OF DETERMINATION
(Q = CA x I)
TOTAL SLAB AREA = .5876 AC.
TOTAL GRASS / OPEN FIELD = 1.9354 AC.
CA = (.5876 x .9) + (1.9354 x .45) = 1.399
TIME of CONCENTRATION
SLAB AREA = 180/(.5288 x 60) = 5.6732
GRASSY OPEN AREA = 500/(.4451 x 60) = 18.7266
TOTAL TIME of CONCENTRATION = 24.3910
I(25 yr event) =b/(t+d))e =
81/(10+7.7)).724 = 10.15 in./hr.
THEREFORE;
Q(25 yr event) = CA x I = 1.399 x 10.15 = 14.20 cfs

No Pipeline or Drainage Easements Exist Within the Permit Boundaries



Attachment 13

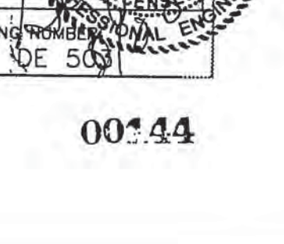
This Document is Sealed for Permit Purposes Only

NO.	REVISION	DATE
-	-	-

B.R. PERRIN PLANT
DRAINAGE PATTERN
3737 WALNUT BEND, HOUSTON, TX 77042

DOWNSTREAM ENVIRONMENTAL

SCALE: AS NOTED	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE 503



PART III
POST-CLOSURE PLAN
Attachment 13

§330.463254 Post-Closure Care Maintenance Requirements.

(a) Post-closure care maintenance requirements for The B.R. Perrin Plant.

(1) For a minimum of the first five years after professional engineer certification of the completion of closure as accepted by the executive directorthe completion of final closure, the owner or operator shall retain the right of entry to and maintain all rights-of-way of a closed MSW site management unit in order to conduct periodic inspections of the closed unit or site. The owner or operator shall correct, as needed, erosion of cover material, lack of vegetative growth, leachate or methane migration, and subsidence or ponding of water on the unit or site. If any of these problems occurs after the end of the five-year post-closure maintenance period or persists for longer than the first five years of post-closure care maintenance, the owner or operator shall be responsible for their correction until the executive director determines that all problems have been adequately resolved. The executive director may reduce the post-closure maintenance period for MSW sites the unit if all wastes and waste residues have been removed during closure.

(2) Any monitoring programs (ground water monitoring, resistivity surveys, methane monitoring, etc.) in effect during the life of the MSW site unit shall be continued during the post-closure care maintenance period.

(3) If there is evidence of a release from a municipal solid waste unit, the executive director may require an investigation into the nature and extent of the release and an assessment of measures necessary to correct an impact to groundwater.

(2) N/A. No post-closure monitoring programs at the B. R. Perrin Plant.

§330.255 Post-Closure Land Use

(a) The owner or operator shall submit any plans for proposed construction activities or structural improvements located on closed municipal solid waste (MSW) sites and not associated with approved solid waste disposal activities, with supporting documentation in accordance with subsection (b) of this section, to the executive director for review and approval. To date, no plans for proposed construction activities or structural improvements located on the B .R. Perrin Plant after closure exist.

(b) N/A. No plans for proposed construction activity or structural improvements to be located on the B.R. Perrin Plant after closure exists.

(c) N/A. No plans for proposed construction activity or structural improvements to be located on the B.R. Perrin Plant after closure exists.

~~(d) N/A. No post-closure alteration or disturbances plans exist at this time.~~

~~(e) N/A. No cover or liner at the B.R. Perrin Plant exist.~~

~~(f) N/A. No plans for proposed construction activities or structural improvements after closure of the B.R. Perrin Plant exist.~~

§330.465~~256~~ Completion of Post-Closure Care and Maintenance

(a) Following completion of the post-closure care maintenance period for each municipal solid waste landfill unit ~~or municipal solid waste site~~, the owner or operator shall submit to the executive director for review and approval a ~~documented~~ certification, signed by an independent ~~registered~~ licensed professional engineer, verifying that post-closure care ~~maintenance~~ has been completed in accordance with the approved post-closure plan. The submittal to the executive director shall include all applicable documentation necessary for the certification of completion of post-closure care ~~maintenance~~. ~~Once approved, this certification shall be placed in the operating record.~~

(b) Upon completion of the post-closure care period for the final unit at a facility, the owner and operator shall also submit to the executive director a request for voluntary revocation of the facility permit.

PART III
ATTACHMENT 15

~~"Plans to Handle Contaminated Water"~~Surface Water Protection Plan

The Facility is designed to control rainfall run-on and run-off. Surrounding site topography will minimize the amount of run-on to the site. Perimeter ditches and swales collect and route stormwater around the facility to one of two outfalls located along the eastern fenceline. Where stormwater velocities are the highest, 3- to 6-inch-diameter crushed rock dissipates energy from the stormwater flow before discharging off-site. Stormwater ultimately flows to a tributary to the Brazos Bayou, located approximately 75 feet east of the fenceline, across a shared use path.

Stormwater collection ditches will be periodically inspected, cleaned, and regraded as necessary to maintain unobstructed flow. Outfall structures will be inspected following each rain event. Sediment and other materials trapped at the rock outfall will be removed as necessary. In addition, the outfalls are sampled in accordance with Texas Pollutant Discharge Elimination System (TPDES) permit number WQ0005200000 issued March 8, 2017.

On-site pavement, curbing, and secondary containment dikes mitigate the potential for contact stormwater to be conveyed off-site. However, ~~I~~if contaminated ~~waste~~stormwater is detected at an outfall at unacceptable levels, the process will be shut down~~,~~ and the local wastewater authority will be contacted. Waste materials producing contact stormwater will then be collected using either vacuum trucks or other equipment. Depending on the nature of the materials, wastes will either be returned to the on-site receiving tanks or transported off-site to a facility licensed to accept that type of waste.~~The recent load samples will be retested to discern with accuracy the transporter that offloaded contaminated wastewater. Specifically, Owner has a pollution insurance policy covering first party claims. AIG Insurance Company's claims department will be contacted, so that an adjuster can evaluate the cost of a plant clean-up which would involve removing all hazardous material from the plant with vacuum trucks licensed to transport hazardous liquid waste to the nearest disposal site for hazardous liquid waste, Gulf Coast Waste Authority. The plant's~~ Any equipment and machinery used in the cleanup effort will be washed down on-site using standard operating procedures.~~ would have to be washed down and the wash water would have to be hauled way to Gulf Coast Waste Authority in vacuum trucks licensed to handle hazardous waste. Once the clean-up is complete, the plant can reopen.~~

User: Downstream
Project: BRPerrin
SubTitle: 25 Year, 24 Hour, Stormwater Runoff
State: Texas
County: Harris

Date: 10/17/2002
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
3737 Site		Outlet	2.52	87	.406

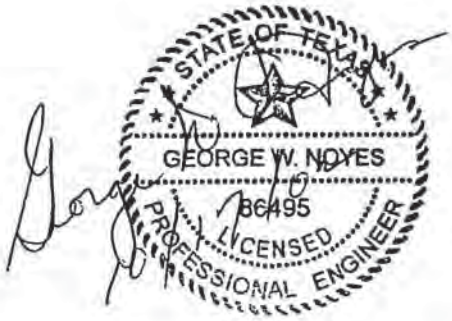
Total area: 2.52 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
5.0	6.8	8.3	9.6	11.0	12.5	3.75

Storm Data Source: Harris County, TX (NRCS)
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>



00150

99c

Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 25-Yr (cfs)
SUBAREAS	
3737 Site	14.08
REACHES	
OUTLET	14.08

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 25-Yr (cfs)	(hr)
SUBAREAS		
3737 Site	14.08	12.26
REACHES		
OUTLET	14.08	

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
3737 Site	2.52	0.406	87	Outlet	

Total Area: 2.52 (ac)

Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
3737 Site							
SHEET	99	0.0032	0.150				0.270
SHALLOW	99	0.0005	5				0.076
SHALLOW	99	0.0005	5				0.060
CHANNEL	200						
						Time of Concentration	.406

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
3737 Site	Open space; grass cover 50% to 75% (fair)	D	1.935	84
	Paved parking lots, roofs, driveways	D	.587	98
	Total Area / Weighted Curve Number		2.52	87

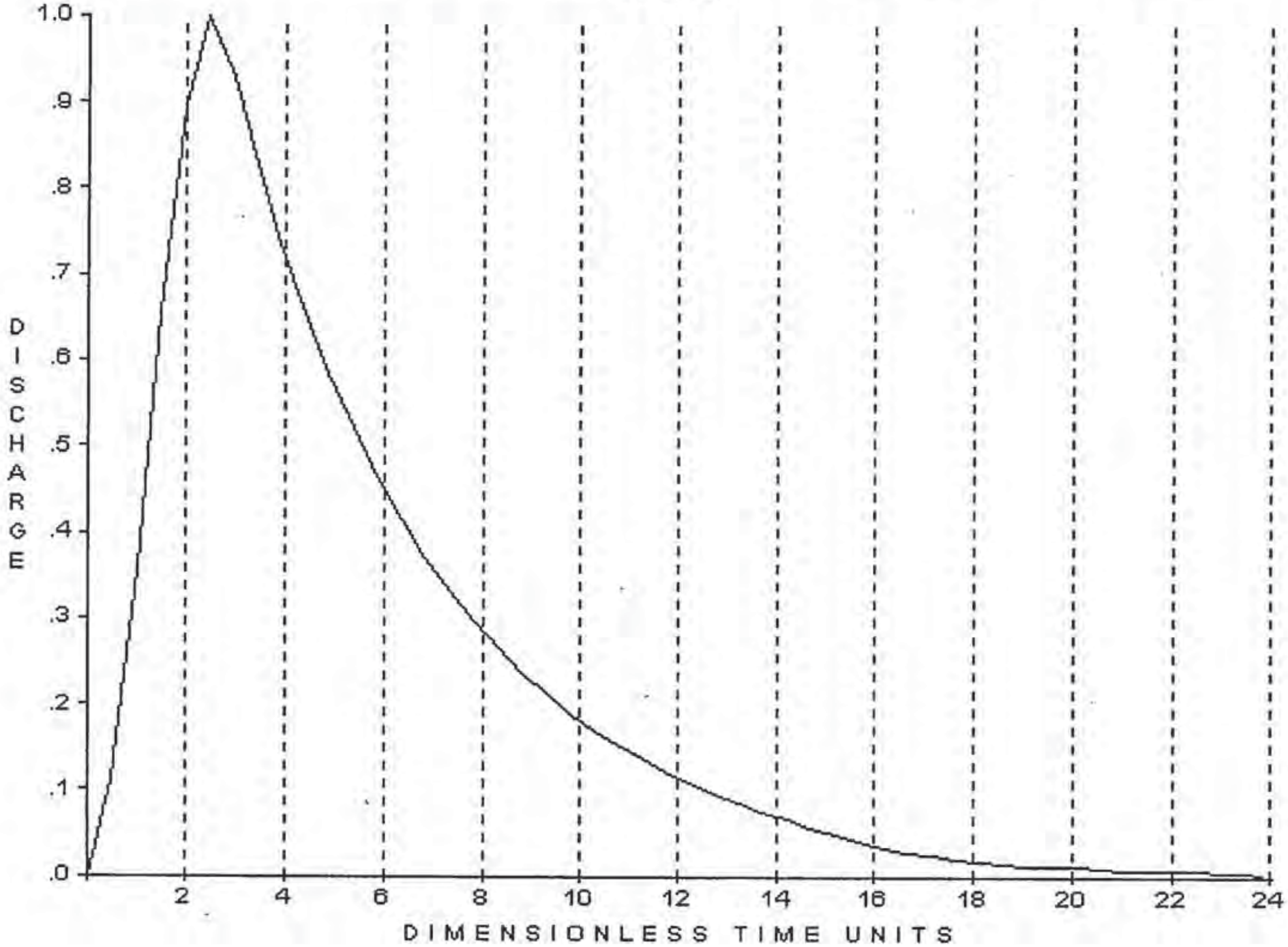
WinTR-55

Dimensionless Unit Hydrograph

10/17/2002

C:\Program Files\USDA\WinTR-55\DimensionlessUnitHydrographs\delmarva.duh

<new file>



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WinTR-55 Output Hydrograph

Project: BRPerrin
Subarea: (3737 Site) Storm: 25-Yr
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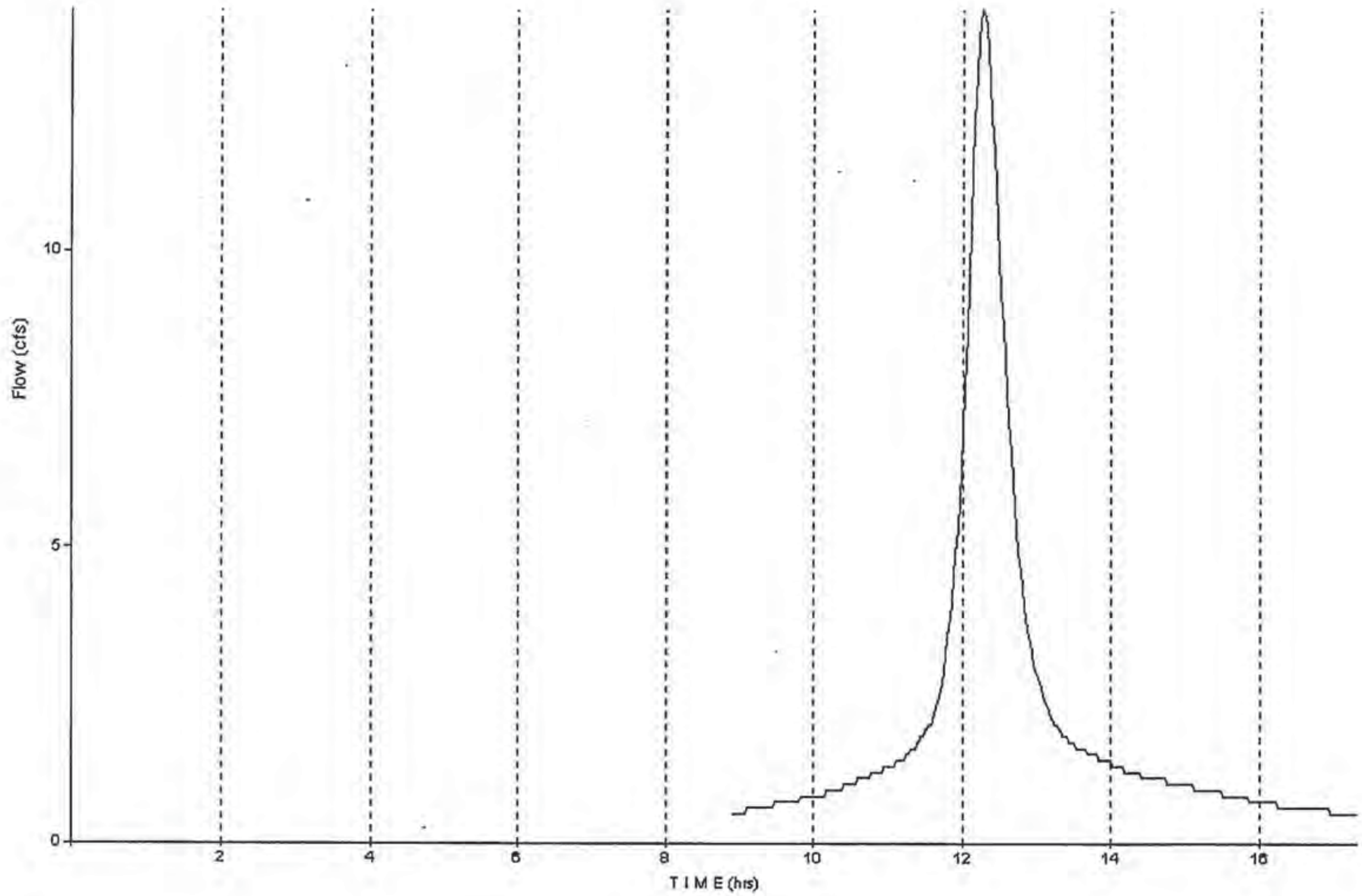

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PART III
POST-CLOSURE PLAN
Attachment 13

§330.254 Post-Closure Care Maintenance Requirements.

(a) Post-closure care maintenance requirements for The B.R. Perrin Plant.

(1) For minimum of the first five years after the completion of final closure, the owner or operator shall retain the right of entry to and maintain all rights-of-way of a closed MSW site in order to conduct periodic inspections of the closed unit or site. The owner or operator shall correct as needed subsidence or ponding of water on the unit or site. If any problem occurs after the end of the five-year post-closure maintenance period or persists for longer than the first five years of post-closure care maintenance, the owner or operator shall be responsible for their correction until the executive director determines that all problems have been adequately resolved. The executive director may reduce the post-closure maintenance period for MSW sites if all waste and waste residues have been removed during closure. Any monitoring programs (ground water monitoring, resistivity surveys, methane monitoring, etc. in effect during the life of the MSW site shall be continued during the post-closure care maintenance period.

(2) N/A. No post-closure monitoring programs at the B.R. Perrin Plant.

§330.255 Post-Closure Land Use

(a) The owner or operator shall submit any plans for proposed construction activities or structural improvements located on closed municipal solid waste (MSW) sites and not associated with approved solid waste disposal activities, with supporting documentation in accordance with subsection (b) of this section, to the executive director for review and approval. To date, no plans for proposed construction activities or structural improvements located on the B.R. Perrin Plant after closure exist.

b) N/A. No plans for proposed construction activity or structural improvements to be located on the B.R. Perrin Plant after closure exists.

(c) N/A. No plans for proposed construction activity or structural improvements to be located on the B.R. Perrin Plant after closure exists.

(d) N/A. No post-closure alteration or disturbances plans exist at this time.

(e) N/A. No cover or liner at the B.R. Perrin Plant exist.

(f) N/A. No plans for proposed construction activities or structural improvements after closure of the B.R. Perrin Plant exist.

STATE OF TEXAS
GEORGE W. HAYES
86495
LICENSED
PROFESSIONAL ENGINEER

Revised 10/17/12

§330.256 Completion of Post-Closure Care and Maintenance

Following completion of the post-closure care maintenance period for each municipal solid waste landfill unit or municipal solid waste site, the owner or operator shall submit to the executive director for review and approval a documented certification, signed by an independent registered professional engineer, verifying that post-closure care maintenance has been completed in accordance with the approved post-closure plan. The submittal to the executive director shall include all applicable documentation necessary for the certification of completion of post-closure care maintenance. Once approved, this certification shall be placed in the operating record.

PART III
ATTACHMENT 15

"Plans to Handle Contaminated Water"

If contaminated wastewater is detected at unacceptable levels, the process will be shut down, and the local wastewater authority will be contacted. The recent load samples will be retested to discern with accuracy the transporter that offloaded contaminated wastewater. Specifically, Owner has a pollution insurance policy covering first party claims. AIG Insurance Company's claims department will be contacted, so that an adjuster can evaluate the cost of a plant clean-up which would involve removing all hazardous material from the plant with vacuum trucks licensed to transport hazardous liquid waste to the nearest disposal site for hazardous liquid waste, Gulf Coast Waste Authority. The plant's equipment and machinery would have to be washed down and the wash water would have to be hauled way to Gulf Coast Waste Authority in vacuum trucks licensed to handle hazardous waste. Once the clean-up is complete, the plant can reopen.

User: Downstream
Project: BRPerrin
SubTitle: 25 Year, 24 Hour, Stormwater Runoff
State: Texas
County: Harris

Date: 10/17/2002
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
3737 Site		Outlet	2.52	87	.406

Total area: 2.52 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
5.0	6.8	8.3	9.6	11.0	12.5	3.75

Storm Data Source: Harris County, TX (NRCS)
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

STATE OF TEXAS
GEORGE W. NOYES
86495
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PROFESSIONAL ENGINEER

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Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 25-Yr (cfs)
SUBAREAS	
3737 Site	14.08
REACHES	
OUTLET	14.08

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 25-Yr (cfs)	(hr)
SUBAREAS		
3737 Site	14.08	12.26
REACHES		
OUTLET	14.08	

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
3737 Site	2.52	0.406	87	Outlet	

Total Area: 2.52 (ac)

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Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
3737 Site							
SHEET	99	0.0032	0.150				0.270
SHALLOW	99	0.0005	5				0.076
SHALLOW	99	0.0005	5				0.060
CHANNEL	200						
						Time of Concentration	.406

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
3737 Site	Open space; grass cover 50% to 75% (fair)	D	1.935	84
	Paved parking lots, roofs, driveways	D	.587	98
	Total Area / Weighted Curve Number		2.52	87

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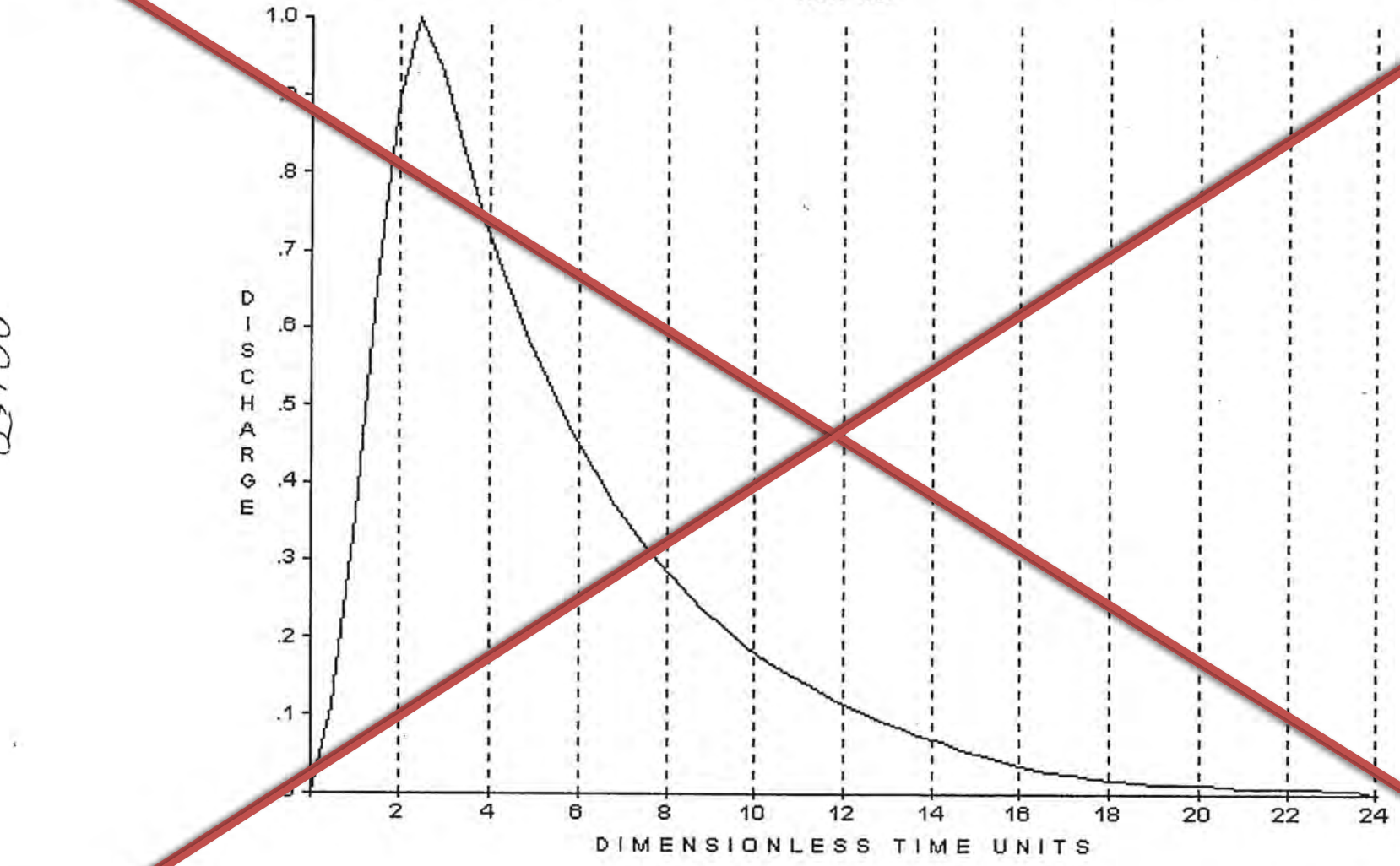
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Dimensionless Unit Hydrograph
10/17/2002
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4
6
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16
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20
22
24
DIMENSIONLESS TIME UNITS

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WinTR-55 Output Hydrograph

Project: BRPerrin
Subarea: (3737 Site) Storm: 25-Yr
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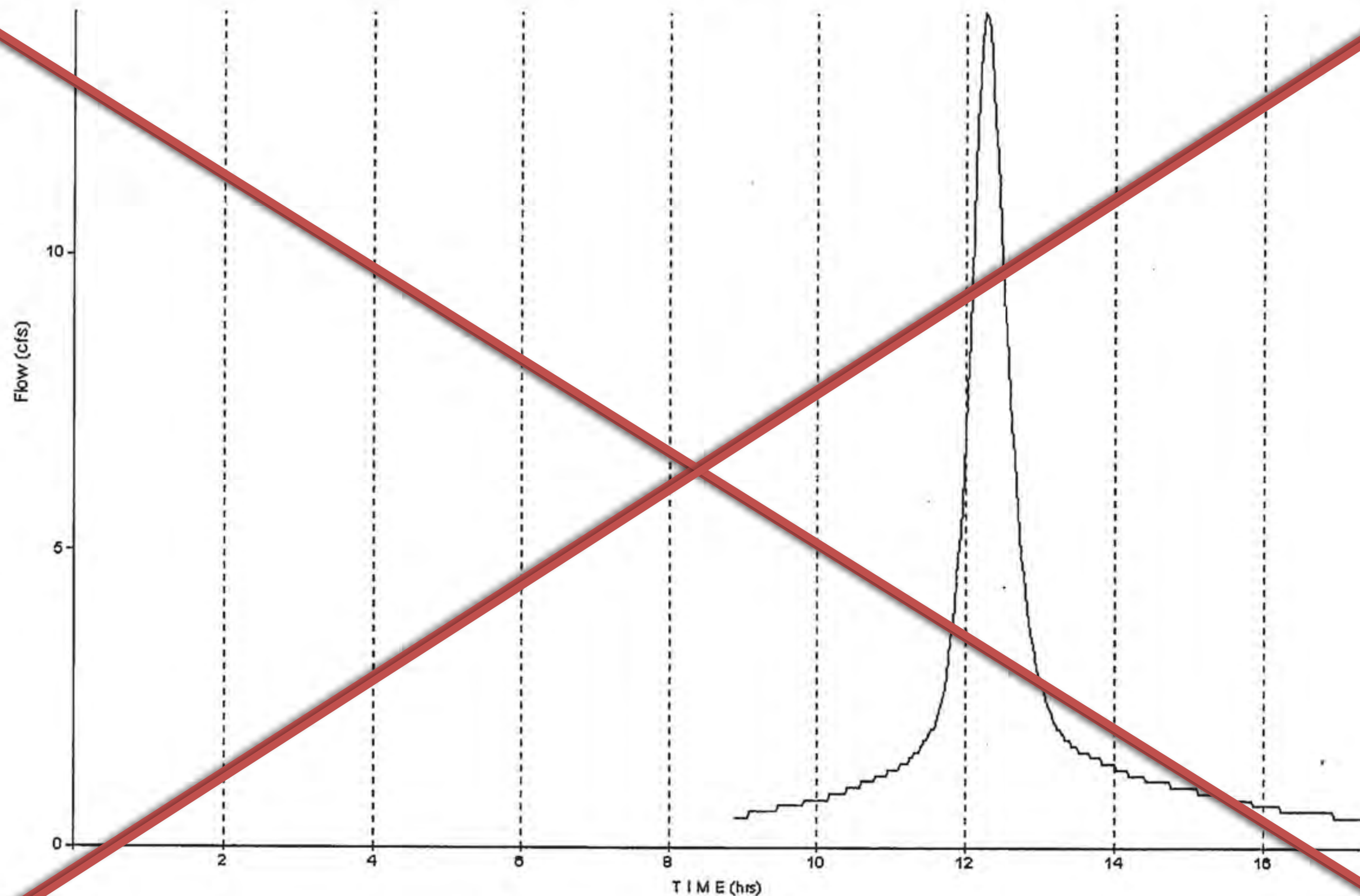
10/17/2002



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Part IV

(Redline Copy)

SITE OPERATING PLAN

Downstream Environmental, LLC
TYPE V MSW PROCESSING FACILITY

B.R. Perrin Plant
3737 Walnut Bend
Houston, TX 77042

TCEQ MSW PERMIT NUMBER MSW 2298
TCEQ REGISTRY NUMBER FOR FACILITY — RN101662617
DOWNSTREAM ENVIRONMENTAL
TCEQ CUSTOMER NUMBER — CN600896872

Original: ~~July 29~~April 3, ~~2016~~2002
Revised: October 17, 2002
Revised: April 24, 2003
Revised: January 31, 2008
Revised: July 15, 2017

Prepared ~~for~~by:

Downstream Environmental, LLC
16350 Park Ten Place, Suite 215~~2044 Bissonnet~~
Houston, TX 7708~~77005~~

PART IV

Chapter (330.57)

TABLE OF CONTENTS
SITE OPERATING PLAN (RE: 330.114)

Page

~~1.0~~

~~2.0~~1.0 INTRODUCTION

This Site Operating Plan is being submitted as a New and Complete Replacement to the Revised~~original~~ Site Operating Plan dated January 31, 2008.

The Site Operating Plan (SOP) contains information about how Downstream Environmental, LLC will conduct operations at their Municipal Solid Waste (MSW) Type V GG Solid Waste Facility, but is not intended to be a comprehensive operating manual. This SOP has been produced using a format developed by TCEQ and represents the general instruction for facility management and personnel to operate the facility in a manner consistent with the approved design and the TCEQ rules to protect human health and the environment and prevent nuisances.

The SOP is Part IV of the MSW permit application and consists of the information required by Title 30, Texas Administrative Code (TAC), Chapter 330, Subchapter E: Operational Standards for Municipal Solid Waste Storage and Processing Units, 30 TAC §330.201-1330.249. At a minimum, the SOP must include provisions for facility management and operating personnel to meet the general and site-specific requirements of these rules.

Facility Name: DOWNSTREAM ENVIRONMENTAL, LLC
TCEQ MSW Permit Number: MSW 2298
Facility Address: 3737 Walnut Bend
Houston, Texas 77042
RN Number: RN101662617
CN Number: CN600896872
Date: ~~October 15~~July 15, 20~~0~~17

Each section is divided by rule citation. Facility personnel are documented in Table 1 of Section 2.1.5. Inspection forms are provided in Table 2 of Section 2.1.5.

~~3.0~~2.0 WASTE ACCEPTANCE, DISPOSAL, ANALYSIS AND MANAGEMENT (§330.203, §330.205, AND §330.207)

This section describes the procedures followed at the facility for waste acceptance, disposal, and evaluation.

~~3.1~~2.1 §330.203 - Waste Acceptance and Analysis

~~3.1.1~~2.1.1 Authorized Wastes

The Type V GG facility will receive the following wastes for storage and processing (where applicable):

Table 1
Commercial and industrial municipal solid waste

Waste Stream	Source	Characteristic	Est. GPD	Max. Storage Time	Processing Time	Intended Destination
Grease trap	Restaurants	Water, solids, FOG	27,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/Coil Sanitary Sewer
Grit trap	Car washes	Water & solids	10,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Lint Trap	Laundromats	Water & solids	1,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/Coil Sanitary Sewer
Septic tank pumpings	Homes	Water & solids	10,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/Coil Sanitary Sewer
Domestic septage	Homes	Water & solids	10,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Chemical toilet waste	Portapottys	Water & solids	3,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Municipal wastewater treatment plant sludge	POTW & PUD	Water & solids	1,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Domestic sewage treatment plant sludge	POTW & PUD	Water & solids	1,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Water-supply treatment plant sludge	City Water Plant	Water & solids	1,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Non-hazardous	Industrial Wash water	Water & solids	5,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH

industrial liquid waste						Sanitary Sewer

In accordance with 30 TAC §330.203(c)(1) and 30 TAC §330.203(c)(2), no incoming wastes are analyzed at our facility. *Methods for sampling and analysis of the ~~affluent~~effluent will be conducted in accordance with U.S. Environmental Protection Agency (EPA) Methods, and will meet the requirements specified in 30 TAC §330.203(c)(1)&(2). Records for sampling of effluent will be maintained for a minimum of three years.* Effluent discharged from processing areas are sampled and analyzed by the City of Houston's Industrial Wastewater Operations in accordance with the City of Houston's Industrial Waste Ordinance Chapter 47; Article V. **See**: **Exhibit No. 2 attached**.

~~3.1.2~~2.1.2 Receipt of Industrial Wastes

Class 1 industrial solid wastes are not accepted at the facility.

~~3.1.3~~2.1.3 Receipt of Special Wastes

No Special Wastes (per §330.3) are accepted at the facility without specific approval of TCEQ.

~~3.1.4~~2.1.4 Prohibited Wastes

Wastes authorized above shall not contain:

- Regulated Hazardous Waste; and
- Polychlorinated Biphenyl (PCB) Waste.

~~3.1.5~~2.1.5 Measures for Controlling Prohibited Wastes — *Table 1— Personnel Types and Descriptions*

Procedures to detect and control the receipt of prohibited wastes include:

1. *Please be advised that ~~Dan Noyes, the Plant Manager~~*the facility*~~,~~ shall maintain an MSW Supervisor Occupational License, Grade B or above, for Type V Storage and Processing Facility.*
2. Informing facility customers of prohibited wastes by posting one or more signs at the facility entrance listing prohibited wastes.
3. Periodically providing customers with a written list of prohibited wastes.
4. Facility personnel training and activities:

Table ~~1~~2 Personnel Types and Descriptions

Position	Number	Training	Responsibilities
Lead *Plant Manager* Operator/Facility Supervisor	1	*~~Plant Manager, Dan Noyes,~~The facility shall maintain an MSW Supervisor Occupational License, Grade B (or above).*	Managing daily work operations; equipment maintenance and repair; personnel safety.

Waste Unloading Attendant	1	6 months minimum experience in operations or on the job training by supervisor or by manager in SOP requirements for prohibited waste	Responsible for screening for prohibited or unauthorized waste.
Gate Attendant	1	Training by supervisor or manager in the SOP, record keeping requirements, and waste screening	Levies fees on customers, operates the scale, keeps appropriate records, controls facility access, screens for unauthorized waste, and provides general customer direction and information.
Litter Control	1	Internal safety and personal protective equipment	Picks up wind blown litter as directed.

More detailed job descriptions along with written descriptions of the type and amount of introductory and continued training provided to each employee will be maintained in the facility operating record.

- Training for appropriate facility personnel responsible for inspecting or observing incoming loads to recognize regulated hazardous waste and PCB waste;

- Maintaining records of incoming load inspections (as specified above);

- Notification of the executive director of any incident involving a regulated hazardous waste or a PCB waste; and

- Screening to prevent receipt of regulated hazardous wastes or PCB wastes at the facility.

Facility personnel will be trained to inspect vehicles and identify items that may contain prohibited wastes. At a minimum, the gatehouse attendant and equipment operators will be trained in inspection procedures for prohibited waste. The personnel will be trained on an on-the-job basis by their supervisors. Records of employee training on prohibited waste control procedures will be maintained in the facility operating record. The personnel will be trained to look for the following indications of prohibited waste:

- Yellow hazardous waste or PCB labels
- DOT hazard placards or markings
- Liquid wastes
- 55-gallon drums
- 85-gallon over pack drums
- Powders or dusts
- Odors or chemical fumes
- Bright or unusual colored wastes
- Sludges

If facility personnel identify any of the above indications with an incoming load, then that load will be directed to an area out of the flow of traffic, and the personnel will further assess the load. If the load is determined to contain prohibited waste the load will be rejected and directed

back to the generator. All gate/scale attendants will be diligent in looking for trucks bringing in waste loads from potential sources of prohibited waste such as industrial facilities, microchip and computer manufacturers, metal plating industry, automotive and vehicle repair service companies, and dry cleaning establishments.

The facility may receive up to 150,000 gallons of waste daily. No waste will be stored onsite for greater than 48 hours prior to processing.

Facility Inspections and Maintenance

Table 2 outlines the facility inspection and maintenance list of the facility. The facility supervisor or a designee will perform the task. The inspection documentation will be retained in the operating record.

Table 32 - Facility Inspection and Maintenance List

ITEM	TASK	Frequency
Fence/Gates	Inspect perimeter fence and gates for damage. Make repairs if necessary.	Weekly
Windblown Waste	Police working area, wind fences, access roads, entrance areas, and perimeter fence for loose trash. Clean up as necessary.	Daily as specified in Section 4.5.
Waste Spilled on Route to the Facility-	Police the entrance areas and all roads at least 2 miles from the facility entrances for loose trash. Clean up as necessary.	Daily as specified in Section 4.8.
Facility Access Road	Inspect facility access road for damage from vehicle traffic, erosion, or excessive mud accumulation. Maintain as needed with crushed rock or stone. Grading equipment will be used at least once per week to control or remove mud accumulations on roads as well as minimize depressions, ruts, and potholes.	Daily — more often during wet weather or extended dry weather periods.
Facility Signs	Inspect all facility signs for damage, general location, and accuracy of posted information.	Weekly
Odor	Inspect the perimeter of the facility to access the performance of facility operations to control odor.	Daily

Perimeter Channels/Ponds	Inspect perimeter channels and detention ponds to verify that they are functioning as designed (e.g., excess sediment removed, outlet structures intact).	Weekly and within 72-hours of a rainfall event of 0.5 inches or more.

~~3.2~~2.2 §330.205 - Facility-Generated Wastes

The facility currently does not operate any lagoons, open top storage tanks, open vessels, and/or underground storage units as a means of storing contaminated liquid. In accordance with 30 TAC §330.205(a), Downstream ensures that all wastes leaving the facility ~~is~~ are adequately managed at the volumes and concentrations estimated in the facility design. All solids and oils are transported to permitted landfill for disposal or recycled as appropriate in accordance with all regulations. All residual liquids are discharged into the City of Houston's sanitary sewer in accordance with City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.205(d), Downstream ensures that their facility is operated in a manner that all sludge produced by the facility will pass the USEPA paint and filter liquids test method 9095, as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (USEPA Publication SW-846, September, 1986). The facility is designed to be operated to produce a sludge that is acceptable at any municipal solid waste landfill, and does not exceed the standards established for benzene, lead and TPH. See: Table 1 of Section 2.2. Any sludge exceeding these limits will be returned to Downstream's facility for further processing.

Table ~~4~~1

Contaminant	Total Limit	TCLP Limit
Benzene	10 milligrams per kilogram (mg/kg)	0.5 milligrams per liter (mg/L)
Lead	30 mg/kg	1.5 mg/L
Total petroleum hydrocarbons (TPH)	1,500 mg/kg	not applicable

~~3.3~~2.3 §330.207 - Contaminated Water Management

Sanitary wastewaters are generated at the facility. Rainwater contact with municipal solid waste is currently minimized at the facility by temporarily halting facility operations during heavy rain. A building covering the offload facility has been completed. Rainwater that contacts waste at the offload facility is captured by a concrete slab area and inlets that drain via pipes to the facility's treatment process. ~~We~~ Downstream captures and treats rainwater that comes in contact with waste being processed.

In accordance with 30 TAC §330.207(a), Downstream's facility captures and processes rainwater mixed with municipal solid waste and the effluent is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(d), Downstream's contaminated water, including rainwater mixed with municipal solid waste, is not discharged into a septic system. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(e), Downstream does not discharge contaminated water off-site. All facility generated wastewater is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(f), Downstream does not discharge contaminated water off-site. All facility generated wastewater is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(g), Downstream does not discharge any contaminated water to a treatment facility. All facility generated wastewater is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(h), Downstream does not discharge contaminated water off-site. All facility generated wastewater is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(g), Downstream does not discharge contaminated water off-site. All facility generated wastewater is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

~~4.0~~3.0 STORAGE REQUIREMENTS, APPROVED CONTAINERS, AND STATIONARY COMPACTOR OPERATION (§330.209, §330.211, AND §330.215)

~~4.1~~3.1 §330.209 - Storage Requirements

All solid waste will be stored in such a manner that it does not constitute a fire, safety, or health hazard or provide food or harborage for animals and vectors, and shall be contained or bundled so as not to result in litter. This includes staged and partially full transportation units awaiting off-site transport.

The accumulation timeframes for the facility are presented in Section 2.1 of this SOP. Finally, sludges generated by the facility are transported off-site for disposal at a Type I Landfill.

An on-site storage area for source-separated or recyclable materials will be provided. Control of odors, vectors, and windblown waste from the storage area will be maintained as described in Section 3.1.1.

~~4.1.1~~3.1.1 Odor Control

Transportation trailers (or roll-offs) are filled quickly and immediately tarped after being filled to minimize uncovered waste. Filled transfer units are transported offsite daily to an approved solid waste landfill, Monday through Friday. The facility~~'s state of the art odor control system was designed and purchased from Clean Air Systems, Inc., a company specializing in the elimination of waste processing emissions.~~ has an odor control system that includes covered processing and enclosed storage tanks, the building has doors that remain closed with air flow from outside-in.

Also, the facility has been designed to prevent nuisance odors from leaving the property boundary through waste handling, storage and clean-up procedures that minimize the contact between unprocessed waste and air. These procedures are:

- The unprocessed wastes stored in the respective basins are misted with an odor controlling solution to minimize escaping odors and vapors.
- All process tanks will be covered vessels or under full coverage roof.
- Pipelines and valves will be checked weekly for leaks.
- All equipment and enclosures will be maintained in good operating condition so that the odor control is effective.

The facility will control any ponded water onsite so that objectionable odors can be dealt with if they occur. Any ponded water will either be pumped out or swept by 'a squeegee towards the drains. If necessary, a deodorant will be used. If nuisance odors are found to be passing the facility boundary, the facility operator may be required to suspend operations until the nuisance is abated.

~~4.1.2~~3.1.2 Vector Control

~~Vectors such as rodents, flies, and mosquitoes are limited by sealing or tarping trash containers. Insect and rodent bait are used to control populations of these vectors.~~ Wastes are fully contained within the processing site, and materials will be stored in an enclosed building, vessel, or container. Spills will be removed and processed immediately. If necessary, a licensed professional will apply pesticides for control of vectors to ensure that proper chemicals are used and that they are properly applied. If a problem develops, a professional pest control service will be consulted. The services provided may include placing rat baits for rodent control, spraying insecticides, and/or placing insect baits for insect control. Additional pesticide management may occur as recommended by the pesticide service. Daily sanitation is performed as a good

housekeeping practice, reducing the attraction of potential vectors. Minimizing ponded water also reduces the attraction of potential vectors.

The facility reserves the right to train its employees and obtain applicable licenses and/or certifications to apply pesticides at the facility. The pesticides would be applied in accordance with manufacturer's instructions and in conformance with applicable federal, state, and local regulations.

~~4.1.3~~3.1.3 Windblown Waste Control

Windblown waste control measures are described in Section 10.1 of this SOP.

~~4.2~~3.2 §330.211 - Approved Containers

All solid waste will be stored in covered or closed containers that are durable and designed for safe handling and easy cleaning. Reusable containers will be maintained in a clean condition so that they do not constitute a nuisance and to retard the harborage, feeding, and propagation of vectors. All containers to be emptied manually will be capable of being serviced without the collector coming into physical contact with the solid waste. Containers to be mechanically handled will be designed to prevent spillage or leakage during storage, handling, or transport.

~~4.3~~3.3 §330.215 - Requirements for Stationary Compactors

No stationary compactor in used at the site.

3.4 §330.217 - Pre-Operation Notice

These requirements do not apply to this Type V MSW liquid waste processing facility.

~~5.0~~4.0 RECORDKEEPING, REPORTING, AND REPORT SIGNATURE REQUIREMENTS (§330.219)

~~5.1~~4.1 §330.219 - Recordkeeping and Reporting Requirements

Personnel operator licenses issued in accordance with 30 TAC Chapter 30, Subchapter F (Municipal Solid Waste Facility Supervisors), will be maintained as required.

In accordance with 30 TAC 330.219, a copy of the permit documents and other required plans or related documents shall be maintained at the facility. As-built construction plans and specifications shall also be maintained at the facility. These documents shall be considered a part of the operating record for the facility.

The facility shall promptly record and retain in the operating record the following information within seven (7) working days of completion or receipt of analytical data related to them:

- all location-restriction demonstrations;

- inspection records and training procedures;
- closure plans and any monitoring, testing, or analytical data relating to closure requirements;
- all cost estimates and financial assurance documentation relating to financial assurance for closure;
- copies of all correspondence and responses relating to the operation of the facility, modifications to the permit, approvals, and other matters pertaining to technical assistance;
- all documents, manifests, shipping documents, trip tickets, etc., involving special waste;
- any other document(s) as specified by the approved authorization or by the executive director; and
- record retention provisions for trip tickets as required by 30 TAC 312.145 (relating to Transporters - Record Keeping).

Other written records as specified in this SOP will be maintained as part of the operating record for the facility. The facility shall retain all information contained within the operating record and the different required plans for the life of the facility. The executive director may set alternative schedules for recordkeeping and notification requirements as specified in subsections 30 TAC 330.219 (a) - (e). All information contained in the operating record shall be furnished upon request to the Executive Director and shall be made available at all reasonable times for inspection by the Executive Director or authorized agency representatives.

For signatories to reports, the following conditions apply:

- All reports and other information requested by the executive director as described in 30 TAC 305.44(a) shall be signed by the owner or operator or by a duly authorized representative of the owner or operator. A person is a duly authorized representative only if:

    1. The authorization is made in writing by the owner or operator as described in 30 TAC 305.44(a);
    2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity or for environmental matters for the owner or operator, such as the position of plant manager, environmental manager, or a position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and
    3. The written authorization is submitted to the executive director.

- If an authorization under this section is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of this section must be submitted to the executive director prior to, or together with, any reports, information, or applications to be signed by an authorized representative.

- Any person signing a report shall make the certification in 30 TAC 305.44(b).

The facility will maintain records to document the annual waste acceptance rate for the facility. Documentation must include maintaining the quarterly municipal solid waste summary reports and the annual municipal solid waste summary reports required by 30 TAC §330.675 in the operating record.

In accordance with 30 TAC 330.203 (c), required analytical data records in this document are maintained at the facility for a minimum of three years.~~A copy of the permit, the approved application, and any other required plan or other related document will be maintained on site in the facility office (3737 Walnut Bend, Houston, Texas 77042). These plans will be furnished upon request to TCEQ representatives and made available for inspection by TCEQ representatives or other interested parties. These plans and documents are part of the facility operating record. The operating record will be maintained in an organized format that will allow information to be easily located and retrieved. All information contained within the operating record and the different required plans will be retained during the active life of the facility until after certification of closure.~~

~~The following records will be kept, maintained and filed as part of the facility operating record. Logbooks and schedules may be used.~~

- ~~Truck manifests~~
- ~~Daily volume reports~~
- ~~Detailed daily reports of incoming loads~~
- ~~Detailed monthly report~~

~~In addition to the plans and documents listed above, the information listed in the table below will be recorded and retained in the operating record. This information will be placed in the operating record within seven working days of completion or upon receipt of analytical data, as appropriate.~~

~~**Records To Be Maintained**~~	~~**Rule Citation**~~
~~1. All location restriction demonstrations.~~	~~§330.219(b)(1)~~
~~2. Inspection records and training procedures.~~	~~§330.219(b)(2)~~
~~3. Closure plans and any monitoring, testing, or analytical data relating to closure requirements.~~	~~§330.219(b)(3)~~
~~4. All cost estimates and financial assurance documentation relating to financial assurance for closure.~~	~~§330.219(b)(4)~~
~~5. Copies of all correspondence and responses relating to the operation of the facility, modifications to the permit, approvals, and other matters pertaining to technical assistance.~~	~~§330.219(b)(5)~~
~~6. All documents, manifests, shipping documents, trip tickets, etc., involving special waste.~~	~~§330.219(b)(6)~~
~~7. Any other document(s) as specified by the approved permit or by the executive director.~~	~~§330.219(b)(7)~~
~~8. Trip tickets~~	~~§312.145~~ ~~§330.219(b)(8)~~

9. Records on a quarterly basis to document the relevant recycling percentage of incoming processed waste, quarterly solid waste summary reports and the annual solid waste summary reports by March 1st summarizing recycling activities and percent of recycled incoming waste for past calendar year.	§330.219(b)(9)
10. Alternative schedules and notification requirements, if applicable.	§330.219(g) §330.221
11. Inspection records and training procedures relating to fire prevention and facility safety.	
12. Waste unloading/prohibited waste discovery.	§330.225

All information contained in the operating record shall be furnished upon request to the executive director and shall be made available at all reasonable times for inspection by the executive director of the TCEQ.

5.24.2 §330.219(h)(2) - Maintenance Of Training Records and Required Licenses

Personnel training records will be maintained in accordance with §330.219(b)(2). Personnel operator licenses issued in accordance with §30330, Subchapter F, Municipal Solid Waste Facility Supervisors, will be maintained as required.

6.05.0 FIRE PROTECTION PLAN (§330.221)

6.15.1 Fire Protection Plan

The following steps are taken regularly at the facility by designated personnel to prevent fires:

- Operators will be alert for signs of burning waste such as smoke, steam, or heat being released from incoming waste loads.
- Equipment used to move waste will be routinely cleaned through the use of high pressure water or steam cleaners. The high pressure water or steam cleaning will remove combustible waste and caked material that can cause equipment overheating and increase fire potential.
- Smoking is not permitted near waste management areas.

6.25.2 Procedures in the Event of a Fire

Staff will take the following steps if a fire is discovered:

- Contact the Local Fire Department by calling 911. The City of Houston has tanker trucks and other assets that can respond rapidly to fires at the Site.
- Alert other facility personnel.
- Assess extent of fire, possibilities for the fire to spread, and alternatives for extinguishing the fire.
- If it appears that the fire can be safely fought with available fire fighting devices until arrival of the Local Fire Department, attempt to contain or extinguish the fire.
- Upon arrival of Local Fire Department personnel, direct them to the fire and provide assistance as appropriate.

- Do not attempt to fight the fire alone. Do not attempt to fight the fire without adequate personal protective equipment. Be familiar with the use and limitations of firefighting equipment available onsite.

~~6.3~~5.3 Fire Fighting Methods

Fire fighting methods for burning solid waste include smothering the waste or separating burning material from other waste. Small fires can also be controlled with hand-held extinguishers.

If a fire occurs on a vehicle or piece of equipment, the equipment operator will attempt to bring the vehicle or equipment to a safe stop. If safety of personnel will allow, the vehicle will be parked away from fuel supplies, uncovered solid wastes, and other vehicles. The engine will be shut off and the brake engaged to prevent movement of the vehicle or piece of equipment.

~~6.4~~5.4 Fire Equipment

The facility will be equipped with fire extinguishers of a type, size, location, and number as recommended by the City of Houston fire department. At a minimum, fire extinguishers will be maintained on each truck and in the transfer area. Each fire extinguisher will be fully charged and ready for use. Each extinguisher will be inspected on an annual basis and recharged as necessary. A qualified service company will perform these inspections, and all extinguishers will display a current inspection tag. Inspection and recharging will be performed following each use.

~~6.5~~5.5 Fire Protection Training

Training of on-site personnel in firefighting techniques, fire prevention, response, and the fire protection aspects of the SOP will be provided by established professionals on an annual basis. Personnel will be familiar with the use and limitations of firefighting equipment available onsite. Records of this training will be included in the operating record for the facility.

~~6.6~~5.6 TCEQ Notification

Any fire related to waste management activities that cannot be extinguished within 10 minutes of discovery will be reported to the TCEQ regional office. The regional office will be contacted by telephone as soon as possible, but no later than 4 hours following fire discovery. The regional office will be provided a written description of the cause and extent of the fire and the resulting fire response within 14 days of fire detection. The written description sent to the TCEQ regional office will contain as much information as possible regarding the fire and fire-fighting efforts. The fire prevention and fire control procedures for the facility will be revisited following the occurrence of a significant fire to determine if modifications are warranted.

~~7.0~~6.0 ACCESS CONTROL (§330.223)

~~7.1~~6.1 Facility Security

In accordance with 30 TAC §330.223(a), Downstream's facility is designed with appropriate barriers to protect human health and safety and the environment.

Public access will be controlled to minimize unauthorized vehicular traffic, unauthorized and illegal dumping, and public exposure to hazards associated with waste management. Controlled access will be provided by a private entrance road and gate. *An attendant shall be onsite during operating hours, and access to the facility is controlled by a lockable gate that is opened and closed electronically in compliance with 30 TAC §330.223(c).*

~~7.2~~6.2 Vehicle Access

Public and private access roads to the facility consist of a two-lane paved road. All on-site, internal roads are concrete paved. On-site personnel within the facility will provide direction to public unloading areas. Operations at unloading areas, including providing sufficient maneuvering room and guidance from the gate attendant, will be conducted in a manner that allows the prompt and efficient unloading of waste in accordance with 30 TAC §330.223(b).

Customers will be limited to disposing of waste during the facility's posted operating hours, 7:00 a.m. to 7:00 p.m., Monday through Saturday.

During hours that the facility is not open to the public, vehicle access is controlled by gates with remote control entry in accordance with 30 TAC §330.223(c). Off-road access to the site is limited by the following:

- Private entrance road limits access to the site from the West, which includes a six foot wooden fence with electronic gates.
- A six foot chain link fence with three-strand barbed wire top and bayou limit access to the site from the East and South.
- Neighbors and six foot wooden fence fencing limit access to the site from the North.

In the event that there is an access breach, the facility will comply with the following notification requirements:

Table 5

Requirements	**Access Breach** Repaired Within 8 Hours of Detection	**Access Breach** Not Permanently Repaired Within 8 Hours of Detection
Notify region office of breach and repair schedule	Not required	Within 24 hours

Make temporary repairs	Not required	Within 24 hours
Make permanent repairs	Within 8 hours	Within schedule submitted to regional office in initial notice
Notify regional office when permanent repair completed	Not required	Within schedule submitted to regional office in initial notice

~~8.0~~7.0 UNLOADING OF WASTE (§330.225)

The unloading of solid waste shall be confined to a small area for unloading. An attendant shall be provided at all times to monitor all incoming loads of waste. The attendant shall be on duty during operating hours at the active disposal area where liquid waste trucks shall be offloading their loads into the storage tank area. The use of an electric entrance gate, and personnel on the site at all times when trucks come through the front gate shall be used for the prevention of in discriminate dumping. The owner or operator is not required to accept any solid waste which they determine will cause or may cause problems in maintaining full and continuous compliance with these Sections.

The unloading of waste in unauthorized areas is prohibited. Necessary steps shall be taken by the owner or operator to ensure compliance with this provision. Any waste deposited in an unauthorized area shall be removed promptly by vacuum truck and disposed of by offloading at the facility.

The unloading of prohibited waste at the municipal solid waste facility shall not be allowed. Necessary steps shall be taken by the owner or operator to ensure compliance with this provision. Any prohibited waste shall be returned promptly to the transporter or generator of the waste.

The facility in question will NOT have a brush and/or construction-demolition (B and CD) waste area on site designated to receive B and CD waste.

~~9.0~~8.0 SPILL PREVENTION AND CONTROL (§330.227)

In accordance with 30 TAC §330.227, storage and processing areas are designed to control and contain spills and contaminated water from leaving the facility. The design is sufficient to control and contain a worst case spill or release. Unenclosed containment areas also account for precipitation for a 25-year, 24-hour storm.

Facility personnel will be on-site and attend all unloading operations. Unloading will be via pressurization of the tank truck and discharging into the storage tank. The discharge hose will be secured in the receiving dock in such a way to prevent splashing during unloading. A concrete or metal retaining wall surrounds the waste storage to contain any spillage which might occur during unloading operations. Floor drains located in the receiving area flow: will direct any spillage back into the storage tank that will be periodically cleaned and treated.

All tanks used to store waste material or processed material will be surrounded with concrete pads with concrete footings or spill pans sufficient to contain spills or leaks plus expected rainwater. All tanks will be enclosed with the exception of the roll-off boxes, pre-treatment screens and recyclable fats, oils and greases as they are being loaded. All rainwater collected in the spill area will be discharged to the drain and storage tank system for processing.

Processing of wastewater will occur on a 24-hour basis. Tank overflow devices will be used to prevent spillage. Qualified personnel will periodically inspect all connections and piping during facility operations. If leakage is detected, processing of waste will be suspended and the leak will be repaired.

~~10.0~~9.0 FACILITY OPERATING HOURS AND SIGN (§330.229 AND §330.231)

~~10.1~~9.1 §330.229 - Facility Operating Hours

The facility is will be authorized to accept waste and operate during the following timeframes:

- The facility may accept waste from the public from 7:00 am to 7:00 pm Monday through Saturday. The hours will be posted on a sign at the entrance to the facility.

The facility is normally closed to the public on Sundays, Christmas Day, New Years Day, Thanksgiving Day, Easter and Fourth of July.

~~10.2~~9.2 §330.231 - Facility Sign

The entrance to the site through which wastes are received conspicuously displays a sign measuring at least 4 feet by 4 feet with letters at least 3 inches in height stating the name of the facility, type of disposal site, the hours and days of operation, a 24 hour emergency phone number to contact a supervisor/manager with the authority to obligate the facility after hours, local emergency fire department phone number, and the MSW permit number. The general condition of these signs is checked weekly.~~A conspicuous sign measuring a minimum four feet by four feet is maintained at the public entrance to the facility. The sign will comply with all requirements of §330.231.~~

~~11.0~~10.0 LITTER AND WINDBLOWN MATERIAL CONTROL (§330.233 AND §330.235)

~~11.1~~10.1 §330.233 - Control of Windblown Material and Litter

The wastes received by the facility are liquids. They are unloaded from the incoming vehicles by gravity and are further processed in enclosed tanks and vessels or enclosed buildings. Wastes of this type are not typically susceptible to becoming windblown litter, so special litter control practices would not be suitable or effective at the site. All driveways and other areas within the facility boundary, however, will be inspected daily on the days the facility is in operation for litter and other debris and if present, will be collected to minimize unhealthy, unsafe or unsightly

conditions. Operations personnel will collect windblown material daily from inside and outside the facility and dispose of it properly in accordance with Table 2.~~N/A~~

~~11.2~~10.2 §330.235 - Materials Along the Route to the Facility

Operator shall take steps to insure that vehicles hauling waste to the site have enclosed vessels for waste; specifically, vacuum trucks. No trucks with open containers or drums will be accepted. Violators will be reported to the City of Houston Health Department. If there is spillage en route to the site, and the spillage is within the right-of-way of public roads for two miles from the facility's entrance, in either direction. The operator will summon a vacuum truck to the scene to vacuum up the spill and the spillage will be disposed of at operator's plant. The street will be washed with a pressure washer after the material is vacuumed off the street.

All cleanup activities along and within the right-of-way of public access roads serving the site shall be coordinated with local authorities and the Texas Department of Transportation prior to commencement of any cleanup operations.

~~12.0~~11.0 FACILITY ACCESS ROADS (§330.237)

All-weather roads shall be provided within the site for the unloading areas designed for wet weather operation. The tracking of mud and trash onto public roadways from the site shall be minimized. All of the driveways, including the ingress and egress roads are concrete and the trucks shall be fully unloaded and have a tank cleaned prior to exiting the facility.

Dust from on-site and other roadways shall not become a nuisance to surrounding areas and water source and necessary equipment or other means of dust control approved by the Executive Director shall be provided. In fact, the facility in question does not generate dust as a byproduct of this operation.

All on-site and other access roads shall be maintained on a regular basis. Litter and other debris shall be frequently picked up and taken to the active disposal area or trash can for final disposal. Access roadway shall be regarded as necessary to minimize depression, ruts and potholes on Applicant's ingress egress road.

~~13.0~~12.0 NOISE POLLUTION AND VISUAL SCREENING (§330.239)

Noise generated by the facility is primarily the result of the operations of pumps and vacuum trucks. No excessively loud devices are used at the facility. Adequate distances to neighboring properties and the absence of residences in the immediate vicinity have yielded no problems arising from noise. Additionally, most facility operations are performed behind fencing and inside buildings, which provide adequate barrier to noise pollution at the facility.~~The facility does not have a plan to minimize Noise Pollution because it is located in a non-residential area. Visual screening of the site is provided by a privacy fence.~~

~~14.0~~13.0 OVERLOADING AND BREAKDOWN (§330.241)

The design capacity of the solid waste facility will not be exceeded during operation. The facility will not accumulate solid waste in quantities that cannot be processed within such time as will preclude the creation of odors, insect breeding, or harborage of other vectors. If such accumulations occur, additional solid waste will not be received until the adverse conditions are abated.

Solid wastes (other than the special wastes described in this SOP) are stored no longer than two days prior to transport off-site. Special wastes are accumulated and transported off-site in accordance with the schedule previously provided in this SOP.

If a significant work stoppage should occur due to a mechanical breakdown or other causes, the facility will restrict additional solid waste receipt. Under such circumstances, incoming solid waste is diverted to an approved backup storage, processing or disposal facility. If the work stoppage is anticipated to last long enough to create objectionable odors, insect breeding, or harborage of vectors, steps will be taken to remove the accumulated solid waste from the facility to an approved backup storage, processing, or disposal facility within 24 hours.

Backup Provision: In the event of equipment repairs or during equipment maintenance periods, the facility will obtain equipment from other facilities, contractors, or local rental companies to avoid interruption of waste services.

~~15.0~~14.0 SANITATION (§330.243)

At processing facilities, all working surfaces that come in contact with waste shall be washed down on a weekly basis after the completing of processing. Processing facilities that operate on a continuous basis shall be swept daily and washed down at least two times per week.

Wash water shall not be allowed to accumulate on the site without proper treatment to prevent the creation of odors or add attraction to vectors. The facility in question's wash water will be captured, pumped out of the capture wells and then recycled through the facility itself.

All wash waters will be collected and disposed of in an authorized manner.

~~16.0~~15.0 VENTILATION AND AIR POLLUTION CONTROL (§330.245)

In accordance with 30 TAC §330.245(d), the facility has been designed and is operated to provide adequate ventilation for odor control and employee safety. The owner or operator will prevent nuisance odors from leaving the boundary of the facility. If nuisance odors are found to be passing the facility boundary, the facility owner or operator will suspend operations until the nuisance is abated. Air emissions from the facility will not cause or contribute to a condition of air pollution as defined in the Texas Clean Air Act.

In accordance with 30 TAC §330.245(h), the facility is designed to allow a minimal time of exposure of liquid waste to the air.

The facility is designed to control any and all ponded water by its collection into the spill area and is then discharged to the drain and storage tank system for processing to avoid its becoming a nuisance. *There is no ponded water collected on the site. In the event that ponded water should occur due to heavy rains, said water will be removed to avoid becoming a nuisance or create objectionable odors. The only water that could possibly pond onsite would be as a result of heavy rainstorms. Ponded water from rainstorms, should they become a problem, can be remedied by dirt fill spread with a front loader that is onsite.* In the event that objectionable odors do occur, appropriate measures will be taken to alleviate the condition in accordance with 30 TAC §330.245(k).

~~17.0~~16.0 HEALTH AND SAFETY (§330.247)

The operator has developed and implemented a written safety plan in connection with the operator training program. Supervision of all activities will be maintained to ensure the safety of all persons on the premises. All employees are required to attend an appropriate health and safety training class prior to starting their assigned job, and to take refresher training when applicable, per OSHA standards for general industry.~~Facility personnel will be trained in the appropriate sections of the facility's health and safety plan.~~ Salvaging and scavenging will be prohibited at all times.

~~18.0~~17.0 EMPLOYEE SANITATION FACILITIES (§330.249)

The facility will have potable water and sanitary facilities for all employees and visitors.

~~19.0~~18.0 NON-APPLICABLE RULES

Rules that are not applicable at the facility are:

- §330.207(h), applicable only for liquid waste transfer facilities;
- §330.213, applicable only for citizen's collection stations; and
- §330.219(d) and (h); applicable only for special waste or medical wastes, which are not accepted at this facility, or applicable only for composting and landfill mining facilities.

Part I

(Clean Copy)

PART I

TITLE PAGE - MSW #2298

Project Name:

DOWNSTREAM ENVIRONMENTAL, LLC

B. R. Perrin Plant

3737 Walnut Bend

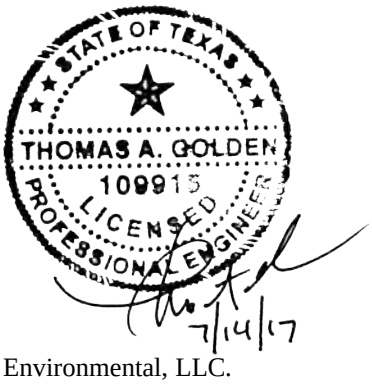
Houston, Harris County, Texas 77042

Prepared for:

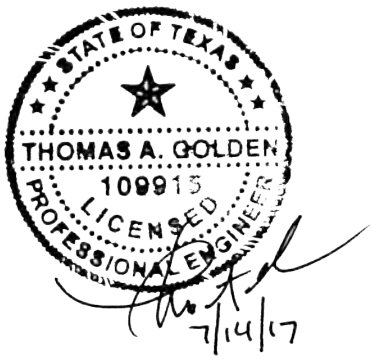
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

MUNICIPAL SOLID WASTE DIVISION

NAME OF APPLICANT:	**DOWNSTREAM ENVIRONMENTAL, LLC** 3737 Walnut Bend Houston, TX 77042
PROPERTY OWNER:	Downstream Environmental, LLC 16350 Park Ten Place, Suite 215 Houston, TX 77084
CONSULTING ENGINEER:	Daniel B. Stephens & Associates, Inc. 4030 West Braker Lane, Suite 325 Austin, Texas 78759
TYPE OF FACILITY:	Type V Municipal Solid Waste Processing Grit, Septage and Grease Trap Treatment Facility
WASTE TO BE ACCEPTED:	Grease Trap Waste, Grit Trap Waste and Septage
ORIGINALLY SUBMITTED:	April 3, 2002
REVISED AND SUBMITTED:	October 17, 2002, April 24, 2002, January 31, 2008 and July 14, 2017



PART I
TABLE OF CONTENTS
[330.52]
TECHNICAL REQUIREMENTS OF PART I



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PART I

A. Application Form

Facility Name: B.R. Perrin Plant
Permittee/Registrant Name: Downstream Environmental, LLC.
MSW Authorization #: 2298
Initial Submittal Date: 04/03/2002
Revision Date: 07/14/2017

Texas Commission on Environmental Quality

Permit/Registration Modification and Temporary Authorization Application Form for an MSW Facility

1. Reason for Submittal

☒ Initial Submittal ☐ Notice of Deficiency (NOD) Response

2. Authorization Type

☒ Permit ☐ Registration

3. Application Type

☒ Modification with Public Notice ☐ Modification without Public Notice
☐ Temporary Authorization (TA) ☐ Modification for Name Change/Transfer

4. Application Fees

☐ Pay by Check ☒ Online Payment

If paid online, e-Pay Confirmation Number: 328359 and 328360

5. Application URL

Is the application submitted for a permit/registration modification with public notice?

☒ Yes ☐ No

If the answer is "Yes", enter the URL address of a publicly accessible internet web site where the application and all revisions to that application will be posted in the space provided: http:// dbsa-client-access.com/application/downstream.html

6. Confidential Documents

Does the application contain confidential documents?

☐ Yes ☒ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

7. General Facility Information

Facility Name: B.R. Perrin Plant

MSW Authorization No.: 2298

Regulated Entity Reference No.: RN101662617

Physical or Street Address (if available): 3737 Walnut Bend Ln

City: Houston County: Harris State: Texas Zip Code: 77042

(Area code) Telephone Number: 713-784-2005

Latitude: 29°43'11.28" N Longitude: 95°33'58.67" W

8. Facility Type(s)

☐ Type I ☐ Type IV ■ Type V

☐ Type I AE ☐ Type IV AE ☐ Type VI

9. Description of the Revisions to the Facility

Provide a brief description of all revisions to the permit/registration conditions and supporting documents referred by the permit/registration, and a reference to the specific provisions under which the modification/temporary authorization application is being made. Also, provide an explanation of why the modification/temporary authorization is requested:

The B.R. Perrin Plant is currently permitted as a Type V MSW Facility to treat and dispose of Type V GG Wastes.

This Part I form has been prepared for a permit modification to the facility's permit (MSW 2298) to replace and upgrade facility equipment while adhering to the existing MSW Permit requirements, specifically including the existing volumetric limitations, treatment conditions and other existing permit requirements. This permit modification also includes a variance to memorialize the location of the existing grit dewatering/processing area. Currently, the grit dewatering/processing area is located within the 50-foot buffer and does not comply with the location restrictions set forth in 30 TAC §330.543. In accordance with a meeting held on April 17th, 2017 between TCEQ and Downstream Environmental, LLC. (a subsidiary company of SouthWaste Disposal, LLC), a variance to keep and utilize the existing grit dewatering/processing area was requested and approved, granted that Downstream Environmental, LLC. performs a permit modification requiring notice to the public that addresses the non-compliant location restriction. During the same meeting, it was also requested that Downstream Environmental, LLC. research demographic statistics on the usage of the City trail located east of the eastern property boundary. Based on communication with the Houston Parks Board, the City of Houston did not reveal any data with regards to the number of persons using the trail. Additionally, based on facility observations, the trail is rarely used by the public.

In summary, the following revisions include:

1. Upgrade facility equipment.

2. Revise the final facility site and equipment layout plan.

3. Maintain permitted waste acceptance and permitted waste capacity limits.

4. Revise financial assurance for the overall facility closure cost based on upgraded equipment and facility layout alterations.

5. Apply for a variance to keep and utilize the existing grit dewatering/processing that does not currently meeting the location restrictions set forth in 30 TAC §330.543

6. Maintain operational effectiveness by replacing the Site Operating Plan.

10. Facility Contact Information

Site Operator (Permittee/Registrant) Name: Downstream Environmental, LLC

Customer Reference No. (if issued)*: CN 600896872

Mailing Address: 16350 Park Ten Place, Suite 215

City: Houston County: Harris State: Texas Zip Code: 77084

(Area Code) Telephone Number: (713) 413-9400

E-mail Address: bcamacho@wrmco.com

TX Secretary of State (SOS) Filing Number: 800553020

*If the Site Operator (Permittee/Registrant) does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Site Operator (Permittee/Registrant) as the Customer.

Operator Name[1]: Same as Site Operator (Permittee/Registrant)

Customer Reference No. (if issued)*: CN

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-mail Address:

Charter Number:

[1]If the Operator is the same as Site Operator/Permittee type "Same as "Site Operator (Permittee/Registrant)".
*If the Operator does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Operator as the customer.

Consultant Name (if applicable): Daniel B. Stephens & Associates, Inc.

Texas Board of Professional Engineers Firm Registration Number: F-286

Mailing Address: 4030 West Braker Lane, Suite 325

City: Austin County: Travis State: Texas Zip Code: 78759

(Area Code) Telephone Number: (512) 821-2765

E-Mail Address: tgolden@dbstephens.com

Agent in Service Name (required only for out-of-state):

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address:

11. Ownership Status of the Facility

Is this a modification that changes the legal description, the property owner, or the Site Operator (Permittee/Registrant)?

☐ Yes ■ No

If the answer is "No", skip this section.

Does the Site Operator (Permittee/Registrant) own all the facility units and all the facility property?

☐ Yes ☐ No

If "No", provide the information requested below for any additional ownership.

Owner Name:

Street or P.O. Box:

City: County: State: Zip Code:

(Area Code) Telephone Number:

Email Address (optional):

Charter Number:

Signature Page

I, Ben Camacho on behalf of Downstream Environmental, LLC., Director of Permitting/Compliance,
(Site Operator (Permittee/Registrant)'s Authorized Signatory) (Title)

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: [signature] Date: 7/12/17

- -

TO BE COMPLETED BY THE OPERATOR IF THE APPLICATION IS SIGNED BY AN AUTHORIZED REPRESENTATIVE FOR THE OPERATOR

I, ____________________________ , hereby designate ________________________________
(Print or Type Operator Name) (Print or Type Representative Name)

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

____
Printed or Typed Name of Operator or Principal Executive Officer

____
Signature

- -

SUBSCRIBED AND SWORN to before me by the said Ben Camacho
On this 12th day of July, 2017
My commission expires on the 12th day of Sept., 2020
[signature: Janet Allen]
Notary Public in and for
Travis County, Texas
(Note: Application Must Bear Signature & Seal of Notary Public)

NOTARY PUBLIC STATE OF TEXAS
JANET ALLEN
My Notary ID # 10608103
Expires September 12, 2020

Permit / Registration Modification with Public Notice

(See Instructions for P.E. seal requirements.)

Required Attachments	Attachment No.
Land Ownership Map	1
Land Ownership List	2
Marked (Redline/Strikeout) Pages	Part III & IV
Unmarked Revised Pages	Part III & IV

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ■ Fee Payment Receipt
- ☐ Confidential Documents

TCEQ ePay Voucher Receipt

Transaction Information

Voucher Number:	328360
Trace Number:	582EA000264319
Date:	07/13/2017 12:26 PM
Payment Method:	CC - Authorization 000001346B
Amount:	$50.00
Fee Type:	30 TAC 305.53B MWP NOTIFICATION FEE
ePay Actor:	Ben Camacho

Payment Contact Information

Name:	Ben Camacho
Company:	Downstream Environmental Llc
Address:	12707 Mixson Drive, Austin, TX 78732
Phone:	713-303-9435

TCEQ ePay Voucher Receipt

Transaction Information

Voucher Number:	328359
Trace Number:	582EA000264319
Date:	07/13/2017 12:26 PM
Payment Method:	CC - Authorization 000001346B
Amount:	$100.00
Fee Type:	MSW PERMIT/REGISTRATION/AMEND/MOD/TEMP AUTHORIZATIONS APPLICATION FEE
ePay Actor:	Ben Camacho

Payment Contact Information

Name:	Ben Camacho
Company:	Downstream Environmental Llc
Address:	12707 Mixson Drive, Austin, TX 78732
Phone:	713-303-9435

Site Information

Site Name:	BR PERRIN PLANT
Site Address:	3737 WALNUT BEND LANE, HOUSTON, TX 77042

Customer Information

Customer Name:	DOWNSTREAM ENVIRONMENTAL LLC
Customer Address:	16350 PARK TEN PLACE STE 215, HOUSTON, TX 77084

Other Information

Comments:	MSW Permit Modification Permit #2298

Permit/Registration Modification without Public Notice or TA

(See Instructions for P.E. seal requirements.)

Required Attachments (for Modifications only) **Attachment No.**

Marked (Redline/Strikeout) Pages

Unmarked Revised Pages

Additional Attachments as Applicable- Select all those apply and add as necessary

☐ Signatory Authority
☐ Fee Payment Receipt
☐ Confidential Documents

Permit / Registration Name Change / Transfer Modification

(See Instructions for P.E. seal requirements.)

Required Attachments	**Attachment No.**
TCEQ Core Data Form(s)	
Property Legal Description	
Property Metes and Bounds Description	
Metes and Bounds Drawings	
On-Site Easements Drawing	
Land Ownership List	
Land Ownership Map	
Property Owner Affidavit	
Verification of Legal Status	
Evidence of Competency	

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ☐ Fee Payment Receipt
- ☐ Confidential Documents
- ☐ Final Plat Record of Property, if platted
- ☐ Assumed Name Certificate

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PART I
Supplemental Technical Report

§330.52(b)(3) and §330.53(b)(3)

In the event the recycling goals of a Type V Registration cannot be met due to changes in the market, Applicant requests that the facility in question be allowed to operate under a Type V MSW Permit, and files this application as follows:

Subtitle D of the Resource Conservation and Recovery Act (RCRA) bans liquid waste from being disposed of at landfills. Since the ban on liquid waste receipt at landfills became effective in 1993, a lack of disposal service for commercial liquid waste streams is a problem in some Texas cities. Two of the waste streams which have been historically disposed of in landfills are grease trap waste and grit trap waste. The major constituent of both of these waste steams is water. Downstream Environmental, LLC is an innovative technology company that is committed to the urban friendly processing of grease and grit trap waste. Downstream Environmental's patented technology generates clean water and eliminates odor and land use problems.

Downstream Environmental, LLC is making application to obtain a Type V MSW Permit to operate a stationary Type V G municipal solid waste processing facility. The facility is designed to process septage, great trap waste and grit trap waste.

For the purpose of this Type V MSW Permit Application, the Applicant shall be referred to as "Downstream Environmental, L.L.C." or "Applicant".

PART I

(5) MAPS

(A) GENERAL

(i) Windrose
(ii) Water Wells - 500 Feet
(iii) Structures and Buildings within 500 Feet
(iv) Schools, day cares and churches within (1) mile
Hospitals and cemeteries within (1) mile
Community and recreation areas within (1) mile
(v) Location and Surface of all Roads within one (1) mile.
(vi) Longitudes and Latitudes
(vii) Area Streams, ponds and lakes
(viii) Airports within five (5) minutes.
(ix) Property Boundary of Site
(x) Drainage, pipeline, utility easements within or adjacent to the Site
(xi) Archaeological sites, historic sites or aesthetic sites, adjacent to the Site - N/A

Completely Revised
08/09/02

0001

ATTACHMENT 14d

D-B
ASSOCIATES

815 Brazos, Suite 205
Austin, Texas 78701
512/457-0032
Fax: 512/457-0038

April 13, 2000

Ms. Mary Wimbush
DOWNSTREAM ENVIRONMENTAL, L.L.C.
2044 Bissonnet
Houston, TX 77005

RE: LOCATED WATER WELLS – 10400 WESTPARK DR.- HOUSTON, TX

Dear Ms. Wimbush:

Attached is a topographical map, record of wells for grid number 65-20-2 and the well records for the located wells within one-mile of your site in Harris County. D-B Associates did not find any wells within a 500 foot radius of your site, but found one well within a ½ mile and two additional wells within the mile radius. The Located Files were the only files checked at the Texas Water Development Board.

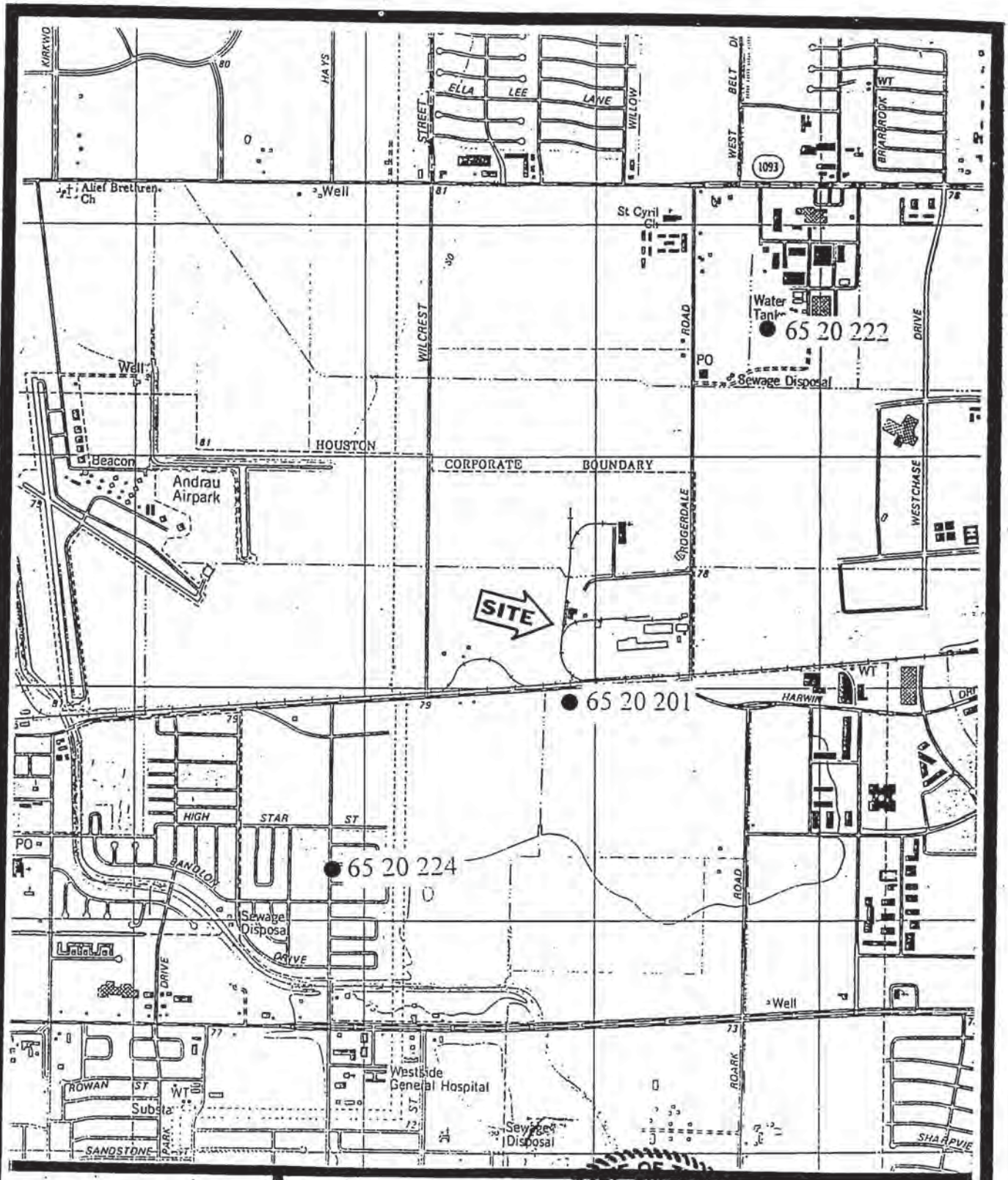
LOCATED WELLS: Wells that have physically been identified and spotted onto maps on file with the Texas Water Development Board.

If you should have any questions or concerns, please feel free to contact me at (512) 457-0032.

Sincerely,

Bonnie Burklund

STATE OF TEXAS
GEORGE W. HOYES
86495
LICENSED
PROFESSIONAL ENGINEER



ALL LOCATIONS ARE APPROXIMATE

1"=2000'

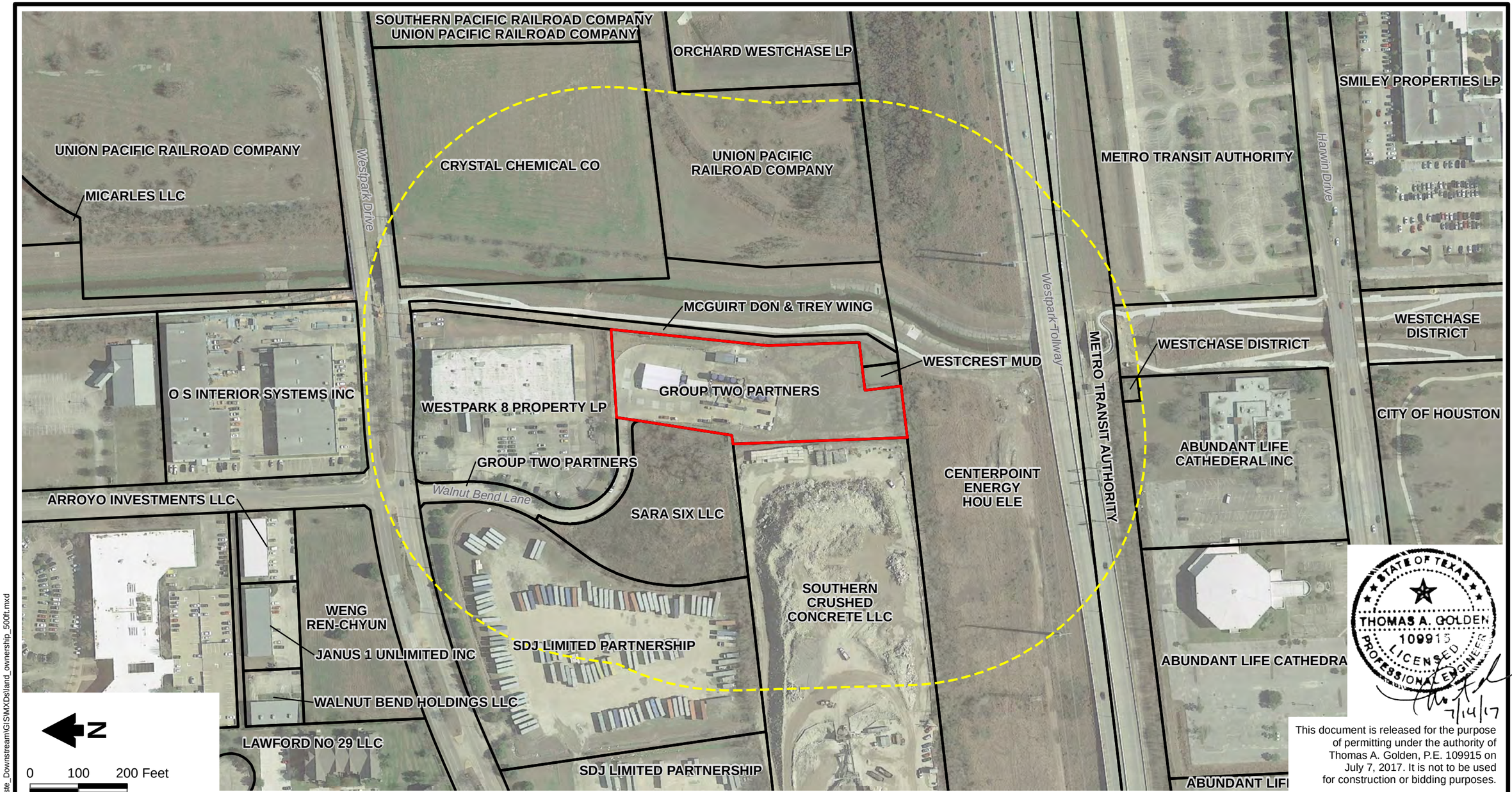
LOCATED WATER W[illegible] LOCATIONS
10400 WESTPARK DI[illegible] HOUSTON, TX

[illegible] GS [illegible] MINUTE QUADRANGLE
GEORGE W. HOYES [illegible] ALIEF, TEX.
1982

STATE OF TEXAS
[illegible]495
LICENSED
PROFESSIONAL ENGINEER

00019

Attachment 14c



Explanation

- Site
- Parcel
- 500ft radius

THOMAS A. GOLDEN 109915 LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
7/14/17

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on July 7, 2017. It is not to be used for construction or bidding purposes.

January 23, 2017 aerial imagery from Google Earth

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045

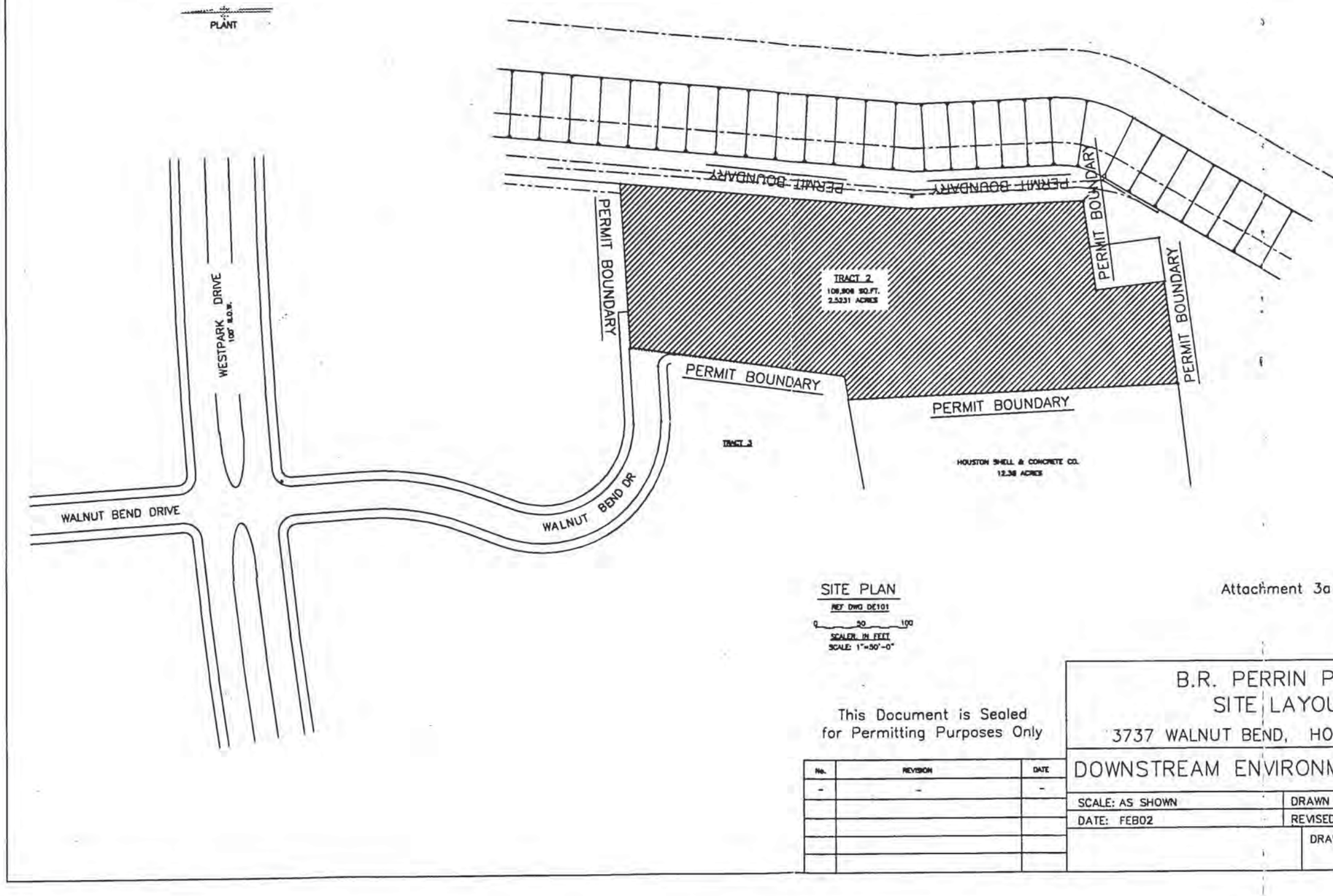
7/7/2017 JN TX16.0165.00

DOWNSTREAM ENVIRONMENTAL, LLC
B.R. PERRIN PLANT

Land Ownership

Attachment 2h

\\ss6ahq\Data5\Projects\TX16.0165_SouthWaste_Downstream\GIS\MXDs\land_ownership_500ft.mxd



SITE PLAN

REF DWG DE101

0 50 100

SCALED IN FEET

SCALE: 1"=50'-0"

Attachment 3a

This Document is Sealed
for Permitting Purposes Only

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER
1/29/02

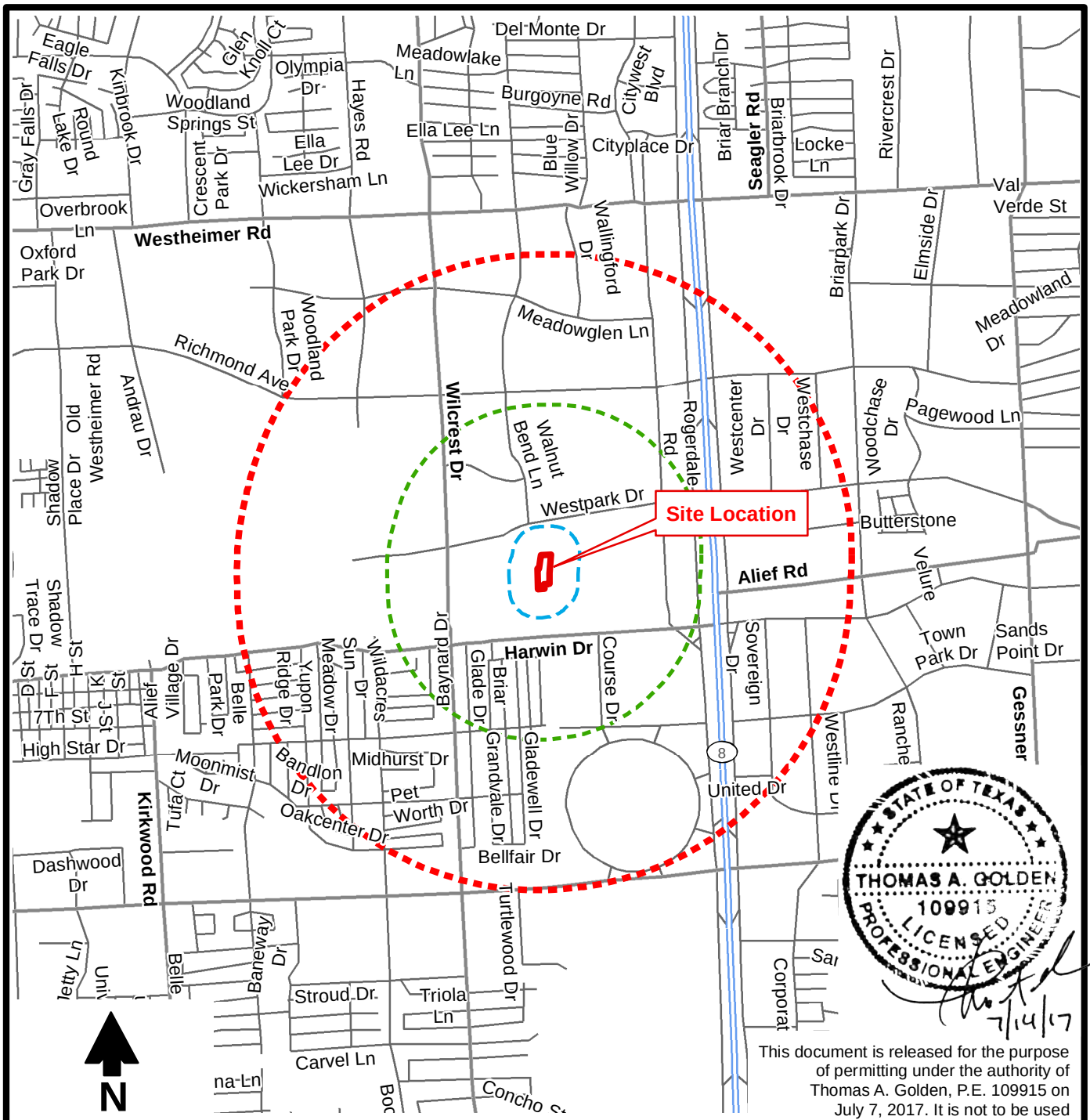
No.	REVISION	DATE
-	-	-

B.R. PERRIN PLANT
SITE LAYOUT
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, LLC

SCALE: AS SHOWN	DRAWN BY: DGN
DATE: FEB02	REVISED: n/a
	DRAWING NUMBER: DE 101

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER



Source: 1. City of Houston
2. ESRI online data, Streetmap, USA.

Notes: 1. Facility location = 29° 43' 9.597" North and 95° 33' 58.854" West

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
7/14/17

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on July 7, 2017. It is not to be used for construction or bidding purposes.

Explanation

Land Use (Grouped)
- Single Family Residential
- Multi-Family Residential
- Commercial
- Office
- Industrial
- Public and Institutional
- Transportation and Utilities
- Parks and Open Space
- Undeveloped
- Agriculture Production

- One mile radius
- Half mile radius
- 500ft radius

DOWNSTREAM ENVIRONMENTAL, LLC
B.R. PERRIN PLANT

Land Use Map

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016 JN TX16.0165

Attachment 2d

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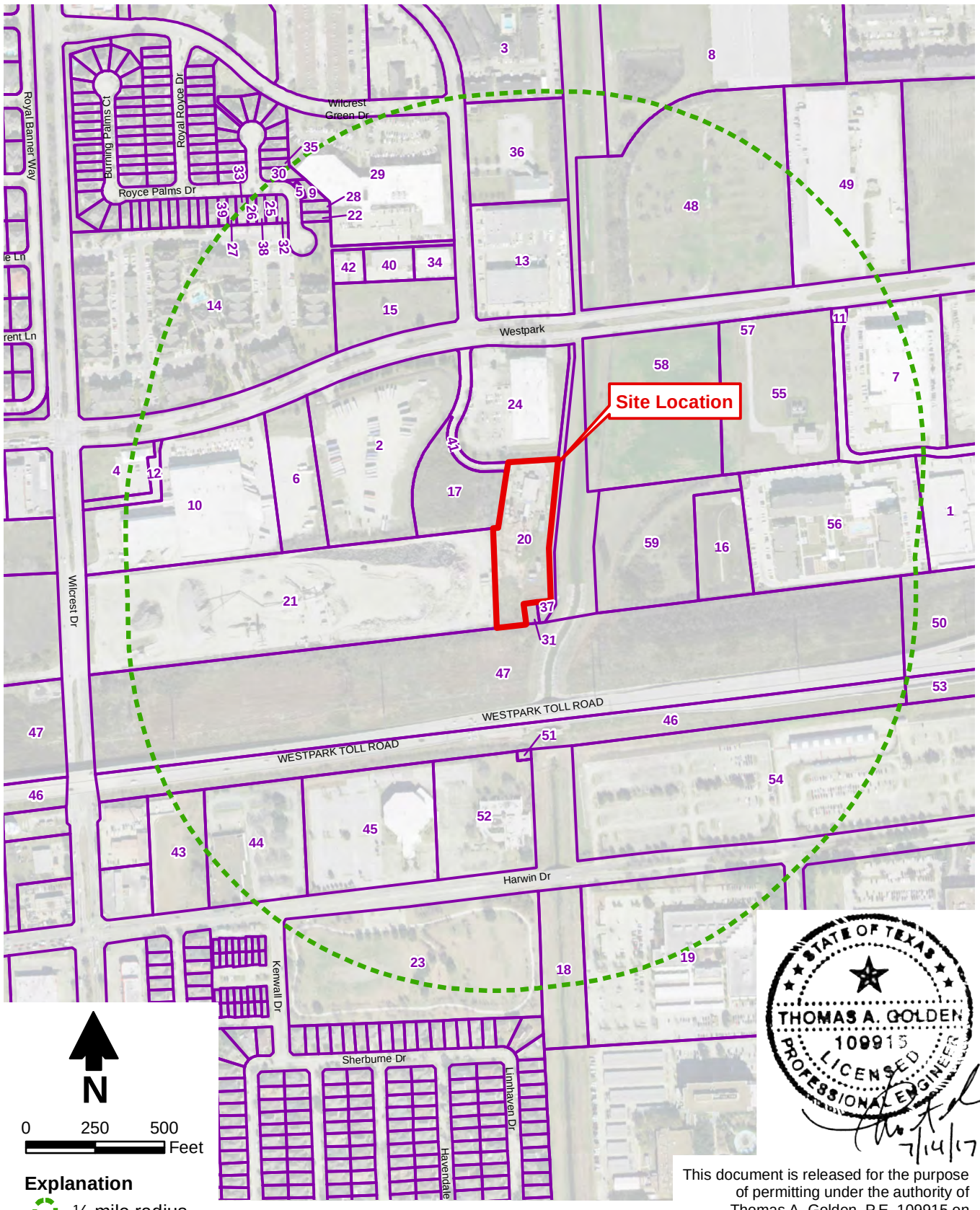

\\ss6abq\Data5\Projects\TX16.0165_SouthWaste_Downstream\GIS\MXDs\land_ownership_quarter_mile.mxd

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
7/14/17

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on July 7, 2017. It is not to be used for construction or bidding purposes.

DOWNSTREAM ENVIRONMENTAL, LLC
B.R. PERRIN PLANT

Land Ownership Map

Attachment 1

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045
5/27/2016 JN TX16.0165

PART I

(6) LANDOWNERS LIST

List of landowners within a 500 foot radius of the site's boundaries is attached.

Attachment 2. Landowner List (1/4-mile radius)

Map #	Owner	Address
29	11111 Wilcrest Green Assoc	11111 Wilcrest Green Drive Ste. 250, Houston, Texas 77042
44, 45, 52	Abundant Life Cathedral Inc	11230 Harwin Drive, Houston, Texas 77072
3	Am Walnut Bend LLC	1776 Woodstead Ct Ste. 218 Spring, Texas 77380
1, 7	Arc Cjhsntx001 LLC	106 York Rd Jenkintown, Pennsylvania 19046-3233
34	Arroyo Investments LLC	3664 Walnut Bend Lane Bldg. A, Houston, Texas 77042
39	Blackwell, Janelle L	11127 Royce Palms Drive, Houston, Texas 77042
25	Bronsweig, Marc	11107 Royce Palms Drive, Houston, Texas 77042
47, 50	Centerpoint Energy Hou Ele	P.O. Box 1475, Houston, Texas 77251
33	Cepeda, George L	9323 Meadowcroft Drive, Houston, Texas 77063
23	City of Houston	P.O. Box 1562, Houston, Texas 77251
58	Crystal Chemical Co	14331 Carolcrest Drive, Houston, Texas 77079
43	Flores, Luis	12731 Heather Landing Lane, Houston, Texas 77072
20, 41	Group Two Partners	4234 Judson Ave, Houston, Texas 77005
40	Janus 1 Unlimited Inc	3664 Walnut Bend Lane Bldg. B, Houston, Texas 77042
36	Jireh Bible Church	3907 Misty Morn Lane, Sugar Land, Texas 77479
14	Lawford No 29 LLC	2702 Briargrove Drive, Houston, Texas 77057
28	Ma Sue Ann & Lichen	14306 Tasmania Ct, Sugar Land, Texas 77498
35	Malik, Saleem	11250 80th E., Montgomery, Alabama 36117
37	McGuirt, Don & Trey Wing	12 Legend Lane, Houston, Texas 77024
46, 53, 54	Metro Transit Authority	P.O. Box 61429, Houston, Texas 77208
8	Micarles LLC	P.O. Box 42224, Houston, Texas 77242
22	Nguyen, William	3707 Royal River Drive, Houston, Texas 77042
13	OS Interior Systems Inc	P.O. Box 42495, Houston, Texas 77242

Map #	Owner	Address
16, 56	Orchard Westchase LP	3300 Lyons Ave Ste. 203, Houston, Texas 77020
27	Pan, David Liekai	11123 Royce Palms Drive, Houston, Texas 77042
32	Pena, Francisco J Jr	11103 Royce Palms Drive, Houston, Texas 77042
38	Pham, Que N	11111 Royce Palms Drive, Houston, Texas 77042
30	Qi, Tong	3631 Fallen Palms Ct, Houston, Texas 77042
26	Romain, Alain	11115 Royce Palms Drive, Houston, Texas 77042
5, 9	Royal Palms HOA	P.O. Box 63178, Pipe Creek, Texas 78063
17	Sara Six LLC	P.O. Box 421126, Houston, Texas 77042
2, 4, 6, 10, 12	SDJ Limited Partnership	P.O. Box 421126, Houston, Texas 77242
19	Smiley Properties LP	5800 N. Course Drive, Houston, Texas 77072
21	Southern Crushed Concrete LLC	14333 Chrisman Road, Houston, Texas 77039
48, 55, 57, 59	Union Pacific Railroad Company	1400 Douglas Street Stop 1640, Omaha, Nebraska 68179
42	Walnut Bend Holdings LLC	3664 Walnut Bend Lane Ste. C, Houston, Texas 77042
15	Weng, Ren-Chyun	5830 Garden Hills Drive, Sugar Land, Texas 77479
11	Westchase Commercial Owners Assoc Inc	2537 S. Gessner Road Ste. 250, Houston, Texas 77063
18, 51	Westchase District	10375 Richmond Ave. Ste. 1175, Houston, Texas 77042
31	Westcrest Mud	P.O. Box 27609, Houston, Texas 77227
24, 29	Westpark 8 Property LP	3400 Rogerdale Road, Houston, Texas 77042

PART I

(7) LEGAL DESCRIPTION OF THE SITE

The property is an approximate 2.5 acre tract of land located at 10400 Westpark, in Southwest Houston, Harris County, Texas, more particularly described as:

> Approximately 2.5 acre portion of Section 3, Reserve D, Wilcrest Green in Harris County, Houston, Texas, Plat of subject property is attached as Exhibit "A" and "B", along with metes and bounds description. Referred to on Exhibit "A" as tract 2, 109,406 sq.ft., 2.5231 acres. See survey.
> See: Attachment 28a - Deed.

Address and Directions to proposed site:

> West Beltway 8 to Westpark. West on Westpark. South on Walnut Bend Lane.
> Street Address: 3737 Walnut Bend Lane, Houston, TX 77042

Attached:

(A) Owner's Deed
Applicant's 20 Year Lease
(B) Plat - Contained in Survey
(C) Metes and Bound Description
(D) Drawing of Metes and Bounds - Contained in Survey

U967661

FILED BY
ALAMO TITLE COMPANY
42901111

SPECIAL WARRANTY DEED

04/04/01 201478362 U967661 $23.00

Date: April 3, 2001

Grantor: DON MCGUIRT and JACK CHRISTIE, not joined herein by their respective spouses for the reason that the property herein described constitutes no part of their residential homesteads, and TREY WING, a single person

Grantor's Mailing Address (including county):

12330 Tealwood North
Houston, Harris County, Texas 77024

Grantee: GROUP TWO PARTNERS, LLP, a Texas Limited Liability Partnership

Grantee's Mailing Address (including county):

2044 Bissonnet
Houston, Harris County, Texas 77005

Consideration: For Ten and No/100 Dollars and other valuable consideration.

Property (including any improvements):

TRACT I:
A 2.5231 acre tract, more or less, being a portion of WILCREST GREEN, SECTION THREE (3), Restricted Reserve "D", a subdivision in Harris County, Texas, according to the map or plat thereof, recorded under Film Code No. 397067 of the Map Records of Harris County, Texas, and being more particularly described by metes and bounds in Exhibit "A" attached hereto and made a part hereof for all purposes.

TRACT II:
A 0.4759 acre tract of land, more or less, out of Restricted Reserve "D", WILCREST GREEN, SECTION THREE (3), according to the map or plat thereof, recorded under Film Code No. 397067 of the Map Records of Harris County, Texas, and being more particularly described by metes and bounds in Exhibit "A" attached hereto and made a part hereof for all purposes.

Reservations from and exceptions to Conveyance and Warranty:

Easements, rights-of-way, and prescriptive rights, whether of record or not; all presently recorded instruments, other than liens and conveyances, that affect the property. Taxes for the current year have been prorated and are assumed by Grantee.

Grantors hereby reserve for the benefit of Grantors, Grantors heirs, executors, administrators, successor and assigns, an easement for drainage purposes over and across the most Northerly ten feet (10') of Tract I and over and across a portion of the Westerly property lines of Tract I commencing at the Northwest corner of Tract I and continuing in a Southerly direction along the Westerly property line of Tract I to a point thirty feet (30') South of the Southeast corner of Tract II for the purpose of providing drainage from Grantors' remaining tract of land, which said remaining

Attachment 28a

tract of land is Westerly of and adjacent to and adjoining Tract I and which remaining tract is adjacent to and adjoining the Southerly boundary line of Tract II to the fifty foot (50') wide Harris County Flood Control District easement recorded in Volume 6872, Page 349 of the Deed Records of Harris County,Texas. This drainage easement shall be a covenant running with the land and shall be binding upon the respective parties hereto, their heirs, executors, administrators, legal representatives, successor and assigns, and shall forever benefit Grantors' remaining tract of land as described herein. Grantors shall have the right to make such use of said drainage easement as is necessary to accomplish the purpose set forth herein; provided however, Grantors shall repair, at Grantors' cost, any damage to Tract I created by Grantors in exercising Grantors' rights herein.

Grantor and Grantee agree that the following covenants, conditions and restrictions shall be and are imposed against the property:

No use of the Property shall be permitted which is illegal by reason of noise, odor, pollution, dust, smoke, fumes, or hazardous by reason of excessive danger of fire or explosion, nor shall anything be done thereon which may create environmental contamination of which may be or become an environment hazard to surrounding property owners.

In addition, no activity or use shall be permitted on or with respect to any part of the property which is obnoxious, offensive, constitutes a nuisance, or is materially out of harmony with the development of Wilcrest Green, including, but not limited to the operation of (a) a used car lot, car repair lot or car detail lot, or the like (b) storage yard for pipe, junk vehicles, or any other kind of junk material (c) a manufacturing or assembling facility, unless such facility is operated inside an enclosed facility with an exterior constructed of brick, stone, metal or concrete, or some combination thereof, with said facility having a proper business like front facade (exterior cannot be greater than 50% metal) and (d) any type of "adult entertainment" business catering to adults only and sexual in nature.

Expressly permitted and excepted herein is the construction and operation of a non toxic waste treatment plant for liquid transportable waste including but not limited to grease trap waste, septage and grit. Said facility will be operated wholly within the applicable laws of the T.N.R.C.C., the City of Houston, and other applicable regulatory agencies and if at any time it is not operating within their guidelines, it will be reported to one of the proper authorities for corrective action to be taken immediately.

Any question as to what constitutes any annoyance, nuisance, or is obnoxious shall be solely at the discretion of Don McGuirt, President (or any successor President) of 50 Westpark Corp., so long as 50 Westpark Corp. or Don McGuirt owns property in Wilcrest Green.

A tree buffer zone of ten feet (10') will be required on subject tracts northern property line a distance of approximately one hundred eighty-five feet (185'), along with approximately four hundred feet (400') on the western border. This buffer area shall fall inside the required fence and shall be planted with fast growing evergreen trees with their growth projected to be well above the fence line. Tree will be such that they are well taller than fence when planted. Spacing shall be such that it provides as dense a cover as is reasonably possible.

Grantee shall have right to cross under twenty foot (20') easement to east of subject property for the purpose of installing conduit or culverts for drainage, so long as any damage to existing road is repaired by Grantee. Grantee may also tie into the wastewater line lying within this twenty foot (20') easement at their expense so long as road is repaired.

No signage other than a monument sign installed on Westpark by Grantor for the benefit of all 3 owners will be permitted. Grantor will install the monument sign including address and Grantee will be responsible for installing their name on subject sign in lettering and material approved by Grantor.

The preceding restrictive covenants shall be covenants running with the land and shall be for the benefit of and enforceable solely by Grantor by any and all equitable means, inclusive of, but without limitation, temporary restraining order, temporary injunction and permanent injunction. The preceding restrictive covenants shall be enforceable solely by Grantor and shall terminate upon the earliest to occur of the following: (a) passage of twelve years from date of the conveyance of the property to Grantee; (b) when Grantor or Don McGuirt ceases to own any land in Wilcrest Green.

Grantor, for the consideration and subject to the reservations from and exceptions to conveyance and warranty, grants, sells, and conveys to Grantee the property, together with all and singular the rights and appurtenances thereto in any wise belonging, to have and hold it to Grantee, Grantee's heirs, executors, administrators, successors and assigns forever, Grantor binds Grantor and Grantor's heirs, executors, administrators, successors and assigns to warrant and forever defend all and singular the property to Grantee and Grantee's heirs, executors, administrators, successors and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except to the reservations from and exceptions to conveyance and warranty, when the claim is by, through or under Grantor, but not otherwise.

When the context requires, singular nouns and pronouns include the plural.

THE PROPERTY IS CONVEYED BY GRANTORS, AND ACCEPTED BY GRANTEE, IN ITS "AS IS", "WHERE IS" CONDITION, "WITH ALL FAULTS". ABSOLUTELY NO WARRANTIES (EXCEPT FOR THE SPECIAL WARRANTY OF TITLE SET FORTH HEREIN) ARE GIVEN GRANTEE WITH RESPECT TO THE PROPERTY INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF SUITABILITY, HABITABILITY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. NO WARRANTIES OR REPRESENTATIONS HAVE BEEN MADE BY GRANTORS WITH RESPECT TO THE ENVIRONMENTAL STATUS OF THE PROPERTY OR WITH RESPECT TO THE PRESENCE OR ABSENCE OF ANY HAZARDOUS SUBSTANCES OR DANGEROUS CONDITION IN, ON, UNDER, OR ABOUT THE PROPERTY. GRANTEE ASSUMES ALL RISKS WITH RESPECT TO THE PHYSICAL AND ENVIRONMENTAL CONDITION OF THE PROPERTY AFTER THE DATE HEREOF.

DON MCGUIRT

307

JACK CHRISTIE

TREY WING

AGREED TO AND ACCEPTED BY:

GROUP TWO PARTNERS, LLP, a Texas Limited Liability Partnership

By: Paul T Hlavinka
Name: PAUL T. HLAVINKA
Title: Managing Ptr.

THE STATE OF TEXAS {}

COUNTY OF HARRIS {}

This instrument was acknowledged before me on the 3 day of April, 2001, by DON MCGUIRT.

MELISSA ROBIRDS
Notary Public, State of Texas
My Commission Expires 11-07-2004

Notary Public, State of Texas
Notary's printed name:

Notary's commission expires:

THE STATE OF TEXAS {}

COUNTY OF HARRIS {}

This instrument was acknowledged before me on the 3 day of April, 2001, by JACK CHRISTIE.

MELISSA ROBIRDS
Notary Public, State of Texas
My Commission Expires 11-07-2004

Notary Public, State of Texas
Notary's printed name:

Notary's commission expires:

THE STATE OF TEXAS {}

COUNTY OF HARRIS {}

This instrument was acknowledged before me on the 3 day of April, 2001, by TREY WING.

Notary Public, State of Texas
Notary's printed name:

Notary's commission expires:

THE STATE OF TEXAS {}

COUNTY OF HARRIS {}

This instrument was acknowledged before me on the 3 day of April, 2001, by Paul T. Hlavinka managing ~~General~~ Partner of GROUP TWO PARTNERS, LLP, a Texas Limited Liability Partnership, on behalf of said partnership.

Notary Public, State of Texas
Notary's printed name:

Notary's commission expires:

50 73-1934

(KAM/bd H:42901111 MR)

Attachment 28a

Waste Water Capacity
Purchase Agreement

As a condition precedent to the sale of 10400 Westpark and concurrent with the closing on the 2.999 acres tract of land at 10400 Westpark, Houston, Texas, to be purchased by Group Two Partners, LLP:

Downstream Environmental, LLC, hereby agrees to purchase from Don McGuirt, Trey Wing and Jack Christie, 100,000 gallons of City of Houston waste water capacity for the sum of $2.25 per gallon over a period of 9 months. To be purchased 33.333 gallons (1/3) three months after date of closing, 33.333 gallons (1/3) six months after date of closing, and 33.334 gallons (1/3) nine months after closing. Each amount to be the sum of $75,000. Buyer may prepay any of these amounts with no prepayment penalty. In the event any of these dates of payment are not met, a carrying cost penalty in the amount of ½ of 1% per month will be added to the payment owed from the due date of any missed payment (6% per annum), until paid. Once payment is made and received, the carrying cost will cease as to that payment only. The maximum time allowed to pay for this 100,000 gallons will be 24 months. In the event default occurs because the $225,000 (plus carrying costs) has not been paid in full by the end of the 24 months, the accompanying Dispute Resolution Agreement, requiring specific performance, will immediately go into effect. After the 24 month period, future penalties will be accessed at the rate of 5% per month on the unpaid balance, or the maximum rate allowed by law should the 5% per month be found to be usurious.

Sellers warrant that the wastewater capacity that is the subject of this contract is suitable for use at 10400 Westpark.

Additionally: After the full and complete purchase as stated above has been completed, Sellers would be agreeable to Buyers purchasing an additional amount of waste water capacity from them should they have it available under the following terms and conditions.

0 to 50,000 gal. = $2.25 per gal. 50,000 to 100,000 gal. = $1.95 per gal. 100,000 to 150,000 gal. = $1.75 per gal.

These prices will be good for any single purchase, or collective purchases paid for within a 30 day period. Otherwise, the prices are not meant to be necessarily cumulative.

The performance of this contract is guaranteed by Downstream Environmental, LLC, the long term Tenant at 10400 Westpark. The remedy for default for either party to this contract is to proceed immediately to remedy the default by specific performance or damages enforced by binding mediation, followed by final judgment and execution of said judgment.

Dated this 2nd day of April, 2001.

Sellers:

Don McGuirt, Trey Wing & Jack Christie

Don McGuirt

Trey Wing

Jack Christie

Buyer:

Downstream Environmental, LLC

By: Mary Wimbish

Mary Wimbish, General Counsel

DISPUTE RESOLUTION PROCEDURES

1. Any party may from time to time call a special meeting for the resolution of disputes that arise under the Operating Agreement. Such meeting shall be held at the Company's offices within three (3) working days of a written request therefor, which request shall specify in reasonable detail the nature of the dispute to be resolved at such meeting. The meeting shall be attended by Representatives of the parties and any other person that may be affected in any material respect by the resolution of such disputes. Such Representatives shall have authority to settle the dispute and shall attempt in good faith to resolve the dispute.

2. If the dispute has not been resolved within five (5) working days after the special meeting has been held, a mediator, mutually acceptable to the parties and experienced in limited liability governance and interpretation shall be appointed. The cost of the mediator shall be shared by the parties. The mediator shall be given any written statements of the parties and may review the site and any relevant documents. The mediator shall call a meeting of the parties affected by such dispute within ten (10) working days after his/her appointment, which meeting shall be attended by Representatives of such parties with authority to settle such dispute. During such ten day period the mediator may meet with the affected parties separately.

3. No minutes shall be kept and the comments and/or findings of the mediator, together with any written statements prepared, shall be nonbinding, confidential, and without prejudice to the rights and remedies of any party. The entire mediation process shall be completed within twenty (20) working days of the date upon which the special meeting referred to in paragraph 2 is held, unless all of the parties involved in the dispute agree otherwise in writing. If the dispute is settled through the mediation process, the decision will be implemented by written agreement signed by all the parties involved.

4. Any controversy or dispute not resolved through nonbinding mediation shall be settled by binding arbitration. Either party may initiate arbitration by giving written notice to the other party after exhausting the mediation procedures referred to above. The notice shall state the nature of the claim or dispute, the amount involved, if any, and the remedy sought.

5. The dispute shall be submitted to an independent arbitrator mutually selected by the parties. If the parties do not mutually agree on an arbitrator who is willing and able to serve, the parties shall then utilize AAA or another recognized alternate dispute resolution organization acceptable to the Company and the affected Member(s) to provide an independent arbitrator. The decision of the appointed independent arbitrator shall be final and binding on the parties to the dispute, and may be enforced in any Court having jurisdiction. In rendering a decision, the arbitrator shall comply with the Commercial Arbitration Rules of the American Arbitration Association in effect as of May, 1992. The arbitrator shall have no direct or indirect social, political, or business relationship of any sort with any of the parties or their respective legal counsel, or anyone else having a material role in the arbitration.

4-3-01

4/3/01

Attachment 28b

4-3-01

REVISED

LEASE AGREEMENT

LANDLORD: Group Two Partners, LLP
TENANT: Downstream Environmental, LLC

1. **Rent** - $5,000.00 per month, plus 5% rent increase each year thereafter. Rent due date - 1st day of each month. See: Attached Rent Schedule. Late fee: $250.00 if paid later than the 15th of the month.

2. **Term**: April 2, 2001 through April 2, 2021.

3. Kind of Lease - **20 year commercial lease with an option to purchase at the end of 20 year term for $1.00.** Landlord: Group Two Partners, LLP - Tenant: Downstream Environmental, LLC.

4. Purpose – the permitted purpose for the Tenant's use of the subject property shall be for the construction, operation and maintenance of a commercial non-hazardous liquid waste disposal facility, including attendant waste water disposal operation. Any subsequent use of the property by the Tenant for any purpose inconsistent with such stated purpose, shall be undertaken only with the prior written consent of the Landlord, which Landlord shall not unreasonably withhold.

5. Property: 2.5 acres at **10400 Westpark, Houston, Texas**.

6. Special Provisions - Storm water, wastewater **impact fees** and TNRCC permits/registrations to be paid by Tenant during lease term according to Tenant's need. Tenant may modify, amend, or increase wastewater permits and capacity as needed, at Tenant's expense. Impact fees, once paid, are non-transferrable by Tenant and inure to the benefit of Landlord.

7. Strict Obligation by Tenant to Maintain all **Permits** in good standing.

8. Strict obligation by Tenant to maintain TNRCC registrations and permits including payment of **Closure bond**.

9. **Option to Purchase** - Tenant has the option to purchase subject property for $1.00 at the end of this 20 year lease, provided Tenant has fulfilled the obligations of this 20 year lease.

10. **No encumbrances** (liens) that would interfere with Tenant's use, by Warranty of Landlord.

LANDLORD _____
TENANT _____

11. **Deposit** - $10,000.00 deposit required from Tenant which is credited as the first month's rent and an account with $5,000.00 held in reserve for taxes , legal fees and partnership filing fees.

12. Documents pertaining to **TNRCC permits** shall be provided to Tenant or Landlord, upon request of either party, time is of the essence.

13. **Credit worthiness** of Tenant - May be investigated by Landlord - documents and references available upon request, time is of the essence.

14. **Real estate taxes** and assessments - After date of this Lease are to be paid by Tenant. Prior to date of Lease are to be paid by Landlord or Seller. Provided, however, that if lease is executed after the date of closing on purchase of real property by Landlord, then liability for real estate taxes and assessments shall be pro-rated back to date of closing, and Tenant shall be responsible for any real estate taxes and assessments occurring after date of closing.

15. Operating Expenses - Including **utilities**, cost of maintaining the road and all improvements shall be the obligation of the Tenant.

16. There will be no future **encumbrances** or mortgage of real estate by Landlord, without Tenant's written consent, which will not be unreasonably withheld.

17. **No assignment**, pledge or sale of this Lease by Landlord, without written consent of Tenant, which will not be unreasonably withheld.

18. All pre-existing, recorded or unrecorded, asserted or unasserted, disclosed or undisclosed, mortgages, **M&M liens**, or other debts arising out of the improvement of the real estate prior to date of this Lease, is the responsibility of Landlord, and if remains unpaid or in default, may be paid by Tenant and lease payments offset in the amount paid.

19. It is the obligation of Landlord to pay **personal income tax liens** or any other liens, filed against the property on account of the Landlord's debt.

20. This **Lease and Option to Buy is to be recorded** in real property records, and all purported purchasers or lien holders asserting an interest in the realty shall have notice of this Lease and their claims shall be subject to the rights of Tenant.

21. **Improvements** and Betterment of the property shall be made by the Tenant at the Tenant's expense for the purpose of the operation of a commercial non-hazardous liquid waste disposal facility.

LANDLORD ____
TENANT ____

22. All **improvements** and betterments shall be approved in advance by Landlord, approval to be given promptly (within 5 business days) and not to be unreasonably withheld.

23. Any and all tax assessments for local improvements and betterments necessary to operate liquid waste disposal facility shall be paid by Tenant. **Personal property taxes shall be paid by Tenant.**

24. This lease is for use of the surface. The **mineral rights** are retained by Landlord. Landlord shall not convey or lease the mineral rights in any way that would interfere with the Tenant's use of the surface.

25. Any and all assessments or **TNRCC fees** shall be paid by Tenant.

26. Environmental contamination:

    a. Caused by Tenant or Tenant's wastewater operation is the liability or responsibility of Tenant.

    b. That was pre-existing prior to the date of this Lease is the liability and responsibility of Tenant.

27. Acts of **sabotage or pollution** by third parties other than Tenant, which causes temporary shutdown of Tenant's operations, will not suspend the Lease payments and the clean-up shall be the responsibility of Tenant.

28. Tenant is responsible for security and sampling procedures to minimize risk of **sabotage** and/or pollution by third parties.

29. **Repairs** - It is the Tenant's obligation to keep and maintain the leased premises in good order and maintain and repair existing improvements.

30. Compliance with Laws - Tenant shall comply with all laws and **TNRCC regulations**. Landlord warrants that all laws and regulations have been complied with to date.

31. Tenant will pay all annual property taxes, assessments for **streets**, sidewalks, improvements, permit renewal fees, flood impact fees, **TNRCC closure bonds**, and performance bonds related to the wastewater disposal operation. Payment shall be paid directly to the taxing authority.

32. Any disputes arising under or out of this agreement shall be subject to binding mediation in accordance with a **mediation agreement** attached.

33. **Confidentiality** - All matters herein will be kept strictly confidential.

LANDLORD _____
TENANT _____

34. Confidentiality and **Non-Compete Agreement** attached hereto shall be signed by all parties. Landlord will not compete with Tenant directly or indirectly in the liquid waste industry.

35. **Default** - Occurs after the rent us late for 60 days and Landlord Tenant written notice by certified mail, return receipt requested, and gives Tenant 90 days after receipt of notification to cure. All disputes related to default, eviction and possession of real property and/or personal property, shall be resolved by following the binding mediation procedure agreed to in the attached mediation agreement. Texas Landlord/Tenant Law shall be applied, save and except the 60 day default rule and 90 days to cure rule as stated above.

36. Tenant covenants and agrees that Tenant, its agents, employees and invitees, shall not use nor permit the use of the premises in any manner that results in a **violation** of any ordinance, regulation or law.

37. Landlord expressly disclaims any **warranty of suitability**. Tenant expressly agrees to lease the property "as is", whether suitable or not, and expressly **waives the implied warranty of suitability**.

38. Tenant has the **right to sublease** all or any portion of the leased premises during the term of this lease, with the Landlord's consent, not to be unreasonably withheld.

39. Tenant shall have the right at any time and from time to time during the term of this **lease, construct or build buildings** and other improvements on the leased premises, and correct and change the contour of the leased premises, subject to the following general conditions:

    1. The **cost of work** shall be borne and paid for by Tenant.

    2. The leased premises shall at all times be kept free from **mechanic's and materialmen's liens** or other debts of the Tenant.

    3. The **Landlord's consent shall be required** in order for the **Tenant to build** any improvements contemplated under this provision. The Landlord shall be given reasonable notice of the general nature of any work to be commenced, and furnished plans and permits.

    4. The **Landlord's consent shall be required** in order for the Tenant **to remove** any of the improvements or the foundations or footings thereof, which are situated on the subject property.

LANDLORD ____
TENANT ____

40. In the event of **Tenant's default**, any and all buildings, improvements, additions, alterations, and fixtures, (except furniture, equipment, tanks and trade fixtures), constructed, placed, or maintained on any part of the leased premises during the lease term shall be considered part of the real property of the premises and shall remain on the premises and become the property of Landlord. Provided, however, that in the event of such default, Tenant shall be entitled to a credit for the reasonable fair market value of any and all Tenant improvements, buildings, additions, alterations and fixtures which in such circumstances remain with the property and premises, subject, however, to a reduction in such allowable amount to the extent of the amortization of such improvements which would be allowable if the same had been capitalized for federal income tax purposes under the Internal Revenue Service regulations then in effect. Such credit shall be deducted from the amount of rents or other charges owing by Tenant to Landlord, and if such amount exceeds the total amount of rents and/or other charges owing by Tenant to Landlord, then the balance due thereon shall be payable by Landlord to Tenant on or before one (1) year from date of default. Fair market value hereunder shall be determined by certified appraisal method mutually agreeable to Landlord and Tenant. In the alternative to the above procedure, at the option of the Landlord, Landlord may within one (1) year from the date of default elect to sell the subject property, and, out of the net proceeds thereof, Landlord shall first be entitled to receipt of Landlord's full costs in and to the subject property, including purchase price and all subsequent costs, plus interest upon the same at the rate of 10% per annum from date of costs incurred. The balance of such net receipts from sales shall be split between the Landlord and Tenant, 10 % being payable to the Landlord and 10 % being payable to the Tenant. For purposes of this provision, Landlord shall have elected such sales option by having listed the property for sale with a licensed real estate broker on or before one (1) year from date of default, irrespective of the date of contract and closing.

41. Tenant shall have the **right** at any time during Tenant's occupancy of the leased premises, or within a reasonable time thereafter, **to remove** any and all furniture, machinery, equipment or other trade fixtures, owned or placed by Tenant, its sublessees or licensees, in, under or on the leased premises, or acquired by Tenant, whether before or during the lease term.

42. Tenant may, at any time and from time to time, **encumber the leasehold interest**, by deed of trust, mortgage, or other security instrument, after obtaining the consent of Landlord, but no such encumbrance shall constitute a lien on the fee title of Landlord, and the indebtedness secured by the encumbrance shall at all times be and remain inferior an subordinate to all the conditions, covenants, and obligations of this lease and to all of the rights of Landlord under this lease. References in this lease to "Lender" refer to any person or entity to whom Tenant has encumbered its leasehold interest.

LANDLORD ___
TENANT ___

43. At any time after execution and recordation in Harris County, Texas, of any mortgage or deed of trust encumbering Tenant's leasehold interest, **Lender shall notify Landlord** in writing that the mortgage or deed of trust has been given and executed by Tenant and furnish Landlord with the address to which it desires copies of notices to be mailed. Landlord must mail to Lender and to any agent or representative designated by Lender, at the addresses given, duplicate copies of all written notices which Landlord gives or serves on Tenant under and pursuant to the terms and provisions of this lease after the receipt of such a notice from Lender.

44. Landlord and Tenant agree that they will neither modify nor **terminate this lease by mutual consent** without the written consent of Lender, if requested by the Tenant. This provision shall be applicable to the extent, and only to the extent, that any such modification or termination would constitute a material default under the terms of the mortgage or deed of trust set out in paragraph 42 above.

45. In the event that the leased premises is **damaged or destroyed** by contamination, regardless of the extent of such damage or destruction, Tenant shall have the obligation, to clean up the contaminated property and at the same time pay rent under this Lease, even if contamination renders the property useless or valueless.

46. Tenant shall not cause or permit any **mechanics' liens** or other liens to be filed against the fee of the leased premises or against Tenant's leasehold interest in the land or any buildings or improvements on the leased premises by reason of any work, labor, services, or materials supplied or claimed to have been supplied to Tenant or to anyone holding the leased premises or any part of them through or under Tenant. If such a mechanic's lien or materialmens' lien is recorded against the leased premises or any buildings or improvements on the premises, Tenant shall either cause the same to be removed, or, if Tenant in good faith desires to contest the lien, take timely action to do so, at Tenant's sole expense. IF Tenant contests the lien, Tenant agrees to indemnify Landlord and hold Landlord harmless form all liability for damages occasioned by the lien or the lien contest and shall, in the event of a judgment of foreclosure on the lien, cause the lien to be discharged and removed prior to execution of the judgment.

47. In the event the leased premises or a substantial portion of the leased premises are taken for public purposes by **condemnation** of any kind, this lease is terminated.

48. Tenant may, with the Landlord's consent, **sell or assign its leasehold** estate in its entirety or any portion of it, or may sublet the leased premises or any portion of them or any portion of any building or other improvement erected on the premises, at any time and form time to time, and the rights of Tenant, or any successor or assignee of Tenant, may pass by operation of law. It is agreed, however, that each such transfer, assignment, or sale shall be subject to the obligations to Landlord as set forth in this lease, and shall not release Tenant of Tenant's obligations under this lease.

LANDLORD ____
TENANT ____

49. Landlord hereby represents and warrants that it is the owner in **fee simple** absolute of the leased premises, subject to the covenants, conditions, restrictions, easements, and other matters of record.

50. Should Landlord, during the lease term hereof, attempt to sell all or any portion of the leased premises or any portion of the entire tract of which the leased premises are a portion, Tenant shall have the **right of first refusal** to meet any bonafide offer of sale on the same terms and conditions of such offer, and upon failure to meet such bonafide offer within ten (10) days after written notice from Landlord, Landlord shall be free to sell the premises or a portion of it to the third person in accordance with the terms and conditions of the offer, subject to Tenant's continuation of a leasehold estate granted by this lease.

51. Tenant shall permit Landlord or Landlord's agents, representatives, or employees to **enter on the leased premises** for the propose of **inspection**, determining whether Tenant is in compliance with the terms of this lease, maintaining, repairing or altering the premises, or showing the leased premises to prospective tenants, purchasers, mortgagees, or beneficiaries under trust deeds.

52. The relationship between Landlord and Tenant at all times shall remain solely that of landlord and tenant and not be deemed a partnership or a joint venture. The attorney for the Landlord is Paul Hlavinka. The attorney for the Tenant is Mary Wimbish. The **attorneys' conflicts of interest** are disclosed and waived by the parties in consideration for reducing the cost of this transaction for the Landlord and the Tenant. This paragraph shall not in any way serve to restrict the ability of Paul T. Hlavinka to provide legal services, for charge, to the Landlord, for a reasonable fee, on an as needed basis, notwithstanding any provisions in the Landlord's limited liability partnership agreement to the contrary.

53. Neither Landlord or Tenant's **bankruptcy, insolvency**, assignment of the benefit of creditors, nor the appointment of a receiver shall affect this lease.

54. It is expressly agreed and understood by the parties that this lease is to be construed as a "triple net lease" and that the Landlord shall not be liable nor responsible for the payment of any taxes, assessments, rentals, liability for construction of improvements, hazardous waste remediation, casualty losses, or any other payment of any kind or nature, except as may be expressly and unambiguously set out under the terms of this lease.

55. All rents or other sums, **notices**, demands or requests from one party to another may be personally delivered or sent by mail to the addresses stated herein for Landlord or Tenant as follows: Mary Wimbish, Attorney, Downstream Environmental, LLC, 2044 Bissonnet, Houston, Texas 77005 and Paul Hlavinka, Attorney, Group Two Partners, LLP, 2044 Bissonnet, Houston, Texas 77005.

LANDLORD ____
TENANT ____

56. This agreement shall be **binding** upon and inure to the benefit of the parties to the lease and their respective heirs, executors, administrators, legal representatives, successors and assigns.

57. This agreement shall be **construed** under and in accordance with the laws of the State of Texas, and all obligations of the parties created by this lease are performable in Harris County, Texas.

LANDLORD:

GROUP TWO PARTNERS, LLP

TOBIAS M. HLAVINKA

MARY WIMBISH

PAUL T. HLAVINKA

WILLIAM PAGE

RANDALL L. SULLIVAN

TENANT:

DANIEL G. NOYES, PRESIDENT
DOWNSTREAM ENVIRONMENTAL, LLC by permission

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LANDLORD:

GROUP TWO PARTNERS, LLP

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MARY WIMBISH

PAUL T. HLAVINKA

WILLIAM PAGE

Randall L Sullivan

RANDALL L. SULLIVAN

TENANT:

DANIEL G. NOYES, PRESIDENT
DOWNSTREAM ENVIRONMENTAL, LLC

EXHIBIT "A"

TRACT I

METES AND BOUNDS DESCRIPTION
2.5231 ACRES (109,906 SQUARE FEET)
RESTRICTED RESERVE "D"
WILCREST GREEN, SECTION THREE
HARRIS COUNTY, TEXAS

BEING a 2.5231 acre (109,906 square foot) portion of Restricted Reserve "D" of Wilcrest Green, Section Three, a subdivision recorded in Film Code No. 397067 of the Map Records of Harris County, Texas; said 2.5231 acre tract being more particularly described by metes and bounds as follows:

BEGINNING at a 5/8-inch iron rod found at an interior "L" corner of the southerly line of said Restricted Reserve "D";

THENCE crossing said Restricted Reserve "D" along and with the following six (6) courses:

NORTH 82°59'43" East, a distance of 25.40 feet to a 5/8-inch iron rod set;

NORTH 07°54'42" East, a distance of 239.86 feet to a 5/8-inch iron rod set;

NORTH 86°36'50" East, a distance of 180.56 feet to a 5/8-inch iron rod set in the west line of that certain called 20-foot wide sanitary sewer and access easement described under Harris County Clerk's File No. G203077 and G203079;

SOUTH 05°21'48" West, along and with said easement west line, a distance of 322.58 feet to a 5/8-inch iron set;

SOUTH 02°42'29" East, a distance of 188.72 feet to a 5/8-inch iron rod set;

SOUTH 82°48'18" West, at 50.00 feet passing a 5/8-inch iron rod found at the northeast corner of a Lift Station Site recorded under Harris County Clerk's File No. H819158, and continuing on along the north line of said Lift Station Site and the south line of said Restricted Reserve "D" for a total distance of 98.00 feet to a 5/8-inch iron rod found at the northwest corner of said Lift Station Site;

THENCE SOUTH 07°38'13" East, along and with the west line of said Lift Station Site, a distance of 75.00 feet to a 5/8-inch iron found at the southwest corner of said Lift Station Site;

THENCE SOUTH 82°48'18" West, along and with the southerly line of said Restricted Reserve "D", a distance of 115.01 feet to a 5/8-inch iron rod found at an exterior "L" corner of said Restricted Reserve "D" southerly line;

THENCE NORTH 02°32'12" West, along and with said Restricted Reserve "D" southerly line, a distance of 359.70 feet returning to the **PLACE OF BEGINNING**, and containing 2.5231 acres of land.

TRACT II

BEGINNING at a 5/8-inch iron rod found in the south right-of-way line of Westpark Drive (100 feet wide) at the northwest corner of said Restricted Reserve "D", same being the northeast corner of Restricted Reserve "C", Wilcrest Green, Section 3, a subdivision recorded in Volume 316, Page 74 of the Map Records of Harris County;

THENCE along and with said south right-of-way line of Westpark Drive and a curve to the right having a Central Angle of 01°45'39", a Radius of 1950.00 feet, an Arc Length of 59.93 feet, and a Chord Length of 59.93 feet Bearing North 81°57'29" East to a 5/8-inch iron rod set;

THENCE crossing said Restricted Reserve "D" along and with the following ten (10) courses:

ALONG and with a curve to the left having a Central Angle of 41°20'37", a Radius of 35.00 feet, an Arc Length of 25.26 feet, and a Chord Length of 24.71 feet Bearing South 17°57'49" West to a 5/8-inch iron rod set;

SOUTH 02°42'29" East, a distance of 71.56 feet to a 5/8-inch iron rod set;

ALONG and with a curve to the right having a Central Angle of 32°12'08", a Radius of 311.00 feet, an Arc Length of 174.79 feet, and a Chord Length of 172.50 feet Bearing South 13°22'43" West to a 5/8-inch iron rod set;

ALONG and with a curve to the left having a Central Angle of 122°51'57", a Radius of 99.02 feet, an Arc Length of 212.34 feet, and a Chord Length of 173.93 feet Bearing South 31°57'11" East to a 5/8-inch iron rod set;

NORTH 86°36'50" East, a distance of 82.49 feet to a 5/8-inch iron rod set;

SOUTH 07°54'42" West, a distance of 49.91 feet to a 5/8-inch iron rod set;

ALONG and with a curve to the left having a Central Angle of 101°17'52", a Radius of 15.00 feet, an Arc Length of 26.52 feet, and a Chord Length of 23.20 feet Bearing North 42°44'14" West to a 5/8-inch iron rod set;

SOUTH 86°36'50" West, a distance of 58.00 feet to a 5/8-inch iron rod set;

ALONG and with a curve to the right having a Central Angle of 122°51'57", a Radius of 130.02 feet, an Arc Length of 278.82 feet, and a Chord Length of 228.38 feet Bearing North 31°57'11" West to a 5/8-inch iron rod set;

NORTH 60°31'13" West, a distance of 10.00 feet to a 5/8-inch iron rod set in the west line of said Restricted Reserve "D", same being the east line of said Restricted Reserve "C";

THENCE along and with the line common to said Restricted Reserve "C" and said Restricted Reserve "D", the following three (3) courses:

ALONG and with a curve to the left having a Central Angle of 32°12'08", a Radius of 270.00 feet, an Arc Length of 151.75 feet, and a Chord Length of 149.76 feet Bearing North 13°22'43" East to a 5/8-inch iron rod found;

NORTH 02°42'29" West, a distance of 80.17 feet to a 5/8-inch iron rod found;

NORTH 50°43'41" West, a distance of 13.38 feet returning to the **PLACE OF BEGINNING**, and containing 0.4759 of one acre (20,732 square feet) of land.

50-23-1937

PART I

(8) PROPERTY OWNER'S AFFIDAVIT AND STATEMENT OF APPLICANT

Ownership: Group Two Partners, LLP
Lessor: Group Two Partners, LLP
Lessee: Downstream Environmental, LLP
Term of Lease: 20 years

Attached:
Property Owner's Affidavit
Statement of Applicant

Completely Revised
08/09/02

PROPERTY OWNERS AFFIDAVIT

I, Mary Wimbish, authorized agent for DOWNSTREAM ENVIRONMENTAL, LLC, the owner of record of the property described as:

> Approximately 2.5 acre portion of Section 3, Reserve D, Wilcrest Green in Harris County, Houston, Texas, Plat of subject property is attached as Exhibit "A" and "B", along with metes and bounds description. Referred to on Exhibit "A" as tract 2, 109,406 sq.ft., 2.5231 acres. See survey.

have all rights and covenants to lease, rent, sell, or grant an option to DOWNSTREAM ENVIRONMENTAL, LLC, the property described.

I acknowledge and am aware that DOWNSTREAM ENVIRONMENTAL, LLC plans to file for a Type 5GG registration and Type 5GG permit to operate a non-toxic liquid waste processing facility upon said property.

I acknowledge that the State of Texas may hold the undersigned and DOWNSTREAM ENVIRONMENTAL, LLC, either jointly or severally responsible for the operation, maintenance, and closure of the facility.

I acknowledge that DOWNSTREAM ENVIRONMENTAL, LLC and the State of Texas shall have access to the property during the active life of the facility and for a period of up to five years after closure for the purpose of inspection and maintenance.

IT IS AGREED by DOWNSTREAM ENVIRONMENTAL, LLC, that the actual operations of a waste treatment facility will not commence prior to DOWNSTREAM ENVIRONMENTAL, LLC's closing of the purchase of the property in question scheduled for October 1, 2000.

WITNESS MY HAND on this day, 19th January, 2001.

Mary Wimbish

Mary Wimbish, Authorized Agent for
Property Owner, DOWNSTREAM ENVIRONMENTAL

Subscribed and Sworn to before me, by the said Mary Wimbish, this 19th day of January, 2001, to certify which witness my hand and seal of office.

Notary Public in and for
The State of Texas
County of Harris

My Commission Expires on: 1/26/01

GWEN S. ALLEN
NOTARY PUBLIC
STATE OF TEXAS

00057

PART I

(9) LEGAL AUTHORITY

(A) Applicant is a Texas Limited Liability Company.

Attached:
Articles of Incorporation
Name Change

(B) List of persons owning 20% or more of the proposed facility:
Dan Noyes
Mary Wimbish

Completely Revised
08/09/02

The State of Texas
Secretary of State

CERTIFICATE OF AMENDMENT

FOR

DOWNSTREAM ENVIRONMENTAL, L.L.C.

FORMERLY

THE GREASE SPOT L.L.C.
CHARTER NUMBER 07025551

THE UNDERSIGNED, AS SECRETARY OF STATE OF THE STATE OF TEXAS, HEREBY CERTIFIES THAT THE ATTACHED ARTICLES OF AMENDMENT FOR THE ABOVE NAMED ENTITY HAVE BEEN RECEIVED IN THIS OFFICE AND ARE FOUND TO CONFORM TO LAW.

ACCORDINGLY THE UNDERSIGNED, AS SECRETARY OF STATE, AND BY VIRTUE OF THE AUTHORITY VESTED IN THE SECRETARY BY LAW, HEREBY ISSUES THIS CERTIFICATE OF AMENDMENT.

DATED NOV. 19, 1999

EFFECTIVE NOV. 19, 1999

THE STATE OF TEXAS

Elton Bomer, Secretary of State

The State of Texas

Secretary of State

CERTIFICATE OF ORGANIZATION

OF

THE GREASE SPOT L.L.C.

FILING NUMBER 07025551

THE UNDERSIGNED, AS SECRETARY OF STATE OF THE STATE OF TEXAS, HEREBY CERTIFIES THAT THE ATTACHED ARTICLES OF ORGANIZATION FOR THE ABOVE NAMED COMPANY HAVE BEEN RECCIVED IN THIS OFFICE AND HAVE BEEN FOUND TO CONFORM TO LAW.

ACCORDINGLY, THE UNDERSIGNED, AS SECRETARY OF STATE, AND BY VIRTUE OF THE AUTHORITY VESTED IN THE SECRETARY BY LAW, HEREBY ISSUES THIS CERTIFICATE OF ORGANIZATION.

ISSUANCE OF THIS CERTIFICATE OF ORGANIZATION DOES NOT AUTHORIZE THE USE OF A COMPANY NAME IN THIS STATE IN VIOLATION OF THE RIGHTS OF ANOTHER ENTITY UNDER THE FEDERAL TRADEMARK ACT OF 1946, THE TEXAS TRADEMARK LAW, THE ASSUMED BUSINESS OR PROFESSIONAL NAME ACT OR THE COMMON LAW.

DATED APR. 17, 1997

EFFECTIVE APR. 17, 1997

Antonio O. Garza, Jr., Secretary of State

PART I

(10) EVIDENCE OF COMPETENCY

(A) The Applicant is Downstream Environmental, LLC, formerly The Grease Spot, LLC, was registered with the Texas Natural Resource Conservation Commission as an innovative processor of grease and/or grit trap waste for disposal. A pilot plant referred to as the "Grease Pilot Plant Project", Permit No. 10134-02 TNRCC Log No. 108/080, City of Pearland Texas, Liquid Waste Treatment Plant. It operated at the City of Pearland's WWTP on Barry Rose Road. Applicant's permission granted by the TNRCC for innovative treatment methods was for two years (1997-1999) ending May, 1999. Applicant has a Type V Registration at the same location that is the subject of this application, address: 3737 Walnut Bend, Houston, TX 77042, MSW No. 43008. The facility on Walnut Bend is under construction and near completion There are no out-of-state facilities owned or operated in which the applicant or its owners have a financial interest.

(B) The principals involved are Mary Wimbish and Dan Noyes of Downstream Environmental, LLC. Downstream Environmental, LLC has owned and operated a solid waste facility within the State of Texas within the last ten years.

(C) Mr. Dan Noyes has extensive experience in municipal wastewater and solid waste industry services. Mr. Noyes has not owned a solid waste treatment plant in the state of Texas and Mary Wimbish has not owned or operated a solid waste treatment facility in the state of Texas in the last ten years.

(D) Names of Key Personnel at the site: Dan Noyes
George W. Noyes

(E) **Attached**:
Resume of Dan Noyes
Resume of George Noyes
Letters of Qualification
MSW Type V Registration No. 43008

DAN G. NOYES
Environmental Specialist
1709 Crestdale
Houston, Texas 77080 (713) 827-8507

EDUCATION

Texas A&M University - Studies Industrial Engineering 1970-1974

AREAS OF EXPERTISE

Water Treatment
Wastewater Permits
Water Permits
Wastewater Treatment
System Evaluation
Wastewater Operation
Sludge Processing
Water Operation
Pumping Systems
Disinfection Design
Project Management
Control Systems Design

PROFESSIONAL EXPERIENCE

>1996 - The Grease Spot, L.L.C. / Downstream Environmental, L.L.C. - President, Founder. Developed a pilot plant system for the Grease Spot, L.L.C. to process non-hazardous transportable waste. This research and development company is currently embarking upon operating its first small commercial plant in West Houston.

1989 - present: Noyes & Associates, Inc. - President, Founder. Designed, engineered, manufactured, and applied water and wastewater treatment and transfer technology. Developed bids and proposals. Invented new technology, most notable being the One Moving Part Plant, the Dynamic Membrane BioReactor, The Kinetic Pump Having a Centerless Impeller, and High Efficiency Gas Entrainment Process. Developed markets in Mexico and across the United States. Recognized as the 25th fastest growing business in 1994; the 18th in 1995 by the Houston Chamber of Commerce.

1985 - 1989: Metro/Quip South, Inc. - President, Founder. Manufacturer's representative in the area of municipal wastewater equipment. Grew business from single man operation with 4 principals to a small company with 6 employees with 34 principals with a n annual sales volume of $9 million per year.

1978-1981: Red-Alert Service - Obtained B Class Wastewater Operator's Classification. Operated and maintained municipal and industrial package wastewater treatment plants and collection systems. Provided emergency service and trouble shooting for treatment processes.

1976 - 1985: George W. Noyes & Associates, Inc. - Sales Engineer Representative. Initially responsible for valve sales development in power generating boilers and petroleum heaters. Major accounts included ENTEC, Inc. and ARAMCO. Later sales efforts were broadened to include the wastewater treatment and transfer market. Major accounts were the City of Austin, City of Houston, City of Corpus Christi, and the Rio Grande Valley. Set sales records in the field of Wastewater pumping systems. Water and wastewater systems sales, design and manufacturing were later incorporated.

1975 - 1976: Copes-Vulcan, Division of White Consolidated Industries, Inc. Operated as a field technical engineer, supervising startup of boiler systems. Significant projects include the Bruce Mansfield Power Plant in Shippingsport, Pa., the Union Camp Paper mill in Savannah, Ga., and Salem Nuclear Power Plant in Salem NJ.

NOTABLE DEVELOPEMENTS

Development of Dynamic Membrane BioReactor

Development of One Moving Part Treatment Plant

Development of the Kinetic Pump having a Centerless Impeller

Development of High Efficiency Process to Entrain Gas into Solution

Development of Electrocoagulation e-Cell technology

First Small Clarifier Design to Utilize Maintenance Free Enclosed Gearbox

Development of Automatic Backwash Filter without Valves or Pumps

Assisted in Writing of City Standards for the City of Austin Lift Station Design and Odor Control

Assisted in Writing Wastewater Treatment Plant Design Criteria for the Texas Natural Resource Conservation Commission

Instructor at the Texas A&M Short School for Waste Treatment Plant Operator Certification

PROJECTS OF MERIT

SUPERFUND P.A.B. SITE IN ABBEYVILLE, LOUISIANA - This project was necessitated from Barium pollution in 6,000,000 gallons of water held in ponds from drilling waste. Conventional technology had been used over the last 5 years and unable to clean the site to EPA mandates. A 200 GPM Electocoagulation e-Cell system was designed built and utilized to perform the task in less than 6 weeks.

CLINICA MEXICO - The IMSS (Social Security in Mexico) provides hospitals across Mexico for free medical service. The IMSS was given the directive to discharge clean wastewater to EPA standards. The design problem was specific to the fact that the was no room for conventional technology. An 85,000 GPD DMR tank was designed, manufactured, and installed in an area less than 500 square feet. The unit provides treatment efficiency in excess of 99.5%, surpassing the requirements of the IMSS.

TEXAS WOMEN'S CORRECTIONAL INSTITUTE - Emergency requirements for increased prison space resulted in new correctional institution construction. This installation, located 50 miles south of San Antonio, needed wastewater treatment capacity, as there was none available. A complete wastewater treatment facility was designed, constructed, and permitted in less than 6 weeks.

SAKARA VECTOR 4, PHASE 3, AIR FORCE BASE IN EGYPT - Twenty complete package lift stations were designed, manufactured, and tested in eight weeks. The lift stations provided complete wastewater transfer capability for a new Air Force base. Noyes and his company to government requirements in Egypt provided supervision of installation and complete technical support.

Resume Of
GEORGE W. NOYES

PERSONAL:

George W. Noyes
16 W. Rivercrest
Houston, Texas 77042

Registered Professional Engineer
Texas - 8675
Louisiana - 6760

EDUCATION:

College: Texas A&M: BS Electrical Engineering

PROFESSIONAL:

'66 - Present Self-employed – Engineering and sales of sewage treatment equipment, sewage pump stations, sewage process equipment. These jobs involve the design and manufacture of equipment as well as assistance in the engineering of the total plant project. Design of the plants included process and electrical design of power and control systems for the proper operation of the components. The electrical design mainly was 480 V systems including layout of motor control centers, lighting and control systems. Plants ranged from 50 to as high as 2000 Hp total connected load. Designed electrical systems for water systems including wells, emergency generators with associated controls and auto transfer switches.

'60 - '65 Johnson and Associates, Inc. – Engineering and sales of pressure switches, control valves and the design of control systems for their use. Systems were designed for the electric utilities and the municipal utility districts.

'58 - '59 Self-employed – Electrical engineering for shopping centers, grocery stores and small manufacturing plants.

'56 - '57 Varec – Engineering and sales of telemetering systems for automatic custody transfer of petroleum products.

'51 - '55 Brown & Root – Electrical design of power and lighting systems for clients in the Petro-Chem, Paper Mill and Pipe Line industries. Included were Creole Petroleum, Southland Paper Mills, United Gas Pipe Line, Ceylonese Petro-Chem.

Attachment 16

'49 - '50	Bernard Johnson Engineers – Electrical design for numerous commercial buildings, churches and shopping centers.
'46 - '48	Self-employed – Engineering and layout of distribution systems for Southwestern Bell, Exxon, Gulf and Texaco.
'41 - '45	U.S. Army - Various assignments in USA, England, Africa, Sicily and Italy.

February 22, 2000

Mike Graeber
Texas Natural Resource Conservation Commission
12100 Park 35 Circle, Mail Code 124
Austin, Texas 78753

Reference: The Grease Spot, L.L.C Type V Registration Application

Dear Mr Graeber:

I have worked in the waste and wastewater treatment industry since 1981. I have known Dan Noyes since the mid 1980's. In that time, the advancements he has brought to the waste treatment industry, his designs and processes, while revolutionary when introduced, have become standards of the industry. The hallmark of his designs is that they work.

He has designed and built hundreds of waste treatment facilities in Texas and around the world. In many cases, plants were designed, built and installed, exceeding the design performance requirements, where conventional wisdom dictated that the job just could not be done.

Last year, I visited the pilot plant for grease trap waste and in the final design, saw what a pilot plant processing the grease trap waste producing stable waste sludge, clear water, and substantially no odors. The performance shattered the commonly accepted norms. The BOD5 and TSS discharge levels were below 100 mg/l. This compares to normal commercial plant effluent of 6,000 to 15,000 mg/l. FOG discharge levels were below 5 mg/l! To my knowledge, no plant has achieved this level of performance efficiency.

People have a choice. Dan Noyes has not settled on the easy way, the status quo. He has always chosen to improve existing technology and to go beyond what is required. In the future, if we are to protect our children and our environment, we must encourage and support innovators such as Dan Noyes. I strongly urge your office and the TNRCC to approve the application of The Grease Spot, L.L.C. registration and to recognize the significant contribution to cleaning the environment that this plant and its technology mean.

Sincerely,

David Alston

ecoloquip users list

Lift Stations Installation List

► No-Vault™ Submersible Lift Stations

- West Harris Co. M.U.D. #11 Willow Bridge Houston, Texas No-Vault™ Submersible Lift Station - Duplex 10hp., Non-Clog
- West Harris Co. M.U.D. #11 Willow Bridge Houston, Texas No-Vault™ Submersible Lift Station - Duplex 10hp.
- West Harris Co. M.U.D. #11 Willow Lake Houston, Texas No-Vault™ Submersible Lift Station - Duplex 10hp.
- West Harris Co. M.U.D. #11 Westbridge Houston, Texas No-Vault™ Submersible Lift Station - Duplex 5hp.
- West Harris Co. M.U.D. #11 Winchester Village Houston, Texas No-Vault™ Submersible Lift Station - Duplex 3hp.
- City of Baytown UPS Lift Station No-Vault™ Submersible Lift Station - Duplex 2hp.
- City of Morgan's Point WWTP Lift Station Morgan's Point, Texas No-Vault™ Submersible Lift Station - Triplex 7.5hp
- Harris Co. M.U.D. #21 Storm Water Lift Station Houston, Texas No-Vault™ Explosion Proof Submersible Lift Station - Duplex 3hp.
- Williamsburg M.U.D. #63 Albertsons Houston, Texas No-Vault™ Submersible Lift Station - Duplex 20hp.
- Cyclone Enterprise Houston, Texas No-Vault™ Submersible Lift Station - Duplex 20hp.
- Lake Wood Elementary Houston, Texas No-Vault™ Submersible Lift Station - Duplex 2hp.

► Package Submersible Grinder Lift Stations

- Bechtel Ethyl Lift Station #1 Pasadena, Texas Duplex 2hp., Grinder
- Bechtel Ethyl Lift Station #2 Pasadena, Texas Duplex 2hp., Grinder
- Phillips 66 Pasadena, Texas Duplex 3hp., Grinder
- Phillips 66 Pasadena, Texas Duplex 2hp., Grinder
- Harris Co. El Franco Lee Park Houston, Texas Duplex 2hp., Grinder

ecoloquip

users list

- Mt. Belvieu
  90,000 GPD
- Boulders Carefree, Arizona
  90,000 GPD
- Brazoria Cty., Detention Ctr.
  100,000 GPD
- Vidor I.S.D. & M.U.D.
  25,000 GPD
- Hardin School
  100,000 GPD
- Spicewood - Austin
  500,000 GPD
- Fina Oil & Gas
  10,000 GPD
- North West Harris Co. M.U.D. #5
  500,000 GPD
- Quantum Chemical
  11,000 GPD
- Phillips 66
  1,000 GPD
- Chevron Chemical
  1,500 GPD
- Morgans Point
  300,000 GPD
- Harris Co. M.U.D. #133
  3.0 MGD
- City of Santa Rosa
  42 ft. Clarifier
- District 99
  40 ft. Clarifier
- City of Elsa
  40 ft. Clarifier
- City of Corrigan
  35 ft. Clarifer
- Manning U.D. Concentrator
- ARCO Bio Plant
  16 ft. Flocculator
- Pine Ridge, South Dakota
  Arc Bar Screen
- Toluca, D.F. Mexico
  285,000 GPD
- Cuernavaca, Moreles, Mexico
  3,000 GPD
- Paradise, D.F. Mexico
  78,000 GPD
- Cancun, Mexico
  110,000 GPD
- Acapulco, Guerrero, Mexico
  950,000 GPD
- Campo Espejo, Argentina
  12.0 MGD
- CEAS, D.F. Mexico
  1.4 MGD

ecoloquip users list

- Plains - 45 North 50,000 GPD
- Velsicol Chemical 15,000 GPD
- Bayan Power Plant 10,000 GPD
- Brazos Co. M.U.D. #1 150,000 GPD
- Cypress Klein #111 500,000 GPD
- Harris Co. WC & ID #78 600,000 GPD
- Rancy Country 100,000 GPD
- Highland Country Terrace 50,000 GPD
- Brazoria Co. M.U.D. 100,000 GPD
- Bechtel - Convent, Louisana 12,000 GPD
- Harris Co. M.U.D. #19 35,000 GPD
- City of LaVilla Complete Water Plant
- Gilbert Crest Utilities 225,000 GPD
- Brazoria Co. Subdivision 100,000 GPD
- Nucor Steel 10,000 GPD
- N.W. Pine Mobil Park 100,000 GPD
- Lampliter - Austin 250,000 GPD
- Hermitage Oak Trailer Park 110,000 GPD
- Sommeral 100,000 GPD
- City of Tool Complete Water Plant
- Transco 10,000 GPD
- Brushy Creek South 530,000 GPD
- White Oak - Houston 50,000 GPD
- Richey Rd. M.U.D. 150,000 GPD
- Crossroads - Austin 90,000 GPD
- Bechtel Cities Services 20,000 GPD
- Chasewood U.D. 150,000 GPD
- Woodlake #II 35,000 GPD
- Addicks U.D. Rolling Green #II 100,000 GPD
- Trigg Westland Oil 35,000 GPD
- Southpoint 500,000 GPD
- Harris Co. M.U.D. #16 100,000 GPD
- Highlands Country Terrace 230,000 GPD
- Woodlake 500,000 GPD
- Hiway Water - La Grange 37,500 GPD
- Lakeside Airport 4,000 GPD
- Buttercup 220,000 GPD
- Compaq 100,000 GPD

ecoloquip

users list

Sewage & Water Treatment Plant Clarifiers, Flocculators, Bar Screens & Con-centrators

- Cypress Klein #1 50,000 GPD
- C N P #I 50,000 GPD
- C N P #II 50,000 GPD
- Southwest Chemical & Plastic 12,000 GPD
- Harris Co. WC & ID #110 50,000 GPD
- Bammel U.D. 67,000 GPD
- City of Friendswood 112,500 GPD
- City of Friends 112,500 GPD
- Cypress Klein #II 50,000 GPD
- April Sound 35,000 GPD
- Du Pont - Channelview 15,000 GPD
- Addicks U.D. Rolloing Green #1 100,000 GPD
- Woodlake #1 100,000 GPD
- Nucor Steel #1 10,000 GPD
- Lynes - Houston 15,000 GPD
- Brushy Creek South 100,000 GPD
- Brushy Creek North 100,000 GPD
- Harris Co. M.U.D. #104 100,000 GPD
- Texas Instruments 250,000 GPD
- Diamond Shamrock - Deer Park 15,000 GPD
- Shady Hollow - Austin 100,00 GPD
- Mariner - Houston 5,000 GPD
- Pyramid Derrick 30,000 GPD
- Ports Mansfield 25,000 GPD
- Aldine Forest 25,000 GPD
- Smith Industries - Columbus 50,000 GPD
- Diversified Habitat, Wadsworth 15,000 GPD
- University of Texas Lab - Smithville 50,000 GPD
- Lee Rowe - Office Building 2,000 GPD

ecoloquip

ATTACHMENT 17

ecoloquip users list

➤ *Vacuum Prime Lift Stations* (continued)

- Peace Vector IV - Phase II
  Lift Station 13
  Sakara, Egypt
  Duplex 1hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 14
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 15
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station
  SA11.1
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station SB08
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station SC03
  Sakara, Egypt
  Duplex 1.5hp.,
  Non-Clog Dry Pit

➤ *Package Self Priming Lift Stations*

- City of Bowie
  WWTP Sludge Return
  Bowie, Texas
  Duplex 10hp., Self Priming

- Crystal City
  Detention Center
  Crystal City, Texas
  Duplex 7.5hp.,
  Self Priming

➤ *Package Dry Well - Wet Well Can Lift Stations*

- City of Van Alstyne
  Lift Station
  Van Alstyne, Texas
  Duplex 10hp.- 8 ft. Dia. Can ,
  Non-Clog Dry Pit

- City of Austin
  Davis Springs Lift Station
  Austin, Texas
  Triplex 60hp - 28 ft Can, Non-Clog Dry

- City of Beaver Creek
  Lift Station
  Beaver Creek, Minnesota
  Duplex 15hp.- 8 ft. Dia. Can ,
  Non-Clog Dry Pit

➤ *Package Column Sewage Pump Stations*

- Goodfellow AFB
  Fire Training Center - NPP-1
  San Angelo, Texas
  Duplex 15hp.,
  Vertical Column
  Non-Clog

- Goodfellow AFB
  Fire Training Center - NPP-2
  San Angelo, Texas
  Duplex 15hp.,
  Vertical Column
  Non-Clog

- Goodfellow AFB
  Fire Training Center - NPP-3
  San Angelo, Texas
  Duplex 15hp.,
  Vertical Column
  Non-Clog

- Goodfellow AFB
  Fire Training Center - NPP-4
  San Angelo, Texas
  Duplex 15hp.,
  Vertical Column
  Non-Clog

➤ *Package Submersible Lift Stations*

- City of Trinity
  Lift Station
  Trinity, Texas
  Duplex 15hp,
  Submersible
  Non-Clog

- City of Trinity
  Lift Station
  Trinity, Texas
  Duplex 10hp.,
  Submersible
  Non-Clog

ecoloquip users list

► ***Package Submersible Grinder Lift Stations*** (continued)

- Chemical Services
  Baytown, Texas
  Duplex 2hp., Grinder

- Texas A & M University
  College Station, Texas
  Duplex 2hp., Grinder

- City of Rosenberg
  Rosenberg, Texas
  Duplex 2hp., Grinder

- Pizza Hut
  Shenandoah, Texas
  Duplex 2hp., Grinder

- Montgomery Co. M.U.D. # 18
  Bentwater Section 25
  Lake Conroe, Texas
  Duplex 5hp., Grinder

- Texaco
  Texaco Mart
  Houston, Texas
  Duplex 2 hp., Grinder

- Goodfellow AFB
  Fire Training Center - SP1
  San Angelo, Texas
  Duplex 5hp., Grinder

► ***Vacuum Prime Lift Stations***

- City of LaGrange
  Mobil Home Lift Station
  Duplex 1hp., Non-Clog Dry Pit

- Klein I.S.D.
  Hildebrandt Lift Station
  Duplex 7.5hp; Non-Clog Dry Pit

- Klein I.S.D.
  Wunderlich Lift Station
  Duplex 2hp; Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 1
  Sakara, Egypt
  Duplex 15hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 2
  Sakara, Egypt
  Duplex 20hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 3
  Sakara, Egypt
  Duplex 5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 4
  Sakara, Egypt
  Duplex 1.5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 5
  Sakara, Egypt
  Duplex 3hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 6
  Sakara, Egypt
  Duplex 2hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 7
  Sakara, Egypt
  Duplex 1.5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 8
  Sakara, Egypt
  Duplex 1.5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 9
  Sakara, Egypt
  Duplex 1.5hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 10
  Sakara, Egypt
  Duplex 1hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 11
  Sakara, Egypt
  Duplex 1hp., Non-Clog Dry Pit

- Peace Vector IV - Phase II
  Lift Station 12
  Sakara, Egypt
  Duplex 1hp., Non-Clog Dry Pit

27 January 2000

Mr. Michael D. Graeber
MSW Permits Section
Texas Natural Resources Conservation Commission
P.O. Box 13087
Austin, Texas 78711-3087

Re: MSW Application No. 43006

Dear Mr. Graeber,

This letter is in support of the above registration application. There is opposition from the members of the Our Lady of Czenstochowa Catholic Church. The letters all complain about the facility not being suitable for the residential nature of the neighborhood yet the neighborhood has many schools, hospitals, restaurants, and fast food establishments that produce grease waste that has to be collected by pumper trucks and conveyed to existing overloaded disposal sites. The grease proposed for disposal is being produced in the area already and the trucks required to haul it away are producing traffic impact on the neighborhood. The new facility will only have positive impact on the area. As you know, it is a small totally enclosed plant with state of the art odor control equipment. There will be no nuisance odor produced from this operation, the traffic associated with the hauling of the waste will not be any greater than the current levels of grease hauling from the neighborhood establishments. The obvious benefit being that the trucks will have a far shorter distance to travel causing less pollution and congestion on the freeways.

The proposed grease treatment facility is a step forwards in solid/liquid waste management the implementation of a more advanced technology that will be of benefit to the whole community. Innovation is frequently viewed with suspicion and lack of understanding. Based on experiences with old technology the public can not imagine anything but the old smelly way of doing things and springs into action. NIMBY they yell and yet they have not taken the time to talk to Mr. Noyes about the project or educate themselves about the realities of what they are opposing.

Dan Noyes has spent his 25-year career as an innovator in the wastewater business. He has a proven track record of implementing wastewater facilities in residential areas with no detrimental effect to neighborhoods. As a associate engineer responsible for review and inspection of wastewater package treatment plan and lift stations with the City of Austin in the 80's, I worked with Mr. Noyes on at least a dozen successful projects. Mr. Noyes always brought technical innovation and concern for the impact to the neighborhood on all his projects. The odor control facilities were always a step above what was considered industry standard at the time and the facility were always constructed to minimize visual and noise impacts on the neighborhood. This facility is designed to even higher standards and more advanced technology. There is no reason for the residents to be concerned, they will be getting a good neighbor. Please approve the above mentioned registration.

Very Truly Yours,

Kristina Garwacka

Kristina Garwacka
CEO 3-Waters Technical Services

671 Solana Circle E.
Solana Beach Ca 92075

ATTACHMENT 17

CITY OF HOUSTON
Health and Human Services Departm
8000 N. Stadium Dr. Houston, Texas 77

Bob Lanier, Mayor

CITY COUNCIL MEMBERS: Helen Huey Ernest McGowen, Sr. Vince Ryan Alfred J. Calloway Frank O. Mancuso John G. Goodner Christin Ho
Dale M. Gorczynski Ben T. Reyes Gracie Guzman Saenz Eleanor Tinsley Jim Greenwood Sheila Jackson Lee Judson W. Robinson, III CITY CONTROLLER: George Gre

Ing. J. Edgar E. Legorreta
Grupo Perfotec
Pacifico #468 Of-F
Rosedal Coyoacan
C.P. 04330
Mexico, D.F.

August 21, 1992

Dear Ing. Legorreta:

Thank you for your visit in early August with Ing. Federico Lopez de Alba. It was quite an honor to have such a distinguished member of the Mexican Government visit our offices. I thoroughly enjoyed meeting him and hope we can continue to exchange information in the environmental arena that is so important to both of our countries.

I am writing this letter per our previous conversation. Mr. Noyes and I have been acquainted for 5 years by way of the excellent work he has done for the City of Houston through his companies, Noyes and Associates, Inc. and Ecoloquip. Noyes has been involved in the design of over 100 plants throughout the city. During the years we have worked together I have found Mr. Noyes to be a very innovative and practical individual who has helped us immensely to find effective solutions to our city's wastewater problems.

Our experience has been that plants designed and constructed by Noyes have the highest quality and performance standards. The City of Houston requires effluent waters to have a maximum of 10 ppm BOD and 15 ppm TSS. All Noyes plants meet these norms on a consistent basis. His older plants have successfully withstood the test of time and continue to perform well.

The City of Houston has approved the use of the One Moving Part Plant (Om-Pa-Pa)) for its outlying areas. They are particularly suited for these areas because of their high reliability and low maintenance. Furthermore, their unique design permits us to reduce capital investment by 40% and operating costs by over 50% when compared to plants of traditional design, while not sacrificing the quality of effluent water. The extended aeration process that the plants use has proven that it can clean up to 99% of the impurities found in wastewater streams. We feel very comfortable with the Om-Pa-Pa's design and performance.

I hope that the Om-Pa-Pa design is approved in Mexico. Its use would leapfrog your country past the learning stages of water treatment by providing leading edge technology, thus, allowing Mexico to greatly improve its environmental standards at a significantly reduced cost.

Very truly yours,

E.M. Quevedo, PE
Assistant Director
Health and Human Services

HRS

Edminster, Hinshaw, Russ and Standley, Inc.

April 29, 1993

Re: Noyes and Associates
Om-Pa-Pa Design

Gentlemen:

Noyes & Associates has been involved in several wastewater treatment plant projects with our firm. These plants range in capacity from 400,000 gallons per day (gpd) (Northwest Harris County MUD No. 5) to one with a peak flow capacity of 9,000,000 gpd (Harris County WCID No. 133). Their involvement in the design, fabrication and supply of equipment has contributed to the satisfactory completion of these projects.

We are particularly intrigued by and supportive of their new plant concept dubbed the Om-Pa-Pa. The construction costs savings alone makes this a preferred design, but when you factor in the simplicity of operations and the energy savings, it really becomes the plant of choice.

Sincerely,

EDMINSTER, HINSHAW, RUSS AND STANDLEY, INC.

Bart C. Standley, P.E.
Vice President

BCS/ngh

00077

ATTACHMENT 17

10555 Westoffice Drive Houston, Texas 77042 713/784-4500 FAX 713/784-4577

Texas Engineering Extension Service
The Texas A&M University System
Technology Resource Center

recognizes

DAN NOYES

for excellent service as instructor at the

TEEX

Annual Municipal Inspectors Training School

August 10, 1988

Date

Paul Causey

Course Director

James Bradley

Director, Texas Engineering Extension Service

82008

ATTACHMENT 17

1995

100 Private Companies Making the Greatest Impact on Houston

ATTACHMENT 17

6200

Ecoloquip

has been recognized as

THE HOUSTON 100®

#18 Company

October 5, 1995

This distinction represents success in achieving outstanding sales growth from 1992 to 1994.

UNIVERSITY of HOUSTON
SMALL BUSINESS DEVELOPMENT CENTER

Southwestern Bell Telephone

GREATER HOUSTON PARTNERSHIP
Chamber of Commerce • Economic Development • World Trade

Houston BUSINESS JOURNAL
STRICTLY HOUSTON. STRICTLY BUSINESS.

1994

THE HOUSTON 100

Private Companies Making The Greatest Impact On Houston

Noyes & Associates Inc.

has been recognized as the

#25

company in The 1994 Houston 100 on this 6th day of October 1994.

This distinction represents success in achieving outstanding sales growth from 1991 to 1993.

sponsored by

UNIVERSITY of HOUSTON
SMALL BUSINESS DEVELOPMENT CENTER

GREATER HOUSTON PARTNERSHIP
Chamber of Commerce • Economic Development • World Trade

Southwestern Bell Telephone

08000

ATTACHMENT 17

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

REGISTRATION FOR MUNICIPAL SOLID WASTE MANAGEMENT SITE
issued under provisions of Texas Health & Safety Code Ann. Chapter 361 (Vernon)

Registration No. MSW-43008

Name of Registrant:	Downstream Environmental, LLC 2044 Bissonnett Drive Houston, Texas 77005
Site Owner:	Don McGuirt, Jack Christy and Trey Wing, Tenants in Common 12330 Tealwood N. Circle Houston, Texas 77024
Facility Name:	Downstream Environmental Liquid Waste Processing Facility
Classification of Site:	Type VGG Liquid Waste Processing Facility
Wastes to be Accepted:	Grease Trap Waste, Grit Trap Waste, Septic Waste, or a Combination of these Liquid Wastes from Municipal Source.

The registrant is authorized to store and process wastes and to recycle recovered materials in accordance with the limitations, requirements, and other conditions set forth herein. This registration is granted subject to the rules and Orders of the Commission and laws of the State of Texas. Nothing in this registration exempts the registrant from compliance with other applicable rules and regulations of the Texas Natural Resource Conservation Commission. This registration will be valid until canceled, amended, or revoked by the Commission, or until the site is abandoned or rendered unusable, whichever occurs first.

APPROVED, ISSUED AND EFFECTIVE in accordance with 30 Texas Administrative Code Section 330.71.

ISSUED DATE: MAR 28 2001

00081 For the Commission

TABLE OF CONTENTS
Downstream Environmental, LLC
Downstream Environmental Liquid Waste Processing Facility
Registration Nº. MSW-43008

This registration consists of the following: (1) Signature Sheet, (2) Registration Provisions, and (3) Attachment A, which is the registration application and supporting documents.

I. Size and Location of Facility

A. This Type VGG municipal solid waste processing facility is located 10400 Westpark Drive, in Houston, Harris County, Texas. The facility contains 2.5 acre.

B. The legal description is contained in the Engineering Report, Attachment A.

C. Coordinates and Elevation of Site Permanent Benchmark:

Latitude: N 29.720205°
Longitude: W 95.56°
Benchmark Elevation: 80 feet above msl

II. Facilities and Operations Authorized

A. Days and Hours of Operation

The operating hours of this municipal solid waste facility will be 24 hours per day, seven days a week. The business hours of the facility shall be anytime between the hours of 7:00 am and 7:00 pm, on Monday through Saturday. The business hours correspond to the hours that the facility is open to the public for the receipt of waste. The operator shall post the actual operating hours on the site sign.

B. Wastes Authorized at this Facility

The registrant is authorized to store and process grease trap waste, grit trap waste, septic waste, or a combination of these three liquid wastes resulting from or incidental to municipal, community, commercial, institutional, recreational activities, and food preparation facilities located on industrial sites; and as identified in Section 3.2 of the Engineering Report contained in Attachment A.

C. Wastes Prohibited at This Facility

Any other liquid waste or solid waste from a municipal or industrial source.

D. Waste Acceptance Rate

Liquid waste may be accepted for processing at this facility at a rate of up to 150,000 gallons-per-day of grit trap waste, grease trap waste, septic waste, or a combination of these three waste materials.

E. Maximum Volume Available for Storage

Total available liquid waste storage capacity of this facility is 150,000 gallons with a maximum storage limit of 48 hours for untreated waste materials and processed waste materials. Materials recovered for beneficial reuse may be stored onsite for up to 30 days

F. Facilities Authorized

The registrant is authorized to operate the facilities related to the processing and storage of the wastes authorized, and related to the recycling of the recovered materials, which shall include units, structures, appurtenances, or improvements as described in the Engineering Report of Attachment A.

G. Changes, Additions, or Expansions

Any proposed facility changes must be authorized in accordance with Texas Natural Resource Conservation Commission (TNRCC) registration amendment or modification rules, 30 TAC Chapter 330 (Municipal Solid Waste Rules), and 30 TAC Chapter 305 (Consolidated Permits).

III. Facility Design, Construction, and Operation

A. Facility design, construction, and operation must comply with this registration, Commission Rules, including 30 TAC §§330.71, 330.150-330.159, 330.171, and Special Provisions contained in this registration, and must comply with the provisions of the Engineering Report contained in Attachment A.

B. The entire waste management facility shall be designed, constructed, operated, and maintained to prevent the release and migration of any waste, contaminant, or pollutant, and to prevent inundation or discharge from the areas surrounding the facility components. This site must be designed, constructed and maintained to collect spills and incidental precipitation in such a manner as to:

1. preclude the release of any contaminated runoff or spills; and

2. prevent washout of any waste by a 100-year storm.

C. The site shall be designed and operated so as not to cause a violation of:

1. the requirements of the Texas Water Code, §26.121;

2. any requirements of the Federal Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, §402 as amended;

3. the requirements under the Federal Clean Water Act, §404, as amended; and

4. any requirement of an area wide or statewide water quality management plan that has been approved under the Federal Clean Water Act, §208 or §319, as amended.

D. All facility employees and other persons involved in facility operations shall be qualified, trained, and experienced to perform their duties so as to achieve compliance with this registration. The permittee shall further ensure that personnel are familiar with safety procedures, contingency plans, the requirements of the Commission's rules, and this registration, commensurate with their levels and positions of authority.

IV. Financial Assurance

A. General. Authorization to operate the facility is contingent upon compliance with provisions contained in this registration and maintenance of financial assurance in accordance with Subchapter K of 30 TAC Chapter 330 and 30 TAC Chapter 37.

B. Closure Financial Assurance. The amount of financial assurance posted for closure shall be provided annually in current dollars in an amount equal to closing the entire facility pursuant to 30 TAC Section 330.282(a).

C. Closure Financial Assurance Amount. Within 60 days after the date of the registration and prior to the initial receipt of waste, the registrant shall provide financial assurance instrument(s) for demonstration of closure in an amount equal to, but not less than $44,303.62 for closure in 2001 dollars. The amount of financial assurance to be posted annually shall be determined as described in Section IV.B. of this registration.

D. The owner and/or operator shall annually adjust the closure cost estimate and the dollar amount of the financial assurance for inflation within 60 days prior to the anniversary date of the registration pursuant to 30 TAC Section 330.282.

E. Modifications. If the facility's closure plan is modified, pursuant to 30 TAC §305.70, the registrant shall provide a new cost estimate in current dollars, which meets the requirements of Section IV.C of this registration. The amount of the financial assurance mechanism shall be adjusted within 20 days after the modification is approved. Adjustments to the cost estimates and/or financial assurance instrument to comply with any financial assurance regulation that is adopted by the TNRCC subsequent to the issuance of this registration, shall be initiated as a modification within 30 days after the effective date of the new regulation.

V. Facility Closure

Closure shall commence:

1. Upon direction by the Executive Director of the TNRCC for failure to comply with the terms and conditions of this registration or violation of State or Federal regulations.

   The Executive Director is authorized to issue emergency orders to the registrant in accordance with §§5.501 and 5.512 of the Texas Water Code regarding this matter after considering whether an emergency requiring immediate action to protect the public health and safety exists;

2. Upon abandonment of the site;

3. Upon direction of the Executive Director for failure to secure and maintain adequate financial assurance as required; or

4. Upon registrant's notification to the TNRCC that the facility will no longer operate.

5. Site Completion Requirements:

   Within sixty (60) days prior to site closure, the registrant shall submit a closure plan to the Executive Director. At a minimum, the closure plan shall require the following:

VII. Incorporated Regulatory Requirements

A. The registrant shall comply with all applicable Federal, State, and local regulations and shall obtain any and all other required permits prior to the beginning of any operation authorized by this registration.

B. To the extent applicable to the activities authorized by this registration, the requirements of 30 TAC Chapters 37, 281, 305, and 330, and future revisions are adopted by reference and are hereby made provisions and conditions of this registration.

VIII. Special Registration Provisions

None.

IX. ATTACHMENT A

The Registration Application.

PART I

(11) APPOINTMENTS

Attached is the Notice of Appointment required by 30 TAC §330.52(E)(10).

(A) Letter of delegation of authority
(B) Notice of Appointment

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
MaryWimbish@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

August 8, 2002

Mr. Jeffrey Saitas, Executive Director
TNRCC - MC-100
P.O. Box 13087
Austin, TX 78711-3087

RE: Permit Application No. MSW 2298

Dear Mr. Saitas:

I hereby delegate and assign to George W. Noyes, Engineer, the authority to sign Downstream Environmental's Application for a Type V MSW Permit. George W. Noyes meets the requirements of Sec. 305.44.

Sincerely,

Mary Wimbish

Mary Wimbish, CEO

MW:gs

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com **(713)520-8113**
Fax: (713)520-0138

August 8, 2002

Director
Municipal Solid Waste Division
MC-124 TNRCC
P.O. Box 13087
Austin, TX 78711-3087

Dear Director:

This is to advise you that Mary Wimbish has duly appointed George W. Noyes as the Consulting and Design Engineer for the purpose of submitting the supporting documentation for an Application for a Municipal Solid Waste Facility, including, but not limited to engineering drawings, calculations, reports, planning material, plans and specifications and other required documents, and for supervision of construction of a grease and grit trap processing facility for Mary Wimbish. Mr. Noyes is a professional engineer in Louisiana, in good standing in accordance with State Statutes and has had experience in the design and construction of the following waste treatment plant facilities at the following locations:

Permit #:	Pending	-	Oak Crest of Manuel - Phillips Utilities
	12704-01	-	Ashley Oaks - Phillips Utilities
	Pending	-	Oaks Development Co. - George Cobb
	12849-01	-	Raintree Acres - CMH Homes
	12848-06	-	Beacon Estates
	12822-01	-	Trace
	12780-01	-	Southwood Estates
	12978-001	-	Sommersetshire Estates
	12923-01	-	Meadowland
	12669-001	-	George C. Cobb

We hereby authorize George W. Noyes to act on our behalf during your review of the Application and the supporting documentation for a grease and grit trap processing facility for Mary Wimbish.

This is to further advise you that Dan Noyes of Ecoloquip and Noyes & Associates shall

be acting on my behalf during the review of this Application, as Chief of Plant Operations. Mr. Dan Noyes has had experience in the design and construction of a Type V grease facility:

Pilot Plant Study TNRCC Permit No. 101134-02, TNRCC Log No. 108/080 - Grease Plant Pilot at Pearland, Texas

MSW Type V Registration No. 43008, Grease, Grit and Septage Plant, Houston, Texas

Sincerely,

Mary Wimbish

MW:gs

PART I
ADDITIONAL REQUIREMENTS

§330.51(6) DOCUMENTATION OF COORDINATION FROM AGENCIES

(a) Endangered Species & Wildlife Approval Letter
(b) Federal Aviation Administration Approval Letter
(c) Fire Marshal Coordination
(d) Wetlands Determination Coordination
(e) Watershed Management Review Coordination
(f) Flood Impact Fee Receipt
(g) Regional Solid Waste Plan Coordination
(h) TxDOT Coordination
(i) Texas Historical Commission Approval Letter
(j) NPDES Coordination
(k) EPA Report on Proposed Site
(l) Data Base of EPA Permitted Sites Within ½ Mile
(m) City's Zoning Approval Letter
(n) The Site's Deed Restrictions
(o) City's Traffic Approval Report
(p) City of Houston Coordination Regarding Facility Compatibility
(q) Wastewater Agreement and Wastewater Capacity Reservation Letter
(r) BFI's Letter Stating Landfill Capacity

TEXAS PARKS & WILDLIFE

March 2, 2001

Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

RE: Proposed Grease, Grit, and Septage Processing Facility, Harris County

Dear Ms. Wimbish:

This letter is in response to your request for clarification of my letter dated February 1, 2001. After several conversations with Gwen Scarborough with Downstream Environmental, LLC and Texas Parks and Wildlife Department (TPWD) botanist Jackie Poole, it is unlikely that Texas prairie dawn (*Hymenoxys texana*) would be impacted by the proposed project activities.

The Texas prairie dawn is found at the base of mima (pimple) mounds along poorly drained and sparsely vegetated areas (slick spots). The Texas prairie dawn also prefers slightly saline soils with a soil structure that would not be found in disturbed soils. Because the proposed project site is located on a developed property and the soil has been graded and disturbed over much of the area, the required habitat for the Texas prairie dawn should not be present within the project area.

Please note that the reference to the branched gayfeather was a typographical error and should have referred to the Texas prairie dawn.

I appreciate the opportunity to review and comment on this project.

Sincerely,

Danny Allen
Wildlife Habitat Assessment Program
Wildlife Division

DLA:pmo.8334

TEXAS PARKS & WILDLIFE

February 1, 2001

Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

RE: Proposed Grease, Grit, and Septage Processing Facility, Harris County

Dear Ms. Wimbish:

This letter is in response to your request for information to comply with state and federal laws regarding the Endangered Species Act as set forth in the Texas Natural Resource Conservation Commission's Municipal Solid Waste Regulations, 30 TAC §330.51(b)(8). Texas Parks and Wildlife Department (TPWD) staff have reviewed the project and offer the following comments concerning this project.

Given the small proportion of public versus private land in Texas, the TPWD Biological and Conservation Data System (BCD) includes less than a representative inventory of rare resources in many areas of the state. Although it is based on the best data available to the state regarding rare species, the data from the BCD do not provide a definitive statement as to the presence or absence of rare and threatened and endangered (T&E) species within the project areas. These data cannot substitute for an on-site evaluation by your qualified biologists. The BCD information is intended to assist you in avoiding harm to species that may occur on site.

Populations of the federally endangered Texas prairie dawn (Hymenoxys texana) are known to occur in areas surrounding the project site. The branched gayfeather occurs in poorly drained depressions, at the base mima mounds in open grasslands, or almost barren areas on slightly saline soils. If appropriate habitat exists on the project site, a survey should be conducted for the Texas prairie dawn during the flowering season (March through early April).

Enclosed is a copy of the TPWD rare and T&E species list for Harris County. Please review this list, as other species could be present depending upon habitat availability. If rare plant or animal species are found within or near the project area, precautions should be taken to avoid adverse impacts to them.

I appreciate the opportunity to review and comment on this project.

Sincerely,

Danny Allen
Wildlife Habitat Assessment Program
Wildlife Division

DLA.pmc.8334

4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
512-389-4800
www.tpwd.state.tx.us

Attachment 14g

HARRIS COUNTY

	Federal Status	State Status
***** AMPHIBIANS *****		
Houston Toad (*Bufo houstonensis*) – endemic; species sandy substrate, water in pools, ephemeral pools, stock tanks; breeds in spring especially after rains; burrows in soil when inactive; breeds February-June; associated with soils of the Sparta, Carrizo, Goliad, Queen City, Recklaw, Weches, and Willis geologic formations	LE	E
***** BIRDS *****		
American Peregrine Falcon (*Falco peregrinus anatum*) - potential migrant; nests in west Texas	DL	E
Arctic Peregrine Falcon (*Falco peregrinus tundrius*) - due to similar field characteristics, treat all Peregrine Falcons as federal listed Endangered; potential migrant	DL	T
Attwater's Greater Prairie-chicken (*Tympanuchus cupido attwateri*) - this county within historic range; endemic; open prairies of mostly thick grass one to three feet tall; from near sea level to 200 feet along coastal plain on upper two-thirds of Texas coast; males form communal display flocks during late winter-early spring; booming grounds important; breeding February-July	LE	E
Bald Eagle (*Haliaeetus leucocephalus*) - found primarily near seacoasts, rivers, and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	LT-PDL	T
Black Rail (*Laterallus jamaicensis*) – salt, brackish, and freshwater marshes, pond borders, wet meadows, & grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous year's dead grasses; nest usually hidden in marsh grass or at base of Salicornia		
Brown Pelican (*Pelecanus occidentalis*) - largely coastal and near shore areas, where it roosts on islands and spoil banks	LE	E
Henslow's Sparrow (*Ammodramus henslowii*) - wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking; likely to occur, but few records within this county		
Mountain Plover (Charadrius montanus) - shortgrass plains and plowed fields (bare, dirt fields); primarily insectivorous; winter resident in this area	PT	
Piping Plover (*Charadrius melodus*) – wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats	LT	T
Reddish Egret (*Egretta rufescens*) – resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear		T
Snowy Plover (*Charadrius alexandrinus*) - wintering migrant along the Texas Gulf Coast beaches and bayside mud or salt flats		
Swallow-tailed Kite (*Elanoides forficatus*) - lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees		
White-faced Ibis (*Plegadis chihi*) – prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats		T
White-tailed Hawk (*Buteo albicaudatus*) - near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed		

Attachment 14g

	Federal Status	State Status
savanna-chaparral; breeding March-May		
Whooping Crane *(Grus americana)* - potential migrant	LE	E
Wood Stork (*Mycteria americana*) - forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960		T

*** BIRDS-RELATED ***

Colonial waterbird nesting areas - many rookeries active annually

*** FISHES ***

Creek Chubsucker (*Erimyzon oblongus*) - small rivers and creeks of various types; seldom in impoundments; prefers headwaters, but seldom occurs in springs; young typically in headwater rivulets or marshes; spawns in river mouths or pools, riffles, lake outlets, upstream creeks — T

*** MAMMALS ***

Plains Spotted Skunk (*Spilogale putorius interrupta*) - catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Rafinesque's Big-Eared Bat (*Corynorhinus rafinesquii*) - roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures — T

Southeastern Myotis (*Myotis austroriparius*) - roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures

*** REPTILES ***

Alligator Snapping Turtle (*Macroclemys temminckii*) - deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October — T

Atlantic Hawksbill Sea Turtle *(Eretmochelys imbricata)* - Gulf and bay system	LE	E
Green Sea Turtle *(Chelonia mydas)* - Gulf and bay system	LT	T
Gulf Saltmarsh Snake (*Nerodia clarkii*) - saline flats, coastal bays, & brackish river mouths		
Kemp's Ridley Sea Turtle *(Lepidochelys kempii)* - Gulf and bay system	LE	E
Leatherback Sea Turtle *(Dermochelys coriacea)* - Gulf and bay system	LE	E
Loggerhead Sea Turtle *(Caretta caretta)* - Gulf and bay system	LT	T
Smooth Green Snake (*Liochlorophis vernalis*) - Gulf Coastal Plain; mesic coastal shortgrass prairie vegetation; prefers dense vegetation		T

Texas Diamondback Terrapin (*Malaclemys terrapin littoralis*) - coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water; burrows into mud when inactive; may venture into lowlands at high tide

Texas Garter Snake (*Thamnophis sirtalis annectens*) - wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August

	Federal Status	State Status
Texas Horned Lizard (*Phrynosoma cornutum*) - open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
Timber/Canebrake Rattlesnake (*Crotalus horridus*) - swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto		T

*** VASCULAR PLANTS ***

Coastal gay-feather *(Liatris bracteata)* - endemic; black clay soils of prairie remnants; flowering in fall		
Houston machaeranthera *(Machaeranthera aurea)* - endemic; seasonally wet, saline barren areas, around the base of mima mounds in coastal prairies, or barren to somewhat vegetated openings in grasslands, including pastures and roadsides, on loamy to sandy loam soils; flowering October-November		
Texas windmill-grass (*Chloris texensis*) - endemic; sandy to sandy loam soils in open to sometimes barren areas in prairies and grasslands, including ditches and roadsides; flowering in fall		
Texas meadow rue *(Thalictrum texanum)* - endemic; mesic woodlands or forests, including wet ditches on partially shaded roadsides; flowering March-May		
Texas prairie dawn *(Hymenoxys texana)* - endemic; in poorly drained depressions or base of mima mounds in open grasslands or almost barren areas on slightly saline soils; flowering March-early April	LE	E
Threeflower broomweed *(Thurovia triflora)* - endemic; black clay soils of remnant grasslands, also tidal flats; flowering July November		

LE,LT - Federally Listed Endangered/Threatened
PE,PT - Federally Proposed Endangered/Threatened
E/SA,T/SA - Federally Endangered/Threatened by Similarity of Appearance
C1 - Federal Candidate, Category 1; information supports proposing to list as endangered/threatened
DL,PDL - Federally Delisted/Proposed Delisted
E,T - State Endangered/Threatened
"blank" - Rare, but with no regulatory listing status

Species appearing on these lists do not all share the same probability of occurrence. Some species are *migrants or wintering residents only, or may be historic or considered extirpated.*

ATTACHMENT 14g

	Federal Status	State Status
Texas Horned Lizard (*Phrynosoma cornutum*) - open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September		T
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*** VASCULAR PLANTS ***

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Texas prairie dawn (*Hymenoxys texana*) - endemic; in poorly drained depressions or base of mima mounds in open grasslands or almost barren areas on slightly saline soils; flowering March-early April	LE	E
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"blank" - Rare, but with no regulatory listing status

Species appearing on these lists do not all share the same probability of occurrence. Some species are *migrants or wintering residents only, or may be historic or considered extirpated.*

U.S. Department
of Transportation
**Federal Aviation
Administration**

Southwest Region
Arkansas, Louisiana,
New Mexico, Oklahoma,
Texas

Fort Worth, Texas 76193-0000

JAN 11 2001

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

Dear Ms. Wimbish:

We have reviewed the proposed grease, grit, and septage processing facility about seven nautical miles northeast of the Sugarland Municipal Airport in Harris County, Texas, as described in your January 5, 2001 letter. We have no objection to the proposal from the standpoint of potential bird hazards to aircraft.

This site has been assigned our File No. 21-001TX. Please refer to this number in any future correspondence regarding this site. Thank you for coordinating it with us.

Sincerely,

Joseph G. Washington
Manager, Safety and Standards Branch

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
GScarborough@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

March 3, 2001

Inspector Connors
Houston Fire Department
Plan Checkers Division
3300Main
Houston, Texas 77002

RE: Downstream Environmental; The "B.R. Perrin" - Type V - GG Treatment Plant; Wastewater Compatibility

Dear Inspector Connors:

Downstream Environmental has submitted an application for registration to the TNRCC in Austin, Texas to build and operate an industrial wastewater treatment facility. The location of the "B.R. Perrin" - Type V - GG Treatment Plant site is Tract 2, of Restricted Reserve "D" of which the address is 10400 Westpark Drive, Houston Texas 77042.

No improvements currently exist on the property and it is my understanding from your office that at the time the new building itself has a final inspection by City officials, a fire prevention plan will be established and reviewed by your staff.

We will need to provide confirmation of an approved fire prevention plan to the TNRCC when it becomes available.

Thank you for your attention to this matter. If there are any questions concerning this letter, or clarifications required, please feel free to call.

Sincerely,

Gwendolyn Scarborough
Vice-President

GS/dgn

ATTACHMENT 14i

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS 77553-1229

March 21, 2001

REPLY TO
ATTENTION OF
Compliance Section

SUBJECT: D-12116; 2.5231-acre Tract 2, Harris County, Texas.

Ms. Gwendolyn Scarborough
Downstream Environmental, LLC.
2044 Bissonnet
Houston, Texas 77005

Dear Ms. Scarborough:

This is in regard to your February 21, 2001, letter, requesting a jurisdictional determination on a 2.5231-acre tract (Tract 2). This property is located south of Westpark Drive in Houston, Harris County, Texas.

Based on review of recent maps, aerial photography, and soils data, we have determined that this property does not contain wetlands subject to Corps' jurisdiction. A Department of the Army permit under Section 404 of the Clean Water Act will not be required for the deposition or redistribution of dredged or fill material on this site.

This approved determination is valid for 5 years from the date of this letter unless new information warrants a revision of the determination prior to the expiration date. Please reference the determination number **D-12116** in future correspondence pertaining to this subject. If you have any questions concerning this determination or possible appeal of this determination, please contact Mr. David Rosen at the letterhead address or by telephone at 409-766-3105. The enclosed sheet provides information regarding the administrative appeal process.

Sincerely,

Kenny Jaynes
North Unit Leader

Enclosure

Attachment 14j

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Downstream Environmental, LLC	File Number: D-12116	Date: 3/21/2001
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg/ or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.**
- **OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.**

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved jurisdictional determination (JD) or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION

If you have questions regarding this decision and/or the appeal process you may contact:
David Rosen, Regulatory Specialist
CESWG-PE-RC, P.O. Box 1229
Galveston, Texas 77553-1229
Telephone: 409-766-3105; FAX: 409-766-3931

If you only have questions regarding the appeal process you may also contact:
James E. Gilmore, Appeal Review Officer
CESWD-ETO-R, 1100 Commerce Street
Dallas, Texas 75242-0216
Telephone: 214-767-2457; FAX: 214-767-9021
Email: James.E.Gilmore@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or authorized agent.

Date:

Telephone number:

U.S. Army Corps of Engineers
Galveston District
Regulatory Branch, SWG-PE-R
P.O. Box 1229
Galveston, TX 77553-1229

Ms. Gwendolyn Scarborough
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

33

Acknowledgement

This is to acknowledge receipt of your request for wetlands determination on site located at 10400 Westpark, Houston, Harris County, TX.

Project Manager David Rosen, telephone (409) 766-3105 has been assigned to your project.

___ We will be coordinating your project with Federal and State agencies.

X We will not be coordinating your project with Federal and State agencies.

Should a Department of the Army permit be issued, the following fee will be required:
X No Fee ___ $10 ___ $100.

Your project has been assigned File Number D-12116. Please reference this file number in future correspondence with our office.

U.S. Army Corps of Engineers, Galveston District
P.O. Box 1229, Galveston, Texas 77553-1229
(409) 766-3930

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com

(713)520-8113
Fax: (713)520-0138

February 20, 2001

Mr. David Rosen
U.S. Army Corps of Engineers
Regulatory Compliance 248G
2000 Fort Point Road
Galveston, TX 77553

Dear David:

Regarding our phone conversation this morning, I am submitting to you a request for a wetlands determination in accordance with 30 TAC §330.51(b)(7), regarding our proposed Type V GG Disposal and Processing Facility site, located at 10400 Westpark, Houston, Texas 77042.

In addition to furnishing you with a copy of a General Location Map (TxDot), Survey with Metes and Bounds, I would like to bring your attention to the nearby Crystal Chemical Superfund Site, for which I have attached a small map showing that site specifically, and have highlighted where our site is located in conjunction with it.

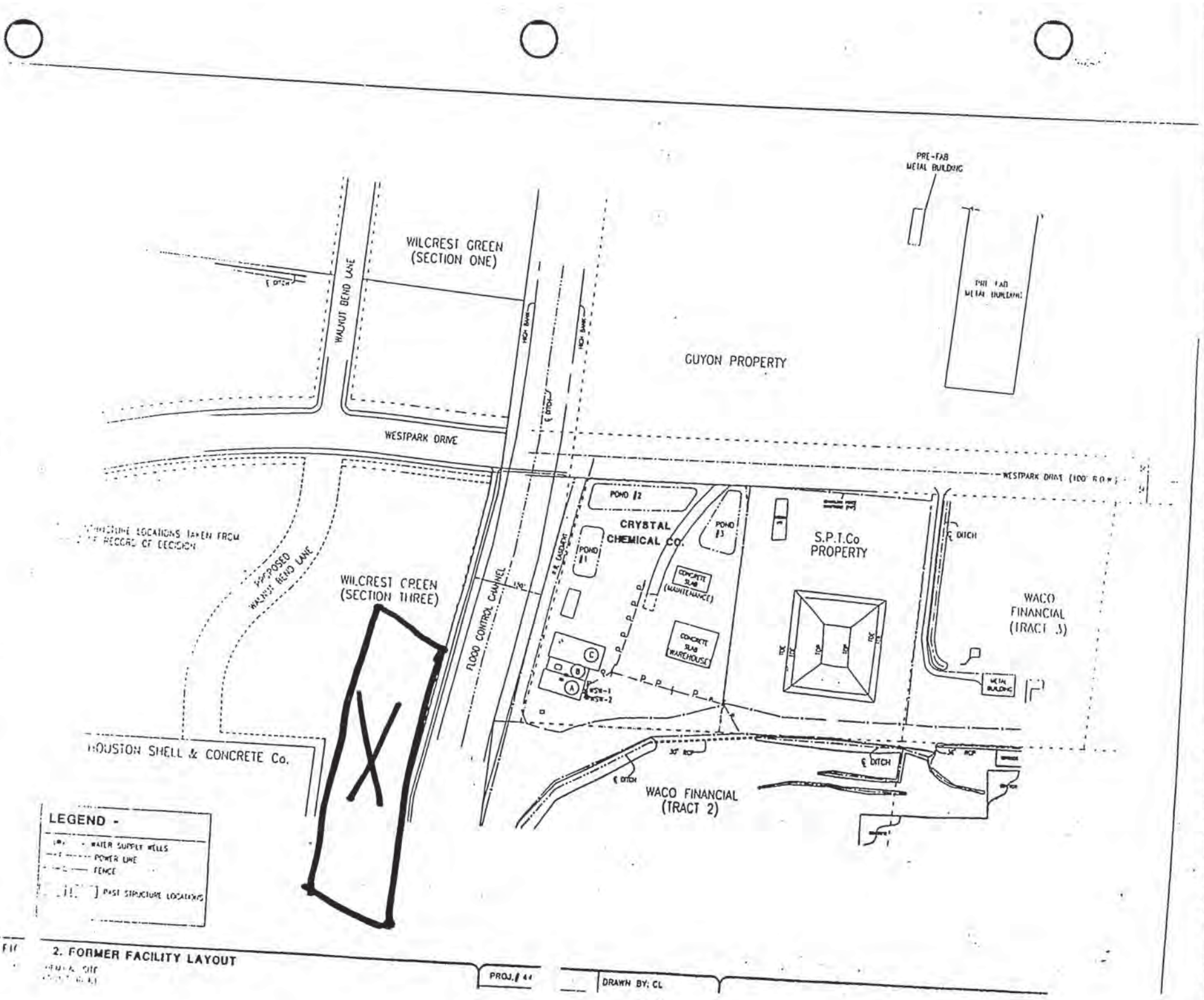
Please let me know if you need additional information on the site and I can fax or FedEx it to you at once.

Sincerely,

Gwendolyn Scarborough

GS
Encls.

ATTACHMENT 14



00111

ATTACHMENT 1-J

FIG 2. FORMER FACILITY LAYOUT

PROJ. # 44

DRAWN BY: CL

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

February 28, 2001

Ms. Gwendolyn Scarborough
Downstream Environmental, LLC
2044 Bissonet
Houston, TX 77005

Re: Water Quality Management Plan Conformance Review
Proposed Municipal Solid Waste Facility 10400 Westpark Drive,
City of Houston, Harris County

Dear Ms. Scarborough:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed the information you provided related to a Type VGG municipal solid waste processing/recycling facility in Houston, Harris County for conformance with Section 208 of the federal Clean Water Act.

If the facility is constructed and operated in accordance with TNRCC rules and guidelines, it will comply with the requirements in Section 208 of the federal Clean Water Act.

If you need additional information, please contact Bill Carter of my staff at 512-239-6771.

Sincerely,

Linda Brookins

Linda Brookins, Leader
Watershed Management Team
Technical Analysis Division

LB/ph

00112

ATTACHMENT 14k

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

February 27, 2001

VIA E-MAIL & U.S. MAIL
Ms. Linda Brookins
TNRCC
Watershed Management Team
Technical Analysis Division
P.O. Box. 13087, MC147
Austin, TX 78711-3087

RE: Registration Application No. MSW-43008

Dear Ms. Brookins:

Downstream Environmental, LLC has submitted to the TNRCC a Registration Application for a Type V GG facility located at 10400 Westpark Drive, Houston, Harris County, Texas. In accordance with the Texas Administrative Code (TAC) §330.51(b)(6)(A), we are requesting a letter form the Watershed Management Division indicating the proposed Type V GG will be in compliance with Section 208 of the Clean Water Act.

Attached hereto is a copy of our Registration Application (without attachments) for your review.

If you have questions or need additional information regarding this request, please do not hesitate to call.

Sincerely,

Gwendolyn Scarborough

See: Attached

COUNTY AUDITOR'S FORM 181
HARRIS COUNTY, TEXAS (REV. 8/91)

HARRIS COUNTY
Official Receipt

U 651093

A 47259
R# 115908

STATE OF TEXAS
COUNTY OF HARRIS }

2-23-00

Received of Don McGuirt $62,034.00

Sixty-two thousand thirty-four & 00/100 Dollars

For: Impact Fee – Wilcrest Grove, Sec. 3

CHECK NO. 0001503458 OR CASH ☐

HC 70
CODE NO.

ISSUING DEPARTMENT OR OFFICE

RECEIVED BY

INSTRUCTIONS: This form is to be issued in triplicate–the original detached and given to remitter, second copy retained by issuing office, and third copy left in book for return to County Auditor. Do not erase on this form. If an error is made, void the receipt and leave all voided copies intact. This receipt form is to be used only for type (s) of revenue indicated on cover.

WHEN HELD TO LIGHT, IF CIRCULAR WATERMARKS ARE NOT PRESENT, DO NOT CASH. SEE BACK FOR ADDITIONAL SECURITY FEATURES.

Frost National Bank
Member: Cullen/Frost Bankers, Inc.

CASHIER'S CHECK 0001503458

A-47259
R-115908 R# 651093

February 23, 2000

DON McGUIRT

30-1
1140

Sixty Two Thousand Thirty Four Dollars and 00/100 $ $62,034.00

PAY TO THE ORDER OF **HARRIS COUNTY FLOOD CONTROL**

VICE PRESIDENT

"0020382" :114000093:01503458203218"0902

Attachment 14I

maryww

From: "marywww" <marywww@flash.net>
To: <lbrookin@tnrcc.state.tx.us>
Sent: Tuesday, February 27, 2001 3:01 PM
Attach: 022701 Linda Brookins Watershed Mgmt Team.wpd; 011501 Application for
Subject: MSW Review

Dear Ms. Brookins:

Please open the two (2) attachments per our discussion.

Thank you. G. Scarborough

Houston-Galveston Area Council
PO Box 22777 • 3555 Timmons • Houston, Texas 77227-2777 • 713/627-3200

March 22, 2001

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, Texas 77005

RE: Registration Application for MSW Grease and Grit Trap Waste Disposal Facility (Type V GG #43008)

Dear Ms. Wimbish:

I have received your letter dated February 27, 2001 requesting H-GAC's review of the registration application for MSW Grease and Grit Trap Waste Disposal Facility (#43008). At this time, the Houston-Galveston Area Council can not determine consistency with the regional solid waste management plan, *Resource Responsibility: Solid Waste Management Plan for the H-GAC Region, 1992-2012*.

H-GAC will receive the permit application for review when it is sent to other state agencies and local governments for comment. This typically occurs once the TNRCC has determined that the application is technically complete. H-GAC staff completes a review based on the technical merits of the application and receives comments from affected local governments. The staff review of the permit application is presented to the Board of Directors Projects Review Committee who then present their finding to the Board of Directors. The results of the review are included as part of the TNRCC decision record concerning the permit application.

H-GAC staff recommends that the permit application specifically discuss *Resource Responsibility* and how the permit meets the recommended goals and objectives for Project Review/Siting Criteria and discuss how the application fulfills the actions in appropriate planning subregion. You may also mention capacity and service area issues in the subregion that the proposed facility will be serving.

Please contact me at 713.993.4520 or cmergo@hgac.cog.tx.us if you need any additional information concerning the review process please.

Sincerely,

Cheryl C Mergo

Cheryl Mergo
Solid Waste Program Manager

Recycled

ATTACHMENT 14m

00116

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

February 27, 2001

Ms. Cheryl Mergo
Solid Waste Program Coordinator
Houston-Galveston Area Council
P.O. Box 22777
Houston, TX 77227-2777

RE: Compliance with Regional Solid Waste Management Plan
Proposed Type V Grease and Grit Registration, Harris County, Texas

Dear Ms. Mergo:

Downstream Environmental, LLC is an innovative technology company that has filed a Registration Application for a Municipal Solid Waste grease and grit trap waste disposal facility located at 10400 Westpark Drive between Rogerdale and Walnut Bend Lane, Houston, Harris County, Texas, immediately west of Beltway 8. Attached is a general site location map.

In accordance with the Texas Administrative Code (TAC) §330.51(b)(10), we are requesting a letter from the Houston-Galveston Area Council (HGAC) indicating that the proposed Type V GG facility is in compliance with HGAC Regional Solid Waste Plan.

Attached to this letter is a copy of Downstream Environmental, LLC's Registration Application (without attachments) for your review.

Downstream Environmental, LLC's Type V GG facility will include the following design components to provide for ground and surface water protection:

1. All waste will be handled in areas over concrete pads that are graded and have drains. All tanks will be placed on concrete pads with retainer walls for vessel failure protection.
2. All disposal activities will be in covered areas, including all outdoor tanks being covered. All separation processes contained within a building. Truck offloading will be in a covered area with a concrete drive.

3. A network of monitoring wells are already present in the area to monitor for possible arsenic contamination from a nearby superfund site, Crystal Chemical Company. Enclosed is a letter from the Dallas Regional EPA Office regarding the superfund site.

If you have questions or need additional information regarding this request, please do not hesitate to call. I appreciate your assistance in this matter.

Sincerely,

Mary Wimbish

MW:gs
Attachments: Map
Application
EPA letter re: Crystal Chemical
Sample letter from Cheryl Mergo

ATTACHMENT 14m

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005

(713)520-8113
Fax: (713)520-0138
e-mail: marywww@flash.net

February 21, 2001

VIA FAX: 512.239.6166
Mr. Steve Dayton
TNRCC
P.O. Box 13087
MC-206, Bldg. F
Austin, TX 78711-3087

FAXED 2/21/01

RE: Houston/Galveston Area Regional Solid Waste Planning; 30 TAC §330.51(b)(7)

Dear Mr. Dayton:

This letter is to ascertain compliance with the Regional Solid Waste Plan of our proposed MSW Type V GG Registration. Does Downstream Environmental, LLC's proposed MSW Type V GG facility, located at 10400 Westpark Drive, Houston, Texas 77042, comply with the Houston/ Galveston Area Regional Solid Waste Plan? Mike Lindner in MSW has our Application.

We need your response as soon as possible. Sorry to trouble you.

Sincerely,

Mary Wimbish

MW:gs
Encl.

ATTACHMENT 14m

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

February 13, 2001

Ms. Mary Wimbish, General Counsel
Downstream Environmental, LLC
2044 Bissonnet
Houston, Texas 77005

Re: Municipal Solid Waste (MSW) - Harris County
Downstream Environmental, LLC - Registration Application No. MSW-43008
First Notice of Deficiency (NOD)
Mail Log File No. 5181

Dear Ms. Wimbish:

This is in response to a letter from Mr. Dan Noyes, submitting an application for a liquid waste processing facility registration. We have completed the first review of the application. The following points must be addressed in order for us to continue review of the application. All rule references are from 30 Texas Administrative Code (30 TAC).

It is recommended that the response to this NOD include a cover letter, in the following format, transmitting the revised application. This is to ensure that we identify the responses to each item of concern:

A. Each item of concern identified in the review below should be typed in the transmittal letter, immediately followed by the applicant's response to that item.

B. In your response, please indicate where in the revised application the revisions have been made, by referring to the part, section, and page number.

As required by 30 TAC §330.51(c)(4), please submit corrections in redline/strikeout format.

30 TAC §330.60 (which refers to 30 TAC §330.51)

1. 30 TAC §330.51(b)(5): Please submit demonstration of compliance with National Pollution Discharge Elimination System (NPDES) under the Clean Water Act, §402, as amended. This provision is now under the Texas Pollution Elimination Discharge Elimination System (TPDES), for which Mr. Stephen Ligon of the Water Permits and Resource Management Division is the contact, at (512) 239-4527.

Re: Downstream Environmental, LLC, Registration Application No. MSW-43008

2. 30 TAC §330.51(b)(6)(A): Please submit documentation of coordination with the Texas Natural Resource Conservation Commission's (TNRCC) Watershed Management Team. You should send the letter regarding the cited provision to Ms. Linda Bookins, MC 147, P.O. Box 13087, Austin, Texas 78711-3087.

3. 30 TAC §330.51(b)(6)(C): Please submit documentation of coordination with the Texas Department of Transportation.

4. 30 TAC §330.51(b)(7): Please submit a wetlands determination under applicable federal, state, and local laws.

5. 30 TAC §330.51(b)(8): Please submit an Endangered Species Act compliance demonstration under state and federal laws.

6. 30 TAC §330.51(b)(9): Please submit a review letter from the Texas Historical Commission (formerly the Texas Antiquities Committee).

7. 30 TAC §330.51(b)(7): Please submit demonstration of compliance with the regional solid waste plan.

8. 30 TAC §330.51(d)(1): Please ensure that the responsible engineer signs the closure cost estimate. Please ensure that the responsible engineer places the date of execution and states the intended purpose on each sheet of engineering plans, drawings, and on the title or contents page of the application.

9. 30 TAC §§330.51(e) and (f): Please ensure that all pages in the application contain a number and date. Please ensure that revisions have the revision date and note that the sheet is revised in the header or footer of each sheet revised. Please ensure that each drawing have a dated title block, e.g. on the map of property owners within 500 feet. Please ensure that each drawing or map have a bar scale at least one inch long, e.g. on the map of property owners within 500 feet and Attachment 3c. 100-Year Flood Impact. Please ensure that each map or drawing have a north arrow, e.g. on the metes and bounds description. Preferred orientation is to have the north arrow pointing toward the top of the page. Please ensure that each map or drawing have a legend, e.g. on the map of property owners within 500 feet of the site.

Texas Department of Transportation

P.O. BOX 1386 • HOUSTON, TEXAS 77251-1386 • (713) 802-5000

March 6, 2001

CONTACT: DOM

Harris County
Proposed Type V Facility
10400 Westpark Drive, Houston Texas 77042
West of BW 8

Ms. Gwendolyn Scarborough
Downstream Environmental, LLC
2044 Bissonnet
Houston, Texas 77005

Dear Ms. Scarborough:

This is in reference to your letter dated February 20, 2001, concerning your registration application to the Texas Natural Resource Conservation Commission for the Type V plant in Harris County. We have reviewed the attached request and have found the following:

1. The highways in the area (BW 8 and US 59) have a load limit of 100,000 pounds and FM 1093 has a limit of 80,000 pounds which is an adequate design to accommodate the traffic that may be generated by the subject location.

2. The additional traffic should not have an effect on highway facilities.

3. We recommend that the applicant be required to remove all litter from the highway right-of-way attributable to the operation of the facility. Provisions should also be made to prevent the tracking of mud onto the highway.

This letter will serve as your official documentation of coordination with the Texas Department of Transportation. If you have additional questions, please contact Ms. Alexine Stittiams-Ward, P.E., Maintenance Support Engineer, at (713) 802-5554.

Sincerely,

M. W. Alford, P.E.

Michael W. Alford,, P.E.
Director of Maintenance
Houston District

ASW:rs
Attachments
cc: Ms. Alexine Stittiams-Ward, P.E.

00122

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com

(713)520-8113
Fax: (713)520-0138

February 20, 2001

Mr. Gary Trietsch
District Engineer
Texas Department of Transportation
P.O. Box 1386
Houston, TX 77251-1386

Dear Mr. Trietsch:

Downstream Environmental, LLC, would like to take this opportunity to inform you of our Company's pending Application for a Type V grease, grit and septage processing facility. The proposed site is located at 10400 Westpark Drive, Houston, Texas, 77042. See: Attached TxDot Map.

The Texas Natural Resource Conservation Commission's Municipal Solid Waste Regulation, 30 TAC §330.51(b)(6)(C), states that Applicant shall submit documentation of coordination with Texas Department of Transportation for traffic and location restrictions.

Please find enclosed a copy of investigative findings of the City of Houston's Douglas W. Wiersig, Senior Assistant Director, Traffic Management and Maintenance Branch, regarding the nonexistence of "Weight Limit" and "No Thru Trucks" signs on Westpark Drive between Beltway 8 and Walnut Bend. Also attached to this letter are Harris County Toll Road Authority Daily Traffic statistics for area of the proposed site.

Please acknowledge, in writing, that our proposed facility is in compliance with all TxDot traffic and location restrictions for the surrounding access roads.

Sincerely,

Gwendolyn Scarborough

GS
Encls.

CITY OF HOUSTON

Lee P. Brown, Mayor

Public Works and Engineering Departmer
Post Office Box 1562 • Houston, Texas 77251-156

CITY COUNCIL MEMBERS: Bruce Tatro Carol M. Galloway Mark Goldberg Jew Don Boney, Jr. Rob Todd Mark A. Ellis Bert Keller Gabriel Vasque
John E. Castillo Annise D. Parker Gordon Quan Orlando Sanchez Chris Bell Carroll G. Robinson CITY CONTROLLER: Sylvia R. Garci

February 9, 2000

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

Dear Ms. Wimbish:

This is in response to your letter requesting written confirmation as to whether or not there are any NO THRU TRUCKS signs or WEIGHT LIMIT signs on Westpark Drive between Beltway 8 and Walnut Bend. An investigation by our Traffic Management and Maintenance Branch revealed no such signs on this roadway segment.

Sincerely,

Douglas W. Wiersig

Douglas W. Wiersig, Ph.D., P.E.
Senior Assistant Director
Traffic Management and Maintenance Branch

DWW/WH/SS/ss

xc: Jerry King
Thomas J. Rolen
William Hlavacek

H[illegible]OLL ROAD AUTHORITY
DAILY TRAFFIC - SAM[illegible]STON SOUTH - FISCAL 1999-2000
SECOND HALF

WEEK	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	TOTAL
FY 1988	0	0	0	0	0	0	0	0
FY 1989	568,177	976,181	1,067,677	1,077,385	1,097,075	1,199,039	831,083	6,836,617
FY 1990	1,357,111	2,279,231	2,398,203	2,522,621	2,467,271	2,695,776	1,801,622	15,541,837
FY 1991	2,031,843	3,406,149	3,547,322	3,631,952	3,765,010	4,027,451	2,671,493	23,081,220
FY 1992	2,361,950	4,042,854	4,203,640	4,203,729	4,269,992	4,757,613	3,124,288	26,964,076
FY 1993	2,536,130	4,309,473	4,526,801	4,585,655	4,632,575	4,879,375	3,237,710	28,707,719
FY 1994	2,636,014	4,643,847	4,793,625	4,859,355	4,917,339	5,228,341	3,384,274	30,462,795
FY 1995	2,858,654	4,891,769	5,273,206	5,262,928	5,359,048	5,712,776	3,745,577	33,103,860
FY 1996	2,957,099	5,183,679	5,477,712	5,759,070	5,842,921	6,063,901	3,873,442	35,157,824
FY 1997	3,090,335	5,546,115	5,789,905	5,883,520	5,913,347	6,511,836	4,133,225	36,868,283
FY 1998	3,687,173	6,351,239	6,674,275	6,585,687	6,809,902	6,986,994	4,914,179	41,809,449
FIRST HALF TOTALS	2,548,213	4,154,261	4,387,732	4,282,174	4,455,856	4,611,729	3,251,003	27,690,968
SEP 1								
SEP 5	92,716	93,489		169,655	175,602	191,932	117,313	
SEP 12	96,819	162,699	164,586	168,891	170,639	186,968	129,761	654,502
SEP 19	106,377	162,311	166,777	170,600	172,702	186,460	132,858	1,007,040
SEP 26	97,963	163,464	165,112	168,191	175,261	185,911	131,879	1,090,915
OCT 3	99,701	162,490	165,854	168,478	175,911	188,940	129,407	1,093,042
OCT 10	99,824	160,376	167,911	169,826	174,548	186,815	127,559	1,088,017
OCT 17	102,120	161,976	168,621	171,759	174,623	193,084	134,407	1,086,650
OCT 24	105,267	165,396	165,845	171,222	176,749	189,231	135,285	1,102,694
OCT 31	106,120	164,729	169,965	173,050	175,966	189,987	132,516	1,102,428
NOV 7	104,052	164,629	169,460	170,866	175,436	186,466	134,863	1,112,147
NOV 14	104,316	167,441	168,085	172,629	173,913	185,136	133,902	1,109,942
NOV 21	100,146	164,011	170,085	172,956	177,453	189,861	133,964	1,102,346
NOV 28	97,172	163,892	175,779	179,708	102,469	112,610	111,304	1,116,075
DEC 5	101,043	166,562	170,591	174,136	170,462	184,848	126,465	946,227
DEC 12	98,085	167,599	172,184	172,950	173,839	190,764	137,588	1,087,568
DEC 19	111,158	165,808	173,548	179,583	164,067	195,068	145,780	1,114,930
DEC 26	94,666	138,994	173,430	176,051	156,636	122,347	92,787	1,143,750
JAN 2	85,281	147,004	147,533	155,392	162,433	121,367	81,404	1,000,217
JAN 9	90,715	162,980	160,859	164,696	166,047	176,067	117,260	901,979
JAN 16	99,928	160,266	166,644	171,101	171,124	186,343	127,389	1,021,233
JAN 23	96,016	162,744	169,293	170,225	174,467	185,308	127,176	1,075,296
JAN 30	95,428	163,654	168,071	168,075	163,191	180,277	121,320	1,068,685
FEB 6	96,382	163,268	163,319	167,352	176,149	190,255	133,484	1,059,593
FEB 13	100,009	174,502	170,048	173,080	177,201	188,677	132,748	1,089,641
FEB 20			176,047	168,520	177,893	189,715	132,286	1,103,404
FEB 27								1,118,954
								0
								0
SECOND HALF TOTALS	2,383,490	3,830,304	4,029,647	4,284,793	4,258,805	4,469,657	3,160,679	26,417,375
FISCAL YEAR TOTALS	4,931,703	7,984,565	8,417,379	8,546,967	8,714,661	9,101,386	6,411,682	54,108,343
CUMULATIVE	26,487,686	49,503,895	51,985,655	52,840,424	53,423,277	57,310,374	38,001,860	331,915,131

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com

(713)520-8113
Fax: (713)520-0138

December 28, 2000

To: Mark Denton
~~Mr. Sergio Irvegas~~
Texas Historical Commission
Department of Antiquities Review
P.O. Box 12276
Austin, TX 78711

RE: Grease, Grit & Septage Processing Facility

Dear Mr. Irvegas:

This letter is being submitted to obtain a review letter from the Texas Antiquities Committee in accordance with requirements set forth in the Texas Natural Resource Conservation Commission's Municipal Solid Waste Regulations, 30 TAC §330.51(b)(9).

Downstream Environmental is preparing a Type V GG registration application to be located in Houston, Harris County, Texas. A portion of a General Location Map depicting the location of the project is attached. We would appreciate your review of all cultural resources of interest in the area.

Thank you for your assistance. If you have any questions, please feel free to call me at (713) 520-8113.

Sincerely,

Mary W. Wimbish

Mary Wimbish

MW:gs
Encl.

...T
...listed properties
... landmarks
PROCEED
William A. Martin
... Officer
1/31/01

00126

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005

(713)520-8113
Fax: (713)520-0138
e-mail: marywww@flash.net

February 27, 2001

Mr. Steve Ligon
TNRCC
Water Permits and Resource
Management Division
P.O. Box 13087
MC-148, Bldg. F
Austin, TX 78711-3087

RE: Municipal Solid Waste Harris County; Downstream Environmental's First NOD; Mail Log File No. 5181

Dear Mr. Ligon:

Thank you for your response to my February 21st inquiry.

While you were out of town, I spoke with Charles Eanes from your office with regard to obtaining a "No Exposure" exclusion form from the EPA or TNRCC. You referred me to the EPA's web page to no avail. The web page referred me to the Dallas office. I spoke with Charles Eanes and he advised me that nothing can be done right now to comply with the requirements for "No Exposure Certificates", exclusion as an alternative to obtaining a permit coverage. Because of new rules, government administration responsibilities are being passed from the EPA to the TNRCC level. Charles advised me that in sixty (60) days the TNRCC will have the forms for Applicants who need to obtain NOE coverage under the new law. Since we are not operating an existing facility, we will need to comply with the new Rules and file a "No Exposure" exclusion form at the TNRCC office on the new form available in sixty (60) days.

Thank you for your assistance.

Sincerely,

Mary Winbish

MW:gs

DOWNSTREAM ENVIRONMENTAL, LLC
2044 Bissonnet
Houston, TX 77005
MWimbish@DownstreamEnvironmental.com
(713)520-8113
Fax: (713)520-0138

February 21, 2001

Mr. Dale Burnett
TNRCC
P.O. Box 13087
MC-126, Bldg. F
Austin, TX 78711-3087

RE: Municipal Solid Waste Harris County; Downstream Environmental's First NOD; Mail Log File No. 5181

Dear Mr. Burnett:

Please be advised that Downstream Environmental, LLC's application for Municipal Solid Waste Type 5 GG Facility will discharge its wastewater into a City of Houston wastewater treatment facility and therefore there will be no open water discharge requiring NPDES or TPDES permits. Watershed Management is therefore not required in this case.

Insofar as surface storm water discharge is concerned, an EPA Storm Water Discharge Permit is not required due to the fact that all operations are covered, by a building, covered tank, or covered parking for offloading. The above information was received by phone from Stephen Ligon, 512.239.4430. Note*

A local Storm Water Discharge permit has already been obtained from Harris County Flood Control District and a Storm Water Impact Fee has been paid by the Seller of the property, Don McGuirt. See Attachment No. 14(l); receipt for HCFCD Impact Fee.

Any further questions can be directed to the attention of Mary Wimbish, Dan Noyes or George W. Noyes, P.E. at 713.520.8113.

Sincerely,

Mary Wimbish

MW:gs
Encl.
cc: Steve Ligon MC 2/23/1
(Initial & Return by Fax)

* Containing all industrial activities "under roof" and isolated from storm water is not the defining criteria for permit coverage. If an industrial activity is described by a standard industrial classification (SIC) code listed in the federal regulations at 40 CFR Part 122.26(b)(14) as requiring a permit for storm water runoff, the facility is subject to permit requirements. If all activities are isolated from storm water and runoff, a facility may submit a "No Exposure Exclusion" form as an alternative to obtaining permit coverage. You may visit our storm water web page at www.tnrcc.state.tx.us or EPA's page at www.epa.gov/earth1r6/sw or call me directly at (512) 239-4527 to obtain more information on the SIC code that best describes this facility.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

June 5, 2000

Ms. Mary Wimbish
Attorney
2044 Bissonnet
Houston, Texas 77005

Re: Wilcrest Green Property near the Crystal Chemical Company Superfund Site
Houston, Texas

Dear Ms. Wimbish:

I am writing in response to your January 12, 2000, letter concerning the property referenced above. My response is based upon the facts presently known to the United States Environmental Protection Agency (EPA) and is provided solely for informational purposes.

In response to growing concern over health and environmental risks posed by hazardous waste sites, Congress passed the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and established the Superfund program to clean up these sites. The Superfund program is implemented by EPA in cooperation with individual states and local and tribal governments. Sites are discovered by citizens, businesses, and local, state and federal agencies. After a potential hazardous waste site is reported to EPA, the site-specific information is recorded in the Superfund database, the Comprehensive Environmental Response and Liability Information System (CERCLIS). Sites are added to CERCLIS when EPA believes that there may be contamination that warrants action under Superfund.

EPA initially screens a potential hazardous waste site to determine what type of action, if any, is necessary. The Superfund program may then perform a preliminary assessment and site investigation to determine whether contamination at a property is likely to require a federal cleanup response, an evaluation to determine if a short term response action to eliminate or reduce contamination is needed, and add the site to EPA's list of high priority hazardous waste sites known as the National Priorities List (NPL).

EPA has addressed the Wilcrest Green property in connection with the Crystal Chemical Company Superfund site (site). EPA has completed a Superfund Remedial Design/Remedial Action (RD/RA) for the site which addressed arsenic contaminated soil and has commenced an arsenic contaminated groundwater RD/RA. The soil RA was conducted in conformance with EPA's June 16, 1992, *Amended Record of Decision* (ROD). The Amended ROD identified consolidation and capping as the most appropriate remedy for the arsenic-impacted soils. Specifically, the amended ROD stated, "Removing all offsite soils and sediments with arsenic

greater than 30 ppm (parts per million) will eliminate threat of exposure from direct contact with the contaminated soils outside of the current boundaries of the site." These arsenic-impacted soils were consolidated onsite in a compacted monofill and covered with a multi-layer cap. As discussed in the amended ROD, "the residual contamination outside the current boundaries of the site after completion of the offsite portion of this remedial action will constitute a one in one hundred thousand (10^{-5}) cancer risk level. The construction of the cap over the entire site will eliminate all threats relating to direct contact with and inhalation of the residual contamination, and will act as a barrier restricting the flow of water through the soils. This will reduce the risk posed by the site to less than one in one million (10^{-6}). This risk is associated with anticipated soil exposure based on the assumption that future land use will be residential and commercial/industrial. EPA policy calls for remediation levels that range from a cancer risks of one in ten thousand to one in one million (10^{-4} to 10^{-6})." Based on existing information, the EPA has no anticipated soil remediation activities planned within or outside the current site boundaries other than activities associated with maintaining the compacted soil monofill's cap.

Based on the information and figure you provided, the area you identified as Track 2 (2.53 acres in Wilcrest Green) is an offsite area where arsenic contaminated soils have been excavated and backfilled with clean soils. This area is identified in the *Soil Remedial Action Construction Documentation Report Crystal Chemical Company Site* (Industrial Compliance, December 22, 1995) as Wilcrest Green Section Three (see enclosed figures). The following information regarding construction procedures and activities on this property was taken from the *Soil Remedial Action Construction Documentation Report Crystal Chemical Company Site* (Industrial Compliance, December 22, 1995). Please note, dates which are referenced below occurred in 1995.

Wilcrest Green (Sections One and Three)

The initial excavation of the Wilcrest Green Properties was started on Section One (north of Westpark Drive) on April 9 and excavation on both properties was completed on April 13. Six inches of soil were excavated from within the impacted soils limits. Of the 29 sampling grids on the two Wilcrest properties, six grids (21%) required additional excavation. An additional six inches of soil were excavated from each of the six failing grids and the grids were retested. Each of the re-excavated grids tested below the 30 ppm arsenic site action level. Backfilling of the excavations was completed on April 30.

Enclosed for your information are figures pertaining to the Soil Remedial Action. These figures were taken from the *Soil Remedial Action Construction Documentation Report Crystal Chemical Company Site* (Industrial Compliance, December 22, 1995). The following is the list figures provided and a description of the information presented in the figures:

Figure #	Description
1	**CRYSTAL CHEMICAL PROPERTY AND ADJACENT LANDOWNERS** This figure shows the area you identified as Track 2 (2.53 acres in Wilcrest Green) being located within WILCREST GREEN SECTION THREE.
2	**FIGURE 2. FORMER FACILITY LAYOUT** This figure shows the location of previous structures on the Crystal Chemical Company Superfund site.
3	**FIGURE 3. OFF-SITE SURFACE SAMPLING RESULTS** This figure shows the locations were soil samples were collected and the arsenic concentrations that were detected.
4	**FIGURE 4. DEPTH TO CLEAN** This figure shows how deep soil excavation was required to reached soils that had arsenic concentrations less than 30 parts per million.
5	**EXCAVATION PLAN** This figures shows the areas where soils were to be excavated to a depth 0.5 feet below existing grade or as indicated in the drawing.
6	**OFFSITE VERIFICATION RESULTS - NORTH** This figure shows areas where soil excavation was performed, the depth of excavation, and arsenic concentration at that depth.
7	**OFFSITE VERIFICATION RESULTS - SOUTH** This figure shows areas where soil excavation was performed, the depth of excavation, and arsenic concentration at that depth.

The ground water RA is being conducted in conformance with EPA's March 19, 1997, *Explanation of Significant Differences* (ESD) (copy enclosed). The ESD explains the differences between the ground water remedy being implemented and the ground water remedy identified in the September 1990, ROD for the site. During the course of the design for the extraction and treatment ground water remedy identified in the 1990 ROD, the EPA and Texas Natural Resource Conservation Commission determined that restoration of the ground water is technically impracticable for portions of the site. Therefore, EPA has determined that the applicable or relevant and appropriate requirement for groundwater restoration to the Maximum Contaminant Level (MCL) of 50 parts per billion (ppb) for arsenic will be waived and a slurry wall will be constructed around the portions of the site where groundwater cannot be restored.

MCLs are the highest permissible concentrations of a substance allowed in drinking water, as established by EPA. The extraction and treatment system will be implemented on the remainder of the site, as specified in the 1990 ROD.

It is important to note that sections of the slurry wall have been installed. These installed sections of the slurry wall border the site to the south and west and underlie two sections of Westpark Drive (see enclosed Ground Water Remedial Action Figure 5 - Slurry Wall Plan and Details). These sections of the slurry wall were constructed prior to construction of the compacted soil monofill. Construction of the slurry wall north of Westpark Drive has been delayed due to an access issue with a former property owner. This access issue has recently been resolved and a groundwater investigation is scheduled for this summer. The purpose of this investigation will be to identify the current extent of groundwater contamination.

As you may be aware, in November 1999, groundwater sampling was conducted on property located east and west of the site. Specifically, two wells located on the Wilcrest Green property (wells MW-9 and MW-6) and one well immediately east of the Wilcrest Green property (well MW-33) were sampled. The analytical results indicated that each groundwater sample had a reported arsenic concentration less than 5 ppb - the laboratory detection limit. These wells have been plugged and abandoned. Additional information regarding the sampling of these wells is enclosed (see December 15, 1999, letter from Environmental Resources Management).

Enclosed for your information are figures pertaining to the ground water remedial action. These figures were taken from the *Ground Water Remedial Design Addendum Slurry Wall Design Crystal Chemical Company Site* (Terranext, June 21, 1996). The following is a description of the information presented in the figures:

Figure #	Description
2	**Existing Site Layout** This figure shows the location of the compacted soil monofill.
3	**15' Sand Zone Isopleth** This figure shows the extent of 50 ppb arsenic impacted groundwater in the 15 foot groundwater zone. The dotted lines on this figure represent the location of a old stream channel.
4	**35' Sand Channel Isopleth** This figure shows the extent of 50 ppb arsenic impacted groundwater in the 35 foot groundwater zone. As presented in this figure, the extent of groundwater impacted with greater than 50 ppb arsenic extends both north and south of the site.

Figure #	Description
5	**Slurry Wall Plan and Details** This figure shows the location where slurry wall has been constructed and were it is proposed for construction.

The extraction and treatment system has been constructed and is operational. The goal of the extraction and treatment system is to remove arsenic contamination in the 35 foot groundwater zone to arsenic levels less than 50 ppb. This area is located immediately south of the site and is not encompassed by the slurry wall (see Figure 4 - 35' Sand Channel Isopleth). The EPA does not know how long the pump and treat system will be required operate. However, this system is anticipated to be operating from five to 30 years. EPA will evaluate and document the effectiveness of the groundwater remedial alternative at least every five years.

In regards to the specific questions in your letter, the following answers are based on information currently available to EPA.

Question 1. Will Tract 2 (2.53 acres in Wilcrest Green) be subjected to any remediation orders by the EPA for soil or ground water?

Response The EPA does not anticipate further soil remediation activities within or outside the current site boundaries other than activities associated with maintaining the cap for contaminated soil monofill. In regards to groundwater remediation, since the remedial action goals for groundwater discussed in the original *Record of Decision* (EPA 1990) and the *Explanation of Significant Differences of the Record of Decision* (EPA, 1997) have not been attained, additional work may be required on Tract 2. For example, additional extraction wells may be required to remove arsenic contamination in the 35 foot groundwater zone not encompassed by the slurry wall.

Question 2. What remediation, if any, has been done with regard to Tract 2 in Wilcrest Green?

Response: Excavation of soil contaminated with arsenic concentrations greater than 30 ppm has occurred on the Wilcrest Green Tract.

Question 3. What remediation orders do you expect in the future that would impact a future property owner of Tract 2 with regard to soil and/or ground water?

Response: In general, no remediation orders with regard to soil and/or groundwater are presently anticipated. However, please note, the ability of the current groundwater remediation system (i.e., slurry wall, pump & treat system) to meet the groundwater remedial objectives cannot be determined presently. Access may be required to Tract 2 in the future for additional investigation and/or the installation of additional extraction wells to remove arsenic contamination in the 35 foot groundwater zone not encompassed by the slurry wall. If additional actions are required to ensure the long-term protectiveness to human health and the environment, the EPA will likely pursue such actions.

EPA hopes that the above information is useful to you. Further, we direct your attention to the Judson-Robinson Westchase Library located at 3223 Wilcrest in Houston at which EPA has placed a copy of the Administrative Record for this site. If you have any questions, or wish to discuss this letter, please feel free to contact me at (214) 665-6758.

Sincerely,

Chris G. Villarreal

Chris G. Villarreal
Remedial Project Manager

Enclosures

cc: Anne Foster
EPA Legal Counsel

Environmental
Resources
Management

16300 Katy Freeway
Suite 300
Houston, Texas 77094-1611
(281) 579-8999
(281) 579-8988 (fax)

December 15, 1999

Mr. Chris G. Villarreal
Project Manager
Superfund Division (6SF-AT)
U.S. Environmental Protection Agency, Region 6
1455 Ross Avenue, Suite 1200
Dallas, Texas 75202 -2733

W.O. #422-040

ERM

Subject: EPA Docket No. CERCLA VI-15-92 - Crystal Chemical Site, Houston, Texas: Request to Plug and Abandon Select Ground Water Monitoring Wells

Dear Mr. Villarreal:

Environmental Resources Management (ERM) has completed the sampling and analysis of ground water from the four offsite ground water monitoring wells that Union Pacific Railroad (UPRR) would like to plug and abandon since they are no longer a part of the remedial or monitoring activities for the Crystal Chemical NPL Site. The activities were performed in accordance with our letter request, dated November 8, 1999, which was approved by the U.S. Environmental Protection Agency (EPA) on November 10, 1999. As stated in the November 8 letter, the work performed at this time was the first phase of abandonment and it included four monitoring wells. The monitoring wells sampled included one, MW-12, for the 15-foot sand zone and three for the 35-foot sand zone - MW-6, MW-9 and MW-34. The locations of these wells are shown in Figure 1.

The ground water samples were collected on November 16, 1999 and analyzed for total arsenic. The analytical results indicated that each sample had a laboratory reported concentration of arsenic which was below the detection limit of 5 ppb, thereby confirming that these monitoring wells will not be required in future ground water monitoring programs since the MCL for arsenic is 50 ppb. A copy of the analytical results is included in Attachment 2.

Therefore, on behalf of UPRR, ERM respectively requests that monitoring wells MW-6, MW-9, MW-12 and MW-34 be plugged and abandoned. ERM will mobilize a drilling subcontractor to perform the work within 10 days of receipt of your authorization to plug and abandon the wells. The second phase of well abandonment will commence in early 2000 once access to the Levy estate property has been obtained.

ANALYTICAL REPORT

TO: MARSHA LUTZ
LAB ORDER ID: 99111812
LOCTION CODE: CRYSTAL CHEMICAL
CONSULTANT JOB#: 422-40
LOCATION: 3502 ROGERDALE RD., HOUSTON TX
DATE: DECEMBER 02, 1999

PREPARED BY

TRACEANALYSIS, INC.
6701 ABERDEEN AVENUE, SUITE A
LUBBOCK, TX 79424
(806)-794-1296

ANALYTICAL REPORT INDEX

CONTENTS

ANALYTICAL REPORT SUMMARY

This report contains the result for four miscellaneous samples received on November 18, 1999, under Lab Order ID 99111812.

The determinations of Total Arsenic was done by inductively coupled plasma-atomic emission spectromery (ICP-AES) according to the TraceAnalysis Laboratory Standard Operating Procedure SOP-6010B.

A "U" qualifier indicates the analyte was not detected.

A "B" qualifier indicates the analyte is above detection but below reporting limits.

Expect as noted, all laboratory quality control requirements were met.

RELEASE OF THE DATA CONTAINED IN THIS PACKAGE HAS BEEN AUTHORIZED BY THE LABORATORY MANAGER OR THE MANAGER'S DESIGNEE.

Blair Leftwich 12-6-99

LABORATORY MANAGER: DATE

SAMPLE CROSS REFERENCE

TRACEANALYSIS ANALYTICAL LABORATORY

LAB ORDER ID: 99111812

CUSTOMER ID	LAB ID
MW-6	135743
MW-34	135744
MW-12	133745
MW-9	133746

Attachment 2b

SECTION I

INORGANICS

TraceAnalysis

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: TraceAnalysis, Inc.

Case No.: 99111812

FIELD CODE:	Lab Sample ID.
MW-6	135743
MW-34	135744
MW-12	135745
MW-9	135746

Were ICP interelement corrections applied? Yes/No NO

Were ICP backgrounds corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No YES

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Blair Leftwich Name: Blair Leftwich

Date: 12-2-99 Title: Director

Attachment 2b

TraceAnalysis
1
INORGANIC ANALYSIS DATA SHEET

TRACEANALYSIS
SAMPLE NO.

135743

Lab Name: TraceAnalyisis, Inc.

SDG: 99111812

Matrix (soil/water): Water

Date Received: 11/18/99

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.005	U		P

Comments:

FORM I - IN

ILM02

Attachment 2b

TraceAnalysis
1
INORGANIC ANALYSIS DATA SHEET

TRACEANALYSIS SAMPLE NO.

135744

Lab Name: TraceAnalyisis, Inc.

SDG: 99111812

Matrix (soil/water): Water Date Received: 11/18/99

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.005	U		P

Comments:

FORM I - IN

Attachment 2b

TraceAnalysis
1
INORGANIC ANALYSIS DATA SHEET

TRACEANALYSIS SAMPLE NO.

135748

Lab Name: TraceAnalyisis, Inc.

SDG: 99111812

Matrix (soil/water): Water

Date Received: 11/19/99

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.005	U		P

Comments:

FORM I - IN

ILM02.

Attachment 2b

TraceAnalysis
1
INORGANIC ANALYSIS DATA SHEET

TRACEANALYSIS
SAMPLE NO.

135746

Lab Name: TraceAnalyisis, Inc.

SDG: 99111812

Matrix (soil/water): Water

Date Received: 11/18/99

Concentration Units (mg/L or mg/kg dry weight): mg/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.005	U		P

Comments:

FORM I - IN

Forms by ChemSW [illegible]

ILM02.

Attachment 2b

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: TraceAnalysis, Inc.

SDG No.: 99111812

AA CRDL Standard Source:

ICP CRDL Standard Source: Ultra Scientific

Concentration Units: mg/L

Analyte	CRDL Standard for AA			%R(1)	CRDL Standard for ICP				
	True	Found	%R		True	Initial Found	%R	Final Found	%R
Arsenic					0.02	0.023	115.0	0.022	110.0

FORM II (PART 2) - IN

TraceAnalysis, Inc.
2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Initial Calibration Source: Leeman

Continuing Calabration Source: Ultra Scientific

Concentration Units: mg/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
senic	1.0	1.02	102.0	1.0	1.02	102.0	1.03	103.0	1

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

ILM02.0

00146

Attachment 2b

TraceAnalysis
3
BLANKS

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Preparation Blank Matrix (soil/water): Water

Preparation Blank Concentration Units (mg/L or mg/kg): mg/L

Analyte	Initial Calib. Blank (mg/L)	C	Continuing Calibration Blank (mg/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Arsenic	0.001	B	-0.001	B	0.001	B	0.002	U	-0.004	U	P

TraceAnalysis

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: TraceAnalysis, Inc.

SDG No.: 99111812

ICP ID Number: P&E Optima 3000 XL   ICS Source: Ultra Scientific

Concentration Units: mg/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Arsenic	0	0.100	0	0.097	97.0	0	0.100	100.0

*CORRECTED
TraceAnalysis, Inc.
5A
SPIKE SAMPLE RECOVERY

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Matrix (soil/water): Water

TRACEANALYSIS SAMPLE NUMBER: 133109

Concentration Units (ug/L or mg/kg dry weight): mg/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Arsenic	80-120	0.98		0.0050	U	1.00	98		P

Comments:

FORM V (PART 1) - IN

ILM02.0

00149

Attachment 2b

*CORRECTED

TraceAnalysis
6
DUPLICATES

TRACEANALYSIS SAMPLE NUMBER

133109

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Matrix (soil/water): Water

Concentration Units (mg/L or mg/kg dry weight): mg/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Arsenic	20%	0.005	U	0.005	U	0.0		P

FORM VI - IN

ILM02.0

Attachment 2b

TraceAnalysis
7
LABORATORY CONTROL SAMPLE

Lab Name: TraceAnalysis, Inc.

SDG: 99111812

Aqueous LCS Source: Ultra Scientific

Analyte	Aqueous (mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Arsenic	1.0	0.96	96.0						

TraceAnalysis
10
INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: TraceAnalysis, Inc.

ICP ID Number: 069N5042501

SDG: 99111812

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Arsenic	188.98	-.017, .017	10	3	

Comments:

FORM X - IN

ILM02.0

Attachment 2b

TraceAnalysis
12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: TraceAnalysis, Inc.   SDG: 99111812

ICP ID Number: 069N542501

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Arsenic	10-30*	10,000	

Comments:
*Integration times determined by instrument automatically in response to intensifies of emissions from specific analytes.

FORM XII - IN

Forms by ChemSW ... ILM02.0

Attachment 2b

*CORRECTED

TraceAnalysis

14

ANALYSIS RUN LOG

Lab Name: TraceAnalysis, Inc.

SDG: 99111912

Instrument ID Number: C69NS043031 Method: 200.7

Start Date: 11/20/99 End Date: 11/20/99

Lab Sample No.	D/F	Time	S R	Analytes																								
				AL	SB	SA	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	NI	NI	K	SE	AG	NA	TL	V	ZN	CN	
Calib Blank	1.00	9:12				X																						
Calib Std 3	1.00	9:15				X																						
ICS	1.00	9:18				X																						
ICB	1.00	9:22				X																						
ICV	1.00	9:26				X																						
CRI	1.00	9:30				X																						
PB	1.00	9:34				X																						
ICS-A	1.00	9:39				X																						
ICS-A&B	1.00	9:42				X																						
CCV	1.00	9:46				X																						
CCB	1.00	9:51				X																						
LCS	1.00	9:55				X																						
133109	1.00	9:59				X																						
1331090	1.00	10:03				X																						
1331098	1.00	10:07				X																						
1331097[1]	10.00	10:12				X																						
CCV	1.00	10:16				X																						
CCB	1.00	10:20				X																						
LCS	1.00	10:24				X																						
LCS-A	1.00	10:28				X																						
LCS-A&B	1.00	10:32				X																						
CRI	1.00	10:36				X																						
CCV	1.00	10:39				X																						
CCB	1.00	10:44				X																						
133743	1.00	10:49				X																						
133744	1.00	10:53				X																						
133745	1.00	10:57				X																						
133746	1.00	11:02				X																						
CCV	1.00	11:06				X																						
CCB	1.00	11:10				X																						

FORM XIV - IN ICM02.0

Attachment 2b

EPA Superfund Explanation of Significant Differences for Record of Decision:

Crystal Chemical Company Superfund Site
Houston, Texas
03/19/97

CRYSTAL CHEMICAL COMPANY SUPERFUND SITE

TABLE OF CONTENTS

EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE SEPTEMBER 1990 RECORD OF DECISION CRYSTAL CHEMICAL COMPANY SUPERFUND SITE HOUSTON, TEXAS

I. STATEMENT OF PURPOSE

This document explains the differences between the ground water remedy being implemented and the ground water remedy identified in the September 1990 Record of Decision (1990 ROD) for the Crystal Chemical Company Superfund Site.

During the course of the design for the extraction and treatment of arsenic-contaminated ground water remedy identified in the 1990 ROD, the U. S. Environmental Protection Agency (EPA) and the Texas Natural Resource Conservation Commission (TNRCC) determined that restoration of the ground water is technically impracticable for portions of the Crystal Chemical Company Superfund site. Therefore, EPA has determined that the applicable or relevant and appropriate requirement (ARAR) for ground water restoration to the Maximum Contaminant Level (MCL) of 50 µg/l for arsenic will be waived and a slurry wall will be constructed around the portions of the site where ground water cannot be restored. The extraction and treatment of arsenic-contaminated ground water remedy will be implemented on the remainder of the site, as specified in the 1990 ROD.

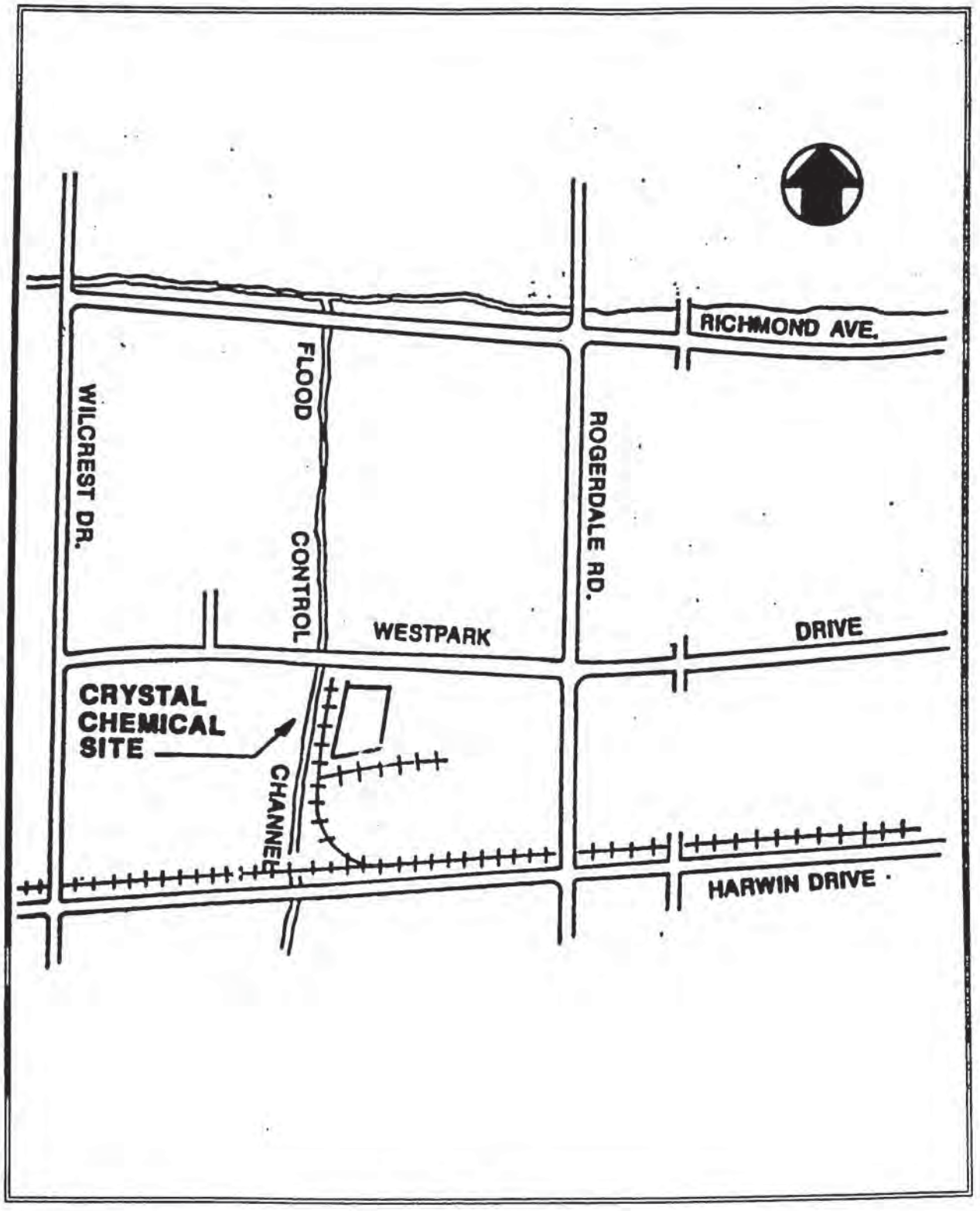
II. INTRODUCTION

The Crystal Chemical Company Superfund site (Crystal Chemical site) is located at 3502 Rogerdale Road, in southwestern Houston, Harris County, Texas. The Crystal Chemical site is bound on the west by the Harris County Flood Control Channel and lies immediately south of the Westpark Drive extension (Figure 1).

EPA is the lead agency for the Crystal Chemical site, and the State of Texas, through TNRCC, has been involved in all aspects of site activities. Southern Pacific Transportation Company has been identified as one of the potentially responsible parties for the Crystal Chemical site, and EPA has authorized Southern Pacific Transportation Company through an Administrative Order on Consent and an Unilateral Administrative Order to design and implement the ground water remedy for the Crystal Chemical site, as set forth in the 1990 ROD.

This Explanation of Significant Differences (ESD) is prepared in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by Superfund Amendments and Reauthorization Act, 42 U.S.C. § 9617(c), which provides that, after adoption of a final remedial action plan, if any remedial action is taken and if such action differs in any significant respects from the final plan, EPA shall publish an explanation of the significant differences and the reasons such changes were made.

FIGURE 1
SITE AREA MAP



This ESD is necessitated by the findings made during the course of the remedial design of the ground water extraction and treatment remedy. The results of the design investigations and the findings are presented in the **Assessment of the Technical Impracticability of Ground-Water Remediation, February 1996** for the Crystal Chemical site (**TI Assessment**). Specifically, it has been determined that restoration of the arsenic-contaminated ground water is technically impracticable due to hydrogeologic as well as contaminant-related factors for portions of the Crystal Chemical site. Therefore, EPA has determined that the ARAR for the ground water restoration to the MCL of 50 µg/l for arsenic will be waived and a slurry wall will be constructed to protect human health and the environment on the portions of the site that cannot be restored. These alternative remedial strategies were selected from the list of ground water contingency measures identified in the 1990 ROD (pages 95 and 96). The ground water extraction and treatment remedy will be implemented on the remainder of the site, as specified in the 1990 ROD.

In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR §300.825(a)(2), this ESD and the supporting information EPA relied upon in preparing the ESD, including the **TI Assessment,** will become part of the Administrative Record for the Crystal Chemical site. The Administrative Record file for the Crystal Chemical site is available at the following locations:

U.S. EPA, Region 6
Library, 12th floor (6MD-II)
1445 Ross Avenue
Dallas, Texas 75202-2733
(214) 665-6424 or 665-6427
facsimile (214) 665-2146
Hours of Operation: Monday through Friday 7:30 am-4:30 pm

Judson Robinson-Westchase Library
3223 Wilcrest
Houston, Texas 77042
(713) 784-0987
Hours of Operation: Monday 12:00 pm-9:00 pm; Tuesday 10:00 am- 9:00 pm; Wednesday 10:00 am-6:00 pm; Thursday 12:00 pm-9:00 pm; and, Friday/Saturday 10:00 am-6:00 pm

Texas Natural Resource Conservation Commission
12118 North IH 35
Technical Park Center, Room 190, Building D
Austin, Texas 78753
(512) 239-2920
Hours of Operation: Monday through Friday 8:00 am-5:00 pm

III. SITE HISTORY AND ORIGINALLY SELECTED REMEDIES

Crystal Chemical Company produced arsenical, phenolic, and amine-based herbicides from 1968 to 1981. Operation and maintenance problems at the Crystal Chemical facility during the late 1970s resulted in several violations of the State of Texas' environmental standards, and in September 1981, Crystal Chemical Company filed for bankruptcy and abandoned the site. In 1983, the Crystal Chemical property was added to the National Priorities List, qualifying the site for investigation and remediation under CERCLA, more commonly known as Superfund.

In September 1990, EPA issued the ROD that addressed soil and ground water contamination. The selected remedy for soil called for the excavation of offsite soils contaminated with arsenic greater than 30 parts per million (ppm), treating all the soils contaminated with arsenic greater than 300 ppm with a process called in-situ vitrification, and capping the entire site after the soils treatment had been completed. Due to the unavailability of the in-situ vitrification technology, EPA selected a new soil remedy in a ROD amendment issued in June 1992. The soil consolidation and capping remedy was completed in September 1995.

The remedy selected in the 1990 ROD for ground water called for the extraction and treatment of arsenic-contaminated ground water. The remediation goal specified in the 1990 ROD for the affected ground water zones is 50 µg/l, the MCL for arsenic. The 1990 ROD also included several contingency measures that could be implemented if an extraction and treatment system would not produce the remediation goals set for the Crystal Chemical site.

IV. DESCRIPTION OF AND BASIS FOR THE SIGNIFICANT DIFFERENCE

The 1990 ROD states that the goal of the ground water remedy is to restore the ground water to a useable state, i.e., removing the arsenic to the MCL of 50 µg/l. However, the 1990 ROD indicates that due to the uncertainty as to whether the remedy will be able to meet the remediation goal of the MCL for arsenic, contingency measures and goals may replace the selected remedy and goals. The contingency measures specified in the 1990 ROD were:

1) discontinuing operation of extraction wells in areas where remediation goals have been attained;

2) alternating pumping at wells to eliminate stagnation points; and/or,

3) establishing an Alternative Concentration Limit for arsenic provided compliance with CERCLA Section 121 (d)(2)(B)(ii) can be demonstrated;

4) waiving the ground water ARAR for those portions of the aquifer based on the technical impracticability of achieving further contaminant reduction;

5) implementing low level pumping as a long-term gradient control or construction of a containment measure such as a slurry wall; and/or,

6) implementing additional source control treatment to further reduce arsenic migration to ground water.

At the time of the 1990 ROD, EPA called for investigations and evaluations necessary to design the extraction and treatment system for the ground water remedy. Through an Administrative Order on Consent, EPA authorized Southern Pacific Transportation Company to undertake, with EPA oversight, the investigations and evaluations necessary to design an efficient and effective ground water extraction and treatment system.

During the course of the design investigations and evaluations, data indicated that portions of the site's contaminated ground water zones could not be restored. The portions of the site that cannot be remediated (the technical impracticability (TI) zone) consists of splay deposits, or off-channel deposits. These splay or off-channel deposits consist of sandy material with an abundance of fine-grained material (clay and/or silt). The other portion of the site, which is not part of the TI zone and is therefore not affected by this ESD, consists of a subsurface stream channel. The subsurface stream channel contains more sand and less fine-grained material, and this portion of the site can likely be restored through the extraction and treatment remedy based on the information collected and evaluated (Figures 2 and 3).

The findings of the investigations and evaluations are presented in the **TI Assessment** for the Crystal Chemical site. Factors providing the basis for the TI waiver include the following:

1) The complexity of the site geology;

2) the majority of the arsenic is in the fine-grained splay or off-channel deposits;

3) lab and field testing indicates that the arsenic has adsorbed on to the fine-grained sediments of the splay or off-channel deposits;

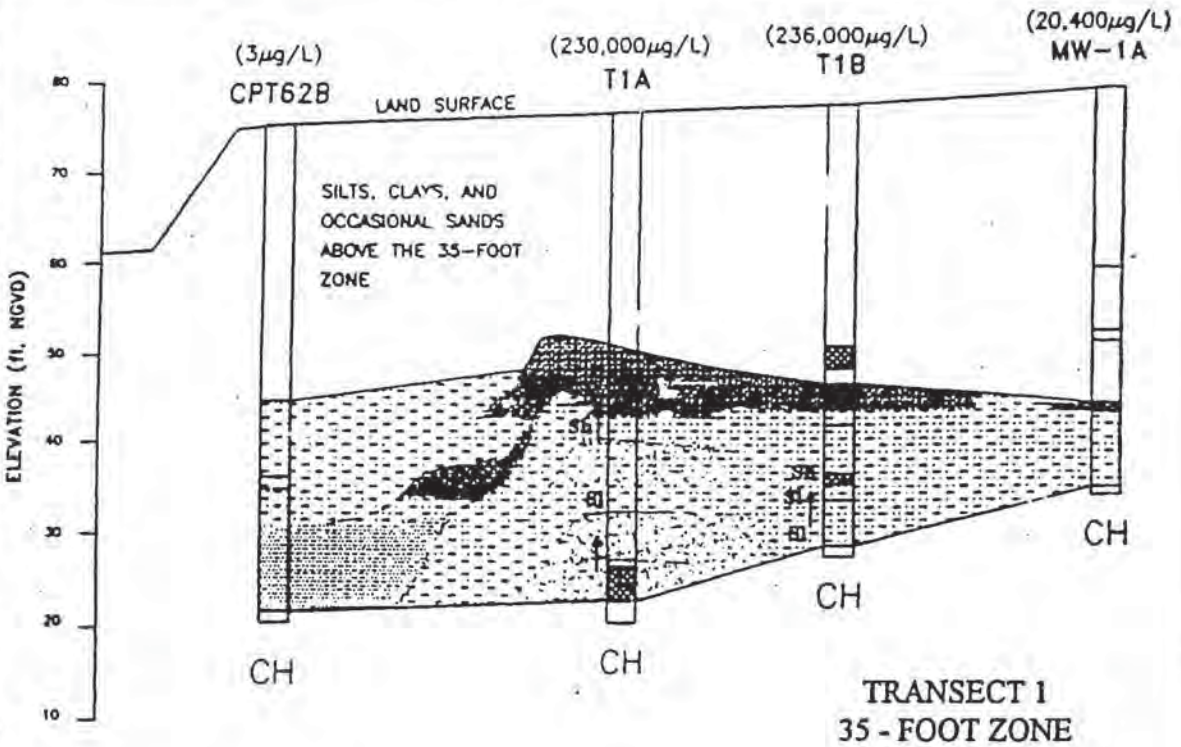
4) over 700 million gallons of water would have to be extracted to try to achieve the remediation goal;

5) the slow release of arsenic from the fine-grained sediments will limit the rate and quantity of arsenic that can be removed by extracting the ground water; therefore,

6) a range from 200 to 650 years is the minimum time estimated to restore the ground water zones, if they could be restored at all.

The timing of this TI decision is consistent with EPA's current program guidance on such waivers, "*Guidance for Evaluating the Technical Impracticability of Ground Water Restoration (OSWER Directive 9234.2-25, September, 1993)*. The guidance states that a TI decision may be

FIGURE 2
GEOLOGIC CROSS-SECTION



TRANSECT 1
35 - FOOT ZONE

CHANNEL AND DISTRIBUTARY-MOUTH BAR

LEVEE AND BAR

EXPLANATION

- SC - CLAYEY SANDS
- SM - SILTY SANDS
- SP - POORLY GRADED SANDS
- CL - CLAYS
- ML - INORGANIC SILTS AND VERY FINE SANDS
- DISTRIBUTARY MOUTH DEPOSIT (SP/SM)
- NO RECOVERY

(20,400 ug/L) CONCENTRATION OF ARSENIC IN WATER

Sh HORIZONTAL BEDDED SANDS

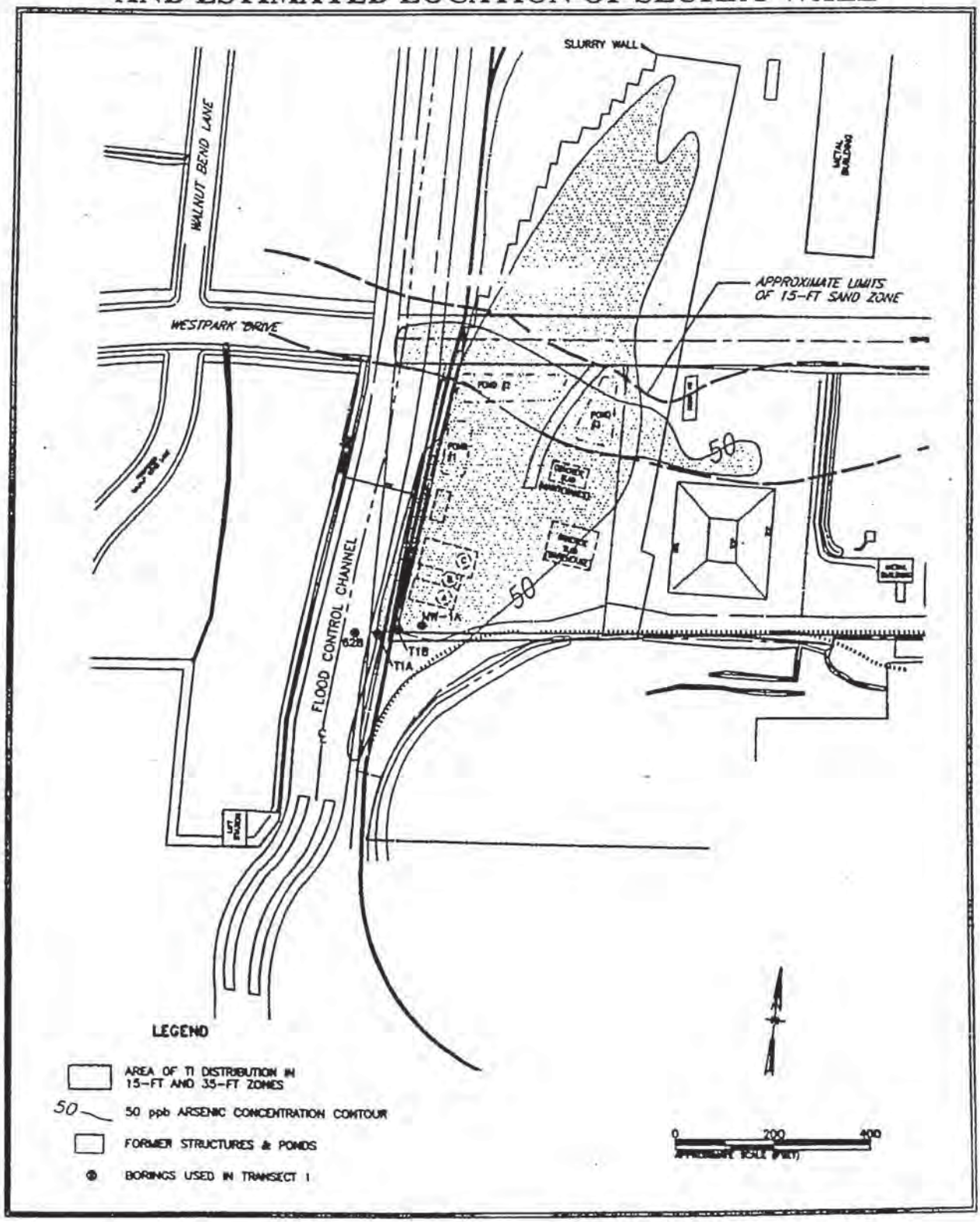
Sl LAMINATED SANDS

↑ FINING-UPWARD SEQUENCES

0 20 ft

NO VERTICAL EXAGGERATION

FIGURE 3 - AREAL EXTENT OF TI ZONE AND ESTIMATED LOCATION OF SLURRY WALL



made prior to implementing the remedy provided such a TI decision is adequately supported by detailed site-specific data and analyses.

The detailed technical demonstration that serves as the basis for the TI decision at the Crystal Chemical site is provided in the **TI Assessment**, prepared by Southern Pacific Transportation Company. The **TI Assessment** presents a detailed analysis of information collected prior to the issuance of the ROD, as well as information collected during the design investigations.

During the course of the implementation of the soil remedy (completed in September 1995), contaminated soils associated with two of the three onsite wastewater storage/treatment ponds were excavated and placed under the engineered, low permeability cap that was constructed over the entire Crystal Chemical site. Based on the depth of contamination, excavation from the third pond was not necessary. All source control measures that could reduce the migration of arsenic to the ground water have been implemented at the Crystal Chemical site. Therefore, according to the ROD, the ground water contingency measure calling for the implementation of additional source control (*ROD ground water contingency measure #6*) has been carried out.

As a result of EPA's conclusion that restoration of the ground water is technically impracticable for portions of the Crystal Chemical site, EPA has determined that the ARAR for ground water restoration will be waived (*ROD ground water contingency measure #4*) and a slurry wall will be constructed around the portions of the site where ground water cannot be restored (*ROD ground water contingency measure #5*). See Figure 3 for the illustration of the TI zone and location of the slurry wall. The extraction and treatment of arsenic-contaminated ground water remedy will be implemented on the remainder of the site.

Although the 1990 ROD indicates that there will be operation and monitoring of the extraction and treatment system for 10 years prior to consideration of the contingency measures, implementation of the extraction and treatment remedy and monitoring for a 10-year period is not necessary to determine that the remedy is incapable of achieving the remediation goal in the TI zone. EPA already has adequate information to support its determination that a TI waiver is appropriate.

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed the **TI Assessment** and agrees that the data support the findings that ground water restoration on portions of the Crystal Chemical site is technically impracticable. TNRCC has also concurred with EPA regarding the construction of the slurry wall around the TI zone.

V. PUBLIC PARTICIPATION ACTIVITIES

During the preparation of the ROD, EPA held a public comment period from June 11, 1990 through July 11, 1990. Informal open houses were held in the Houston area on two separate occasions: April 10 and June 5, 1990. Additionally, a public meeting was held on June 21, 1990. EPA responded to comments received during the public meeting as well as the public comment period in the Responsiveness Summary, which is an attachment to the ROD.

During the preparation of the ROD amendment for the soil remedy, EPA held a public comment period from February 24, 1992 through March 24, 1992. An informal open house was held on February 20, 1992, with the public meeting being held on March 19, 1992. EPA responded to comments received during the public meeting as well as the public comment period in the Responsiveness Summary, which is an attachment to the June 1992 ROD amendment for the soil remedy.

An open house was held on October 13, 1994 to update the community on the remedial designs for the soil and ground water remedies for the Crystal Chemical site.

A notice of this Explanation of Significant Differences and a summary of the differences between the ground water remedy being proposed and the ground water remedy identified in the 1990 ROD was published in the **Houston Chronicle** on July 12, 1996. Approximately 1300 fact sheets summarizing the proposed changes and requesting public participation were mailed, and EPA invited public comment from July 15, 1996 until August 15, 1996. All written comments submitted have been responded to in the attached Responsiveness Summary.

VI. STATE COMMENTS

The State's letter expressing its concurrence with this ESD is attached.

VII. STATUTORY DETERMINATION

Considering the new information developed during the remedial design for the ground water remedy described in the ROD, specifically the technical impracticability of restoring the ground water on portions of the site, EPA believes that the remedy remains protective of human health and the environment. Furthermore, the 1990 ROD remains protective and continues to meet ARARs identified in the 1990 ROD that are not being waived. The revised remedy utilizes permanent solutions to the maximum extent practicable for this site and is cost-effective. It complies with the National Oil and Hazardous Substances Pollution Contingency Plan and other federal and state requirements that are applicable or relevant and appropriate to this remedial action.

Jerry Clifford

Jane N. Saginaw
Regional Administrator

3/19/97

Date

APPENDIX A

EXPLANATION OF SIGNIFICANT DIFFERENCES FOR THE CRYSTAL CHEMICAL COMPANY SUPERFUND SITE RECORD OF DECISION RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY FOR EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE SEPTEMBER 1990 RECORD OF DECISION CRYSTAL CHEMICAL COMPANY SUPERFUND SITE HOUSTON, TEXAS

The public comment period for the Explanation of Significant Differences to the Crystal Chemical Company Superfund site September 1990 Record of Decision was held from July 15, 1996 to August 15, 1996. The EPA received no requests for a public meeting during the public comment period. The only comments received during the public comment period were submitted by Vinson & Elkins, Attorneys at Law, on behalf of their client Mr. Theodore Levy. Mr. Levy, now deceased, owned property north of the site. These comments are being addressed in this Responsiveness Summary.

Comment 1: EPA must use the [Record of Decision] Amendment process to grant the [technical impracticability] waiver.

The "*Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration*" (OSWER Directive 9234.2-25, September 1993) identifies an Explanation of Significant Differences (ESD) as a mechanism by which a technical impracticability (TI) waiver can be invoked. The directive does state that public notice and opportunity for comment should be provided if an ESD is used to grant the TI waiver. Pursuant to the directive, the EPA has provided public notice and opportunity for comment since an ESD is being used to invoke the TI waiver.

The requirements for issuing an ESD and issuing a Record of Decision (ROD) Amendment pursuant to the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) differ essentially in that a ROD Amendment is subject to public comment. The ROD issued in September 1990 for the Crystal Chemical Company Superfund site identified several ground water contingency measures that could be implemented if an extraction and treatment system would not attain the remediation goals set for the Crystal Chemical Company site, and opportunity for public comment was provided for the ground water contingency measures identified in that 1990 ROD. The contingency measures in the 1990 ROD included containment through use of a slurry wall. The EPA also issued a notice of availability and brief description of the proposed ESD for the Crystal Chemical Company site ground water remedy in the ***Houston Chronicle***, a major local newspaper of general circulation. Approximately 1300 fact sheets summarizing the changes and requesting public participation were mailed. The proposed ESD and supporting information were available to the public in the administrative record.

Unfortunately, property adjacent to the site has been affected by the ground water contamination associated with the Crystal Chemical Company site. Regardless of whether the TI waiver was invoked or the 1990 ROD extraction and treatment remedy was implemented on all portions of the site, the adjacent property would be affected by the remedial action for the ground water contamination. Under the design plan for the extraction and treatment remedy, installation of two or three extraction wells were planned on the adjacent property for long-term operation. During the development of this design, however, it was determined that the extraction and treatment remedy would be unable to attain EPA's goal of restoring contaminated ground water at the Crystal Chemical Company site within a reasonable time frame. Therefore, after careful consideration, the EPA has selected an alternative remedial strategy that is technically practicable, protective of human health and the environment, and satisfies the statutory and regulatory requirements of the Superfund program. This alternative remedial strategy includes the construction of a slurry wall across Westpark Drive and onto the adjacent property. The slurry wall will contribute to the long-term management of contaminant migration by limiting the further contamination of ground water. Effective source containment will permit restoration of the portion of the aqueous plume that lies outside the containment area.

Comment 2: **The TI waiver cannot be granted because EPA has not demonstrated that an enhancement or augmentation of the selected remedy could not attain the groundwater cleanup standard.**

With the issuance of this ESD, the EPA concludes the culmination of approximately thirteen years of investigations and studies in connection with the Crystal Chemical Company site. Pursuant to the "*Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration* " (OSWER Directive 9234.2-25, September 1993), the ***Assessment of the Technical Impracticability of Ground-Water Remediation for the Crystal Chemical Superfund Site, February 1996 (TI Assessment)*** was drafted by Southern Pacific Transportation Company in consultation with EPA, and was ultimately approved by the EPA. EPA representatives from this regional office as well as from EPA's headquarters in Washington, D.C., participated in the evaluation and review of the Crystal Chemical Company site and of this document. Representatives from EPA's Office of Research and Development, Technical Support Project at the Robert S. Kerr Environmental Research Laboratory also fully participated in the evaluation and review of the site, the ground water remedy, the ground water contingency measures, and the TI waiver request.

In pursuit of the statutory preference for treatment and a permanent solution to the Crystal Chemical Company site, EPA has been receptive to new technologies as well as innovative approaches to addressing the contamination at the Crystal Chemical Company site during the past thirteen years. In portions of the site where it has been determined that restoration of the ground water is technically practicable, a contaminated ground water extraction and treatment system has

been constructed and is operational. It is estimated that to reach the ground water remediation goals for areas outside the proposed slurry wall, the water treatment plant will be treating the extracted ground water (at approximately 5 - 10 gallons per minute) for the next 15 years.

During the development of the ***TI Assessment*** for areas of the site where groundwater restoration is not technically practicable, initial bench tests (e.g., soil column leaching tests) to assess the viability of aquifer extraction enhancement were conducted. In fact three methods for the in-situ treatment of arsenic-bearing ground water were postulated: 1) a soluble ferric iron complex would be injected into the contaminated aquifer; breakdown of the complex would allow precipitation of ferric hydroxide at near-neutral pH, and arsenic would be coprecipitated; 2) ground water pumped from the aquifer would be treated on the surface to produce a ferric hydroxide precipitate containing arsenic; the ferric hydroxide, if present as a colloidal suspension (a hydrosol), could be injected into the contaminated aquifer; and 3) aqueous ferric sulphate would be injected into the aquifer in a geometric pattern with compressed air to oxidize resident arsenite to arsenate while reacting with both inorganic and organic arsenic species. The testing and studies concluded that arsenic could not be recovered from saturated soils to any significant degree. A multi-year testing program (from further lab and bench scale tests to actual field pilot tests) would be needed in order to design a full-scale aquifer remediation program using chemically enhanced desorption or dissolution and mobilization of the arsenic at the Crystal Chemical Company site. Even after designing a full scale system, uncertainties regarding the ability of this remedial strategy to achieve the ground water remedial goals in the field would remain due to hydrogeologic factors (i.e., subsurface heterogeneities and abundance of fine grain materials [clay and/or silt]) and contaminant-related factors.

As an attachment to the comments, a contractor provided a document which discussed the possibility of similar enhancements to the extraction and treatment remedy for the Crystal Chemical Company site. The contractor indicated that its "analysis and groundwater-flow modeling of the Crystal Chemical situation clearly showed that hydraulic control of ground water flow and transport could be achieved at the Crystal Chemical site through proper design, number, and placement of wells." Previous modeling done for the Crystal Chemical Company site in relation to the TI evaluation showed that a range from 200 to 650 years is the minimum time estimated to restore the ground water zones, if they could be restored at all. Although the modeling done in relation to the TI evaluation did not include the addition of a chemical agent to aid in the extraction of contamination, the fact that it predicted very long restoration time frames (e.g., longer than 250 years) seems to indicate the presence of hydrogeologic and/or contaminant-related constraints to remediation. In addition, nowhere in the contractor's document is a single example cited where arsenic of any form has been successfully removed from an aquifer to the Crystal Chemical Company site remediation goal or to any other goal. Therefore, until the conclusion and evaluation of a multi-year testing program as discussed above, the ability of the contractor's proposed insitu extraction enhancements to attain the ground water remediation goals would not be known. The EPA has determined that it is more appropriate to go forward with a remedy which has been demonstrated to be effective.

Comment 3: **The administrative record does not support the action EPA proposed because it does not include any evidence indicating an enhanced desorption remedy is impracticable.**

The administrative record does contain [as required in CERCLA § 113(k)(1)] the documents that form the basis for the selection of the response action. As discussed in the Office of Solid Waste and Emergency Response Directive # 9833.3A-1 (Final Guidance on Administrative Records for Selecting CERCLA Response Actions), the administrative record file has been amended to include all of the comments submitted during the formal public comment period. The information submitted during the formal public comment period does not support the proposition that enhanced desorption is practicable for the Crystal Chemical Company site. The speculative nature of the technology and the lack of specific and/or demonstrated application to the Crystal Chemical Company site does not justify the additional time and resources needed to pursue enhanced desorption, especially given the thirteen years already expended in studying the Crystal Chemical Company site in pursuit of a remedy. The EPA has selected an alternative remedial strategy that is technically practicable, protective of human health and the environment, and satisfies the statutory and regulatory requirements of the Superfund program.

APPENDIX B

STATE OF TEXAS CONCURRENCE LETTER

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

June 27, 1996

SENT VIA FACSIMILE & CERTIFIED MAIL
Mr. Chris Villarreal
Remedial Project Manager
Crystal Chemical Superfund Site
U.S. Environmental Protection Agency
Region 6, 6H-ET
Allied Bank Tower
1445 Ross Avenue
Dallas, TX 75202-2733

RE: Explanation of Significant Differences,
Crystal Chemical Site, Houston, Texas

Dear Mr. Villarreal:

This letter serves to communicate Texas Natural Resource Conservation Commission (TNRCC) concurrence with the Explanation of Significant Differences (ESD) for the Crystal Chemical Superfund Site in Houston, Texas. The TNRCC believes that the remedial strategy for the ground water presented in the ESD is supported by the contingency measures outlined in the 1990 Record of Decision. Furthermore, the TNRCC agrees with the U.S. Environmental Protection Agency's belief that the remedy utilizes permanent solutions to the maximum extent practicable, is cost-effective, and remains protective of human health and the environment.

Please contact me with any questions concerning these comments or any other issues at the Crystal Chemical site at (512) 239-2030.

Sincerely,

E. R. (Trey) Collins, III
Project Manager
Superfund Engineering Section
Pollution Cleanup Division

ERC/erc

cc: Ms. Lisa Marie Price, U.S. Environmental Protecton Agency (6PD-NB)

CITY OF HOUSTON

Planning and Development Department
Post Office Box 1562 Houston, Texas 77251 713/837-7701

January 26, 2000

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissosnnet
Houston TX 77005

Dear Ms. Wimbish:

SUBJECT: Zoning - in the City of Houston and it's Extra Territorial Jurisdiction Area

LOCATION: 10400 Westpark Drive, Between Walnut Bend and Rogerdale, Houston TX

There is no zoning within the corporate limits of the City of Houston; nor is there in the City of Houston's extraterritorial jurisdiction area. However, your property may be subject to deed restrictions, filed separately.

Sincerely,

Marlene L. Gafrick

Marlene L. Gafrick'
Assistant Director
Development Services Division

s:\admin\wimbish

Attachment 20a

DEED RESTRICTIONS

Grantor and Grantee agree that the following covenants, conditions and restrictions shall be and are imposed against the property:

No use of the Property shall be permitted which is illegal by reason of noise, odor, pollution, dust, smoke, fumes, or hazardous by reason of excessive danger of fire or explosion, nor shall anything be done thereon which may create environmental contamination of which may be or become an environmental hazard to surrounding property owners.

In addition, no activity or use shall be permitted on or with respect to any part of the property which is obnoxious, offensive, constitutes a nuisance, or is materially out of harmony with the development of Wilcrest Green, including, but not limited to the operation of (a) a used car lot, car repair lot or car detail lot, or the like (b) storage yard for pipe, junk vehicles, or any other kind of junk material (c) a manufacturing or assembling facility, unless such facility is operated inside an enclosed facility with an exterior constructed of brick, stone, metal or concrete, or some combination thereof, with said facility having a proper business like front facade (exterior cannot be greater than 50% metal) and (d) any type of "adult entertainment" business catering to adults only and sexual in nature.

Expressly permitted and excepted herein is the construction and operation of a non toxic waste treatment plant for liquid transportable waste including but not limited to grease trap waste, septage and grit. Said facility will be operated wholly within the applicable laws of the T.N.R.C.C., the City of Houston, and other applicable regulatory agencies and if at any time it is not operating within their guidelines, it will be reported to one of the proper authorities for corrective action to be taken immediately.

Any question as to what constitutes any annoyance, nuisance, or is obnoxious shall be solely at the discretion of Don McGuirt, President (or any successor President) of 50 Westpark Corp., so long as 50 Westpark Corp. or Don McGuirt owns property in Wilcrest Green.

A tree buffer zone of ten feet (10') will be required on subject tracts northern property line a distance of approx. 185', along with approx. 400' on the western border. This buffer area shall fall inside the required fence and shall be planted with fast growing evergreen trees with their growth projected to be well above the fence line. Tree will be such that they are well taller than fence when planted. Spacing shall be such that it provides as dense a cover as is reasonably possible.

Buyer shall have right to cross under 20' easement to east of subject property for the purpose of installing conduit or culverts for drainage, so long as any damage to existing road is repaired by Buyer. Buyer may also tie into the wastewater line lying within this 20' easement at their expense so long as road is repaired.

No signage other than a monument sign installed on Westpark by Seller for the benefit of all 3 owners will be permitted. Seller will install the monument sign including address and Buyer will be responsible for installing their name on subject sign in lettering and material approved by Seller.

The preceding restrictive covenants shall be covenants running with the land and shall be for the benefit of and enforceable solely by Grantor by any and all equitable means, inclusive of, but without limitation, temporary restraining order, temporary injunction and permanent injunction. The preceding restrictive covenants shall be enforceable solely by Grantor and shall terminate upon the earliest to occur of the following: (a) passage of twelve years from date of the conveyance of the property to Buyer; (b) when Grantor or Don McGuirt ceases to own any land in Wilcrest Green.

DMM

CITY OF HOUSTON

Public Works and Engineering Department
Post Office Box 1562 • Houston, Texas 77251-1562

Lee P. Brown, Mayor

February 9, 2000

Ms. Mary Wimbish
Downstream Environmental, LLC
2044 Bissonnet
Houston, TX 77005

Dear Ms. Wimbish:

This is in response to your letter requesting written confirmation as to whether or not there are any NO THRU TRUCKS signs or WEIGHT LIMIT signs on Westpark Drive between Beltway 8 and Walnut Bend. An investigation by our Traffic Management and Maintenance Branch revealed no such signs on this roadway segment.

Sincerely,

Douglas W. Wiersig

Douglas W. Wiersig, Ph.D., P.E.
Senior Assistant Director
Traffic Management and Maintenance Branch

DWW/WH/SS/ss

xc: Jerry King
Thomas J. Rolen
William Hlavacek

Attachment 19

HARRIS[illegible] ...LL ROAD AUTHORITY
DAILY TRAFFI[illegible] ...TON SOUTH - FISCAL 1999-2000
SECOND HALF

WEEK	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	TOTAL
FY 1988	0	0	0	0	0	0	0	0
FY 1989	588,177	976,161	1,067,677	1,077,385	1,097,075	1,199,039	831,083	6,836,617
FY 1990	1,357,111	2,279,231	2,398,203	2,522,621	2,467,271	2,695,776	1,801,622	15,541,837
FY 1991	2,031,843	3,406,149	3,547,322	3,631,952	3,765,010	4,027,451	2,671,493	23,081,220
FY 1992	2,361,960	4,042,854	4,203,640	4,203,729	4,269,992	4,757,613	3,124,288	26,964,076
FY 1993	2,536,130	4,309,473	4,526,601	4,585,655	4,632,575	4,879,375	3,237,710	28,707,719
FY 1994	2,636,014	4,643,847	4,793,625	4,859,355	4,917,339	5,228,341	3,384,274	30,462,795
FY 1995	2,858,654	4,891,769	5,273,208	5,262,928	5,359,048	5,712,776	3,745,577	33,103,860
FY 1996	2,957,099	5,183,679	5,477,712	5,759,070	5,842,921	6,083,901	3,873,442	35,157,824
FY 1997	3,090,335	5,546,115	5,789,905	5,883,520	5,913,347	6,511,836	4,133,225	36,868,283
FY 1998	3,687,173	6,351,239	6,674,275	6,585,687	6,609,902	6,986,994	4,914,179	41,809,449
FIRST HALF TOTALS	2,548,213	4,154,261	4,387,732	4,262,174	4,455,856	4,611,729	3,251,003	27,690,968
SEP 1				169,655	175,502	191,932	117,313	654,502
SEP 5	92,716	93,489	164,586	168,891	170,639	186,968	129,751	1,007,040
SEP 12	96,819	162,699	166,777	170,600	172,702	188,460	132,858	1,090,915
SEP 19	106,377	162,311	165,112	166,191	175,261	185,911	131,879	1,093,042
SEP 26	97,963	163,464	165,654	166,478	175,911	188,940	129,407	1,088,017
OCT 3	99,701	162,490	167,911	169,626	174,548	186,615	127,559	1,088,650
OCT 10	99,824	160,376	168,621	171,759	174,623	193,084	134,407	1,102,694
OCT 17	102,120	161,976	165,845	171,222	176,749	189,231	135,285	1,102,428
OCT 24	105,267	165,396	169,985	173,050	175,966	189,987	132,316	1,112,147
OCT 31	106,120	164,729	169,460	170,866	175,438	188,486	134,863	1,109,942
NOV 7	104,052	164,629	168,085	172,629	173,913	185,136	133,902	1,102,346
NOV 14	104,315	167,441	170,085	172,956	177,453	189,861	133,964	1,116,075
NOV 21	100,146	164,011	175,779	179,708	102,469	112,810	111,304	946,227
NOV 28	97,172	163,892	170,591	174,138	170,462	184,848	126,465	1,087,568
DEC 5	101,043	166,662	172,164	172,950	173,839	190,764	137,588	1,114,930
DEC 12	98,085	167,599	173,548	179,583	184,087	195,068	145,780	1,143,750
DEC 19	111,156	165,808	173,430	176,051	168,838	122,347	92,787	1,000,217
DEC 26	94,856	138,994	147,533	166,392	162,433	121,367	81,404	901,979
JAN 2	85,281	147,004	160,859	164,695	168,047	178,087	117,260	1,021,233
JAN 9	90,715	162,980	166,644	171,101	171,124	185,343	127,389	1,075,296
JAN 16	99,928	160,286	169,293	170,225	174,467	185,308	127,178	1,086,685
JAN 23	96,015	162,744	168,071	168,075	163,191	160,277	121,320	1,059,693
JAN 30	95,428	163,654	163,319	167,352	176,149	190,255	133,484	1,089,641
FEB 6	98,382	163,266	170,048	173,080	177,201	186,677	132,748	1,103,404
FEB 13	100,009	174,502	176,047	168,520	177,893	189,715	132,268	1,118,954
FEB 20								0
FEB 27								0
SECOND HALF TOTALS	2,383,490	3,830,304	4,029,647	4,264,793	4,258,805	4,469,657	3,160,679	26,417,375
FISCAL YEAR TOTALS	4,931,703	7,984,565	8,417,379	8,546,967	8,714,661	9,101,386	6,411,682	54,108,343
CUMULATIVE	26,467,666	49,503,695	51,985,655	52,640,424	53,423,277	57,310,374	38,001,860	331,915,131

00326

Attachment 19

DOWNSTREAM ENVIRONMENTAL, LLC

2044 Bissonnet
Houston, TX 77005

GScarborough@DownstreamEnvironmental.com

(713)520-8113
Fax: (713)520-0138

March 3, 2001

Paul R. Nelson,
Deputy Asst. Director
Utility Analysis Section
City of Houston
P.O. Box 131927
Houston, Texas 77219-1927

RE: Downstream Environmental; The "B.R. Perrin" - Type V - GG Treatment Plant; Wastewater Compatibility

Dear Paul:

The TNRCC, in its review of our registration application, has requested that we obtain from the City of Houston the acceptability of our discharge into the City's sewer system.

Downstream Environmental has submitted an application for registration to the TNRCC in Austin, Texas to build and operate an industrial wastewater treatment facility. The location of the "B.R. Perrin" - Type V - GG Treatment Plant site is Tract 2, of Restricted Reserve "D" (See Attached Survey) of which the address is 10400 Westpark Drive, Houston Texas 77042. The site is adjacent to H.C.C.F. No. H819158 Lift Station Site. The anticipated maximum daily flow will not exceed 150,000 GPD (gallons per day).

The Impact Fee and Wastewater Capacity Reservation were paid for and obtained by the prior Owner of the property. Wastewater Capacity will be transferred to Downstream Environmental from the prior landowner as a condition of purchase. See: Attached receipts.

Downstream will install a sampling well for monitoring and will comply with City Ordinances regarding affluent.

Your immediate attention to this matter is greatly appreciated. If there are any questions concerning this letter, or clarifications required, please feel free to call.

Sincerely,

Gwendolyn Scarborough
Vice-President

GS:dgn
enc.

Pink Copy - Wastewater
Goldenrod Copy - Controllers
White Copy - Permits
Canary Copy - Customer

Check No. 1105

City of Houston
Wastewater Capacity
Name Transfer Receipt

Collection of the applicable fees listed below is required before processing a Wastewater Capacity Reservation Transfer, and is authorized per Chapter 49; Article X. (Wastewater Capacity Reservation Application); Section 49-739 (Fees) of the City of Houston Code of Ordinances.

Transfer of a Wastewater Capacity Reservation from one person to another without changing the Proposed Development.

Capacity to be transferred from

The Enterprise Company to
Name

Fifty Westpark Corp.
Name

2540 Fondren #110
Street

Houston, Texas 77063
City State Zip

Wastewater Capacity 673085 GPD

Wastewater Capacity Reservation 0 0 5 6 4 4 - 0 0 0

Transfer Filing Fee ($10.00) 10.00

Administrative Fee ($ 5.00) 5.00

Total Paid 15.00

Received by: Christine Pryce Lee

Date: 11/29/93

112 N 1563

Rev. 10-29-84

Fifty Westpark Corporation

Schedule of Assets Distributed to Shareholders in Exchange for Stock

December 1, 1999

The following assets and liabilities were received in exchange for the indicated shares to be issued by the corporation:

Cash:

- None

Real Estate:

- 3.35 acres
- 3.36 acres
- 1.98 acres
- 2.5 acres
- 25.2 acres

Wastewater capacity:

- Balance remaining of 673,085 gallons per day

Liabilities:

- Reserve for environmental cleanup

Don McGuirt

Jack Christie

Trey Wing

Attachment 21a

Pink Copy - Wastewater
Goldenrod Copy - Controllers
White Copy - Permits
Canary Copy - Customer

City of Houston
Wastewater Capacity
Name Transfer Receipt

Check # 1019

Collection of the applicable fees listed below is required before processing a Wastewater Capacity Reservation Transfer, and is authorized per Chapter 49; Article X. (Wastewater Capacity Reservation Application); Section 49-739 (Fees) of the City of Houston Code of Ordinances.

Transfer of a Wastewater Capacity Reservation from one person to another without changing the Proposed Development.

Capacity to be transferred from

Don McGuirt and Jack Christie to
Name

Group Two Partners, LLP, a Texas Limited Liability Partnership
Name

2044 Bissonnet
Street

Houston, Texas 77005
City State Zip

ok CPH -

Wastewater Capacity 28,333 gallons per day GPD

Wastewater Capacity Reservation 005644-000

Transfer Filing Fee ($10.00) 10.00

Administrative Fee ($ 5.00) 5.00

Total Paid 15.00

Received by: [signature]

Date: 2-28-07

00181

Rev. 10-29-84

Attachment 21a

Ms Mary Wimbish

Downstream Environmental
2044 Bissonnet
Houston, Texas 77005

Re: Landfill Capacity

Dear Ms. Wimbish,

I write to you in response to your inquiry regarding landfill capacity for your Company's proposed disposal facility for 150,000 gpd grease and grit trap waste, located in Houston, Texas, west of Beltway 8. Your disposal site located at Beltway 8 and Harwin – Westpark area would be served by the McCarty Road Landfill owned by BFI / Allied.

It is our understanding that your Company's anticipated sludge disposal needs consist of 2-30 yd roll-off boxes a day of Class B sludge, meeting the paint filter test requirements. This letter is to confirm that BFI / Allied has sufficient landfill space to meet Company's needs and more. We currently have ample facilities for Class B sludge that meets the paint filter test requirements. For an additional charge, we will solidify all loads that are too wet to meet the paint filter test requirements. In either case, we are more than capable of meeting your Company's sludge disposal needs with sufficient landfill space.

Sincerely,
BFI Waste Systems of North America, Inc.

Brian Cormier
Major Account Executive
Manufacturing Marketing and Sales

Part II

(Clean Copy)

PART II

TITLE PAGE - MSW #2298

Project Name:

DOWNSTREAM ENVIRONMENTAL, LLC

B. R. Perrin Plant

3737 Walnut Bend

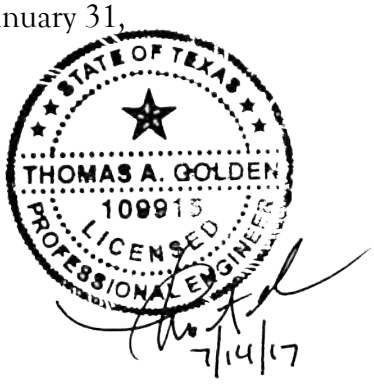
Houston, Harris County, Texas 77042

Prepared for:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

MUNICIPAL SOLID WASTE DIVISION

NAME OF APPLICANT:	**DOWNSTREAM ENVIRONMENTAL, LLC** 3737 Walnut Bend Houston, TX 77042
PROPERTY OWNER:	Downstream Environmental, LLC 16350 Park Ten Place, Suite 215 Houston, TX 77084
CONSULTING ENGINEER:	Daniel B. Stephens & Associates, Inc. 4030 West Braker Lane, Suite 325 Austin, Texas 78759
TYPE OF FACILITY:	Type V Municipal Solid Waste Processing Grit, Septage and Grease Trap Treatment Facility
WASTE TO BE ACCEPTED:	Grease Trap Waste, Grit Trap Waste and Septage
ORIGINALLY SUBMITTED:	April 3, 2002
REVISED AND SUBMITTED:	October 17, 2002, April 24, 2002, January 31, 2008 and July 14, 2017

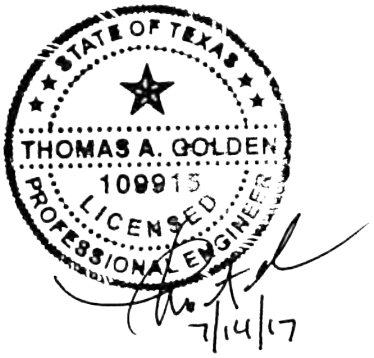


PART II

TABLE OF CONTENTS

[330.53]

TECHNICAL REQUIREMENTS OF PART II



PART II
Supplemental Technical Report

§330.52(b)(3) and §330.53(b)(3)

In the event the recycling goals of a Type V Registration cannot be met due to changes in the market, Applicant requests that the facility in question be allowed to operate under a Type V MSW Permit, and files this application as follows:

Subtitle D of the Resource Conservation and Recovery Act (RCRA) bans liquid waste from being disposed of at landfills. Since the ban on liquid waste receipt at landfills became effective in 1993, a lack of disposal service for commercial liquid waste streams is a problem in some Texas cities. Two of the waste streams which have been historically disposed of in landfills are grease trap waste and grit trap waste. The major constituent of both of these waste steams is water. Downstream Environmental, LLC is an innovative technology company that is committed to the urban friendly processing of grease and grit trap waste. Downstream Environmental's patented technology generates clean water and eliminates odor and land use problems.

Downstream Environmental, LLC is making application to obtain a Type V MSW Permit to operate a stationary Type V G municipal solid waste processing facility. The facility is designed to process septage, great trap waste and grit trap waste.

For the purpose of this Type V MSW Permit Application, the Applicant shall be referred to as "Downstream Environmental, L.L.C." or "Applicant".

PART II

(4) DESCRIPTION OF EXISTING MSW FACILITY WITH A TYPE V REGISTRATION, AND WITH APPLICATION TO OPERATE UNDER TYPE V MSW PERMIT

This Type V facility is designed to process grease and grit trap waste in such a way as to physically separate the greases, fats, oils and solids form the waste streams. This separated material will then be recycled. The facility is primarily designed to recover fats, greases and oils which consist of at least 10% of the grease tap waste ad is considered material for beneficial use. The recycling plan, is to reuse fats, oil and grease removed form the grease trap waste stream for resale to the brown grease industry. Applicant also intends to recover the solids from the grease trap and septage waste stream and the grit trap waste stream for recycling. Applicant plans to recycle the recovered solids for reuse in geotextile structures, for land and beach reclamation.

Upon receipt of organically polluted waste form grease traps and septic tanks, the waste will be heated to a temperature, no less than 180°F. At this temperature, all pathogens are destroyed. In addition, brown grease recovered for recycling will be filtered, using food grade filtration, to remove any organics and debris, thus insuring uniformity of the brown grease product and suitability for recycling purposes.

In the event the recycling goals of a Type V Registration cannot be met due to changes in the market, Applicant requests that the facility in question e allowed to operate under a Type V MSW Permit, and files this application as follows:

Subtitle D of the Resource Conservation and Recovery Act (RCRA) bans liquid waste from being disposed of at landfills. Since the ban on liquid waste receipt at landfills became effective in 1993, a lack of disposal service for commercial liquid waste streams is a problem in some Texas cities. Two of the waste streams which have been historically disposed of in landfills are grease trap waste and grit trap waste. The major constituent of both of these waste steams is water. Downstream Environmental, LLC is an innovative technology company that is committed to the urban friendly processing of grease and grit trap waste. Downstream Environmental's patented technology generates clean water and eliminates odor and land use problems.

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PART II

(5) GENERAL LOCATION MAP - See: TxDOT Map contained in Part I, Page 29A.

PART II

(6) AERIAL PHOTO

Attached:

as Attachment 1

N

0 800 1600 Feet

Explanation

- Site
- One mile radius

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045

7/7/2017 JN TX16.0165.00

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
7/14/17

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on July 7, 2017. It is not to be used for construction or bidding purposes.

January 2015 aerial imagery from TNRIS

DOWNSTREAM ENVIRONMENTAL, LLC
B.R. PERRIN PLANT

Aerial Photograph

Attachment 1

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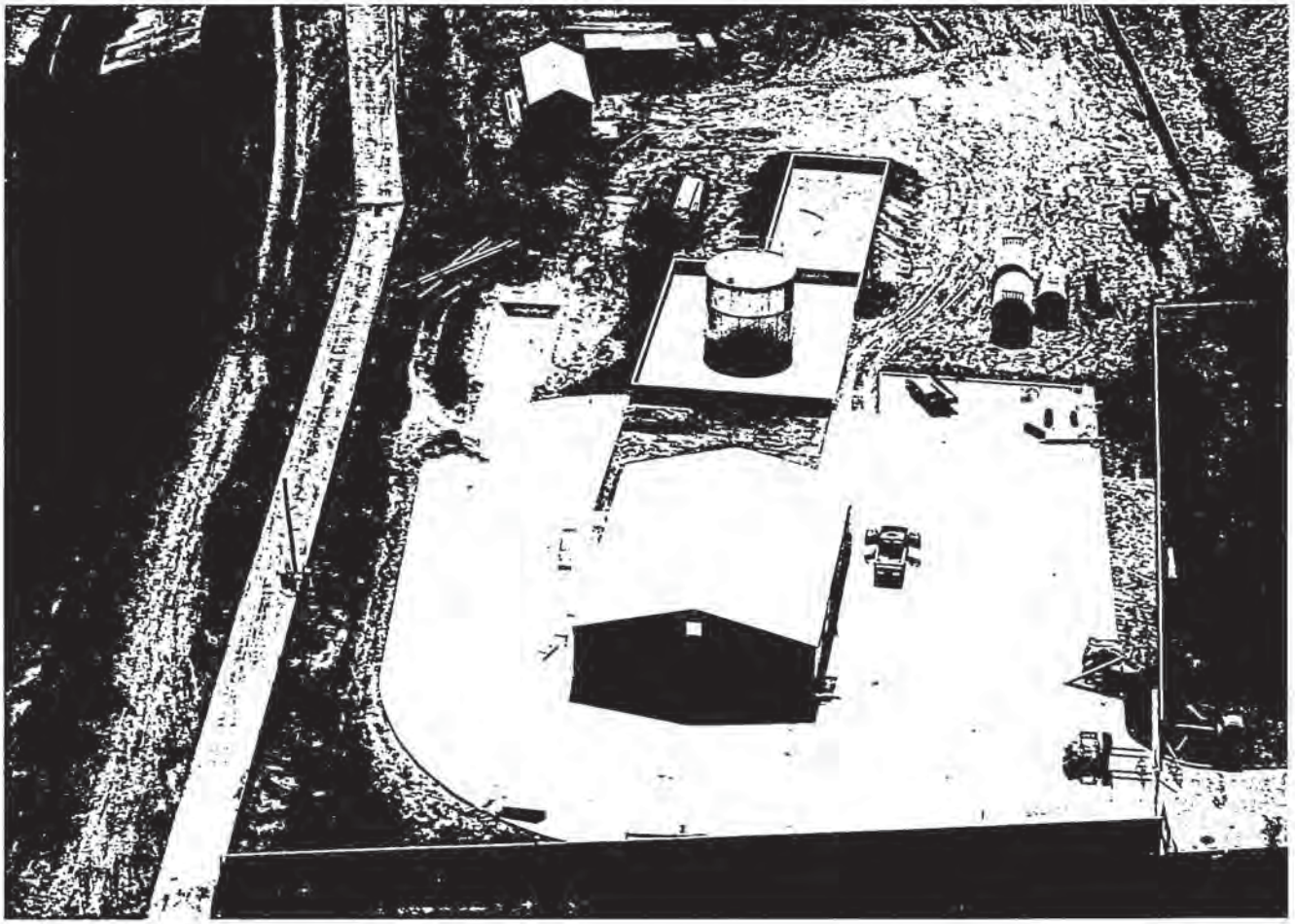
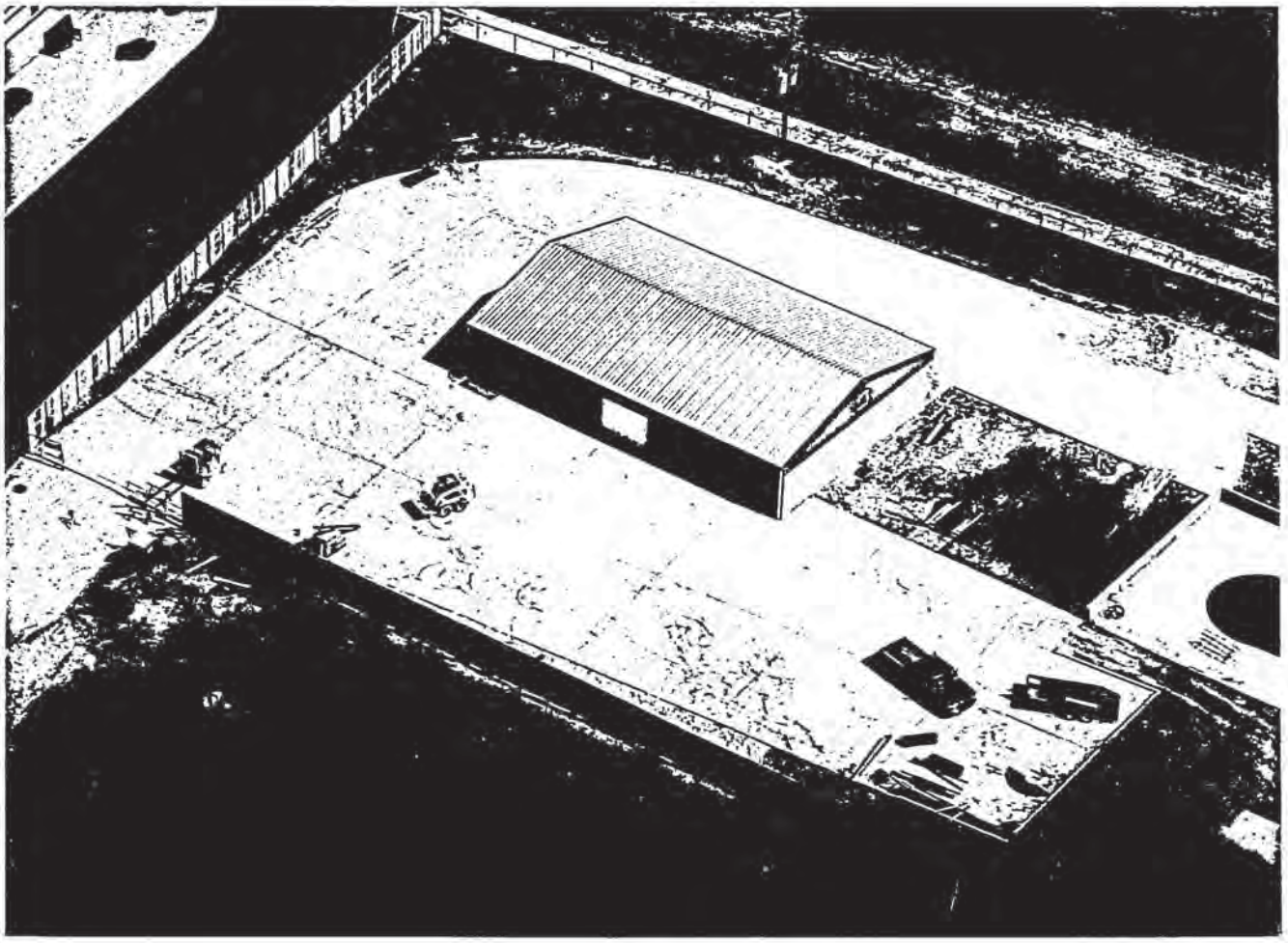
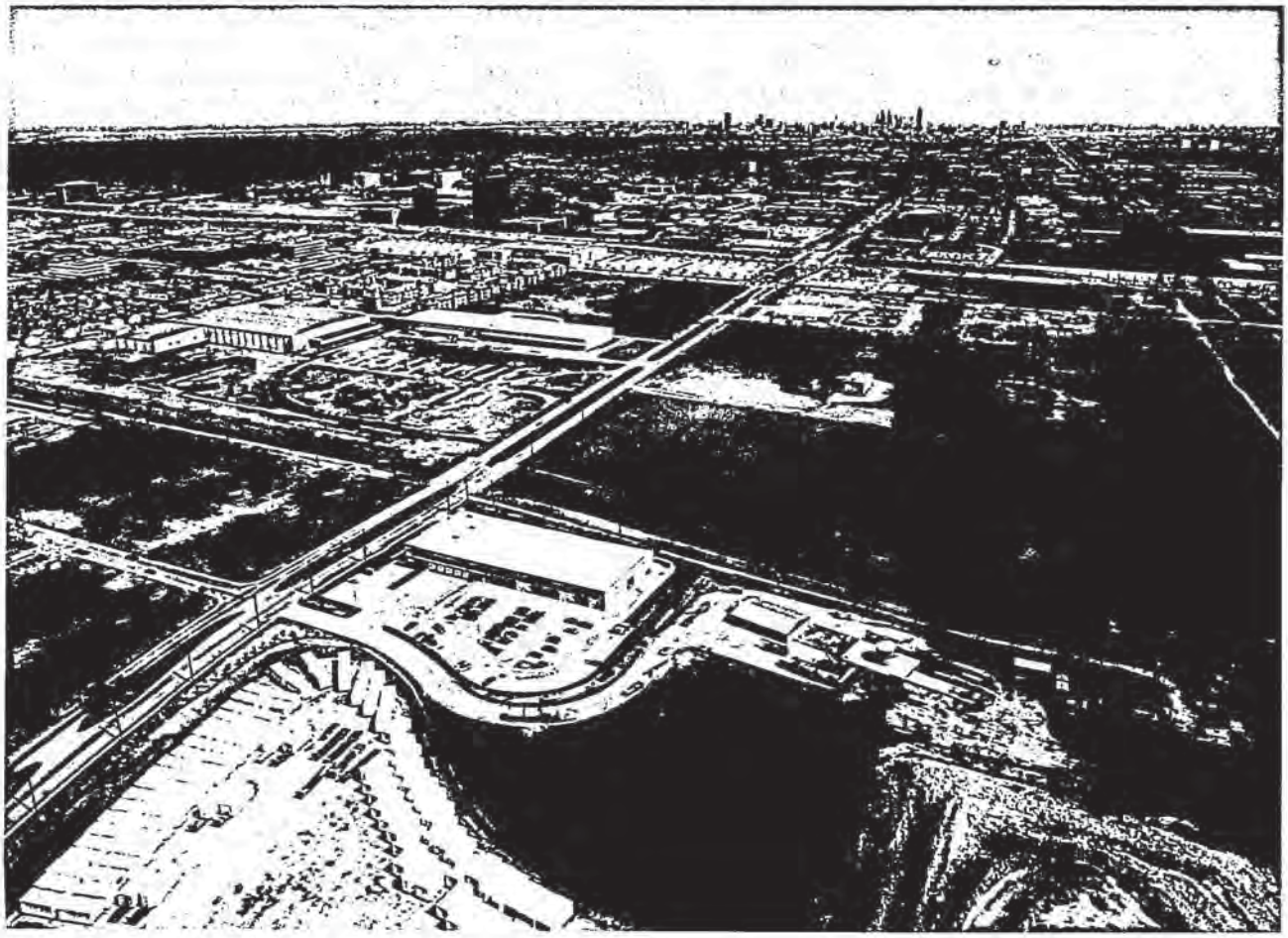
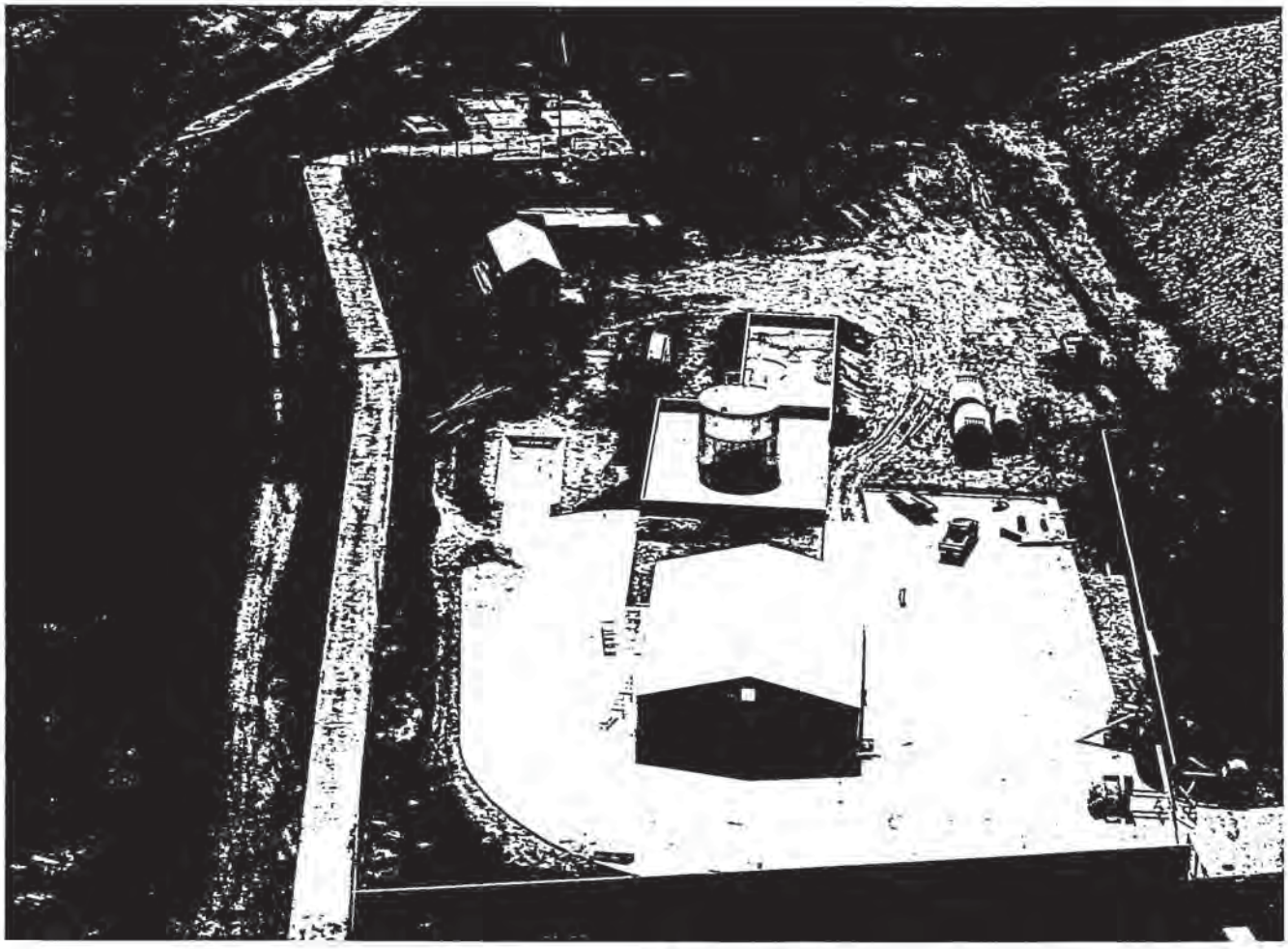








PART II

(7) LAND USE MAPS - 1 MILE RADIUS

Contained in Part I - Page 00022

PART II

(8) LAND USE

(A) ZONING CONCERNS

It is important to note that there is no zoning in this area. Houston has no zoning ordinance. The voters have refused to pass zoning ordinances in Houston in two elections. Also, the deed restrictions affecting the property were specifically written to allow the property's use as a non-hazardous waste facility. The Houston Planning and Development Map classifies the affected area as undeveloped land with heavy industry to the immediate west (concrete company) and undeveloped land , a flood control bayou and a hazardous waste superfund site to the immediate east, undeveloped land to the immediate north and an HL&P and railroad easement to the immediate south.

30 TAC SECTION 330.538 LAND USE REQUIREMENTS

The facility will be located in Houston, Texas in the area west of Beltway 8. Access to the facility will be from Beltway 8 west of the Beltway on Westpark between Rogerdale and Walnut Bend Drive. The facility will be located in an area that is not zoned and has deed restrictions specifically written to allow the property's use for non-hazardous waste disposal.

(B) CHARACTER OF SURROUNDING LAND WITHIN 1 MILE

Industrial
Commercial
Offices Buildings
Offices Parks
Warehouses
Businesses
1 Public Elementary School
1 Private High School (Alexander Smith Academy)
1 U.S. Post Office
Railroad Easement
Natural Gas Pipeline Easement
Telephone Easement
HL&P Easement
Superfund Site - Crystal Chemicals Arsenic Plant
Large Apartment Complexes
Residences
Retail Strip Shopping Centers
Wholesale Strip

Completely Revised 080902

Warehouse Strips
Tennis Club
Golf Driving Range
Vacant Land
Land Under Development and/or Construction for 220 Acre Office Park
Brown & Root's Office/Campus Facility
Gasoline Stations
Car Washes
Automobile Repair Shops
Auto Parts / Tire Stores
A Bayou (HCFCD No. 22.69 - Tributary of Braes Bayou)
Guyen General Piping Inc. Plant (a concrete company plant)
City of Houston Metro West Bus Operating Facility
Construction Site of Sunrise Colony Company -
(a planned country club community now under construction of infrastructure)
Royal Oaks Country Club - Section I
Beltway 8 Toll Road
Tinsel Town - Multi-Cinema Movie Complex
Oak Park at Westchase - 220 acre site office complex construction project
A Wastewater Treatment Plant
Brown & Root Fuel Station
Haliburton / Brown & Root Main Offices and Campus
Construction Mini-Mobiles
Small Retail Strip Shopping - 10 to 20 shops
Jack In The Box
Texaco Station
Car Wash
Bus Storage Lot
Home Depot
Wilcrest Baptist Church
MacGregor Medical
Harwin Pre-School
Pacesetter Academy
Abundant Life Cathedral
Airborne Express Transfer Station
Harwin Public Park
Red Roof Inn
Best Western
PS Public Storage Facility
Mini-Warehouse Business
Large Apartment Complexes
Motel 6
Holiday Inn
IHOP
Extended Stay America

Completely Revised 080902

Warehouse Leasing Businesses
High Rise Offices
Business Parks
River Oaks Academy
Churches (2 or 3)
Residences (all residences are South of Harwin)

Completely Revised 080902

(C) GROWTH TRENDS

The neighborhood (500 feet surrounding the site) is predominantly vacant lots that are undeveloped land. There will be no neighbors to the immediate east due to the fact that the old Crystal Chemical site is now a closed superfund site which can never be developed. There will be no neighbor to the immediate south due to the fact that the southern neighbor is a very large HL&P easement and Southern Pacific railroad easement. To the immediate west is the rock storage yard which takes up many acres for one of Houston's largest concrete plants.

The land to the immediate north is a transfer station for an Airborne Express facility.

DESCRIPTION OF LAND USE WITHIN 500 FEET

Crystal Chemical Superfund Site
HCFCD No. 22.69 - Tributary of Braes Bayou
Southern Pacific Railroad Easement
HL&P Easement
Concrete Plant
City of Houston Lift Station for Wastewater
Private Day Care and School and Abundant Life Cathedral
Church owned property not yet developed
Public and institutional property not yet developed
Vacant Land - Not yet developed
Airborne Express Transfer Station
Truck Parking for 18 wheelers

Within a 1 mile radius of the site there is a 220 acre office park development center being developed south of Harwin Drive West of Wilcrest and North of Westpark there will be a country club community of single family dwellings.

The immediate vicinity which is north of Harwin, east of Wilcrest, south of Westpark and west of Rogerdale will remain an industrial area due to the presence of the railroad tracks, power easement, superfund site, concrete company and Airborne Express transfer station located in the immediate area.

D. DISTANCE TO THE NEAREST RESIDENCE AND BUSINESS:

1. The nearest residences are apartments well over 500 feet away.
2. The back property line neighbor is an HL&P power easement.
3. The east property line neighbor is a Harris County Flood District Tributary 22.69 to Brays Bayou and superfund site - Crystal Chemical Company arsenic plant..

4. The property line neighbor to the west is vacant land owned by the Seller of the site in question.
5. The neighbor immediately to the west is a concrete plant facility.
6. The neighbor to the north is the site of a transfer station for Airborne Express. The neighbor to the north was notified about the planned Type V facility prior to purchasing the adjacent property. See: Attachment 20c.
7. Number of residences and businesses within one (1) mile:

Single Family Homes	2,034
Town homes & Apartment Projects	43
Office Buildings	103
Schools, pre-schools and church schools	10
Retail projects	28
Hotels	8
Churches	5
Trucking, pipe and construction yards	3
Superfund Site	1
Railroad	1
Bayou	1
HL&P Easement	1
Houston Metro	1
Post Office	1
Library	1
Retirement Homes	2
City of Houston Lift Station	1
Concrete company	1

(E) DESCRIPTION OF LOCATED WATER WELLS WITHIN 500 FEET: The properties within 500 feet were at one time on water wells, but those wells have all been closed and abandoned per superfund site management plan. The properties are now on City water.

Attached:
Record of "Located Wells"
Well Map - Contained in Part I - "Maps"
EPA Report - Contained in Part I - "Additional Requirements"

(F) VARIANCE #1: LOCATION OF GRIT PROCESSING

Downstream is requesting an approval from the Executive Director to memorialize the location of the existing grit dewatering/processing area. Currently, the grit dewatering/processing area is located approximately 26 feet from the east property line, which is within the 50-foot buffer and does not comply with the location restrictions set forth in 30 TAC §330.543 (b)1. However, the east property line shares a border with a shared use path and a tributary to the Brazos Bayou. As such, the closest private property owner with development potential is nearly 200 feet east of the current grit dewatering/processing area.

WRD Exp. (CW)
April 1966

Well No. J-65-20-201
65-20-201

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

MASTER CARD (G. Brown) G.M. (1963)

1:24000

Record by: A.G.W. (T.A.F.) (3-16-52) Source of data: FILES Date: 3-5-68 Map: Alief Texas 1970

State: TEXAS [4 8] County (or town): HARRIS [L J]

Latitude: [2 9 4 2 5 9 N] Longitude: [0 9 5 3 3 5 2] Sequential number: [1]

Lat-long accuracy: [L] T. ___ S. R. ___ W. Sec. ___

Local well number: [L J - 6 5 - 2 0 - 2 0 1] Other number: WEST WELL # 1 W-47

Local use: ___ Owner or name: R.E. SMITH

Owner or name: [R E S M I T H] Address: Houston, Texas

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, **(P) Private**, (S) State Agency, (W) Water Dist — PRIVATE [P]

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (H) Dom, **(I) Irr**, (M) Med, (N) Ind, (P) P S, (R) Rec, (S) Stock, (T) Instit, (U) Unused, (V) Repressure, (W) Recharge, (X) Desal-P S, (Y) Desal-other, (Z) Other — Formerly used Irr. [I] U

Use of well: (A) Anode, (D) Drain, (G) Seismic, (H) Heat Res, (O) Obs, (P) Oil-gas, (R) Recharge, (T) Test, **(U) Unused**, **(W) Withdraw**, (X) Waste, (Z) Destroyed — [W] U

DATA AVAILABLE: Well data [2] Freq. W/L meas.: Quarterly 1948 - -70 [Q] Field aquifer char. [ ]

Hyd. lab. data: (deep cored?) [ ]

Qual. water data; type: [ ]

Freq. sampling: 9-16-52 [Ø] Pumpage inventory: yes no. period: [ ]

Aperture cards: yes [ ]

Log data: E-Log # Z-11 [E]

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD

Depth well: 603 ft [6 0 3] Meas. (rept) Driller accuracy [3]

Depth cased (first perf.): 80 ft [8 0] Casing type: S ; Diam. 20-13⅜ in [2 0]

Finish: (C) porous concrete, **(F) gravel w. (perf.)**, (G) gravel w. (screen), (H) horiz. gallery, (O) open end, (P) perf., (S) screen, (T) sd. pt., (W) shored, (X) open hole, (Z) other — SLOTTED [F]

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, **(H) hyd rot.**, (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other [H]

Date Drilled: APRIL-1948 [9 4 8] Pump intake setting: 160 ft

Driller: TEXAS WATER WELLS Co. HOUSTON, TEX.

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple (cent.), (M) multiple (turb.), **(N) none**, (P) piston, (R) rot, (S) submerg, **(T) turb**, (Z) other — NT — **Deep** Shallow [D]

Power (type): **diesel**, elec, gas, gasoline, hand, gas, wind; H.P. NONE ~~150HP T-D~~ [N] Trans. or meter no.

Descrip. MP: Lower Edge of Port Hole +0.5 ft **above** LSD Alt. MP

Alt. LSD: 80± [8 0] Accuracy (source): TOPO 5' [3]

Water Level: 77.65 ft above **below** MP; ft below LSD [7 7] Accuracy: MC4S [A]

Date meas: 1-5-52 [2 5 2] Yield: — gpm Method determined

Drawdown: — ft Accuracy: — Pumping period — hrs

QUALITY OF WATER DATA: Iron ppm Sulfate ppm Chloride ppm Hard. ppm

Sp. Conduct K x 10[6] Temp. °F Date sampled

Taste, color, etc.

Well No. LJ-65-20-201

Attachment 14c

Well No. LJ-65-[illegible]-201

Latitude-longitude 29, 42, 59 (N) S 095, 33, 52
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD | Physiographic Province: COASTAL PLAINS | 03 | Section:

F | Drainage Basin: | 51 R | Subbasin:

Topo of well site: (D) depression, (C) stream channel, (E) ducas, (F) flat, (H) hilltop, (K) sink, (L) swamp, (O) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat

MAJOR AQUIFER: system, series Q, aquifer, formation, group C

Lithology: | Origin: | Aquifer Thickness: ft

Length of well open to: 310 ft | Depth to top of: 310 ft

MINOR AQUIFER: system, series, aquifer, formation, group

Lithology: | Origin: | Aquifer Thickness: ft

Length of well open to: ft | Depth to top of: ft

Intervals Screened: 80-105, 175-230, 250-305, 355-385, 420-440, 460-480, 495-600

Depth to consolidated rock: ft | Source of data:

Depth to basement: ft | Source of data:

Surficial material: | Infiltration characteristics:

Coefficient Trans: gpd/ft | Coefficient Storage:

Coefficient Perm: gpd/ft²; Spec cap: gpm/ft; Number of geologic cards:

250' – 20" csg.
353' – 13" csg.

Well No. LJ-65-20-201

GPO 857-700

Attachment 14c

Apr 12, 2000

TEXAS WATER DEVELOPMENT BOARD
GROUND WATER DATA SYSTEM

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Harris

WELL	OWNER	LATITUDE	LONGITUDE	DATE COM-PLETED	DEPTH OF WELL (FT.)	CASING AND SCREEN DATA: CASING OR SCREEN	CASING AND SCREEN DATA: DIAM-ETER (IN.)	CASING AND SCREEN DATA: TOP DEPTH (FT.)	CASING AND SCREEN DATA: BOT DEPTH (FT.)	WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	WATER LEVEL: MEASURE-MENT FROM LSD (FT.)	WATER LEVEL: DATE	METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
65-20-201	R.E. Smith	294259	953352	1948	603					112CHCT	80	-107.90 -96.80	06-16-1966 12-09-1969	N	U	310 ft of slotted casing beteen 80 and 600 ft. Formerly used for rice irriagion.
65-20-202	R.E. Smith	294305	953306	1948	618					112CHCT	80			N	U	282 ft of slotted casing between 90 and 615 ft. Formerly used for rice irrigation.
65-20-203	Andrau Airpark	294333	953432	1949	699					112CHCTL	81	-81.20 -209.01	09-21-1949 01-27-1986	T G	N R	275 ft of slotted casing between 177 and 693 ft. Reported yield 1950 with 45 ft drawdown when drilled. Fills canal for float airplane. Formerly used for rice irrigation.
65-20-208	City of Houston Briargrove Park	294427	953306	1960	750					112CHCT	88	-154.00 -341.00	07-25-1960 05-22-1998	T E 100	P	152 ft of screen between 467 and 732 ft. Measured yield 710 gpm with 49 ft drawdown Sept 30,1968.
65-20-209	Western Atlas Intl. Westheimer	294356	953316	1956	681					112CHCT	79	-137.00	11-01-1956	T E 60	N	105 ft of screen between 428 and 671 ft. Reported yield 530 gpm with 56 ft drawdown when drilled.
65-20-210	City of Houston Walnut Bend	294439	953347	1959	465					112CHCTL	78	-123.00 -210.41	06-00-1959 01-13-1986	T E 40	P	60 ft of screen between 334 and 455 ft. Measured yield 532 gpm with 12 ft drawdown Sept.30,1968.
65-20-212	J.C. Hastings	294258	953353	1913	80					112CHCT	81			N	U	Bored well. Open end well.
65-20-214	Mrs. Nellie E. Rodgers	294337	953336	1913	100					112CHCT	82			N	U	Well destoryed.
65-20-216	City of Houston Wilcrest	294440	953418	1968	1312					121EVGL	79	-241.00 -381.12	10-14-1968 01-14-1986	T E	P	160 fto of screen between 820 and 1300 ft. Reported yield 1012 gpm with 49 ft. drawdown when drilled.
65-20-217	Mike albanese	294459	953436	1937	228					112CHCT	82	-27.70	12-10-1938	N	U	Screen from 208 ot 228 ft. Well destroyed.

RECORDS OF WELLS, SPRINGS, AND TEST HOLES
COUNTY - Harris

WELL	OWNER	LATITUDE	LONGITUDE	DATE COMPLETED	DEPTH OF WELL (FT.)	CASING AND SCREEN DATA				WATER BEARING UNIT	ALTITUDE OF LAND SURFACE (FT.)	WATER LEVEL		METHOD OF LIFT AND POWER	USE OF WATER	REMARKS
						CASING OR SCREEN	DIAMETER (IN.)	TOP DEPTH (FT.)	BOT DEPTH (FT.)			MEASUREMENT FROM LSD (FT.)	DATE			
65-20-218	City of Houston Walnut Bend	294439	953347	1960	1300					121EVGL	79	-193.50 -297.00	02-11-1966 01-20-1989	T E 150	P	160 ft of screen between 660 and 1265 ft. Measured yield 1225 gpm with 44 ft drawdown Sept 27,1968.
65-20-220	Houston Shell and Concrete Co.	294304	953401	1966	514					112CHCTL	80			S E 25	N	
[illegible]	Western Atlas Intnl. Westheimer	294354	953317	1971	873					112GLFC	78			T E 40	N	
65-20-223	City of Houston TW-3	294301	953336	1939	1810					121EVGL	80			N	U	Test well. Well destroyed.
[illegible]	City of Houston Braes Vill. Dist 51-1	294236	953422	1974	1075	C S	20 12	0 665	655 1065	112CEVG	77	-365.00 -261.55	01-15-1985 01-30-1998	T E	P	Reported yield 1,350 gpm with 20/ ft drawdown when drilled. Test hole drilled to 1,205 feet. Owner's well, Braes Village District 51-1.
[illegible]	City of Houston District 71	294458	953436	1972	1356					121EVGL	80	-273.00 -479.00	02-09-1972 05-22-1998	T E	P	Owner District 71, well #1. Reported yield 1500 gpm with 80 ft drawdown.
[illegible]	City of Houston Dist 51	294301	953418	1979	1610					121EVGL	80	-384.85 -394.00	02-14-1986 05-22-1998	T E	P	Owner H.U.D. 51, well #2.

000019

Attachment 14c

Apr 12, 2000

TEXAS WATER DEVELOPMENT BOARD
GROUND WATER DATA SYSTEM

TABLE OF AQUIFER CODES AND AQUIFER NAMES USED
COUNTY - Harris

USGS CODE	AQUIFER NAME
112CEVG	CHICOT AND EVANGELINE AQUIFERS
112CHCT	CHICOT AQUIFER
112CHCTL	CHICOT AQUIFER,LOWER
112GLFC	GULF COAST AQUIFER
121EVGL	EVANGELINE AQUIFER

Attachment 14c

TEXAS DEPARTMENT OF WATER RESOURCES

WELL SCHEDULE

Aquifer(s) Evangeline Project No. _____ State Well No. 65-20-222

_____ Field No./Owner's Well No. 2 County Harris

1. Location: ___ ¼, ___ ¼, Section ___, Block ___, Survey _____, Lat. _____, Long. _____

2. Owner: Oresser Ind Address: _____

Tenant (other): _____ Address: _____

Driller: Texas Water Wells Address: _____

3. Land Surface Elevation: 78 ft. above msl determined by _____

4. Drilled: Jan 19 71 ; Dug, Cable Tool, Rotary, Air, _____

5. Depth: Rept. 873 ft. Meas. _____ ft.

6. Borehole Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed

7. Pump: Mfr. _____ Type T

No. Stages ____, Bowls Diam. ____ in., Setting _____ ft.

Column Diam. _____ in., Length Tailpipe _____ ft.

8. Motor: Mfr. _____ Fuel E HP. 40

9. Yield: Flow ____ gpm, Pump ____ gpm, Meas., Rept., Est. ____ Date ____

10. Performance Test: Date 2/13/71 Length of Test ____ Made by TWW

Static Level 238 ft. Pumping Level 290 ft. Drawdown 52 ft.

Production 350 gpm Specific Capacity _____ gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.) _____

Analyses

Date _____ Laboratory _____ TDS ____ Sp Cond ____

Date _____ Laboratory _____ TDS ____ Sp Cond ____

12. Other data available (as circled): Pumping Test, Power & Yield Test, (Drillers Log), Formation Samples, (Geophysical Log(s)) @1518 (type)

CASING, BLANK PIPE & WELL SCREEN
Cemented From ____ ft. to ____ ft.

Diam. (in.)	Type	Setting (feet) from	to
10			707
6			873

13. Water Level(s): ____ ft. rept. meas. ____ 19 ___ above/below _____ which is ____ ft. above/below Land Surface

_____ ft. rept. meas. ____ 19 ___ above/below _____ which is ____ ft. above/below Land Surface

14. Use: Dom., Stock, Public Supply, (Ind.), Irr., Observation, Other (Test Hole, Oil Test, etc.) _____

15. Recorded by: _____ Source of data: _____ Date: _____

16. Remarks: _____

17. Location or Sketch:

TDWR-0308

00021

W/L Obs. Well ___ W/Q Obs. Well ___

State Well No. ___ - ___

Attachment 14c

Send original copy by certified mail to the Texas Water Development Board
P. O. Box 12386
Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 65-20-
Located on map
Received:

1) OWNER:
Person having well drilled Drasser Industries (Name) Address Houston, Texas (Street or RFD) (City) (State)
Landowner Same (Name) Address Same (Street or RFD) (City) (State)
Water Well #2

2) LOCATION OF WELL:
County Harris, miles in (N.E., S.W., etc.) direction from (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

10201 Westheimer
Gulf Oil
North
(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.
Labor Leagues
Block Survey
Abstract No.
(NW¼ NE¼ SW¼ SE¼) of Section

3) TYPE OF WORK (Check): X New Well, Deepening, Reconditioning, Plugging

4) PROPOSED USE (Check): Domestic, Industrial, X Municipal, Irrigation, Test Well, Other

5) TYPE OF WELL (Check): X Rotary, Driven, Bug, Cable, Jetted, Bored

6) WELL LOG:
Diameter of hole 10-3/4 in. Depth drilled 1005 ft. Depth of completed well 876 ft. Date drilled 1/1971
All measurements made from 3 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
0	3	Rotary to Ground
3	30	Clay
30	42	Shale
42	52	Sand
52	57	Gravel
57	100	Shale
100	126	Sand
126	139	Shale
139	166	Sand
166	229	Sand & Shale
229	242	Sand

(Use reverse side if necessary) (OVER)

9) Casing: Type: Old, X New, Steel, Plastic, Other
Cemented from Surface ft. to 710 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
6-5/8	690	716	Blank
"	740	778	"
"	824	846	"
"	870	876	"

10) SCREEN: Type S.S. Rib Type Screen
Perforated, X Slotted

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
6"	716	740	.045 ga.
"	778	824	.045 "
"	846	870	.045 "

7) COMPLETION (Check): Straight wall, X Gravel packed, Other, X Under reamed, Open Hole

8) WATER LEVEL:
Static level 238 ft. below land surface Date 2/18/71
Artesian pressure lbs. per square inch Date
Depth to pump bowls, cylinder, jet, etc., 400 ft. below land surface.

11) WELL TESTS:
Was a pump test made? X Yes, No If yes, by whom? Texas Water Wells, Inc.
Yield: 350 gpm with 52 ft. drawdown after 8 hrs.
Bailer test gpm with ft. drawdown after hrs.
Artesian flow gpm
Temperature of water

12) WATER QUALITY:
Was a chemical analysis made? X Yes, No
Did any strata contain undesirable water? Yes, X No
Type of water? depth of strata

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME A. E. Fawcett, Jr. (Type or Print) Water Well Drillers Registration No. 82
ADDRESS 3611 N. McCarty (Street or RFD) Houston, Texas 77029 (City) (State)
(Signed) A. E. Fawcett Jr. (Water Well Driller) Texas Water Wells, Inc. (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

Additional instructions on reverse side.

COPY MAILED TO WELL OWNER

D-1518
65-20-222

00022

Attachment 14c

2) LOCATION OF WELL:

The sketch showing the well location must be as accurate as possible, showing landmarks, in sufficient detail so that the well may be plotted on a General Highway Map of the county in which the well is located.

Reference points from which distances are measured and directions given should be of a permanent nature (e.g. highway intersections, center of towns, river and creek bridges, railroad crossings). The distance and direction from the nearest town should always be indicated.

When giving a legal description include a sketch showing location of the well within the described area, e.g. survey abstract.

Information furnished in Section 2) of the TWDBE-GW-33 is very important. Unless the well can be accurately located on a map the value of the other data contained in the Report is greatly reduced.

From	To	Formation
242	270	Shale
270	307	Sand
307	309	Hard Strks.
309	321	Shale
321	330	Sand Strks Shale
330	402	Sand
402	425	Sandy Shale
425	455	Sand
455	510	Shale
510	530	Sand & Gravel
530	577	Sand
577	595	Shale
595	618	Shale & Strks Sand
618	668	Sand
668	715	Shale
715	738	Sand
738	745	Shale
745	755	Sand
755	773	Shale
773	825	Sand
825	845	Shale
845	850	Sandy Shale
850	860	Sand
860	920	Shale
920	967	Sand
967	977	Sand & Lime Strks.
977	1005	Shale

Rev. 11 1966

U. S. DEPT. OF THE INTERIOR — WELL SCHEDULE — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

LJ 65-20-224

MASTER CARD

1:24000

Record by D. BUTLER Source of data D. RECORD Date 11-23-76 Map Alief 1970

State TEXAS 36 | 48 County (or town) HARRIS 201 | LJ

Latitude: 29 42 37 N (deg, min, sec) Longitude: 095 34 22 (degree, min, sec) Sequential number: 1

Lat-long accuracy: N E T S, R W, Sec , , ,

Local well number: LJ-65-20-224 Other number: B & M

Local use: Owner or name: HARRIS CO. M.U.D. #51

Owner or name: HCMUD NO 51 Address: 1-6 m W of city limits

Ownership: (C) County, (F) Fed Gov't, (M) City, (N) Corp or Co, (P) Private, (S) State Agency, (W) Water Dist — W

Use of water: (A) Air cond, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (G) Dom, (I) Irr, (M) Ind, (N) P S, (P) Rec, (R) Stock, (S) Inactive, (T) Unused, (U) Repressure, (W) Recharge, (X) Desal-P S, (Y) Desal-other, (Z) Other — P

Use of well: (A) Anode, (D) Drain, (G) Seismic, (H) Heat Exc, (O) Obs, (P) Oil-gas, (R) Recharge, (T) Test, (U) Unused, (W) Withdrew, (X) Waste, (Z) Destroyed. — W

DATA AVAILABLE: Well data Freq. W/L meas.: Field aquifer char.

Hyd. lab. data:

Qual. water data; type:

Freq. sampling: 10-74 LAYNE WESTERN CO. Pumpage inventory: yes no Period:

Aperture cards: yes

Log data: D-log 0-1210'

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 1210 drilled 1080 compl. ft 1080 Meas. rept accuracy 3

Depth cased: (first perf.) 670 ft 670 Casing type: steel ; Diam. 20-12 in 20

Finish: (C) porous concrete, (F) gravel w. (perf.), (G) gravel w. (screen), (H) horiz. gallery, (O) open end, (P) perf., screen, (S) ed. pt., (T) shored, (W) open hole, (Z) other — G

Method Drilled: (A) air rot, (B) bored, (C) cable, (D) dug, (H) hyd rot., (J) jetted, (P) air percussion, (R) reverse rotary, (T) trenching, (V) driven, (W) drive wash, (Z) other — H

Date Drilled: 8-74 9 7 4 Pump intake setting: 470 ft 470

Driller: LAYNE-WESTERN CO., INC. (name) KATY, TEXAS 77450 (address)

Lift (type): (A) air, (B) bucket, (C) cent, (J) jet, (L) multiple (cent.), (M) multiple (turb.), (N) none, (P) piston, (R) rot, submerg, (T) turb, (Z) other — T Deep Shallow

Power (type): diesel, elec, nat gas, gasoline, hand, gas, wind; LP; H.P. 5 Trans. or meter no.

Descrip. MP ft above below LSD, Alt. MP

Alt. LSD: 77 7 7 Accuracy: (source) TOPO 5' 3

Water Level 258 ft above below MP; Ft above below LSD 2 5 8 Accuracy: REPT. G

Date meas: 10-74 0 7 4 Yield: gpm Method determined

Drawdown: ft Accuracy: Pumping period hrs

QUALITY OF WATER DATA: Iron ppm Sulfate ppm Chloride ppm Hard. ppm

Sp. Conduct K x 10^6 Temp. °F Date sampled

Casts, color, etc.

Well No.

00024

Attachment 14c

LJ 65-20-224

Latitude-longitude d m s N S d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD | Physiographic Province: COASTAL PLAIN | 0 3 | Section:

F | Drainage Basin: | 5 1 K | Subbasin:

Topo of well site: (D) depression, (C) stream channel, (E) dunes, (F) flat, (H) hilltop, (K) sink, (L) swamp, (O) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat — F

MAJOR AQUIFER: system, series — Evangeline — aquifer, formation, group — E

Lithology: — Origin: — Aquifer Thickness: ft

Length of well open to: 400 ft | 4 0 0 | Depth to top of: ft

MINOR AQUIFER: system, series — Lower Chicot — aquifer, formation, group — C L

Lithology: — Origin: — Aquifer Thickness: ft

Length of well open to: ft | Depth to top of: ft

Intervals Screened: 670-1070' SSWW

Depth to consolidated rock: ft — Source of data:

Depth to basement: ft — Source of data:

Surficial material: — Infiltration characteristics:

Coefficient Trans: gpd/ft — Coefficient Storage:

Coefficient Perm: gpd/ft²; Spec cap: gpm/ft; Number of geologic cards:

20" OD TO 660'
12" from 670-1070'.

storage tank + fence
Gate Locked.

Well No.

GPO 857-700

Attachment 14c

Dup

Send original copy by certified mail to the Texas Water Development Board P. O. Box 12386 Austin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. 65-20-226
Located on map yes
Received: 75

1) OWNER:
Person having well drilled L. C. Loper & Associates (Name) Address 4189 Bellaire Blvd. (Street or RFD) Houston (City) Texas (State)

Landowner Harris Co. MUD No. 51 (Name) Address 4189 Bellaire Blvd. (Street or RFD) Houston (City) Texas (State)

2) LOCATION OF WELL:
County Harris, 1.6 miles in W (N.E., S.W., etc.) direction from Houston City Limits (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

North

(Use reverse side if necessary)

or Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____
Block _____ Survey Reynolds-Reynol
Abstract No. 662
[redacted] of Section _____

3) TYPE OF WORK (Check):
New Well X | Deepening | Reconditioning | Plugging

4) PROPOSED USE (Check):
Domestic | Industrial | Municipal X | Irrigation | Test Well | Other

5) TYPE OF WELL (Check):
Rotary X | Driven | Dug | Cable | Jetted | Bored

6) WELL LOG:
Diameter of hole 24 in. Depth drilled 1210 ft. Depth of completed well 1080 ft. Date drilled 6/74
All measurements made from 5 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
		SEE ATTACHED

(Use reverse side if necessary)

9) Casing:
Type: Old | New X | Steel X | Plastic | Other
Cemented from 0 ft. to 660 ft.

Diameter (inches)	Setting From (ft.)	To (ft.)	Gage
20	0	660	.375 W.T.

10) SCREEN:
Type Stainless Steel Wire Wrapped
Perforated | Slotted X

Diameter (inches)	Setting From (ft.)	To (ft.)	Slot Size
12	670	1070	.035

7) COMPLETION (Check):
Straight wall | Gravel packed X | Other
Under reamed X | Open Hole

8) WATER LEVEL:
Static level 258 ft. below land surface Date 10/74
Artesian pressure _____ lbs. per square inch Date _____
Depth to pump bowls, cylinder, jet, etc., 470 ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes X No If yes, by whom? Layne-Western Company, Inc.
Yield: 1,350 gpm with 865 ft. drawdown after 48 hrs.
Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.
Artesian flow _____ gpm
Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes X No
Did any strata contain undesirable water? Yes No X
Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME James O'Connor (Type or Print) Water Well Drillers Registration No. 999

ADDRESS P. O. Box 278 (Street or RFD) Katy (City) Texas 77450 (State)

(Signed) James O'Connor (Water Well Driller) Layne-Western Company, Inc. Katy Division (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

TWDB-GW-53

L GW

65-20-224

00026

Attachment 14c

2) LOCATION OF WELL:

The sketch showing the well location must be as accurate as possible, showing landmarks, in sufficient detail so that the well may be plotted on a General Highway Map of the county in which the well is located.

Reference points from which distances are measured and directions given should be of a permanent nature (e.g. highway intersections, center of towns, river and creek bridges, railroad crossings). The distance and direction from the nearest town should always be indicated.

When giving a legal description include a sketch showing location of the well within the described area, e.g. survey abstract.

Information furnished in Section 2) of the TWDBR-CH-33 is very important. Unless the well can be accurately located on a map the value of the other data contained in the Report is greatly reduced.

DRILLER'S LOG

Job M 144

0 - Surface
4 - Clay
39 - Sand
45 - Clay & Sand Stripes
80 - Sand
128 - Clay & Rock
135 - Clay & Sand
160 - Clay
185 - Sand & Rock
195 - Clay
215 - Sand
360 - Clay & Rock
370 - Sand & Rock
545 - Clay
555 - Sand & Rock
617 - Clay
625 - Sand
649 - Clay
665 - Sand & Clay Stripes
720 - Clay
730 - Sand & Rock
810 - Clay
826 - Sand & Rock
875 - Clay
903 - Sand & Rock
927 - Clay & Sand Stripes
980 - Sand & Rock
1027 - Clay
1170 - Sand & Rock
1209 - Clay

PART II

(9) TRANSPORTATION/TRUCKS

(A) Access Roads - Adequate. Westpark is sixty foot wide concrete City road, built to withstand heavy truck traffic.

(B) Current truck volume on Westpark - Heavy due to concrete industry next door, heavy bus traffic, heavy 18 wheeler traffic due to piping industry across the street, and double axle trucks at Airborne Express transfer facility next door. It is estimated that thousands of trucks enter the one mile area each day, via Beltway 8.

(C) Trucks per day at proposed facility - Thirty to fifty trucks (single axle bobtails and double axle tandem - 2,000 to 5,000 gallon capacity) are anticipated each business day. The proposed site has had heavy truck traffic going past the site on Westpark due to one of Houston's largest concrete facilities being the immediate neighbor to the west and the freight handled by Airborne express and the pipe company. The truck traffic, in terms of the number of trucks will not be significantly different than the status quo. The facility will generate less than 1% of the truck traffic in the area of a one mile radius.

(D) Impact of Facility upon Airports - None. The closest airport is more than 5 miles away. The facility will not generate any airport traffic or use.

PART II

(10) GENERAL GEOLOGY AND SOILS STATEMENT

(A) Geology and soils statement - EPA Report
(B) Fault areas - None
(C) Seismic impact zones - None
(D) Unstable areas - None

Contained in Part I - "Additional Requirements":
EPA Report on neighboring Superfund Site and surrounding sites - contains soils tests.

Completely Revised 080902

PART II

(11) GROUND AND SURFACE WATER STATEMENT

(A) Ground water conditions - EPA Report
(B) Surface water - None

Contained in Part I - "Additional Requirements":
EPA Report on neighboring Superfund Site and surrounding sites - contains ground water tests.

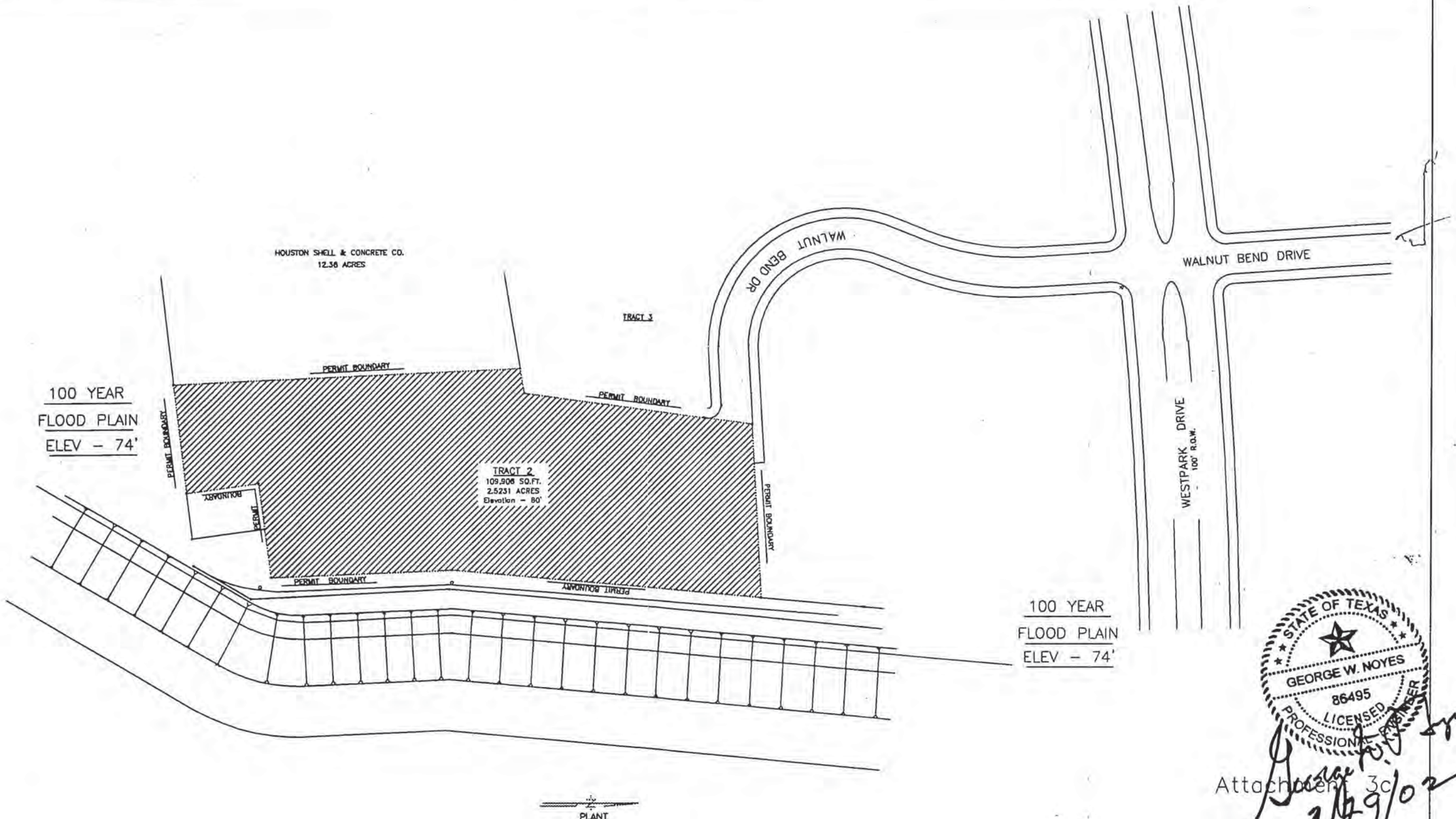
Completely Revised 080902

PART II

(12) FLOOD PLAINS AND WETLANDS

(A) Flood plain - Not in 100 year flood plain
(B) Wetlands - None

Contained in Part I - "Additional Requirements":
Flood Plain Map



SITE PLAN

SCALE: 0'-1" = 40'-0"

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

3/19/02

Attachment 3c

This Document is Sealed
for Permitting Purposes Only

NO.	REVISION	DATE
-	-	-

B.R. PERRIN PLANT
100 Year Flood Plain
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMETAL, L.L.C.

SCALE: AS SHOWN	DRAWN BY: DCN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE105

PART II

(13) IMPACT ON ENDANGERED SPECIES & WILDLIFE - None

No impact on wildlife. The site was already cleared for construction when leased by the Applicant. A MSW Type V Facility has been built on the site in question. There is no wildlife on the site.

Part III

(Clean Copy)

PART III

TITLE PAGE - MSW #2298

Project Name:

DOWNSTREAM ENVIRONMENTAL, LLC

B. R. Perrin Plant

3737 Walnut Bend

Houston, Harris County, Texas 77042

Prepared for:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

MUNICIPAL SOLID WASTE DIVISION

NAME OF APPLICANT:	**DOWNSTREAM ENVIRONMENTAL, LLC** 3737 Walnut Bend Houston, TX 77042
PROPERTY OWNER:	Downstream Environmental, LLC 16350 Park Ten Place, Suite 215 Houston, TX 77084
CONSULTING ENGINEER:	Daniel B. Stephens & Associates, Inc. 4030 West Braker Lane, Suite 325 Austin, Texas 78759
TYPE OF FACILITY:	Type V Municipal Solid Waste Processing Grit, Septage and Grease Trap Treatment Facility
WASTE TO BE ACCEPTED:	Grease Trap Waste, Grit Trap Waste and Septage
ORIGINALLY SUBMITTED:	April 3, 2002
REVISED AND SUBMITTED:	October 17, 2002, April 24, 2002, January 31, 2008 and July 14, 2017

PART III - §330.54(a)

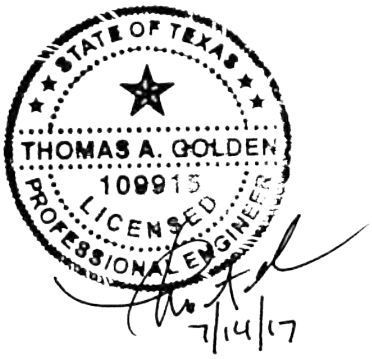
TABLE OF CONTENTS

TECHNICAL REQUIREMENTS OF THE APPLICATION

PART III - §330.55(a)

SITE DEVELOPMENT PLAN

TABLE OF CONTENTS



[Note: The format of this material follows that given in the regulations, sections 330.55 & 330.59, regardless of whether any particular part does not apply to this proposed facility. If something does not apply, it is simply so stated.]

PART III - §330.55(a)

SITE DEVELOPMENT PLAN

NOTE: The format of this material follows that given in the Regulations, §330.55 and 330.59, regardless of whether any particular part does not apply to this proposed facility. If something does apply, it is simply stated so and if something does not apply, it is noted by "N/A" not applicable.

(a) Elements of the Site Development Plan

(1) Landfill method proposed - N/A

(2) All weather road - concrete driveways are used throughout the facility and a concrete road is used for ingress and egress. Because the site is less than 200 acres, the applicable section is 330.55(b)(5)(a), which calls for "Time of run-off concentration as defined within the said manual generally shall not be less than 10 minutes for rainfall intensity determination purposes," i.e., 10 minute, 24 hour Storm Event.

(3) Fencing - Fencing will be used on the entire parameter of the facility. A six foot chain link fence with an addition two foot of barbed wire strand barrier will be used on the east boundary and on the south boundary. On the west boundary and on the north boundary, a six foot privacy fence will be used to comply with deed restrictions.

(4) Estimated rate of SW deposition and life of facility - N/A.

(5) Drink water protection - N/A. No active water wells are on or around the site. City water is provided to the entire Westchase area.

(b) Information necessary to document compliance.

(1) This facility will not cause:

(A) Discharge of MSW or pollutants into off site waters

(B) Discharge of pollutants into U.S. waters

(C) Discharge of dredged or filled material into U.S. waters

(D) Discharge of non-point source pollution into U.S. waters

(2) Runoff prevention on to the project site - Surface drainage in and around the facility will be controlled to minimized surface water running into and off the process areas. There will be virtually no risk of ground water contamination due to concrete containment system per tank, storage and loading areas. Wash waters will be collected and treated by the facility itself and discharged into the City of Houston's wastewater system. All wash waters will be confined to grated areas with concrete. Concrete spill containment walls and pads will surround tankage process and loading areas. No contaminated waters will be discharged from this site. Ground water monitoring is not applicable to this site. The facility itself is not in a 100 year flood plain. All waste water discharged from the facility to the City of Houston's wastewater plant will meet the requirements for discharge in the City of Houston.

Completely Revised
08/09/02

(3) Runoff management and runoff prevention from the project site - Any plant wash water or spillage will be washed into a closed loop drainage and pumped back into the plant's storage tank. High pressure wash hoses will be used for site clean up. Vacuum equipment will be available to clean up any spills whether they are on the site itself or on the ingress or egress road. The facility will include a truck washing area, where truck tanks will be washed out. The wastewater from truck washings will be collected and pumped back into the facilities' intake receiving tank. In the event of a large amount of spillage from a truck on the ingress or egress road or on the loading area or driveway area, a commercial vacuum truck will be dispatched to pump up the spill and the waste will be discharged and processed in the facility itself

(4) Protective dike sizing - Secondary containment calculations are provided in Appendix 23 and show that existing dikes are adequately sized for outside tank storage volumes.

(5) Drainage calculations - For 2.5 acre site

(A) Details of calculation procedure - Peak stormwater flow was calculated using WinTR-55 software published by the Natural Resources Conservation Service (NRCS) (formerly Soil Conservatio n Service [SCS]). The calculation assumed an average curve number of 87 over the 2.5-acre site and a rainfall depth of 9.6 inches corresponding to the 25-year, 24-hour storm. The peak flow rate based on these conditions is 14.1 cubic feet per second (cfs), assuming a single stormwater discharge point.

(B) Calculations - Output from the WinTR-55 software is provided.

(C) Dike design details – Dike heights required to satisfy secondary containment requirements are provided in Attachment 23.

(D) Sample drainage calculations – Output from the WinTR-55 software is provided in.

(E) Erosion control practices - Stormwater run-off is routed to one of two discharge points located along the eastern fenceline for the facility. Where stormwater velocities are the highest, crushed rock 3 to 6 inches in diameter has been placed to dissipate energy from stormwater flow and minimize potential erosion and scour. Stormwater is routed directly to a tributary to the Brazos Bayou, located approximately 75 feet east of the fenceline, across a shared use path.

(6) Waste disposal of collected surface water shall be accomplished by pumping the wastewater back into the facility intake receiving tank.

(7) Flooding protection - The facility is designed to control rainfall run-off. Minimal run-on is anticipated based on surrounding topography.

(A) Solid waste detention - Solid wastes generated during processing of liquid feedstock are stored within 30-cubic yard rolloff containers. These containers mitigate the potential for solid waste to be conveyed off-site during a rainfall event.

(B) Freeboard provided - Secondary containment is provided sufficient to hold the largest tank volume and the volume of

precipitation expected in a 25-year, 24-hour storm. Freeboard is provided above the design secondary containment volume.

(C) Levies and any 100 year flooding potential - According to the Federal Emergency Management Agency (FEMA) map, Panel 48201C0830L, panel 830 of 1150, dated June 18, 2007, the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.

(8) Design and final cover - N/A
- (A) Estimated peak velocities - N/A
- (B) Top surfaces and slopes - N/A
- (C) Details for final cover - N/A

(9) Endangered species concerns - None, site already has an existing MSW facility on it

(10) Landfill markers.
- (A) Marker placement - N/A
- (B) Marker color - N/A
- (C) Site boundary marker- N/A
- (D) Buffer Zone - N/A
- (E) Easements - N/A
- (F) Grid System - N/A
- (G) SLER & FMLER markers - N/A
- (H) Flood Protection Markers - N/A
- (I) Trenches - N/A
- (J) Permanent Benchmark - N/A

PART III

330.59 ADDITIONAL TECHNICAL REQUIREMENTS OF THE APPLICATION FOR SOLID WASTE PROCESSING TYPE V SITES

(a) This Section applies to all Type V sites that require a permit.

(b) The Site Development Plan includes the following:

(1) Process Description

(A) Narrative -FACILITY OPERATION

During operation (i.e., unloading, loading or processing) of this facility, the owner, plant manager, site supervisor, or trained plant personnel will be on site at all times. Registered transporters will bring waste to the facility in enclosed trucks. . Grease trap waste will be processed for separation of the contained greases and oils, solids and water. Grit trap and septage wastes will be processed to separate water, solids and oils.

Waste will be transported to the facility and off-loaded in the three-bay truck unloading area under a canopy cover. Trucks will be hooked up, by a flex hose, to a manifold that transfers the contents of the truck to a rotating screen for solids removal.

Solids separated by the rotating screen are collected in a hopper. Liquids are transferred to 21,000-gallon storage tanks used to accept the raw material. From these receiving tanks, wastewater is pumped to a mix tank for pH adjustment through amendment with lime. The adjusted wastewater is then transferred to a belt press for additional solids removal. Polymers are added to this waste stream, as needed, to improve belt press performance. Located immediately outside the main process containment area but inside a curbed containment area, roll-off boxes accept solids from the belt press process. Roll-off boxes are covered with a tarp when not actively receiving solids.

Wastewater from the belt press process is pumped to aerated equalization tanks, which gravity drain to a dissolved air flotation (DAF) system rated for a maximum flow of 250 gallons per minute (gpm). Treated effluent from the DAF is routed either directly to the City of Houston sewer or to a recycled water tank, as needed to clean the belt press.

Grit wastes are received in a separate dewatering area, which is also covered with a canopy. The area is lined in concrete, including a new 6-inch berm located at the edge of the facility pavement, and is sloped from north to south. Wastewater flows over a concrete weir into a sump in the southern end of the

containment area, which is then transferred through the grit treatment system using a sump pump. Rated for a maximum flow of 50 gpm, the grit treatment system includes an oil-water separator, bag filters for solids removal, and a sand filter. Treated wastewater is discharged directly to the City of Houston sewer. Solids are transferred to a roll-off box located immediately west of the dewatering area.

Fat, oil, and grease (FOG) waste is collected and processed within the process building. Solids are removed from incoming waste using either a filter or a decanter centrifuge. Liquids are then transferred to process tanks, which are heated with a boiler. FOG materials slowly separate from water and other materials and are ultimately transferred to finish tanks located between the process building and the covered truck unloading area.

(B) Alternate Plan - N/A

(C) Incineration - N/A

(2) Sanitation. Proper cleaning will be accomplished as follows:

(A) Adequate surface drainage control

(B) Construction of walls - is concrete block that can be scrubbed or hosed down

(C) Necessary Cleaning of Equipment - Will be provided as follows: Water hoses, steam cleaning machine, high pressure hoses, standard mops, brooms and detergents for bath, lab and shower, sump pumps, rubber boots for workers.

(D) Adequate floor drains to wash the area will be provided. The drains are in a closed loop system so that wash water will be disposed of in the facility itself.

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08/09/02

(3) Water pollution control.

(A) All liquids resulting from the operation of solid waste processing facilities shall be disposed of in a manner that will not cause surface or ground water pollution. The facility shall provide for the treatment of its own wastewaters resulting from the process or from cleaning and washing. The procedure for wastewater disposal is in compliance with the Rules and Regulations of the Commission.

(B) Surface drainage in and around the facility will be controlled to minimize surface water running onto, into and off the process areas. There will be virtually no risk of ground water contamination due to concrete containment system for tank, storage and loading areas. Wash waters will be collected and treated by the facility itself and discharged to the City of Houston's wastewater system. All wash waters will be confined to graded areas with concrete. Concrete spill containment walls and pads will surround tankage, process and loading areas.

No contaminated waters will be discharged from this site. Groundwater monitoring is not applicable to this site. This facility itself is not in the 100 year flood plain.

All wastewater discharged from the facility to the City of Houston's wastewater plant and will meet the requirements for discharge in the City of Houston. Any plant wash water or spillage will be washed into closed loop drainage and pumped back into the plant's storage tank. High pressure wash hoses will be on site for clean-up. Vacuum equipment will be available to clean-up any spills.

The facility will include a truck washing area, where truck tanks will be washed out. The wastewater from truck washings will be collected and fed back into the facility's grit basin.

All tankage associated with waste processing are inside the building or surrounded with a secondary containment capable of holding the contents of the tank plus rain from the 24-hour 25-year storm event plus reasonable freeboard. The waste receiving/pre-treatment solid separation area is

covered so that no direct precipitation will come in contact with waste material. During the construction of the facility, the area will be graded such that surface runoff from the operating area is directed to drainage conveyances designed to handle the flow from the 24-hour 25-year storm event. The rest of the facility will be contoured such that direct precipitation will sheet flow off the facility towards the street. Facility drawings shows the drainage patterns and the drainage conveyances.

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08/09/02

(4) AIR POLLUTION CONTROL AND ODOR CONTROL

(A) The construction and operation of Type V sites may require a Texas Air Control Board Permit. However, in the case of this Applicant, a Texas Air Control Board Permit is not required.

(B) The facility has been designed to prevent nuisance odors from leaving the property boundary. The area of the facility with the greatest potential to generate odor is the receiving tank, into which the waste is unloaded from the trucks and solids are separated. To control odors, the receiving tank is covered. The tanks are immediately evacuated into the separation area. The roll-off box handling the sludge materials is also covered. The roll-off box will be in a building that has a roof and has no open sides. Within the roof area of the building will be odor control equipment. The odor control equipment as well as the ventilation will provide air exchanges approximately every six minutes. Air discharges from the building will be routed through an odor control system. The odor control system will be operated at all times that waste unloading operations are occurring or during waste processing operations.

Maintenance and cleaning of odor control equipment shall be performed on a contract basis as recommended by the manufacturer to maintain equipment efficiency.

Additionally, to control the generation of odors, the roll-off box will remain covered when not in use.

A sufficient volume of a suitable biological deodorant, HTH or lime will be retained on-site at all times to treat any accidental spills of untreated waste material.

Odors will be completely controlled by a combination of 50 foot buffer zones, a proprietary fast new process, a building with odor control and tanks that are covered and vented into the building. All areas of the process that have the potential to generate odor shall be controlled by the odor control system. The facility will be designed and built to prevent nuisance odors from leaving the property boundary. Additionally, the Odor Control System designed for the

waste receiving area will comply with all applicable requirements contained in 30 TAC §330.71(f)(5) and other applicable Texas Natural Resource Conservation Commission regulations.

This Applicant's innovative wastewater process will use proprietary technology that reduces odors by 90%. The remaining odors will be eliminated by 50 foot buffer zones, a building and an odor control system.

Municipal solid waste processing facilities are subject to Texas Natural Resource Conservation Commission Office of Air Quality jurisdiction concerning air pollution control. As such, the processing facility will be designed to minimize the production of odor and those odors that are produced will be captured and treated. Residual odors will be eliminated by state of the art odor control. The main source of odor at the facility will be the inlet structure that receives the raw material for initial separation of the solids and the oil and grease that is skimmed off initially from the raw material. All other water materials taken into the system will be quickly treated. The treatment process is oxidizing the pollutants so that the water will not have an odor problem. To assist in controlling odors, the roll-off boxes, grit basin and oil skimming will be inside a building enclosed on all sides and an exhaust hood will be in-place and operating at all times that the waste unloading operations are occurring. Outdoor tanks will be covered, sealed and vented back into the building. Additionally, the exhaust hood shall be in operation at all times that waste material is being stored. Exhaust from the ventilation system will be duct through an odor control system. Odors will not pass the facility's property line.

30 TAC 330.71(e)(6)(T) Air Quality Permit - Permit by Rule. The proposed facility utilizes a combination of heat sources: electric and natural gas. The proposed gas fired water heater is rated at 7.0 mm btu/hr and is covered by the following Permit by Rule: 30 TAC §106.183(g)(2), 30 TAC §106.183(g)(2)(A), 30 TAC §106.183(g)(4), 30 TAC §116.150(c)(2).

Completely Revised
08/09/02

(5) STORAGE OF SOLID WASTE

(a) Storage Requirements - All materials, grease, grit, septage, sludge, oil and discharge effluents will be properly stored and covered for odor control, except as necessary for separation, processing and removal. Recycled material is stored in dedicated storage which are enclosed tanks. The three outside tanks are vented into the odor control system. All other storage is inside the building.

(6) VENTILATION - ODOR CONTROL.

See: (4) Air Pollution Control and Odor Control above.

(7) NOISE POLLUTION

(A) There will be little noise except for separation machinery (inside a building), truck and pump/blower noise. Proper maintenance and operation of machinery will minimize noise. The area is not zoned and is inhabited by noisy industry including the railroad, pipe manufacturer and the concrete company. Noise from Applicant's facility should be no problem. The buffer zone is large since the land parcel exceeds one acre. Adequate separation spacing between the facility and adjacent property owners prevents noise from becoming a nuisance to the adjoining property or area. Inside the building, there is sound proofing separating the office and lab from the processing area.

(8) EMPLOYEE SANITATION FACILITIES

(A) A rest room including a sink with potable water will be provided for use of all employees and visitors in the office area. The receiving building will contain a sanitary wash basin. The mobile office building will have a shower, sink, washer/dryer and changing room for plant workers.

Completely Revised
08/09/02

(c) COMPOSTING SITE - N/A - No composting.

(1) Composting System - N/A
  (A) Composting Engineering - N/A
  (B) Site Layout - N/A
  (C) Sludge Analysis - N/A
  (D) Process Design - N/A
  (E) Odor and Vector Control - N/A
(2) Final Product Specs - N/A
(3) Disposition - N/A

(d) SITES FOR PROCESSING GREASE, GRIT AND SEPTAGE

Completely Revised
08/09/02

(1) Waste Identification

Sources of waste streams are untreated grease trap waste, untreated grit trap waste and untreated septic tank waste.

Chemical characteristics of the waste are grease trap waste, up to 100,000 BOD/COD, untreated grease trap waste, 1,000 to 3,000 BOD/COD, untreated septage, 5,000 to 6,000 BOD/COD. The general characteristics of each waste stream proposed to be handled are as follows:

Waste Streams	**Fats, Oils, Greases (%)**	**Solids (%)**	**Water (%)**	**pH**	**BOD/COD**
Untreated Grease Trap	10%	20%	70%	5.2	up to 100,000 / 100,000
Grit Trap Waste	0%	15%	85%	6.4	≤ 10,000 COD ≤ 500 BOD
Septage	≤ 0.01%	3%	97%	5.2	≤ 3,000 COD ≤ 6,000 BOD

Waste Data - This facility will accept and process non-hazardous grease trap, grit trap waste, and septage for the purpose of separation into its various constituents; solids, oil and grease and water. These and similar wastes have historically been accepted by the City of Houston and surrounding landfills and the materials are currently transported by local vacuum truck companies.

Total grease trap wastes, grit and septage will be collected from restaurants and septic tanks and are expected to approach 150,000 gallons per day.

The maximum amount of waste to be stored at any time at the facility is equivalent to the capacity of the 150,000 gallons per day with a maximum storage limit of 48 hours. The anticipated operational flow rates are controlled by the belt press and dissolved air flotation (DAF) processes and are expected to be between 220 and 250 gallons per minute (gpm). Assuming maximum daily throughput of 150,000 gallons, waste can be processed in 12 hours or less so that overnight storage of waste materials will be minimized. In the event of mechanical failure, the maximum time that waste will remain on-site prior to processing will be 48 hours.

The facility is intended to have two separate waste stream facilities, one for grease and septage and the other for grit. The grit process can operate at a maximum throughput of 50 gpm.

All non-recyclable solids removed in processing the waste streams will be disposed at a permitted landfill. All waste waters generated during processing of the waste will be discharged to the City of Houston's collection system, which flows to the City of Houston's wastewater treatment plant. All grease and oils recovered will be sold to facilities permitted to accept these types of materials. Recyclable brown grease will not be used as animal feed in the U.S. and will not be used in any manner that violates Section 402 of the Federal Food, Drug and Cosmetic Act. In the event recycling goals cannot be met, the oil and sludge will be taken by box load to the landfill.

Using heated vessels to facilitate the gravity separation of the greases and oils from the waste streams, it is anticipated that 10% of the waste constitutes fats, greases and oils will be removed/recovered prior to the separation process. Specifically, a skimmer will be used to recover the fat, greases and oils prior to the raw material being separated into sludge and water streams. Other waste streams handled at the facility will also be recycled material for beneficial use.

(2) Processed Waste

Following processing to remove oils, greases and solids, the water fraction that remains will be treated and discharged to the City of Houston's wastewater treatment plant in accordance with an Industrial Discharge Permit (Permit No.10946) as required by Houston's Industrial Waste Program, Chapter 47, Article V of the Code of Ordinances and in accordance with effluent limitations, monitoring requirements, and other conditions set forth in the permit.

The other waste stream generated as a result of material processing is the solids fraction removed during waste processing. All waste solids removed will be stored on-site in covered roll-off boxes. The solid material will be recycled or transported via disposal contractor to a permitted Type I landfill that is capable of handling the type of sludge waste generated at the facility. In the event recycling goals cannot be achieved, solid material will be taken by box load to the landfill. See: Part III, Pages 00048A and 00048B for documentation.

Contaminant concentrations of the treated wastewater stream are expected to be exceedingly low:

1.	Oil and grease	< 50 ppm
2.	Total Suspended Solids	< 100 ppm
3.	BOD (5-day)	< 350 ppm
4.	COD	< 1000 ppm
5.	pH	4-11

Waste solids will be removed by means of centrifugal separation, screening and filtering. Solids will be placed in a roll-off box and stored on-site until transported off-site for disposal. It is expected that 20 percent of the volume of material received will be removed as a waste solid. Waste solids will be sampled on a periodic basis to meet all State and local permitting and disposal requirements. The waste solids will be periodically sampled to meet the parameters required by local landfills and for sludge disposal: (TCLP Test - Toxicity Characteristics Leachate Profile, Total Hydrocarbon, Pathogen Reduction Qualification and Vector Attraction Qualification).

Sampling will be carried out in accordance with quality control standards set forth in the Project Sampling Plan.

The solids will be profiled for disposal at a permitted landfill and/or recycled for geotextile manufacturing raw material. Each load of waste sent off-site will be sampled and analyzed to ensure that the material meets the Paint Filter Liquids Test (EPA method 9095).

(3) OTHER PERMIT REQUIREMENTS

(1) The City of Houston has authorized the discharge of 600,000 gallons of wastewater at the proposed site and has authorized construction of an MSW Type V facility. Applicant has purchased 100,000 gallons of capacity from the previous owner.

(4) PROCESS DESIGN - (In the very back of this Section III, out of order to facilitate copying and avoid multiplicity)

A-G:

§330.59(d)(4)(G) Storage Plans for Processed Materials:

1) Trash screened from inlet off-loading from the trucks;
2) Sludge produced by the process itself; and,
3) Fats, Oils, and Grease recovered from the wastewater.
4) Wastewater

1) Non-Putrescent trash is screened from the wastewater and stored in a conventional three cubic yard "Dumpster Style box. The maximum time to fill the box is 10 calendar days;
2) Sludge produced by the process is discharged and stored in a 25 cubic yard "Roll-Off" Box. Approximately 100,000 – 125,000 of process flow fills one of these boxes is filled with sludge. Maximum time to fill the box is 3 calendar days (assuming a daily flow of 30,000 gallons per day).
3) Fats, Oils and Grease that are recovered from the process are directly transferred to a 5,000 gallon trailer tank provided by the recycler. Based upon a 10% recovery rate, the maximum time to fill one of these trailers is 1.5 calendar days (assuming a daily flow of 30,000 gallons per day).
4) After water has been removed from the raw waste, the water goes to the Bio-Reactor for and average storage time of 3 to 4 hours before discharging into approved City of Houston wastewater lines.

4.(H) PROPOSED DISPOSITION OF EFFLUENT

All solids sent for final disposal will pass the Paint Filter Liquids Test (EPA method 9095). Annually, a representative sample of the solids routinely sent for off-site disposal will be analyzed for the following parameters:

(1) Total benzene
(2) Total lead
(3) Petroleum hydrocarbons
(4) BOD (5 day)
(5) COD

All records of analysis will be retained on-site for a minimum of three years.

Wastewater discharged from the facility will be tested periodically by the City of Houston for the following parameters:

(1) Fats
(2) Oil and grease
(3) Total petroleum hydrocarbons
(4) BOD
(5) Total Suspended Solids

All records of analysis will be retained on-site for a minimum of three years, provided the City forwards the results to the facility.

Revised
10/17/02

PART III

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PART IV
PAGE 00022

In accordance with Second NOD #17

PART III

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Has been moved to

PART IV
PAGE 00023

In accordance with Second NOD #17

PART III

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Has been moved to

PART IV
PAGE 00024

In accordance with Second NOD #17

PART III

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Has been moved to

PART IV
PAGE 00025

In accordance with Second NOD #17

PROJECT SAMPLING PLAN

Downstream Environmental, LLC

Sampling requirements are needed to insure that the proper type and number of samples are collected to facilitate an effective evaluation of the discharge water. The basic sample collection procedures to be followed during the remediation process are described in the following sections.

QUALITY CONTROL PROCEDURES

Quality control procedures will provide for collection of contingency samples and will describe sample equipment preparation (pre-cleaning, etc.), and sample handling (pre-treatment, preservation, etc.). Quality control efforts to be applied in general to all sampling activities of are outlined below.

- All non-disposable sampling equipment will be thoroughly cleaned before sampling and between sampling of different sources.
- All non-disposable sample containers will be cleaned in accordance with specific sampling method requirements. Containers are to be obtained from a known source. These containers are to be cleaned to EPA protocols and QC analyzed.
- Sample containers will <u>not</u> be pre-rinsed with the sample stream for samples taken for organic analysis to prevent concentration of organics on the containers inner walls.
- All samples will be preserved as required. FOR LIFE
- Duplicate field samples will be collected for at least 10 percent of the total samples collected. These duplicate samples will be reserved as contingency samples.

FIELD SAMPLING PROCEDURES

ıe following procedures represent the standard operating procedures common to all samples to collected.

A. All samples must be labeled with a Company label and must have the following information:

1. Name - Name of person taking sample.

2. Sample # - sequential number beginning with 100 and log the sample number in the sample log located in the lab.

3. Location - Where sample was located.

4. Date - Date sample was taken.

5. Time - Time in Military (2400 hrs) that sample was placed in jar.

6. Type - Type of sample. This may be grab, composite, sequential, split, replicate or combination. If split or replicate the Sample #(3) should have a letter designation of each split. Example: #3B would be replicates or splits of the sample #3.

B. In addition to labels on the jar: each sample will be sealed with an index or file folder label cross the lid. This seal will have the following information:

1. Signature - Signature of person sealing jars or sample. Usually the collector.

2. Date - Month-day-year sample was sealed. Usually same as sample label.

3. Sample # - Sequential number beginning with 100 for the sampling effort. Same as on label.

4. Time - Time in Military (2400 hrs) that the sample was sealed.

In applying the seal, be certain that the seal goes across ½ of the lid and over onto the side of the bottle.

C. All samples must be kept on ice until analyzed. Refrigeration is equivalent to keeping on ice.

D. All samples must be accompanied by a Chain of Custody form. Several samples from a single job may be placed on a form. If samples are to be delivered to the laboratory, obtain a signed copy of the COC form from the lab.

E. Chain-of-Custody must be recorded by signature, date and time on the bottom of the form. This must be completed each time the samples change hands. Should a courier by used the COC should be signed as relinquished (Relinquished), dated and timed and sealed in a ziploc bag inside the sealed sample container. The courier's receipt will indicate transfer from you and receipt by the consignee.

F. Custody means in your physical possession or under your individual access. This may be locked in your car, or storage area where keys are limited.

DECONTAMINATION

Decontamination will be required for non-disposable sampling equipment. Field personnel will decontaminate sampling equipment after taking each sample. General decontamination procedures are described below. Site Safety Plan and Sampling Plan documents will prescribe decontamination fluids and equipment. These plans are developed by the Safety Director and the Technical Director.

Equipment Decontamination

The sampling equipment will be decontaminated after each sample as follows:

- Prior to sampling, scrub the sampling tools in a bucket using a stiff; long bristle brush and detergent solution. After sampling, brush off loose dirt with soft bristle brush or cloth and proceed washing with a non-phosphate detergent.

- Place cleaned sampling equipment and containers in their designated storage area.

Pretreatment Sampling Procedures
for
Truck Discharge Load Acceptance

This section will identify the prescribed methods for collecting sample material from transported wastes. Remember that the sample represents the entire body of wastes. The standard sampling procedure requires the owner, generator or transporter to provide a sample of each waste load to certify that it represents the entire waste stream. We require samples to be collected, the attached written sampling program will be followed. Questions or field modifications will be considered and approved by the Technical Coordinator.

Samples will be placed in the disposable plastic bags unless otherwise directed. Should more inert containers be required, glass jars will be specified. Field personnel are skilled in sampling and their judgment and common sense will determine the applicability of the containers. Standard canning jars, Ball or Mason may be used if field substitution is necessary. These containers should be washed with non-phosphate detergent, rinsed with clean water, then with the Isopropyl Alcohol used to clean respirators, and air dried. Saran wrap will be placed over the mouth of the jars prior to placing the lids.

Once collected, the samples are to be labeled and stored as described in the previous section.

Truck Load Acceptance Procedures

Truckloads received at the treatment facility are documented by a manifest system, which documents the origin of the truck contents. It is realized that additional screening of the truck contents is required to confirm the non-hazardous nature of the incoming waste to be treated. For this reason, samples from truck transfer trailers will be collected and analyzed as follows:

A. Grab sample will be taken from each truck prior to acceptance of the load. Samples should be consist of 1 - 1 liter plastic bag which is sealable.
B. Qualitative analysis for indicator testing shall be performed for appearance and odor.
C. Onsite quantitative analysis for indicator testing shall be performed. The sample shall be tested using chrome as the indicator metal. A headspace analysis for solvents and thinners shall be performed. The pH of the sample will be checked.
D. Rejection of the truckload shall be based upon qualitative and quantitative analysis according to procedural EPA standards.

Post-treatment Sampling and Testing Procedures

Samples from treatment units will be collected as follows:

A. Until city pretreatment standards are obtained, indicator testing shall be performed each day. The sample must be taken from the inlet to the discharge tank. Samples should consist of disposable plastic, liter containers.

B. Daily samples are to be taken using a four (4) hour manual composite. 200-ml samples will be collected at thirty (30) minute intervals. Quantitative onsite analysis of COD and pH will be performed as well as a qualitative analysis of appearance and odor. Should daily indicators exhibit an aberration or trend, the bi-weekly testing protocol shall be immediately implemented. Trigger levels shall be the 2-day peak values.

C. A separate set of samples are to be taken bi-weekly and sent to an outside, independent laboratory. The sample will be quantitatively analyzed for BOD5, COD, TSS, FOG and pH.

D. A separate set of samples are to be taken every 60 days. This sample is to consist of 4 - 1 liter containers.

E. Record all samples collected on the sample sheet located in the lab.

A chain-of-custody form will be filled out and placed in each package. After completion of the sampling, the packages will be sealed, and the appropriate shipping labels applied. The samples will then be transported to the designated laboratory where the samples will be submitted for analysis.

ONSITE ANALYTICAL EQUIPMENT

The following equipment shall be maintained onsite to perform the required truckload, daily, and bi-weekly testing.

A. pH paper;

B. Pocket pH meter;

C. Buffer solution at the following pH: 4.0, 7.0, 10.0;

D. Colormetric analyzer for chrome analysis. The unit shall be manufactured by Hach, LeMont, or equivalent;

E. Indicator tube vapor analyzer as manufactured by Sentex, Draeger, or equivalent;

F. COD analyzer as manufactured by Hach, LeMont, or equivalent;

G. Sealable plastic sampling bags;

H. 500ml, 1000ml sample bottles; and

I. Refrigerator.

MONITORING OF SAMPLING ACTIVITIES

The lab supervisor will supervise the sampling effort and will be responsible for adhering to proper sample collection procedures. Included among these responsibilities are to:

- Observe procedures and techniques used in the sampling and on-site measurement efforts.
- Check and verify instrument calibration records.
- Assess the effectiveness of and adherence to prescribed QC procedures.
- Assess and separate duplicate sample analysis for statistical verification.
- Review document control and chain-of custody procedures.
- Identify and correct any weakness in the sampling and analytical approaches and techniques.
- Report an evaluation of the sampling effort to the site manger.

DOWNSTREAM ENVIRONMENTAL, LLC
Daily Manifest Log
Westpark Plant

Date	Load #	Truck License #	Manifest #	Quantity

Attachment 30b

SPILL & CLEANUP PLAN

In the event of a spill, the ate material will be contained within a concrete area with a closed loop drainage system feeding back into the storage tank. Spills will be immediately cleaned up by method of vacuum and pump. Spilled material will be placed back into the facility wastewater storage unit. Spilled waste material that is washed down the drain will go into a closed loop drainage system where the facility's spillage and own wash water is pumped back into th facility's storage tank.

High pressure hoses will be kept at the facility for daily cleanup and wash down so as to prevent odors.

No material will be stored on the ground. No spillage will have any contact with the ground or ground water. All areas where material is of loaded, stored and/or precessed, are areas of graded concrete and a closed drainage system.

All areas of tankage will be placed on concrete pads with retainer walls to contain spills. The area will be kept clean. The entire plant area will be leaned on a daily basis with wash water from pressure hoses and will be inspected on a daily basis for leakage or spillage. If leakage or spillage is noted, it will be immediately removed by vacuum pump and remedial action will be taken so as to insure that leakage or spillage does not recur.

In the event of spillage in the area of ingress and egress, the spill will be handled by use of a vacuum truck hired for removing the spillage from the street or drive and disposing of spillage at the facility, followed by washing the area with a pressure hose.

SITE SAFETY PLAN

A. SITE DESCRIPTION

Project:	Westpark
Location:	Houston, Texas
Area affected:	Water treatment facility
Surrounding population:	Light Industrial
Topography:	Flat
Weather conditions:	Work will be inside and outside
Additional information:	Low risk work environment much like municipal waste treatment plant

B. OBJECTIVES

Treatment of Grit, Septic and Grease Trap wastewaters. Non-toxic.

C. ON SITE ORGANIZATION & COORDINATION

The following personnel are designated to carry out the stated job functions on site. (Note: One person may carry out more than one job function.)

PROJECT MANAGER:	George Noyes
LAB SUPERVISOR:	Dan Noyes
SITE SAFETY OFFICER:	George Noyes
PUBLIC INFO OFFICER	Mary Wimbish
SECURITY OFFICER:	George Noyes
RECORD KEEPER:	Gwen Scarborough
FINANCIAL OFFICER:	Gwen Scarborough
OPERATOR:	George Noyes
LABOR:	(to be hired)
STATE AGENCY REP:	Susan Janek
LOCAL AGENCY REP:	Paul Nelson, City of Houston

All personnel arriving or departing the site should log in and out with the Record Keeper. All activities on site must be cleared through the Project Manager.

D. ON SITE CONTROL

George Noyes has been designated to coordinate access control and security on site.

A safe perimeter has been established around the property with a 4 foot cyclone fence topped with 3 strands of barbed wire. There is two access gates. The facility is located within a covered structure. **No unauthorized person should be within this area.**

E. HAZARD EVALUATION

The following substance(s) are known or suspected to be on site. The primary hazards of each are identified.

Substances Involved	Concentrations (if known)	Primary Hazards
Caustic Lime	Variable	Skin
Acids	Variable	Vapors, Skin
Dusts	Variable	Ingestion

Hazardous substance information form(a) for the involved substance(s) have been completed and are located in the lab.

F. PERSONAL PROTECTIVE EQUIPMENT

Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks.

Location	Job Function	Level of Protection
Covered building		Level D
pH adjustment		Level C

Specific protective equipment for each level of protection is as follows:

Level A: N/A

Level B: N/A

Level C:
Tyvex Suites
Respirators
Neoprene Gloves
Rubber Safety Boots

Level D:
Work Clothes
Work Shoes
Hat
Neoprene Gloves

Comments: _____

The following protective clothing materials are required for the involved substances:

Substances	Material
Rain Suit	Acids
Tyvex	Water treatment sludge
Cloth	Dust

If air-purifying respirators are authorized, Acid and Organic vapor is the appropriate cartridge for use with the involved substances, and concentrations. A competent individual has determined that all criteria for using this type of respiratory protection have been met.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER AND THE PROJECT TEAM LEADER.

G. ON SITE WORK PLANS

Refer to Grease Spot's Standard Operating Procedures for work plans.

H. COMMUNICATION PROCEDURES

The following standard hand signals will be used in case of failure of radio communications:

Hand gripping throat.....Out of air, can't breathe
Grip partner's wrist or
both hands around waist.....Leave area immediately
Hands on top of head.....Need assistance
Thumbs up.....OK, I am alright, I understand
Thumbs down.....No, negative

I. DECONTAMINATION PROCEDURES

Personnel and equipment leaving the warehouse shall be thoroughly decontaminated. The standard level D decontamination protocol shall be used with the following decontamination supplies available:

(1) Boots (2) Outer Gloves (3) Respiration mask
(4) Tyvex Suit (5) Inner Gloves (6) _____
(7) _____ (8) _____ (9) _____
Other: Showers on site
Emergency decontamination will include the following stations:

N/A - Showers available on site.

The following decontamination equipment is required: Non-hazardous detergent, scrub brushes and cleaning tub.

J. SITE SAFETY AND HEALTH PLAN

1. George Noyes is the designated Site Safety Officer and is directly responsible to the Project Manager for safety recommendations on site.

2. **Emergency Medical Care On Site:**

George Noyes is qualified First Aid on site.

Local Emergency Contact:

Nearest Hospital

Address: _____ Phone: _____
_____ Time contacted: _____
_____ Date contacted: _____

A map of alternative routes to the site is available in the lab.

Ambulance Service

Local Ambulance Service is available from
Phone Number: 911
Response Time: 10 minutes

First Aid

First aid equipment is available on site at the following locations:

First Aid Kit	In the lab adjacent
Emergency Eye Wash	In the lab adjacent
Emergency Shower	In the lab adjacent

Emergency Medical Information
for Substances Present

Substances	Exposure Symptoms	First Aid Instructions
Lime	None	Showers
E-Coli	None	Showers
Raw waste	None	Showers

Emergency Phone Numbers

Agency/Facility	Phone #	Contact
Police	911	
Fire	911	
Hospital	911	
Airport		
Public Health Advisor		

3. **Environmental Monitoring**

Not required.

4. **Emergency Procedures (should be modified as required for incident)**

The following standard emergency procedures will be used by on site personnel. The Site Safety Officer shall be notified of any on site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury: Upon notification of an injury the Project Manger or site supervisor will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operation may continue, with the on site personnel, operations may continue, with the on site EMT initiating the appropriate first aid and necessary follow-up as stated above.

If the injury increases the risk to others, the designated emergency signal shall be sounded. Activities on site will stop until the added risk is removed or minimized.

Fire/Explosion: Upon notification of a fire or explosion on site, the designated emergency signal **FIRE!** shall be sounded and all site personnel assembled at the decontamination line. The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Personal Protective Equipment Failure: If any site worker experiences a failure ot alternation of protective eqipment tht effects the protection factor, that person and his/her buddy shall leave the site. Re-entry shall not be permitted until the equipment has been repaird or replaced.

Other Equipment Failure: If any other equipment on the site fails to operate properly, the Project Manager or Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan Tasks, all personnel shall leave the work area until the situation is evaluated and appropriate actions taken.

In all situations, when an on site emergency results in evacuation of the work area personnel shall not re-enter until:

a. The conditions resulting in the emergency have been corrected.
b. The hazards have been reassessed.
c. The Site Safety Plan has been reviewed.
d. Site personnel have been briefed on any chagnes in the Site Safety Plan.

5. Worker Monitoring

a. Breaks given at intervals to prevent heat related problems
b. Cold water available
c. Salt tablets available
d. Air-conditioned area available

FIRE PROTECTION PLAN

General Plan of Action

There are no real fire hazards involved in grease trap waste disposal. The grease as received has sufficient water content to prevent ignition or hazard. Subsequent processing is not hot enough for autoignition. Vapors that exist during separation will be sufficiently mixed with water vapor such that fire hazards will be excluded. As the grease cools after separation, no real hazard of fire exists. This can be considered minimized as the tank is completely enclosed and any vapor movement will be sufficiently mixed with air and other vapors as to be only a small part of the overall stream. All streams exist below the Lower Explosion Limit and autoignition temperature. Maintenance cleanup will be performed in such a way to minimize disruptive or unusual situations. Hand-held fire extinguishers and proper use instructions will be available to all employees. Basically, the operations of the Applicant are accepted in the industry as non-hazardous.

The community is on a 911 system and the various fire departments are sent up for mutual aid. Neighboring business phones and mobile phones can be used in the event of phone system failure.

The office building will consist of a remodeled mobile office trailer with a security system and fire alarms. The unit shall contain fire extinguishers, rubber gloves, hot water shower facilities, kitchen, washer/dryer, locker room for workers and cold water supply to optimize worker health, sanitary work clothes and worker cleanliness.

Facility Construction

The plant facility is currently specified as a building with offices. When constructed, tank and line insulation will be specified to minimize any fire hazard and permit reasonable cleaning operations. Minimal hazards will exist otherwise. The only heat necessary to the process is heating the oil filtration unit and hot water in high pressure water hoses necessary to clean equipment and hot water supply for the office. A heat shield or insulation surrounding the water heater will minimize any fire hazard. The concrete slab will have a lightly brushed surface to provide adequate grip but provide an easy to clean surface.

Fire Fighting Water Supply

For small fires, on-site water well supplies, delivered at 30 psi or higher, are available for hand lines on the site. High pressure water hoses will be on the site for equipment maintenance and clean-up. These hoses can be used for an on-site water supply for small fires if they occur.

Fire Fighting Equipment

The hand lines mentioned above will be available to the operator and site occupants. ABC hand extinguishers will be available as required by occupancy and applicable fire

codes. The hand lines will be multiple as the normal occupancy will require use at several different points for clean up.

(D) COLLECTION AND DISPOSITION OF WASH WATERS

All transport tankage wash out will be performed at the grit basin area. All wash waters will be collected and processed with the waste material. All other wash waters generated (i.e., tank cleaning, equipment cleaning, etc.) at the facility will be pumped directly to the storage tank and processed with the waste material.

(E) FACILITY OPERATION

During operation (i.e., unloading, loading or processing) of this facility, the owner, plant manager, site supervisor, or trained plant personnel will be on site at all times. Registered transporters will bring waste to the facility in enclosed trucks. Grease trap waste will be processed for separation of the contained greases and oils, solids and water. Grit trap and septage wastes will be processed to separate water, solids and oils.

Waste will be transported to the facility and off-loaded in the three-bay truck unloading area under a canopy cover. Trucks will be hooked up, by a flex hose, to a manifold that transfers the contents of the truck to a rotating screen for solids removal.

Solids separated by the rotating screen are collected in a hopper. Liquids are transferred to 21,000-gallon storage tanks used to accept the raw material. From these receiving tanks, wastewater is pumped to a mix tank for pH adjustment through amendment with lime. The adjusted wastewater is then transferred to a belt press for additional solids removal. Polymers are added to this waste stream, as needed, to improve belt press performance. Located immediately outside the main process containment area but inside a curbed containment area, roll-off boxes accept solids from the belt press process. Roll-off boxes are covered with a tarp when not actively receiving solids.

Wastewater from the belt press process is pumped to aerated equalization tanks, which gravity drain to a dissolved air flotation (DAF) system rated for a maximum flow of 250 gallons per minute (gpm). Treated effluent from the DAF is routed either directly to the City of Houston sewer or to a recycled water tank, as needed to clean the belt press.

Grit wastes are received in a separate dewatering area, which is also covered with a canopy. The area is lined in concrete, including a new 6-inch berm located at the edge of the facility pavement, and is sloped from north to south. Wastewater flows over a concrete weir into a sump in the southern end of the containment area, which is then transferred through the grit treatment system using a sump pump. Rated for a maximum flow

of 50 gpm, the grit treatment system includes an oil-water separator, bag filters for solids removal, and a sand filter. Treated wastewater is discharged directly to the City of Houston sewer. Solids are transferred to a roll-off box located immediately west of the dewatering area.

Fat, oil, and grease (FOG) waste is collected and processed within the process building. Solids are removed from incoming waste using either a filter or a decanter centrifuge. Liquids are then transferred to process tanks, which are heated with a boiler. FOG materials slowly separate from water and other materials and are ultimately transferred to finish tanks located between the process building and the covered truck unloading area.

(F) OPERATION CHARACTERISTICS OF THE EQUIPMENT

All construction material used at the facility will be compatible with the type of waste streams processed and handled at the facility. The tankage holding material will be steel construction. The pipe will be above the ground PVC piping.

(G) FACILITY MAINTENANCE

Routine facility maintenance activities will be performed by Applicant's personnel on a daily basis. Maintenance activities that cannot be performed by the Applicant's personnel will be performed by qualified subcontractors experienced in performing a specific maintenance operation such as equipment repair, grass cutting, landscaping and facility clean-up will be performed by contract personnel.

(H) EMERGENCY PROCEDURES

Tri-class fire extinguishers will be located on-site in various areas. All plant personnel will be trained to operate the fire extinguishers. Spill response equipment will be located in the waste receiving area. This will consist of hand held pumps, vacuum trucks and hoses. For emergency situations which are beyond the capabilities of facility personnel, outside resources (e.g., Fire Department, ambulance, etc.) will be called to the site by dialing 911.

(I) OPERATING HOURS

The operating hours of the facility shall be any time between the hours of 7:00 a.m. and 7:00 p.m. six days per week. (Closed for regular business on Sunday.) Recognizing extenuating circumstances such as road breakdown or equipment malfunction, or personnel limitations of the transporter, arrangements will be made to allow transporters to deliver on an "emergency only" basis after normal operating hours. For those unloading operations which occur after normal operating hours, a trained

facility employee will be on-site during all operations such as unloading of waste, loading of product or waste processing.

(J) VECTOR CONTROL PROCEDURES

Wastes are fully contained within the processing site, and spills will be removed and processed immediately followed by high pressure cleaning with water and commercial bleach additive. If an insect problem develops, a pest control service will be consulted.

(K) ALTERNATE PROCESSING PROCEDURES

If the facility becomes inoperable for longer than 24 hours, no additional waste material will be received and that waste which is not processed will be transported off-site by Applicant to an approved facility, such as a facility permitted by SouthWaste Disposal, LLC, parent company to Downstream Environmental, LLC.

(L) INSPECTION OF INCOMING LOADS

A trained employee will be in attendance when the unloading of wastes is occurring. Applicant will conduct a visual inspection of all loads of waste coming into the facility to minimize the possibility that unauthorized wastes will be accepted and to verify the waste load information provided by the generator and transporter. The visual inspection will be documented on a Load Visual Inspection Form.

(M) RETENTION OF RECORDS OF LOAD INSPECTIONS

Records of load inspections will be retained on-site for three years after receipt of the load.

(N) TRAINING OF PERSONNEL TO RECOGNIZE HAZARDOUS WASTE

All of Applicant's personnel responsible for incoming load inspections will be trained to recognize the potential for the presence of hazardous wastes. This training will be performed before an individual is qualified to inspect incoming loads. Annual refresher training will be performed.

A training program will be designed by Applicant that will include methods to detect the presence of hazardous wastes. This program will include such things as identification of characteristic odors or visual signs of the presence of hazardous waste constituents within a waste stream and random sampling with on-site lab analysis. See: Attachment 30a.

(O) HANDLING PROCEDURES FOR HAZARDOUS WASTE

If an incoming load is suspected or confirmed as containing a hazardous waste, the materials will not be unloaded and the transporter will remove the waste material from the site. The facility will attempt to contact the generator of the waste to inform him/her of the load rejection.

If any hazardous wastes are inadvertently accepted, the site operator will immediately contain the accepted material by terminating process flow and will return the material to the transporter if practicable or contact a company appropriately licensed and permitted to handle and dispose of such materials.

The TNRCC will be promptly notified if any hazardous wastes are inadvertently accepted.

(P) TRIP TICKET/MANIFEST RETENTION

Trip tickets and/or manifests will be retained on-site as required by 30 TAC §12.145.

(Q) SITE ACCESS

Access to the facility will be from the east on Westpark via Beltway 8. Traffic can approach the facility from the east or west. Traffic will most likely come from the east (Beltway 8).

The interior road leading from Westpark to entrance of the facility is a concrete street. Walnut Bend Lane.

Access to the site will be controlled by the presence of an eight foot cedar fence along the boundary of the facility. A lockable gate will be placed across the entrance to the facility at the site itself. A gate will be locked at all times that the site is not in operation.

Access to the site will be limited to employees, affiliated company employees, users, shippers and authorized visitors. Accordingly, access is controlled by a receiving employee working a documents checking station at the front of the facility and will be further restricted by appropriate six foot fencing and gates. Non-affiliated users, shippers and visitors will be allowed access only when appropriate employees are present. All users must present appropriate paperwork.

Ms Mary Wimbish

Downstream Environmental
2044 Bissonnet
Houston, Texas 77005

Re: Landfill Capacity

Dear Ms. Wimbish,

I write to you in response to your inquiry regarding landfill capacity for your Company's proposed disposal facility for 150,000 gpd grease and grit trap waste, located in Houston, Texas, west of Beltway 8. Your disposal site located at Beltway 8 and Harwin – Westpark area would be served by the McCarty Road Landfill owned by BFI / Allied.

It is our understanding that your Company's anticipated sludge disposal needs consist of 2-30 yd roll-off boxes a day of Class B sludge, meeting the paint filter test requirements. This letter is to confirm that BFI / Allied has sufficient landfill space to meet Company's needs and more. We currently have ample facilities for Class B sludge that meets the paint filter test requirements. For an additional charge, we will solidify all loads that are too wet to meet the paint filter test requirements. In either case, we are more than capable of meeting your Company's sludge disposal needs with sufficient landfill space.

Sincerely,
BFI Waste Systems of North America, Inc.

Brian Cormier
Major Account Executive
Manufacturing Marketing and Sales

00048A

Revised
10/17/02

WINDRUSH

January 14, 2000

Downstream Environmental, LLC
Mr. Noyes
2044 Bissonnet
Houston, Texas 77005

Dear Mr. Noyes:

I write to you in response to your inquiry regarding Class II sludge recycling for your company's proposal grease and grit disposal facility located on Westpark Drive, Houston, Texas. I understand that your disposal site will be locate din the 10400 block of Westpark Drive, just west of Beltway 8, and will generate approximately 40 cubic yards of Class II sludge per day (two 20 yd. roll-off boxes).

Your company's sludge recycling needs consist of two 20 yard roll-off boxes a day, 7 days a week. It is my understanding that your Class II sludge will meet the paint filter test requirements for solidification. This volume of sludge can be recycled at one of our stabilization sites and this letter is to confirm that Windrush has sufficient solid material needs to recycle your company's sludge.

Windrush can take your solid material (40 cubic yards per day on a 7 day per week basis of Class II sludge) and reuse the same as fill for geo-textile structures to be deployed in areas of land loss caused by shoreline erosion. The solid material used can be Class II sludge since the material is treated and sterilized before final use.

Sincerely,

Thomas S. Gaylord

Thomas S. Gaylord, President
Windrush Industries, Inc. LLC

TSG/tdc

CONTROL SYSTEMS
Windrush Industries
710 West Prien Lake Road, Suite 207-A, Lake Charles, La. 70601 Fax 318/562-1127 E-Mail windrush3@aol.com Office 318/562-1128

100048B
Revised 10/17/02

PART III - §330.55(a)

LIST OF ATTACHMENTS to the SITE DEVELOPMENT PLAN

NOTE: Attachments are numbered with a page number. The designation "N/A" implies that this item has no required Attachment, but instead all parts of it are presented in the body of the text.

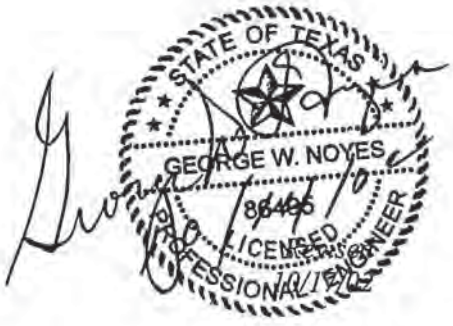
PART III - §330.55(a)

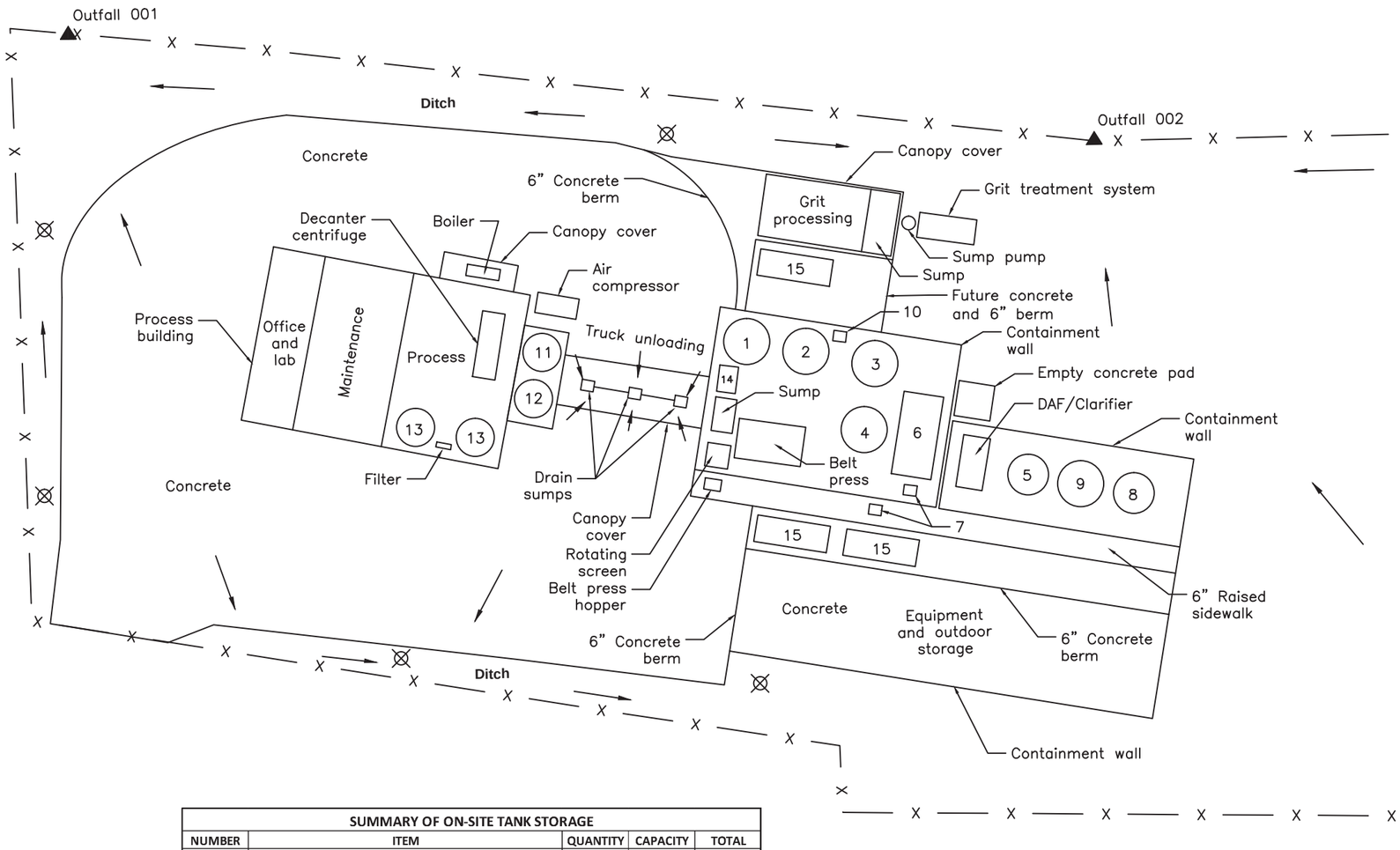
LIST OF ATTACHMENTS to the SITE DEVELOPMENT PLAN

NOTE: Attachments are numbered with a page number. The designation "N/A" implies that this item has no required Attachment, but instead all parts of it are presented in the body of the text.

PART III ATTACHMENTS

Revised 10/17/02





N

0 40 ft

Explanation

- Outfall location
- Direction of stormwater flow
- Fence
- Light pole

SUMMARY OF ON-SITE TANK STORAGE

NUMBER	ITEM	QUANTITY	CAPACITY	TOTAL
1	RECEIVING TANK	1	21,000	21,000
2	RECEIVING TANK	1	21,000	21,000
3	RECEIVING/MIX TANK	1	21,000	21,000
4	MIX TANK	1	21,000	21,000
5	RECYCLED WATER TANK	1	14,000	14,000
6	MIX TANK (HORIZONTAL)	1	21,000	21,000
7	FILTER BOX	2	500	1,000
8	EQUALIZATION TANK	1	17,000	17,000
9	EQUALIZATION TANK	1	18,000	18,000
10	LIME TANK	1	1,000	1,000
11	BROWN FINISH TANK	1	9,000	9,000
12	YELLOW FINISH TANK	1	9,000	9,000
13	YELLOW GREASE PROCESSING	2	3,500	7,000
14	POLYMER TANKS	2	500	1,000
15	ROLL-OFF CONTAINER	3	30 CY	90 CY
			TOTAL:	182,000

STATE OF TEXAS
THOMAS A. GOLDEN
109915
LICENSED
PROFESSIONAL ENGINEER
7/14/17

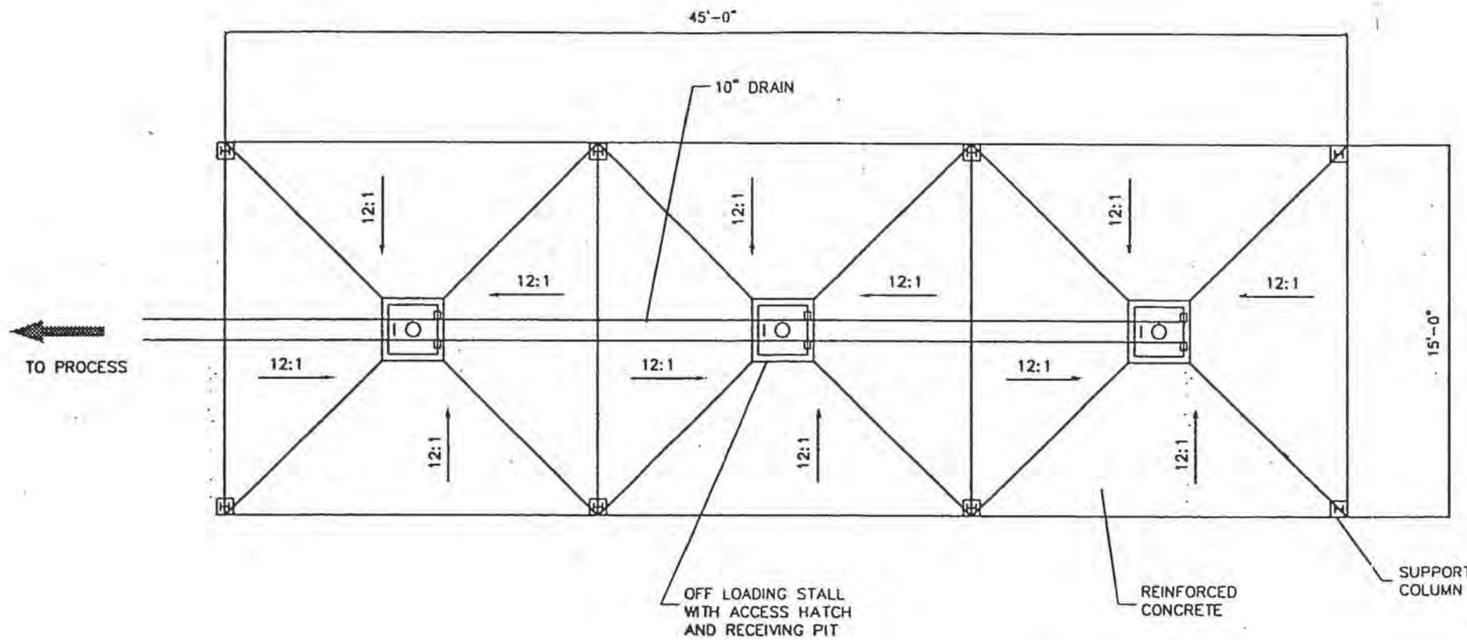
NOT FOR CONSTRUCTION

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PERMITTING UNDER THE AUTHORITY OF THOMAS A. GOLDEN P.E. TEXAS NO: 109915 ON DATE: 07/07/2017 IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSES.

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geoscience Firm No. 50045
7/6/2017

DOWNSTREAM ENVIRONMENTAL, LLC
B.R. PERRIN PLANT
Facility Site Plan

\\ss6abq\Data5\Projects\TX16.0165_SouthWaste_Downstream\CAD\SW_Downstream_Site Plan.dwg



PLAN

SCALE 1/4"=1'-0"

SCALER IN FEET

This Document is Sealed for Permit Purposes Only

No.	REVISION	DATE

B.R. PERRIN PLANT
SITE LAYOUT
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE-B11

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

Attachment 3f

3/29/02

00132

49A

ATTACHMENT 2

Fill Cross Section Profiles - N/A

Geology Report - N/A

ATTACHMENT 5

Groundwater Characterization Report - N/A

User: Downstream
Project: BRPerrin
SubTitle: 25 Year, 24 Hour, Stormwater Runoff
State: Texas
County: Harris

Date: 10/17/2002
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
3737 Site		Outlet	2.52	87	.406

Total area: 2.52 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
5.0	6.8	8.3	9.6	11.0	12.5	3.75

Storm Data Source: Harris County, TX (NRCS)
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

00150

49c

Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 25-Yr (cfs)
SUBAREAS	
3737 Site	14.08
REACHES	
OUTLET	14.08

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 25-Yr (cfs)	(hr)
SUBAREAS		
3737 Site	14.08	12.26
REACHES		
OUTLET	14.08	

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
3737 Site	2.52	0.406	87	Outlet	

Total Area: 2.52 (ac)

Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
3737 Site							
SHEET	99	0.0032	0.150				0.270
SHALLOW	99	0.0005	5				0.076
SHALLOW	99	0.0005	5				0.060
CHANNEL	200						
						Time of Concentration	.406

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
3737 Site	Open space; grass cover 50% to 75% (fair)	D	1.935	84
	Paved parking lots, roofs, driveways	D	.587	98
Total Area / Weighted Curve Number			2.52	87

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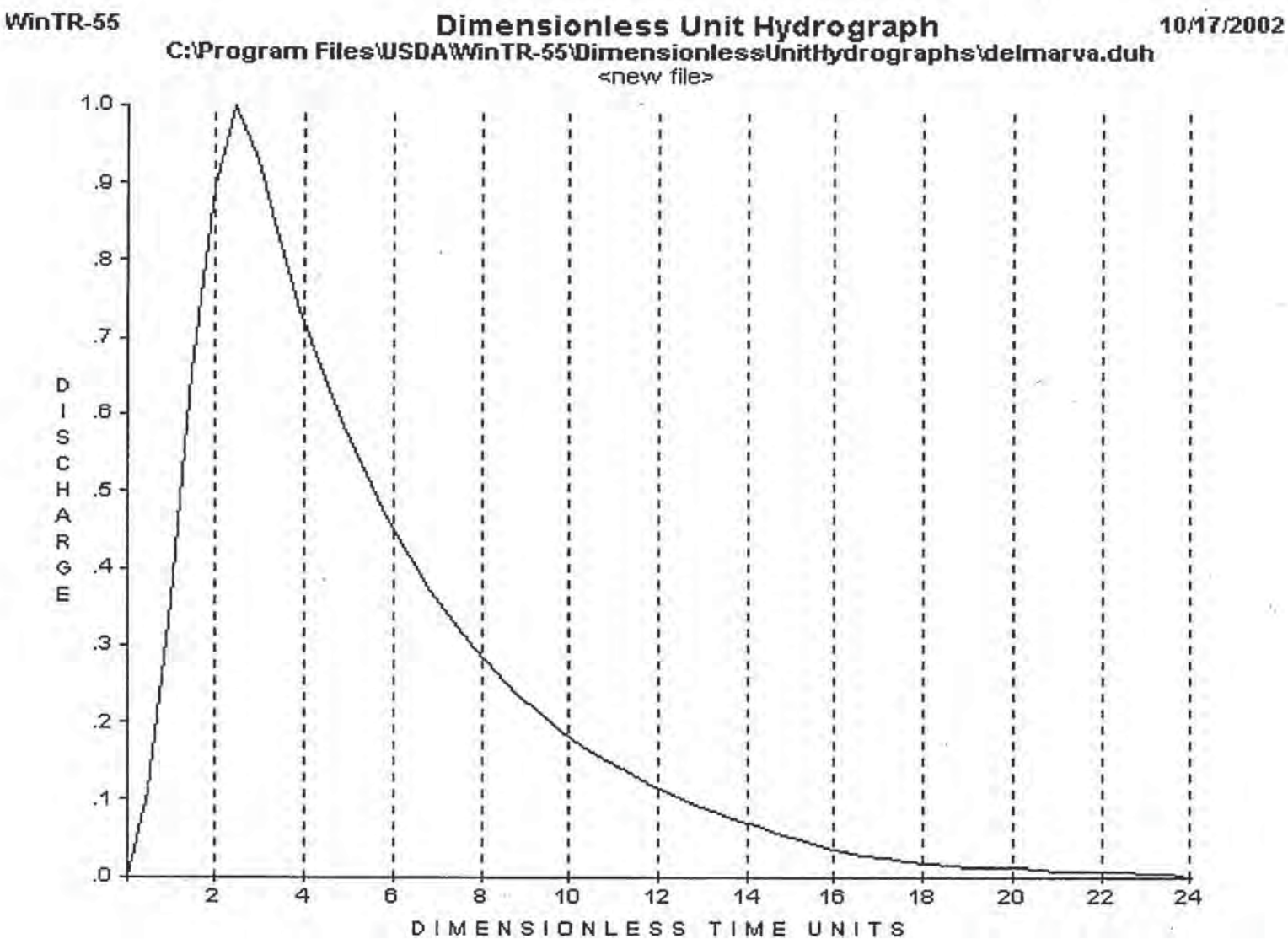
49c


WinTR-55
Dimensionless Unit Hydrograph
10/17/2002
C:\Program Files\USDA\WinTR-55\DimensionlessUnitHydrographs\delmarva.duh
<new file>
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
.0
DISCHARGE
2
4
6
8
10
12
14
16
18
20
22
24
DIMENSIONLESS TIME UNITS

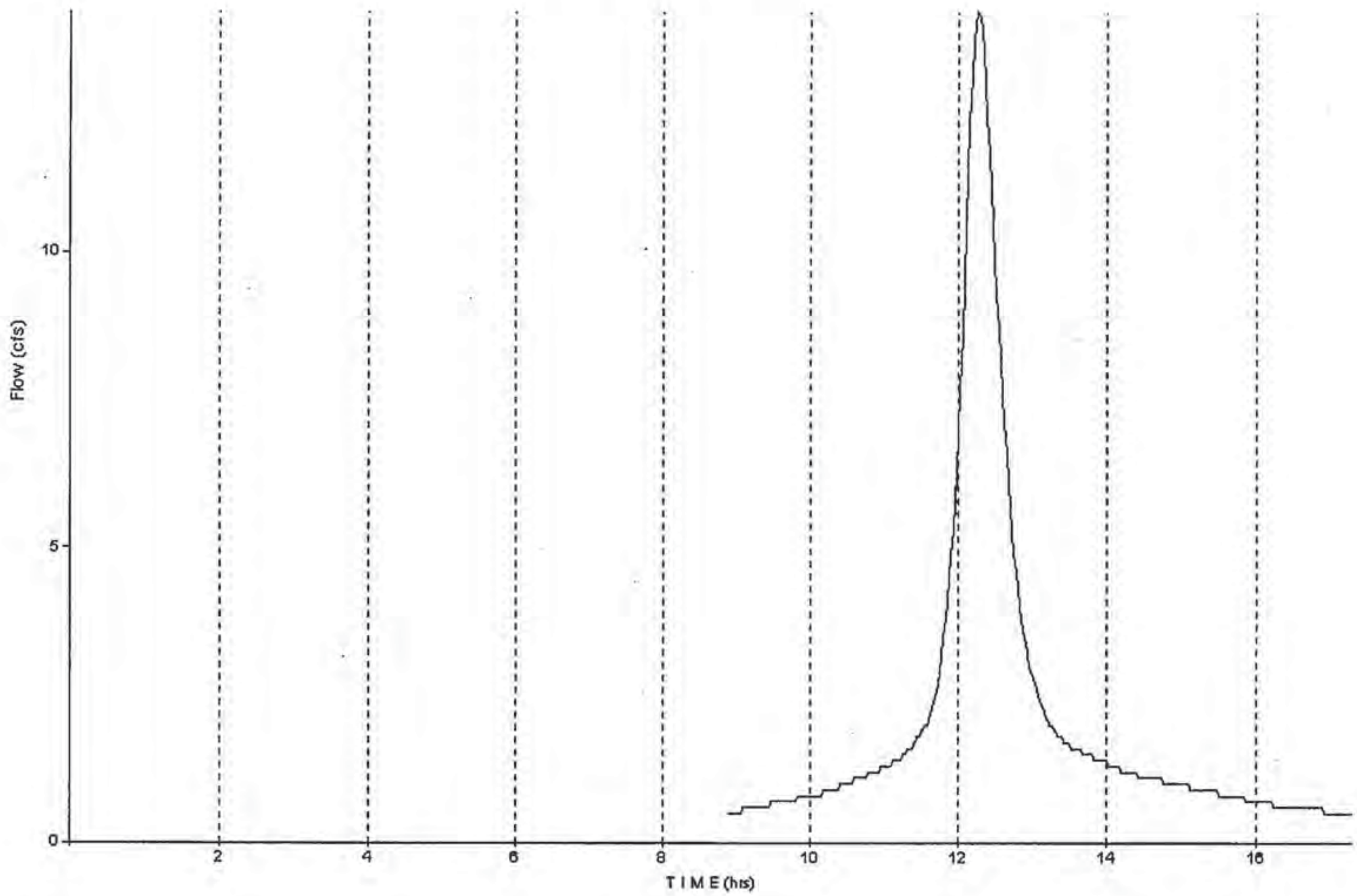
001502

A9C

WinTR-55 Output Hydrograph

Project: BRPerrin
Subarea: (3737 Site) Storm: 25-Yr
<new file>

10/17/2002



ATTACHMENT 7

Final Contour Map - N/A

CLOSURE COST SUMMARY

SOUTHWASTE DISPOSAL, LLC DOWNSTREAM FACILITY

CLOSURE COST SUMMARY	
FACILITY CLOSURE (INCLUDING TANKS, BUILDINGS, MISC EQUIPMENT)	$68,313
ADMINISTRATIVE COSTS	$21,482
SUBTOTAL CLOSURE COST	$89,795
Contingency (10%)	$8,979
TOTAL CLOSURE COST	$98,774
Required Financial Security	$98,774

Assumptions

1) The facility is in compliance with the conditions of the permit at the time of closure.
2) Final closure work will be completed by independent contractors. No equipment from the facility will be used
3) Surface tanks will be washed out, disinfected, and hauled away for disposal/recycle
4) The processing building will be washed out and disinfected, but not demolished.
5) This closure cost estimate accounts for all materials on-site, including the maximum inventories of processed and unprocessed waste.

CLOSURE COST ESTIMATE
SOUTHWASTE DISPOSAL, LLC DOWNSTREAM FACILITY

Item / Material	Units	Quantity	Unit Price	Subtotal	REFERENCES
FACILITY CLOSURE (INCLUDING TANKS, BUILDINGS, MISC EQUIPMENT)					
Site closure work supervision (3rd party consultant)	DY	15	$1,200	$18,000	Based on engineer's field consultant rate
Wash out, disinfect, and haul tanks for disposal/recycle	EA	12	$1,320	$15,840	RS Means 02 65 10.30 0863/1029
Collection, transportation, and disposal of liquid waste and wash water	GAL	207,000	$0.06	$12,420	Professional opinion
Transportation and disposal of solid waste in roll-off containers	CY	90	$19.60	$1,764	RS Means 02 41 16.17 4250
Sedimentation fencing	LF	1,400	$1.60	$2,240	RS Means 31 25 14.16 1000
Wash out, disinfect existing processing building	SF	3,750	$1.50	$5,625	RS Means 04 01 30.20 2040
Wash out, disinfect, remove, dispose/salvage miscellaneous on-site equipment	LS	1	$5,000	$5,000	Professional opinion
Site security - light towers and existing fencing	DY	20	$371	$7,424	RS Means 01 54 33 3500
SUBTOTAL				**$68,313**	
ADMINISTRATIVE COSTS					
Site survey	AC	2 3	$2,473	$5,687	RS Means 02 21 13.09
Preparation of engineering plans, bid documents, and closure notification	LS	1	$5,465	$5,465	RS Means 01 11 31.30 0900
Closure sampling (soil)	LS	1	$5,000	$5,000	Professional opinion
Closure certificate	LS	1	$5,000	$5,000	Professional opinion
Facility closure sign	SF	12	$27.50	$330	RS Means 01 58 13.50 0020
SUBTOTAL				**$21,482**	
TOTAL				**$89,795**	

RS Means - RS Means Heavy Construction Cost Data, 30th edition, 2016

Liquid waste volume requiring disposal:	182,000	gallons
Wash water requiring disposal:	25,000	gallons
Process tanks, ranging in size from 6,000 to 32,000 gallons that will require disposal:	12	
Gross site area:	2 3	acres

Notes:

CY	Cubic yard
DY	Day
EA	Each
GAL	Gallon
LS	Lump sum
MSF	Thousand square feet
RND TRP	Round trip
SF	Square feet

ATTACHMENT 10

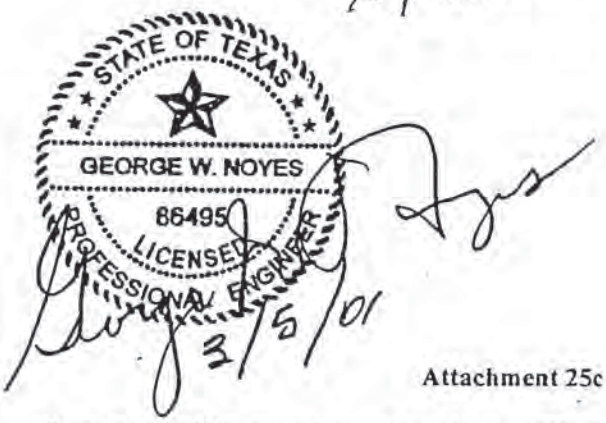
Soil & Liner Quality Control Plan - N/A

ATTACHMENT 11

Groundwater Sampling & Analysis Plan - N/A

CLOSURE SCHEDULE

CLOSURE ITEM DESCRIPTION	SCHEDULE
Initiate final closure activities (detailed in Closure Cost Estimate)	No later than 30 days after the date on which site receives notice of closure.
Complete final closure activities in accordance with the final closure plan.	Within 180 days following the initiation of final closure activities.
Submit "Affidavit to the Public" to the executive director in accordance with §330.7	Within 10 days after completion of final closure activities at the facility.



00952

PART III
POST-CLOSURE PLAN
Attachment 13

§330.463 Post-Closure Care Maintenance Requirements.

(a) Post-closure care maintenance requirements for The B.R. Perrin Plant.

(1) For a minimum of the first five years after professional engineer certification of the completion of closure as accepted by the executive director, the owner or operator shall retain the right of entry to and maintain all rights-of-way of a closed MSW management unit in order to conduct periodic inspections of the closed unit. The owner or operator shall correct, as needed, erosion of cover material, lack of vegetative growth, leachate or methane migration, and subsidence or ponding of water on the unit. If any of these problems occur after the end of the five-year post-closure period or persist for longer than the first five years of post-closure care, the owner or operator shall be responsible for their correction until the executive director determines that all problems have been adequately resolved. The executive director may reduce the post-closure period for the unit if all wastes and waste residues have been removed during closure.

(2) Any monitoring programs (ground water monitoring, resistivity surveys, methane monitoring, etc.) in effect during the life of the unit shall be continued during the post-closure care period.

(3) If there is evidence of a release from a municipal solid waste unit, the executive director may require an investigation into the nature and extent of the release and an assessment of measures necessary to correct an impact to groundwater.

§330.465 Completion of Post-Closure Care and Maintenance

(a) Following completion of the post-closure care maintenance period for each municipal solid waste landfill unit, the owner or operator shall submit to the executive director for review and approval a certification, signed by an independent licensed professional engineer, verifying that post-closure care has been completed in accordance with the approved post-closure plan. The submittal to the executive director shall include all applicable documentation necessary for the certification of completion of post-closure care.

(b) Upon completion of the post-closure care period for the final unit at a facility, the owner and operator shall also submit to the executive director a request for voluntary revocation of the facility permit.

PART III
ATTACHMENT 15

Surface Water Protection Plan

The Facility is designed to control rainfall run-on and run-off. Surrounding site topography will minimize the amount of run-on to the site. Perimeter ditches and swales collect and route stormwater around the facility to one of two outfalls located along the eastern fenceline. Where stormwater velocities are the highest, 3- to 6-inch-diameter crushed rock dissipates energy from the stormwater flow before discharging off-site. Stormwater ultimately flows to a tributary to the Brazos Bayou, located approximately 75 feet east of the fenceline, across a shared use path.

Stormwater collection ditches will be periodically inspected, cleaned, and regraded as necessary to maintain unobstructed flow. Outfall structures will be inspected following each rain event. Sediment and other materials trapped at the rock outfall will be removed as necessary. In addition, the outfalls are sampled in accordance with Texas Pollutant Discharge Elimination System (TPDES) permit number WQ0005200000 issued March 8, 2017.

On-site pavement, curbing, and secondary containment dikes mitigate the potential for contact stormwater to be conveyed off-site. However, if contaminated stormwater is detected at an outfall at unacceptable levels, the process will be shut down and the local wastewater authority will be contacted. Waste materials producing contact stormwater will then be collected using either vacuum trucks or other equipment. Depending on the nature of the materials, wastes will either be returned to the on-site receiving tanks or transported off-site to a facility licensed to accept that type of waste. Any equipment and machinery used in the cleanup effort will be washed down on-site using standard operating procedures.

ATTACHMENT 14

Landfill Gas Management Plan - N/A

FACILITY COMPLETION AND CLOSURE PROCEDURES

As required by §330.253, the following is a closure plan for the facility.

The estimated maximum inventory of waste ever on-site over the active life of the facility will be approximately 50,000 gallons. All activities necessary to satisfy closure criteria shall be completed within 180 days following the initiation of final closure activities. A detailed written cost estimate is attached.

In the event that the facility is required to discontinue receiving and transferring solid waste, a site survey and file review will be conducted to determine closure activities. Closure activities will include preparation of engineering plans and bid documents, procurement of bids, and contract ward and administration of contract. All remaining wastes will be accumulated and transported to a permitted disposal facility and process units will be partially or fully dismantled. A general cleanup of the site and all processing equipment, to include wash down and disinfection of the facility, removal, transport, treatment, disposal of all wash down waters/media, and vector control procedures will be performed. The site and building will be secured as appropriate, and all utilities disconnected to the facility. Installation of a closed sign stating that the facility is closed and securing all buildings and access gates by locks and/or additional fencing will be performed. Certification of abandonment and completion of cleanup will be performed.

No later than 45 days prior to initiation of closure activities, Downstream Environmental shall provide written notification to the executive director of the intent to close the site and place this notice of intent in the operating record. No later than 90 days prior to the initiation of final facility closure, Downstream Environmental, through a public notice in the newspaper(s) of largest circulation in the vicinity of the facility, shall provide public notice for final facility closure. This notice shall provide the name, address and physical location of the facility, the registration number, and the last date of intended receipt of waste. Downstream Environmental shall also make available an adequate number of copies of the approved final closure plants for public access and review.

Downstream Environmental will begin final closure activities at the site no later than 30 days after the date on which the site receives the known final receipt of wastes.

Downstream Environmental shall complete final closure activities for the site in accordance with the approved final closure plan within 180 days following the initiation of final closure activities as specified in §330.253(e)(7). A request for an extension of the completion of final closure activities may be submitted to the executive director for review and approval and shall include all applicable documentation necessary to demonstrate that final closure will, of necessity, take longer than 180 days and all steps have been taken and will continue to be taken to prevent threats to human health and the environment from the unclosed site.

Following completion of all final closure activities for the site, Downstream

Attachment 25a

00058

Revised
4/24/03

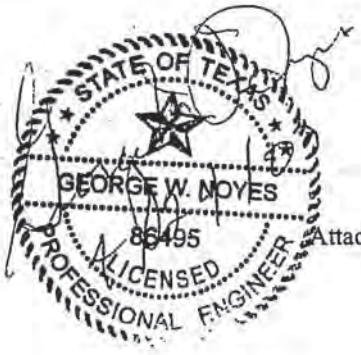
Environmental shall submit to the executive director for review and approval a documented certification, signed by an independent registered professional engineer, verifying that final closure has been completed in accordance with the approved final closure plan. The submittals to the executive director shall include all applicable documentation necessary for certification of final closure. Once approved, this certification shall be placed in the operating record.

Upon notification to the executive director of the intent to close the site, Downstream Environmental shall post a minimum of one sign at the main entrance and all other frequently used points of access for the facility notifying all persons who may utilize the facility or site of the date of closing for the entire facility or site and the prohibition against further receipt of waste materials after the stated date. Further, suitable barriers shall be installed at all gates or access points to adequately prevent the unauthorized dumping of solid waste at the closed facility or site.

A closure schedule for completing all activities necessary to satisfy the closure criteria is included in the attached.

Following receipt of the required final closure documents, as applicable, and an inspection report from the commission's district office verifying proper closure of the facility according to the approved final closure plan, the executive director may acknowledge the termination of operation and closure of the facility and deem it property closed.

Post closure requirements outlined in §330.254(a), §330.255, and §330.256 are not applicable to this facility.



PROSPERITY BANK[SM]

January 18, 2002

Mr. Jeffrey Saitas, Executive Director
TNRCC – MC-100
P.O. Box 13087
Austin, TX 78711-3087

Re: Municipal Solid Waste – Harris County – Downstream Environmental, LLC – Registration No. MSW – 43008

Dear Mr. Saitas:

We hereby establish our Irrevocable Standby Letter of Credit No. 203 in your favor, at the request and for the account of Downstream Environmental, LLC, Registration No. MSW-43008 in the amount of $44,500.00 for closure, post-closure and/or corrective action, up to the aggregate amount of FORTY FOUR THOUSAND FIVE HUNDRED AND NO/100 U.S. DOLLARS $44,500.00, available upon presentation of

1 Your sight draft, bearing reference to this letter of credit No. 203, and

2 Your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of the Resource Conservation and Recovery Act of 1976 as amended."

This letter of credit is effective as of January 21, 2002 and shall expire on January 21, 2003, but such expiration date shall be automatically extended for a period of at least 1 year on January 21, 2003, and on each successive expiration date, unless, at least 120 days before the current expiration date, we notify in writing both you and Downstream Environmental, LLC by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by both you and Downstream Environmental, LLC, as shown on the signed return receipts.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of Downstream Environmental, LLC in accordance with your instructions. We certify that the wording of this letter of credit is identical to the wording specified in 31 Texas Administrative code § 330.286(e) as such regulations were constituted on the date shown immediately below.

00060

PROSPERITY BANK

BY: Bob Benter

Bob Benter

DATE: 1/18/02

DOWNSTREAM ENVIRONMENTAL, LLC

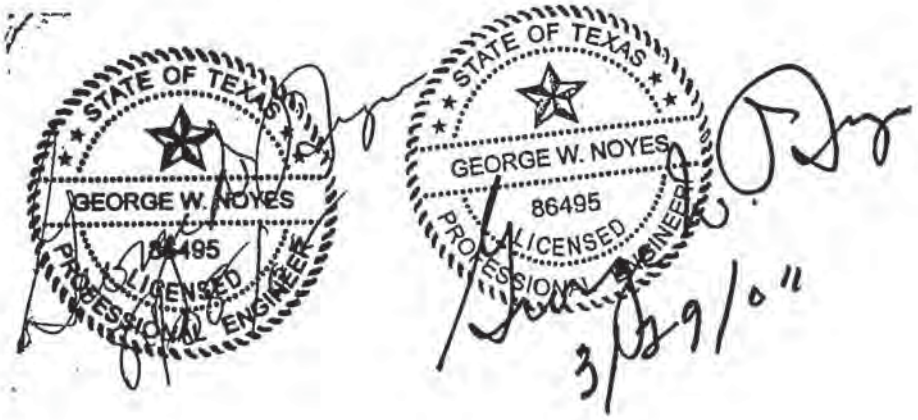
BY: Mary Wimbish

Mary Wimbish

This credit is subject to the most recent edition of the Texas Uniform Commercial Code.

ENGINEER'S STATEMENT

I, George W. Noyes, certify that the following data from Clean Air Systems, Inc. is true and correct and will be included in this system.



ODOR CONTROL

00062

CLASSI

Clean Air Systems, Inc.
6278 N. Federal Highway, Suite 166
Ft. Lauderdale, Florida 33308
1-954-785-9911

MATERIAL SAFETY DATA SHEET

Section 01

CHEMICAL NAME & SYNONYMS
Enzymes derived from *Azotobacter*, *Bacillus* & *Clostridium* with micro-nutrients & trace minerals added.

TRADE NAME & SYNONYMS
CLASSI-100or CLASSI-100F

Section 02

HAZARDOUS INGREDIENTS
None

Section 03

PHYSICAL DATA
Boiling Point - 212°F
Vapor Pressure-N/A
Vapor Density-1.4xAir
Solubility in Water-Complete

Appearance/Color-Clear to Yellow liquid
Specific Gravity-Approximately 1, pH~3
Evaporation Rate-Slower than ether
Scented

Section 04

FIRE & EXPLOSIVE HAZARD DATA
Non-Combustible.

Section 05

HEALTH & SAFETY RECOMMENDATIONS
Eye Contact-Flush with clean water for 15 minutes. If irritation persists, consult a physician. Eye protection should be used in handling concentrate.
Skin Contact-Wash with soap and water. If irritation develops, consult a physician.
Ingestion -The LD_{50} in acute oral toxicity studies was greater than 5,000 mg/kg. Not intended for human or animal consumption. If large quantities are ingested call a physician.
Inhalation -Use in ventilated area; however, if symptomatic remove to fresh air and get medical attention if symptoms persist.
Carcinogens -This products ingredients are **not** found in the lists of OSHA, NTP, and IARC.

Section 06

REACTIVITY DATA
Stable.
Polymerization will not occur.
No hazardous decomposition products.
Conditions to Avoid - (1) Formaldehyde-based products.
(2) Prolonged exposure to direct sunlight.
(3) Prolonged storage above 100°F.

Section 07 SPILL, LEAK and DISPOSAL PROCEDURES

Clean up to prevent slipping or falling hazard. Follow all applicable federal, state and local regulations.

Section 08 SPECIAL PROTECTION INFORMATION

Specific Personal Protective Equipment :

Respiratory - None required.
Eye - Protective glasses or goggles required.
Gloves - Rubber gloves required.
Other Clothing and Equipment - None required.

Section 09 SPECIAL PRECAUTIONS

Avoid contact with skin and eyes.
Do not ingest.
Keep lid tightly closed.
Store in a dry area, above freezing and below 100° F, out of direct sunlight.
Keep out of the reach of children.
Mix well before using.

MATERIAL SAFETY DATA SHEET

PHONE : 954-785-9911
EMERGENCY PAGER : 800-608-7458

SECTION I

Manufacture's Name	:	Clean Air Systems, Inc.
Address	:	6278 N. Federal Highway, Fort Lauderdale, Florida 33308
Chemical Name	:	CLASSI-200
Generic Family	:	NA
Revision Date	:	1-18-99
Name Of Preparer	:	Regulatory Affairs Department

HAZARDOUS COMPONENTS NONE

Proprietary mixture :

Non-Pathogenic Odor Digesting Microbial Blend With Scented Counteractant

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Specific Gravity (H20 = 1)	: 1.0	Boiling Point	: >100 Deg. C
Vapor Pressure (mm Hg)	: =Water	Melting Point	: N/A Deg. C
Vapor Density (Air=1)	: =Water	Evaporation Rate	: 1 (Water=1)
Percent Volatile (by Volume)	: Nil	pH	: 6-7
Solubility in Water	: 99%		

Appearance:Slight brown colored liquid Odor: Perfumed

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point- Unknown
Flammable Limits: Unknown: Extinguishing Media: Carbon dioxide, dry chemical, water. Special Fire Fighting Procedures: None
Unusual Fire and Explosion Hazards: None

SECTION V - REACTIVITY DATA

Stability: Stable under normal conditions. Incompatibility (Materials to Avoid): Strong acids and oxidizing materials.
Decomposition or Byproducts: Carbon dioxide and Carbon monoxide
Hazardous Polymerization: Will Not Occur

Attachment 6d

SECTION VI - HEALTH HAZARD DATA

Route(s) of Entry:
Inhalation? : yes
Skin? : yes
Ingestion? : yes
Eyes? : yes

Health Hazards (Acute and Chronic): HMIS rating H=1 F=0 R=0
Irritation of the mouth, pharynx, esophagus and stomach can develop following ingestion.

Eye contact is painful and irritating and may cause burns.

Skin contact may cause irritation.
Dermatitis and skin sensitization can develop after repeated and/or prolonged contact with skin.

Inhalation: Mist caused by manufacturing operation may irritate nasal passages and throat.

Occupational Exposure Limits:

CAS NO.	OSHA STEL	OSHA PEL	ACGIH TLV	ACGIH CEILING	OTHER SKIN

Carcinogenicity:
NTP? : No
IARC Monographs? : No
OSHA Regulated? : No

Signs and Symptoms of Exposure:
Inhalation : Irritation.
Skin Contact : Irritation
Ingestion : Abdominal discomfort, nausea, and diarrhea may occur.
Eye Contact : Burning, irritation.

Medical Conditions Generally Aggravated by Exposure: Not known

Emergency and First Aid Procedures:
Inhalation : Remove to fresh air.
Skin Contact : Remove contaminated clothing, wash with soap and water.
Ingestion : Drink milk or water to dilute, Induce vomiting only if advised by physician.

Eye Contact : Flush with copious amounts of water for at least 15 minutes and have eyes examined and treated by medical personnel.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

..eps To Be Taken in Case Material is Released or Spilled:
Small Spills: Mop up or absorb on inert material.
Large Spills: Contain and place in appropriate container for disposal.
Waste Disposal Method: Disposal of this product or its residues must be in accordance with all local, state and Federal requirements.

Avoid temperatures above 110 F. and keep from freezing. Keep out of direct sunlight.
Precautions To Be Taken in Handling and Storing: Follow good housekeeping and hygiene practices to help prevent accidental exposure or ingestion.
Other Precautions: Wash affected areas of body after using.

SECTION VIII - CONTROL MEASURES

Respiratory Protection: respiratory equipment not required under normal conditions.
Ventilation: Yes Local Exhaust: Yes Forced Exhaust: No
Protective Gloves: Rubber
Eye Protection: Goggles
Other Protective Clothing or Equipment: None
Work/Hygienic Practices: Wash hands and face before eating, drinking or smoking after handling material.

SECTION IX - REGULATORY INFORMATION & REFERENCES

'ot subject to Proposition 65 labeling requirements.
11 non biological ingredients are listed on the TSCA inventory.

SARA TITLE III REPORTING REQUIREMENTS

'CTION 302 Reporting : No
'CTION 304 Reporting : No
CTION 313 Reporting Required: No
:TION 312 Reporting Required: No
RCLA Reporting required if above: NA
'A Reporting required: No

ER:

ıdian WHMIS Classification: Class D2B

T. Hazard Class: Non Regulated.

SOUTHERN SPECTROGRAPHIC LABORATORY

P.O. BOX 153469
IRVING, TEXAS 75015-3469
TEL. (214) 986-1745
METRO (214) 399-1828
FAX (214) 399-1828

LABORATORY TEST CERTIFICATE

June 27, 1996

Report#: 0696-27-256 (Page 2 of 2)

ANALYTICAL RESULTS:

Parameter	Sample # 1	2	3	4	5	6	7
Total Volatile Hydrocarbons, mg/m³	925	120	62	78	70	1,490	426
Volatile Organic Acid, mg/m³:							
Acetic Acid	139	18	5	7	8	94	25
Propionic Acid	40	13	8	5	7	26	12
Butyric Acid	240	35	22	18	12	415	59
Valeric Acid	106	2	< 1	2	6	60	11
Other Acid(Total)	210	19	10	17	12	290	66
Aldehydes, mg/m³							
Formaldehyde	<1	<1	<1	<1	< 1	2.5	<1
Butyraldehyde	79	11	2	5	8	209	71
Acetaldehyde	32	2	3	1	2	18	4
Alcohols, mg/m³							
Total, As Ethanol	29	< 1	< 1	3	5	65	12
Other Volatile Compounds Not Identified, Total, mg/m³	50	20	12	20	10	311	166

Gary Cude, CPC

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps To Be Taken in Case Material is Released or Spilled:
Small Spills: Mop up or absorb on inert material.
Large Spills: Contain and place in appropriate container for disposal.
Waste Disposal Method: Disposal of this product or its residues must be in accordance with all local, state and Federal requirements.

Avoid temperatures above 110 F. and keep from freezing. Keep out of direct sunlight.
Precautions To Be Taken in Handling and Storing: Follow good housekeeping and hygiene practices to help prevent accidental exposure or ingestion.
Other Precautions: Wash affected areas of body after using.

SECTION VIII - CONTROL MEASURES

Respiratory Protection: respiratory equipment not required under normal conditions.
Ventilation: Yes Local Exhaust: Yes Forced Exhaust: No
Protective Gloves: Rubber
Eye Protection: Goggles
Other Protective Clothing or Equipment: None
Work/Hygienic Practices: Wash hands and face before eating, drinking or smoking after handling material.

SECTION IX - REGULATORY INFORMATION & REFERENCES

Not subject to Proposition 65 labeling requirements.
All non biological ingredients are listed on the TSCA inventory.

SARA TITLE III REPORTING REQUIREMENTS

SECTION 302 Reporting :	No
SECTION 304 Reporting :	No
SECTION 313 Reporting Required:	No
SECTION 312 Reporting Required:	No

CERCLA Reporting required if above: NA
RCRA Reporting required: No

OTHER:

Canadian WHMIS Classification: Class D2B

D.O.T. Hazard Class: Non Regulated.

REFERENCES

The data and recommendations presented herein are believed to be accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.

Clean Air Systems, Inc. assumes no responsibility for injury to customers or third persons caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, since actual use by others is beyond our control, no guarantee, expressed or implied, is made by Clean Air Systems, Inc. as to the effects of such use, the results to be obtained, or the safety and toxicity of the product nor does Sybron Chemicals Inc. assume any liability arising out of use, or misuse, by others, of the product referred to herein.

Information provided herein is provided by Clean Air Systems, Inc. solely for customer's assistance in complying with the Occupational Safety and Health Act of 1970 and regulations thereunder. Any other use is prohibited.

DRAGON ENVIRONMENTAL CORPORATION
903 W Third Street, Sanford, Florida 32771
Tel: (407)330-3900 Fax: (407)330-7755
(800) 726-0033 E-mail: Dragon@iag.net

DRAGON REPORT: DSR0004004082098 **August 20, 1998**

To: CLEAN AIR SYSTEMS, INC.
6278 N. Federal Highway, Suite 166
Ft. Lauderdale, Florida 33308

Tel: 954-785-9911
Fax: 954-783-8535

From: Dr. Hildegarde L. A. Staninger
Vice President, Scientific Research and Development
Dragon Environmental Corp.

TOXICOLOGICAL EVALUATION ANALYSIS

Introduction:

A Toxicological Evaluation Analysis (TEA) was performed on Classi-100.

Ingredients: Enzymes derived from *Azotobacter, Bacillus* & *Clostridium* with micronutrients and trace minerals added. (Information taken from MSDS Classi-100.)

Review of the Acute Oral Toxicity Screen Report for Classi-100 and Acute Inhalation Toxicity Screen Report for Classi-100 revealed that there was absolutely no ill health observations for the entire 14-days of the observation period. In addition, the test animals (rats) thrived before sacrifice for gross necropsy. No toxic symptoms were observed in any of the test animals. See attached definition sheet.

Conclusion:

The compounds found in Classi-100 are non-toxic and non-hazardous nor corrosive in levels as high as 5,000 ppm as defined by U.S. Environmental Protection Agency Regulations and U.S. Occupational Safety and Health Regulations. During the LD_{50} Acute Inhalation Test no animals died and they thrived at levels of 5,000 ppm, i.e. no true LD_{50} was established.

Signature: _____ Date: 8/20/98
Hildegarde L.A. Staninger, Ph.D., RET-1
Title: Vice President, Scientific Research and Development
Classification: Toxicologist and Industrial Hygienist

DRAGON ENVIRONMENTAL CORPORATION
903 W Third Street, Sanford, Florida 32771
Tel: (407)330-3900 Fax: (407)330-7755
(800) 726-0033 E-mail: Dragon@iag.net

DRAGON REPORT: DSR000500100099 **May 10, 1999**

To: CLEAN AIR SYSTEMS, INC
6278 N. Federal Highway, Suite 168
Ft. Lauderdale, Florida 33308

Tel: 954-785-9911
Fax: 954-783-8535

From: Dr. Hildegarde L.A. Staninger, RIET-1*
Vice President, Scientific Research and Development
Dragon Environmental Corp.
Note: * RIET-1 is NREP's Registered Industrial Environmental Toxicologist.

TOXICOLOGICAL EVALUATION ANALYSIS

Introduction: A Toxicological Evaluation Analysis (TEA) was performed on Classi-200.

Recommended Use: Classi-200 is recommended for waste water applications.

Ingredients: No hazardous components. A proprietary mixture of non-pathogenic odor digesting microbial blend with scented counter actant. The non-pathogenic microorganisms are made up of *Bacillus licheniformis, Bacillus amyloliquifaciens, Bacillus pastueri, and Bacillus laevolacticus. (See attached definition sheet of EPA/OSHA terms.)*

Review of a set of four toxicity studies on the mixture included acute oral, acute inhalation, eye sensitivity and dermal sensitivity for Classi-200 revealed, that there was absolutely no ill health observations for the entire 10-14 days of observation period. Test specimens (rats) thrived (experienced weight gain) before sacrifice for gross necropsy. Gross necropsy revealed no organ damage nor neoplasms. Classi-200 when diluted as specified by manufacturer would not be a sensitizer.

Conclusion: The compounds found in Classi-200 are non-toxic and non-hazardous nor corrosive in levels as high as 5,000 ppm as defined by U.S. Environmental Protection Agency Regulations and U.S. Occupational Safety and Health Regulations. During the LD_{50} Acute Inhalation and Acute Oral Tests revealed no animals died and they thrived at levels of 5,000 ppm, i.e., no true LD_{50} was established (all animals lived).

Signature: _____ Date: May 10, 1999
Hildegarde L.A. Staninger, Ph.D., RIET-1
Title: Vice President, Scientific Research and Development
Classification: Toxicologist and Industrial Hygienist

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To: CLEAN AIR SYSTEMS, INC
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Tel: 954-785-9911
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From: Dr. Hildegarde L.A. Staninger, RIET-1*
Vice President, Scientific Research and Development
Dragon Environmental Corp.
Note: * RIET-1 is NREP's Registered Industrial Environmental Toxicologist.

TOXICOLOGICAL EVALUATION ANALYSIS

Introduction: A Toxicological Evaluation Analysis (TEA) was performed on Classi-300.

Recommended Use: Classi-300 is recommended for solid waste applications.

Ingredients: No hazardous components. A proprietary mixture of non-pathogenic odor digesting microbial blend with scented counter actant. The non-pathogenic microorganisms are made up of *Bacillus licheniformis, Bacillus amyloliquifaciens, Bacillus pastueri, and Bacillus laevolacticus. (See attached definition sheet of EPA/OSHA terms.)*

Review of a set of four toxicity studies on the mixture included acute oral, acute inhalation, eye sensitivity and dermal sensitivity for Classi-300 revealed, that there was absolutely no ill health observations for the entire 10-14 days of observation period. Test specimens (rats) thrived (experienced weight gain) before sacrifice for gross necropsy. Gross necropsy revealed no organ damage nor neoplasms. Classi-300 when diluted as specified by manufacturer would not be a sensitizer.

Conclusion: The compounds found in Classi-300 are non-toxic and non-hazardous nor corrosive in levels as high as 5,000 ppm as defined by U.S. Environmental Protection Agency Regulations and U.S. Occupational Safety and Health Regulations. During the LD_{50} Acute Inhalation and Acute Oral Tests revealed no animals died and they thrived at levels of 5,000 ppm, i.e., no true LD_{50} was established (all animals lived).

Signature: _____ Date: May 10, 1999
Hildegarde L.A. Staninger, Ph.D., RIET-1
Title: Vice President, Scientific Research and Development
Classification: Toxicologist and Industrial Hygienist

DEFINITION

1. Corrosive - as defined by DOT, a corrosive material is a liquid or solid that causes visible destruction or irreversible alterations in human skin tissue at the site of contact or in the case of leakage from its packaging or liquid that has a severe corrosive rate on steel. The common examples are caustic acid and sulfuric acid.

2. Toxic Substance - any substance which can cause acute or chronic injury to the human body, or which is suspected of being able to cause disease or injury under some conditions.

3. Hazardous Material - any chemical which is a physical hazard or a health hazard.

4. Physical Hazard - any chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water reactive.

5. Health Hazard - a chemical for which there is "*statistically significant*" evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed individuals. The term "*health hazard*" includes chemicals which are carcinogenic, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system and agents which damage the lungs, skin, eyes, or mucous membranes. (Hematopoietic system - the blood forming Mechanisms of the human body.)

Definitions taken from The Comprehensive Handbook of Hazardous Materials: Regulations, Handling, Monitoring, and Safety by Hildegarde Sacarello. Lewis Publishers/CRC Press. Boca Raton, Florida. 1994. ISBN: 0-87371-247-1.

EFFICACY TESTS AT A TRAP GREASE RENDERING PLANT

Attachment 6d

TEST REPORT ON PERFORMANCE OF OMCO-100 (AKA CLASSI-100)

Site : MESA PROCESSORS
11115 Goodnight Lane
Dallas, Texas

Analytical Laboratory : SOUTHERN SPECTROGRAPHIC LABORATORY
Gary Cude, CPC

Report Prepared For OMCO By : CLEAN AIR SYSTEMS, Inc.
Dr. Barry Liss, PhD-ChE

ABSTRACT

Tests were conducted to evaluate the performance of OM-100 (AKA CLASSI-100) in the reduction of mal-odor emissions from the Mesa Processors facility at 11115 Goodnight Lane in Dallas, Texas.

Use of OM-100 in the existing system demonstrated superior performance and a reduction in operating costs compared to the product previously used (Ecosorb).

A substantial reduction (over 70%) in inlet loading to the existing scrubber was observed during back pack spraying of the OM-100 inside the building.

These tests also demonstrated that use of the bioenzymatic formula OM-100 destroys mal-odor molecular species rather than merely masking their odors.

The results of this testing support expectations that use of -

(1) a Scrub-Jector Exhaust Vent Treatment System and

(2) a Turbo-Jet Pipeline System inside the processing building

will result in a cost effective mal-odor abatement protocol for Mesa Processor's facility and eliminate neighbor and regulatory harassment

BACKGROUND - INTRODUCTION

Mesa Processors operates a facility at 11115 Goodnight Lane in Dallas, Texas which processes grease wastes from restaurants, grease traps, etc. .

The most significant sources of mal-odor emissions from this processing are :

(1) those generated in the receiving areas, particularly during the period when grease trap waste is being unloaded from the trucks,

(2) emissions from the shaker and the associated dumpster,

(3) the processing tanks and centrifuges, and

(4) the chlorine-caustic scrubber exhaust.

This past fall, a set of conventional two fluid (air/liquid) nozzles were installed to treat the scrubber exhaust stack. Two nozzles were installed at the base of the stack and four at the top of the stack. Each nozzle feeds a nominal rates of 0.75 gallons per hour of ready-to-spray diluted mixture (RTSDM) for a total of 4.0 gallons per hour of RTSDM. Mesa Processors was using 3.0 gallons of Ecosorb at a price of about $30.00 per gallon in a 55.0 gallon drum (reservoir) to supply the spray system consuming nearly the entire drum in the 12 or so hours the plant is operated each day.

A significant mal-odor intensity was still noted from the sniff tube which enables the stack odor intensity and quality to be monitored from the ground.

Mal-odor emissions occurring during the unloading of grease trap waste was treated with a portable mist sprayer. A 50/50 Ecosorb/water solution was required to achieve any significant extent of mal-odor reduction.

Mal-odors generated inside the building during processing would escape when the front doors were opened during receiving. The portable mist sprayer was also used at these locations to reduce nuisance emissions.

Use of the aforementioned protocol still left Mesa Processors management with many frequent complaints from their neighbors to regulatory agencies.

Dr. Barry Liss of Clean Air Systems, Inc. was retained by OMCO in May to evaluate the site and recommend product, systems and a protocol to satisfactorily abate the nuisance mal-odor emissions.

After a preliminary site inspection in May, demonstrations of OMCO's bioenzymatic formula OM-100 were made in June including :

(1) use of OM-100 in the portable mist sprayer at the same concentration as the Ecosorb was applied resulting in the OM-100 significantly outperforming the Ecosorb in subjective tests conducted by both Mesa and OMCO personnel (in fact Mesa has been able to cut the concentration from 50% to 10% using the OM-100 in the portable mist sprayer and still get effective odor control !!!)

(2) use of the OM-100 in the spray system treating the scrubber exhaust in which sniff tube testing showed a significant improvement in the reduction of mal-odor intensity in the stack.

(3) back pack spraying in the processing building in which a significant reduction in mal-odors was observed and noted by both Mesa and OMCO personnel.

The first OMCO bioenzymatic formula tested had a citrus fragrance and a surfactant in it which raised questions including whether the OM-100 was masking odors rather than destroying them.

The back pack sprayer test was repeated without any fragrance which might mask mal-odors and without a surfactant in the OM-100 formula which could cause eye or inhalation irritation. Testing was conducted at a time of peak mal-odor generation during the "cooking" process and again substantial reduction in mal-odor intensity was observed and acknowledged by both Mesa management and workers.

In order to confirm the subjective observations described above and to develop operating data on the existing systems, an analytical laboratory (Southern Spectrographic Laboratory) was retained to perform sampling and chemical analyses.

A description of the tests performed are described in the next section.

DESCRIPTION OF TESTING

Three tests were conducted to evaluate the use of OM-100 for fugitive nuisance mal-odor emissions at the Mesa Processors facility in Dallas, Texas.

The first test was performed to quantify the performance of the existing chlorine-caustic scrubber.

The stack which vents the exhaust of the scrubber is 42" in diameter and approximately 20' high. A sampling tube (consisting of 2" PVC pipe) was placed horizontal (normal to the flow of the exhaust) at the top of the stack extending radially inward approximately 12" from the stack's rim. There was a 50' run of 2" PVC pipe down to ground level where a 100 CFM exhaust fan was used to induce flow of the sampled gas. A hole was drilled just upstream of the fan in which the analytical sampling tube was inserted.

For this test the existing odor control system was shut off. At the same time that a sample was being drawn upstream of the sampling fan, a sample was drawn inside the building at the entrance to the scrubber plenum.

Southern Spectrographic Laboratory (SSL) used an aspirator to draw samples over a 15 minute period (as per below) through an inventory of charcoal in a glass sampling tube. Upon completion of sampling, the glass tube was labeled and placed in an ice chest to inhibit further biodegradation of the material sampled.

On June 17, 1996 SSL performed a preliminary sampling of the exhaust stack to determine which were the dominant volatile organic hydrocarbons (VOHC's) in the vent gas and also to determine the duration of sampling and the mass of charcoal required to assure adequate analysis. From these scoping tests it was decided to measure total VOHC's, total VOA's (volatile organic acids), total alcohols, several aldehydes and by difference compute other volatile compounds.

The second set of tests were conducted using the existing spray system in the scrubber's exhaust vent stack. There are two nozzles at the base of the stack and four nozzles at the top of the stack. Gas residence time in the stack is under one second. The dilution ratios of the enzyme concentrate (OM-100) in the spray system tested were 11/1 (gal-RTSDM/gal OM-100), 22/1 and 33/1.

The third test involved both the resampling of the inlet to the exhaust scrubber and the testing of the reduction in odorants inside the building while a backpack sprayer was being operated to simulate the effect of loading (treating) the air in the room with the bioenzymatic aerosol OM-100 by use of a Turbo-Jet Pipeline System. Fifteen minute samples were taken sequentially, first with no spraying and then with the backpack operating.

Analytical results for these tests are presented in a Laboratory Test Certificate from SSL appended to this report.

ANALYSIS OF TEST RESULTS

This section provides the basis for the reduction of the data and an analysis of the test results.

Existing Chlorine-Caustic Scrubber Performance

Samples labeled #1 and #2 in the SSL report represent the inlet and exit concentration of the scrubber. Accordingly, the inlet loading to the scrubber was at 925 mg/M^3 (corresponding to 925 PPM) total VOHC's and the exit concentration was 120 mg/M^3 (120 PPM). The computed percent reduction of total VOHC's in the scrubber is 87%.

Performance of OM-100 in Existing Spray System

Samples labeled #3, #4 and #5 in the SSL report correspond to exit concentrations out of the stack at 22/1, 33/1 and 11/1 dilutions (gal-RTSDM/gal OM-100) respectively. For the first two samples the same inlet loading as per sample #1 was used to compute the reduction in VOHC's. Whereas the odor intensity had increased later in the test period prior to 4:00PM (associated with normal fluctuations in plant processing) the inlet concentration used to compute the reduction of sample #5 was based on sample #6. A plot of reduction in total VOHC (in mg/M^3) versus concentration of enzyme (in gal OM-100/gal-RTSDM) is presented graphically in the appendix.

Back Pack Spraying Inside the Processing Building

Samples #6 and #7 provide data on the inlet loading to the scrubber before and after the back pack sprayer was turned on respectively. The back pack was aimed at the exhaust vent. The application rate of enzyme during this period corresponds to a four gallon per 12-hr operating day consumption. A 1063 mg/M^3 (73%) reduction in VOHC loading to the scrubber was computed from the data.

A lower application rate can be expected when the OM-100 is applied uniformly through out the building which will given more retention time for the enzymes to biodegrade the VOHC's inside the building.

Operating at the percent reduction observed would have a significant impact on nuisance mal-odor fugitive emissions during periods when any of the three overhead doors are required to remain open.

Further Analysis of the Data

In order to economize a minimal number of samples were taken: accordingly there was no sample taken with water only in the spray system. The trend of the data (which were collected at constant total liquid injection into the spray system) clearly shows an improvement in VOHC reduction with increasing OM-100 concentration supporting the contention that OM-100 destroys mal-odorants rather than merely masking their presence. This contention is also supported by higher concentrations of aldehydes (particularly during the back pack spraying test) which are intermediate decomposition products of VOA's

The reader should be cautioned not to make broad generalizations or extrapolations of this data.

On the negative side it should be recognized that the sampling procedure has an inherent error in it corresponding to the zero to fifteen minute retention time the materials collected had at ambient temperature prior to chilling. This error would not change the basic trend of the data and the resulting conclusions.

On the positive side it should be noted that only two of the six nozzles in the spray system in the vent stack were located at a point below the entrance to the 2" sampling tube. Accordingly one could argue that the application rate was actually 1/3 of the four GPH-RTSDM nominal total flow rate in the spray system. Sampling of the atmosphere at a distance from the stack and a complex atmospheric dispersion modeling would be required to quantify more accurately the systems performance. However, the fact that the **OM-100** (priced roughly the same as the Ecosorb) was able to be applied at 1/5th the dilution as the Ecosorb in the portable mist system gives support to the contention that the economics of **OM-100** bioaerosol treatment is far superior to that of a masking agent. Other anecdotal evidence that supports this contention was reported to the author of this report by the Mesa plant manager who stated that his spraying of his clothes with the **OM-100** resulted in sustained deodorization as did his laboratory assistants spraying of her hair No other odor control substance to date had achieved these results.

CONCLUSIONS AND RECOMMENDATIONS

Below are the conclusions and recommendations of the author of this report.

Conclusions

The tests performed demonstrate that

(1) enzymatic **bioaerosol** treatment with **OM-100** promotes the **biodegradation of VOHC** species (that are the source of nuisance mal-odor emissions complaints),

(2) **OM-100** does not mask mal-odors, and

(3) use of **OM-100** is **more cost effective** than Ecosorb in the existing equipment at Mesa Processors.

Recommendations

It is recommended that

(1) on an interim basis, **OM-100** be used in the existing **post scrubber spray system to reduce operating costs and minimize nuisance complaints**,

(2) a **Scrub-Jector Exhaust Vent Treatment System** as outlined in the OMCO proposal dated June 7, 1996 be installed **to reduce product consumption and reduce maintenance costs**, and,

(3) a **Turbo-Jet Air-Curtain Pipeline System** be installed inside the processing building **to minimize nuisance mal-odor emissions** from escaping when any of the three **overhead doors are opened.**

EXHIBIT 1

SOUTHERN SPECTROGRAPHIC LABORATORY

LABORATORY TEST CERTIFICATE

DATED : June 27, 1996

SOUTHERN SPECTROGRAPHIC LABORATORY

P.O. BOX 153469
IRVING, TEXAS 75015-3469
TEL (214) 986-1745
METRO (214) 399-1828
FAX (214) 399-1828

LABORATORY TEST CERTIFICATE

June 27, 1996

OMCO, Inc.
318 W. Rusk St.
Tyler, Texas 75701

Report#: 0696-26-256 (Page 1 of 2)

RE: Air Sampling and Analysis at Mesa Corp.,11115 Goodnight Ln. Dallas, Tx.

PO#: 960626

Sampling Date: 06-20-96

Sampled By: Gary Cude

SAMPLE #	SSL #	TIME PERIOD	
#1	96256	2:00 PM	Inside building at intake to scrubber without odor control
#2	96257	2:00 PM	Top of exhaust stack without odor control
#3	96258	3:00 PM	Top of exhaust stack with odor control(22:1 dil) spraying in stack
#4	96259	3:30 PM	Top of exhaust stack with odor control(33:1 dil) spraying in stack
#5	96260	4:00 PM	Top of exhaust stack with odor control(11:1 dil) spraying in stack
#6	96261	4:30 PM	Inside building at intake to scrubber without odor control
#7	96262	5:00 PM	Inside building at intake to scrubber with odor control spraying at random

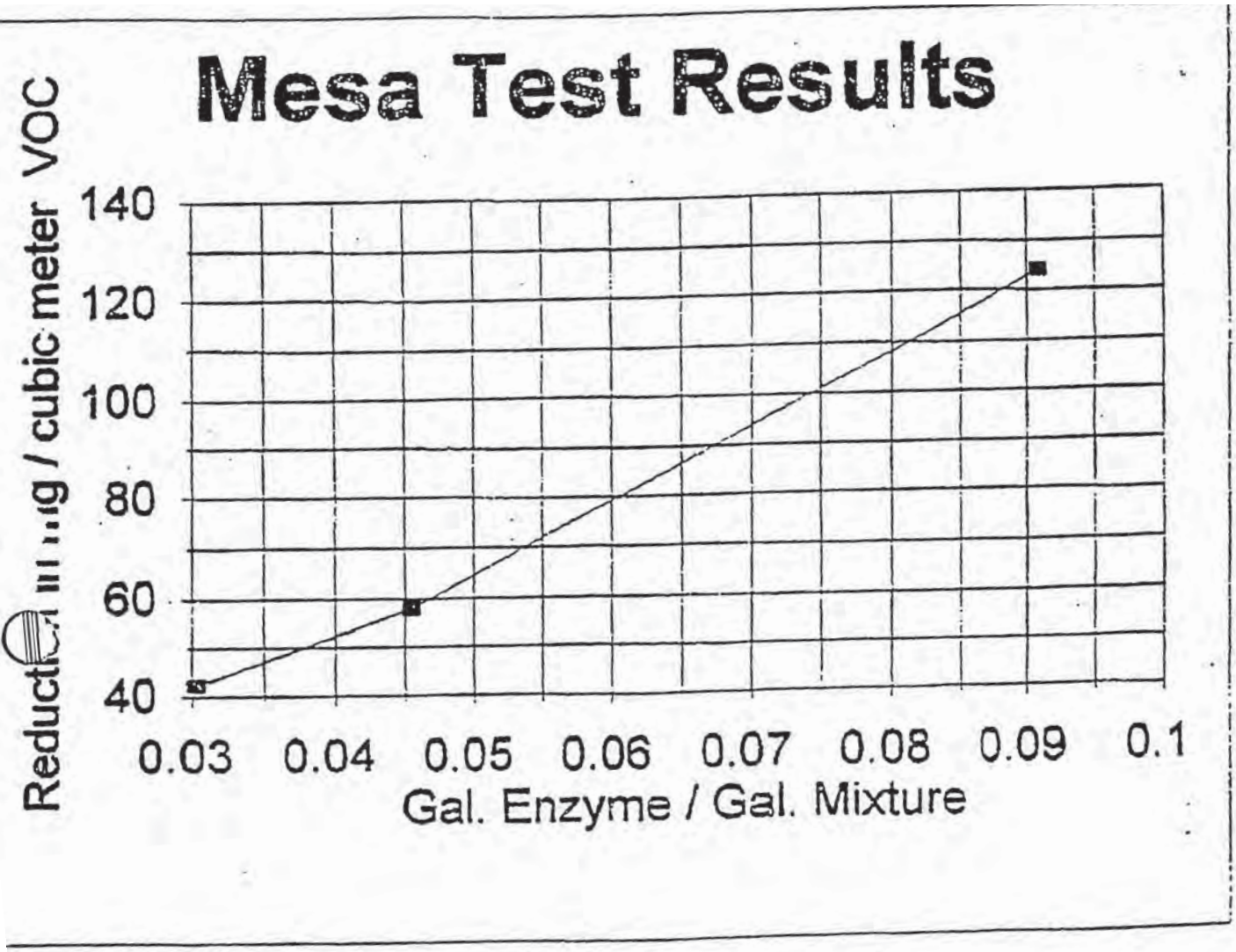
EXHIBIT 2

GRAPHICAL PRESENTATION OF DATA

Gallons OM-100 / Gallon Ready-to-Spray Diluted Mixture

versus

Reduction in Total VOHC (mg/M^3) Emissions


Mesa Test Results
Reduction in mg / cubic meter VOC
140
120
100
80
60
40
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
Gal. Enzyme / Gal. Mixture

Attachment 23. Secondary Containment Calculations

Secondary containment is provided for the process building, general process area, equalization tank area, and grease tank area. Enclosed areas have containment sufficient to hold the largest tank volume in that area, or 10% of the total tank storage capacity in the area (tank design volume) Uncovered areas are designed to accommodate the volume of precipitation expected in a 25-year 24-hour storm (the design storm), in addition to the tank design volume. The design storm for the site yields approximately 9 inches of precipitation

Secondary containment calculations were prepared using the following calculations:

$$V\_precip = A * i * T \quad (1)$$

$$V = V\_precip + V\_tank \quad (2)$$

where V_precip = the volume of precipitation applied to a given area in the design storm (gallons)

A = area (ft^2)

i = Average intensity of rainfall for the time of concentration for a selected design storm (inches per 24 hours)

T = Duration of design storm (hours)

V = Total design volume for secondary containment (gallons)

V_tank = Tank Containment Volume (either the volume of the largest storage tank , or 10% of the total storage tank volume in a given area) (gallons)

The area available for secondary containment is calculated by subtracting the equipment footprint from the total area and finding the volume contained by the perimeter dike:

$$A\_containment = A - A\_footprint \quad (3)$$

$$V\_avail = A\_containment * h \quad (4)$$

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LICENSED
PROFESSIONAL ENGINEER
6/30/17

$$freeboard = (V\_avail - V)/A\_containment \quad (5)$$

where A_containment = floor area available for secondary containment (ft^2)

A_footprint = footprint of equipment that sits on the floor; unavailable for secondary containment (ft^2)

V_avail = Volume available for secondary containment (ft^3)

h = dike height (inches)

freeboard = freeboard remaining when the design volume is in the available containment volume

An example calculation for the General Process Area follows.

A = 3,384 ft^2

ı = 9 inches/24 hours

T = 24 hours

$$V\_tank = 21{,}000 \text{ gallons}$$

$$V\_precip = A * ı * T = 2{,}538 \text{ ft}^3 = 18{,}986 \text{ gallons}$$

$$V = V\_precip + V\_tank = 18{,}986 \text{ gallons} + 21{,}000 \text{ gallons} = 39{,}986 \text{ gallons}$$

The available containment (V_avail) for the Oil Storage Area does not include the equipment footprint (A_footprint) of the 7 tanks and 2 pieces of equipment that are directly on the ground There is 1 footed tank that is raised off of the ground above the height of the containment dike.

$$A\_footprint = 600 \text{ ft}^2$$

$$A\_containment = A - A\_footprint = 3{,}384 \text{ ft}^2 - 600 \text{ ft}^2 = 2{,}784 \text{ ft}^2$$

$$h = 36 \text{ inches} = 3 \text{ feet}$$

$$V\_avail = A\_containment * h = 2{,}784 \text{ ft}^2 * 3 \text{ feet} = 8{,}352 \text{ ft}^3 = 62{,}474 \text{ gallons}$$

freeboard = (V_avail – V)/A_containment = (62,474 gallons – 39,986 gallons)/(2,784 ft^2) =

1 1 foot = 13 inches

The secondary containment required and available for all of the areas is shown in Table 23-1 Additional containment includes volumes of sumps or other storage volumes that are designed as storage volume for the associated area, as noted

Table 23-1. Secondary Containment

Facility Area	Area (ft^2)	Largest Tank Volume (gallons)	10% of Total Tank Capacity (gallons)	Tank Containment Design Volume (gallons)[a]	Precipitation Contribution (gallons)	Total Containment Required (gallons)	Minimum Dike Height (inches)	Actual Dike Height (inches)	Additional Containment (gallons)	Free-board (inches)	Total Containment Capacity (gallons)
Process Building	1,750	3,500	700	3,500	-	3,500	3.2	6.0[b]	—	2.8	6,545
Equalization Tank Area	1,800	18,000	4,900	18,000	10,099	28,099	33.1	36.0	—	2.9	30,518
General Process Area	3,384	21,000	10,750	21,000	18,986	39,986	23.0	36.0	—	13.0	62,474
Grease Storage Area	378	9,000	1,800	9,000	2,121	11,121	32.8	36.0	5,000[c]	3.2	11,720

[a] The Tank Containment Design Volume is calculated to provide secondary containment for the largest tank or 10% of the total tank capacity in an area, whichever is largest.
[b] In order to provide sufficient secondary containment, a new 6-inch curb will be installed inside the process building.
[c] The truck unloading area, which includes three drain sumps and a minimum curb height of 6 inches, provides overflow containment capacity for the Grease Storage Area.

ft^2 = Square feet
— = Not applicable

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6/30/17

Attachment 9b

The Volumetric Calculations for the secondary containment is shown as Attachment 23.

DMR BioReactor

10400 Westpark Road

0.075MGD

AERATION BASIN

DESIGN CRITERIA

LOADING	310# BOD/DAY/1000 FT3
2 HR. PEAK DESIGN FLOW	1Qavg
TANK HEIGHT	16.00FT
AVERAGE FLOW	0.075MGD
BOD	600MG/L
BOD TO AERATION BASIN	375.30LB/DAY
REACTOR VOLUME	1,210.65CU. FT
WATER HEIGHT	15.50FT.
AREA	78.11SQ. FT
DIAMETER	9.97FT.
DETENTION TIME	0.12DAYS
	2.90HRS

Membrane Area

DESIGN CRITERIA

LOADING	3GPM/SQ. FT.
DESIGN FLOW	1Q
AVERAGE FLOW	0.075MGD
BOD	0.075MG/L
AREA REQUIRED	52.08SQ. FT.
FILTRATION FLOOR	1.00UNITS
DIAMETER	9.97FT.
AREA EACH	78.11SQ. FT.
TOTAL AREA PROVIDED	78.11SQ. FT.

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11/19/01

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3/29/02

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86495
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PROFESSIONAL ENGINEER

00093

Attachment 10

DMR BioReactor 10400 Westpark Road

SOLIDS BALANCE SHEET 100% FLOW

I. DATA

1 WASTEWATER FLOWRATES

AVERAGE FLO 0.075MGD

PEAK FACTOR 1

2 INFLUENT CHARACTERISTICS

BOD 600MG/L

TSS 600MG/L

3 SOLIDS CHARACTERISTICS

- CONCENTRATION

WASTED ACTIVATED SLUDGE 1%

STABILIZED SLUDGE 3%

- TOTAL SOLIDS

STABILIZED SLUDGE %

4 EFFLUENT CHARACTERISTICS

BOD 50MG/L

TSS 50MG/L

II. DAILY MASS VALUES

BOD 375.3LB/DAY

TSS 375.3LB/DAY

III. PRELIMINARY TREATMENT

- OPERATING PARAMETERS

BOD REMOVED 0%

SS REMOVED 0%

BOD TO SECONDARY 375.3LB/DAY

SS TO SECONDARY 375.3LB/DAY

IV. SECONDARY PROCESS

- OPERATING PARAMETERS

MLSS 10000MG/L

MLVSS 7500MG/L

OBSERVED YIELD Yobs 0.19

- EFFLUENT MASS QUANTITIES

BOD 31.275LB/DAY

TSS 31.275LB/DAY

- EXCESS VOLATILE SOLIDS

Px (vss) 71.307LB/DAY

- NON VOLATILE SS

TSS 93.825LB/DAY

- WASTE TO STABILIZATION

WAST 133.857LB/DAY

FLOWRATE 963GAL

- EFFLUENT 0.07937MGD

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3/29/10

10/19/

00094

Attachment 10

AERATION SYSTEM DESIGN BRIEF

DATE: Jan 11, 2001

BASIC DATA	10400 Westpark Road	
DESIGN FLOW	0.075	MGD
BOD RAW WASTE	600.00	mg/l
	375.30	lbs./day
PRELIMINARY TREATMENT (% BOD REMOVAL)	0.00	%
% BOD REMAINING	100.00	%
COEFFICIENTS: ALPHA: RATIO OF OXYGEN TRANSFER IN WASTE TO TRANSFER IN TAP WATER	0.75	Alpha
BETA: RATIO OF SOLUBILITY OF OXYGEN IN May	0.95	Beta
ALTITUDE CORRECTION FACTOR	1.00	
DISSOLVED OXYGEN LEVEL TO BE MAINTAINED IN THE AERATION BASIN	2.00	mg/l
TEMPERATURE OF WASTE IN AERATION BASIN:		
WINTER TEMPERATURE (DEGREES C)	20.00	C
SUMMER TEMPERATURE (DEGREES C)	35.00	C
DESIGN BOD REMOVAL	97.50	%
CARBONACEOUS BOD(5) TO THE AERATION BASIN	375.30	lbs/day
OXYGEN REQUIRED PER LB. OF CARBONACEOUS BOD REMOVED	2.20	#/#
CARBONACEOUS OXYGEN REQUIREMENTS FOR THE AERATION BASIN AT FIELD CONDITIONS	805.02	#O2/day
	33.54	#O2/hr
AMMONIA TO AERATION BASIN	20.00	mg/l
	12.51	#/day
OXYGEN REQUIRED PER LB. OF AMMONIA	4.60	#/#
OXYGEN REQUIREMENTS FOR AMMONIA	57.55	#O2/day
	2.40	#O2/hr
AOR	862.56	#O2/day
SUBMERGENCE	7.00	FEET
SUPER SATURATION VALUES		
AT 35 DEGREE	7.99	
AT 20 DEGREE	10.19	
AOR/SOR RATIO AT 35 DEGREE	0.66	
AT 20 DEGREE	0.63	
SOR AT 35 DEGREE	1,309.85	LB O2/DAY
AT 20 DEGREE	1,364.72	LB O2/DAY
SOR	4.58	LB O2/HR
EQUIPMENT EFFICIENCY	26.00	%
AIR REQUIREMENT SCFM	199.92	SCFM

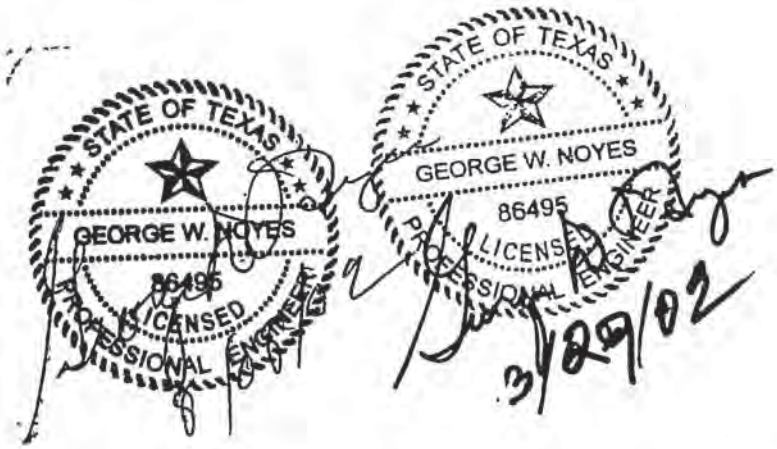
STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

12/29/00

00095

Attachment 10

ESTIMATED SYSTEM OPERATING PRESSURE		
STATIC LIQUID HEAD	15.50	feet
PRESS. LOSS AT BLDG. AND HDR	1.50	feet
PRESS. LOSS LATERAL PIPING	1.00	feet
PRESS. LOSS THROUGH UNIT	1.00	feet
NORMAL OPERATING PRESS.	19.00	feet
NORMAL OPERATING PRESSURE	8.05	PSIG
DESIGN-OVER PRESSURE	1.06	PSIG
PEAK DESIGN PRESSURE	**9.11**	**PSIG**



A and B Environmental Services, Inc.
1643 Federal Road
Houston, Texas 77015
(713) 453-6060

May 13. 1999

LABORATORY ANALYSIS REPORT

The Grease Spot
B.R. Perrin
2044 Bissonett, 1902 1/2 Barry Rose Rd. P
Houston TX 77005

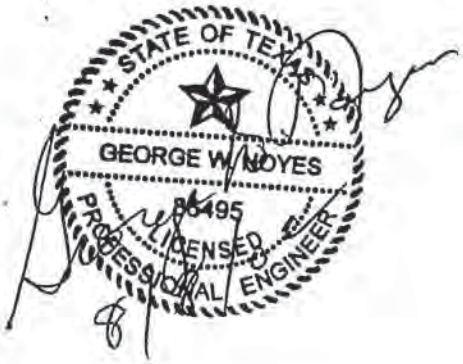
Client PO #:
Date Received: 5/3/99 3:58:00 PM
Collection Date: 5/3/99 3:00 PM
Collected By: BR Perrin

Client Project ID: Grease Spot
Client Sample Number: EFF
Sample Location/Other Info:

Matrix Type: Liquid

A and B Sample ID 34505-11

Test/Analyte	Method	Analyst	Analysis Date	Result	Units
pH by 150.2	150.2	Lwang	5/4/99	6.74	
Total Suspended Solids	160.2	Lwang	5/4/99	65.6	mg/L
BOD	405.1	Ajohn	5/5/99	84.	mg/L
COD	410.4	Ajohn	5/7/99	790.	mg/L



Approved By: Nila T. Wilke Date: 5/13/99

Title: QA Officer

& B Environmental Services, Inc.
43 Federal Road
Houston, Texas 77015
(713) 453-6060

May, 13 1999

LABORATORY ANALYSIS REPORT

TO: Grease Spot
Attn : B R Pervin
2044 Bissonet
Houston , TX 77005

P.O. #:
Ref: Pear land

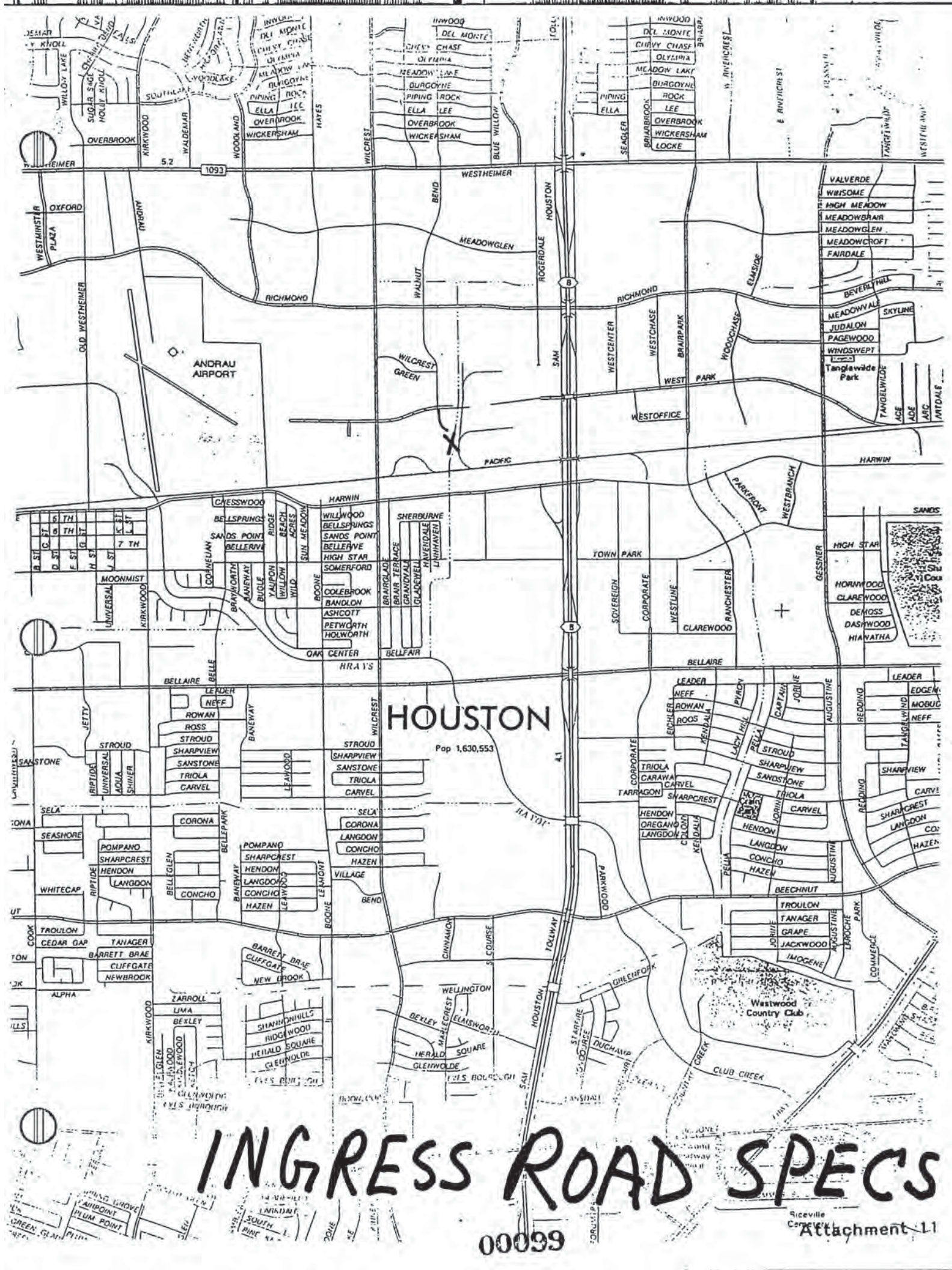
Sample ID : Clarifier Effluent Water
Lab ID : 34570.110
Date Collected : 05/05/99@14:45
By : B P
Date Received : 05/05/99

PARAMETER	METHOD/ANALYST	DATE TESTED	RESULTS	LAB ID
Biochemical Oxygen Demand	EPA405.1 AJ	05/05/99 16:00	112. mg/l	34570.11
ıemical Oxygen Demand	EPA410.4 AJ	05/07/99 14:00	340. mg/l	34570.11
pH, Standard Units	EPA150.1 LW	05/06/99 11:00	7.18	34570.11
Oil & Grease	EPA1664 AS	05/10/99 14:00	<3. mg/l	34570.11

REPORTED BY: T. Walke
DATE: 5/13/99

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

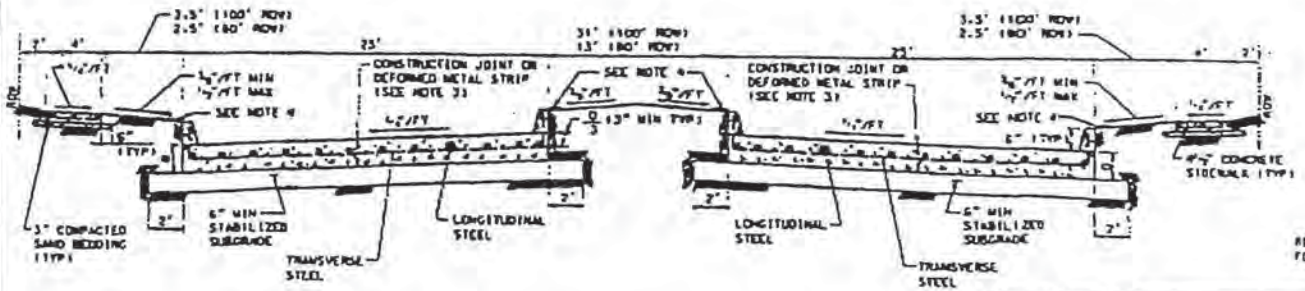
ATTACHMENT 29



INGRESS ROAD SPECS

00099

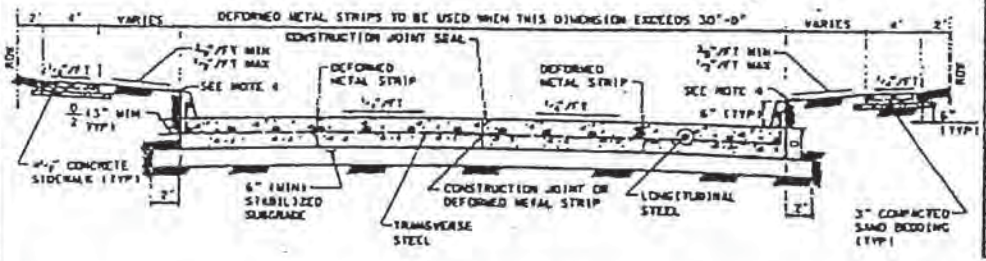
Attachment 11



TYPICAL DOUBLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

NOTES:

1. THE MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'-0".
2. ALL EARTHEN AREAS ARE TO BE HYDROMULCHED UNLESS SHOWN OTHERWISE ON DRAWINGS.
3. CONTRACTOR MAY SAW CUT IN LIEU OF DEFORMED METAL STRIP.
4. USE 1 FOOT STRIP OF SOD GRASS TO PREVENT EROSION UNTIL STAND OF GRASS IS ESTABLISHED.



TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

TABLE 1

REINFORCING STEEL BAR SIZES AND SPACINGS FOR VARIOUS PAVEMENT THICKNESSES (D) WITH EXPANSION JOINT SPACING = 90 FT
f'_c = 3,000 PSI AND f_y = 60,000 PSI

PAVEMENT THICKNESS D (IN)	PAVEMENT WIDTH (FT)	LONGITUDINAL STEEL # 4 BARS: NUMBER OF BARS	# 4 BARS: SPACING (IN)	# 4 BARS: END BAR SPACING (IN)	# 5 BARS: NUMBER OF BARS	# 5 BARS: SPACING (IN)	# 5 BARS: END BAR SPACING (IN)	# 6 BARS: NUMBER OF BARS	# 6 BARS: SPACING (IN)	# 6 BARS: END BAR SPACING (IN)	TRANSVERSE STEEL # 4 BARS: SPACING (IN)	# 5 BARS: SPACING (IN)	# 6 BARS: SPACING (IN)
6	28	17	29.50	6	–	–	–	–	–	–	36	–	–
7	25	17	18.25	6	–	–	–	–	–	–	36	–	–
7	30	29	18.00	5	–	–	–	–	–	–	36	–	–
7	36	25	17.33	5	–	–	–	–	–	–	36	–	–
7	37	25	18.28	5	–	–	–	–	–	–	36	–	–
7	44	28	18.00	5	–	–	–	–	–	–	36	–	–
7	45	31	17.25	5	–	–	–	–	–	–	36	–	–
8	25	20	15.50	5	13	24.50	5	–	–	–	36	36	–
8	34	27	13.50	3.5	17	25.00	4	–	–	–	36	36	–
8	35	27	15.00	5	18	24.25	4	–	–	–	36	36	–
8	36	28	15.75	5	18	25.00	3	–	–	–	36	36	–
8	44	34	15.75	4	22	24.25	4	–	–	–	36	36	–
8	45	35	13.75	3.5	23	24.25	3	–	–	–	36	36	–
9	28	22	14.00	5	14	27.50	4	–	–	–	36	36	–
9	34	31	13.50	7	19	23.25	3.5	–	–	–	36	36	–
9	35	31	13.75	6	20	21.25	3.5	–	–	–	36	36	–
9	36	32	13.75	5	21	21.25	3.5	–	–	–	36	36	–
9	44	39	13.75	5	23	21.25	3	–	–	–	36	36	–
9	45	39	14.00	5	25	21.25	4.5	–	–	–	36	36	–
10	25	24	12.33	3.5	17	18.25	4	–	–	–	36	36	36
10	34	33	12.50	6	21	20.00	4	–	–	–	36	36	36
10	35	34	12.50	3.5	23	18.75	4	–	–	–	36	36	36
10	36	35	12.50	3.5	24	18.50	3	–	–	–	36	36	36
10	44	44	12.00	6	29	19.50	4.5	–	–	–	36	36	36
10	45	44	12.50	3	29	19.50	3	–	–	–	36	36	36
11	25	27	11.25	3	17	18.25	4	12	24.75	3	36	36	36
11	34	36	11.50	2.5	24	17.50	2.5	17	25.00	4	36	36	36
11	35	37	11.50	3	24	18.50	3	17	25.75	4	36	36	36
11	36	40	11.00	2	25	17.75	3	17	26.50	4	36	36	36
11	44	48	11.00	4	30	19.00	3	21	24.00	4	36	36	36
11	45	49	11.00	3	31	17.75	4	22	23.50	3	36	36	36
12	25	–	–	–	19	16.25	4	13	24.50	3	36	36	36
12	34	–	–	–	26	16.00	4	18	23.50	4	36	36	36
12	35	–	–	–	26	15.50	4	19	23.00	3	36	36	36
12	36	–	–	–	27	16.75	4.5	20	22.75	4.5	36	36	36
12	44	–	–	–	33	16.25	4	24	23.50	5	36	36	36
12	45	–	–	–	35	15.75	3	25	22.75	3	36	36	36

MINIMUM LAP LENGTHS (L):
A. # 4 BARS: L = 22 INCHES
B. # 5 BARS: L = 27 INCHES
C. # 6 BARS: L = 32 INCHES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING CONTROL NO. IN THE REAL ESTATE BRANCH

CONCRETE PAVEMENT DETAILS

(NOT TO SCALE)

CITY ENGINEER

DIRECTOR OF PUBLIC WORKS AND ENGINEERING

DATE: JUL-01-91

DWG. NO. 02751-0

00100

Section 02751

CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Portland cement concrete paving.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment for concrete paving is on square yard basis. Separate pay items are used for each different required thickness of pavement.

2. Refer to Section 01270 - Measurement and Payment for unit price procedures.

3. Refer to Paragraph 3.15, Unit Price Adjustment.

B. Stipulated Price (Lump Sum). If the Contract is a Stipulated Price Contract, payment for work in this Section is included in the total Stipulated Price.

1.03 REFERENCES

A. ASTM A 82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

B. ASTM A 185 - Standard Specifications for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.

C. ASTM A 615 - Standard Specification for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement.

D. ASTM C 31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.

E. ASTM C 33 - Standard Specifications for Concrete Aggregates.

F. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

G. ASTM C 40 - Standard Test Method for Organic Impurities in Fine Aggregates for Concrete.

H. ASTM C 42 - Standard Test Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.

I. ASTM C 78 - Standard Test Method for Flexural Strength of Concrete.

J. ASTM C 94 - Standard Specification for Ready-Mixed Concrete.

K. ASTM C 131 - Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

L. ASTM C 136 - Standard Method for Sieve Analysis of Fine and Coarse Aggregates.

M. ASTM C 138 - Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.

N. ASTM C 143 - Standard Test Method for Slump of Hydraulic Cement Concrete.

O. ASTM C 150 - Standard Specification for Portland Cement.

P. ASTM C 174 - Standard Test Method for Measuring Length of Drilled Concrete Cores.

Q. ASTM C 231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

R. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete.

S. ASTM C 494 - Standard Specification for Chemical Admixtures for Concrete.

T. ASTM C 618 - Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete.

U. TxDOT Tex-203-F - Sand Equivalent Test for Fine Aggregate.

V. TxDOT Tex-406-A - Loss by Decantation Test for Coarse Aggregate.

.04 SUBMITTALS

A. Submittals shall conform to requirements of Section 01330 - Submittal Procedures.

B. Submit proposed mix design and test data for each type and strength of concrete in the Work. Include proportions and actual flexural strength obtained from design mixes at required test ages.

C. Submit for approval manufacturer's description and characteristics for mixing equipment, and for traveling form paver, if proposed for use.

D. Submit manufacturer's certificates giving properties of reinforcing steel. Include certificate of compliance with ASTM A 82 Provide specimens for testing when required by City Engineer.

1.05 HANDLING AND STORAGE

A. Do not mix different classes of aggregate without written permission of City Engineer.

B. Class of aggregate being used may be changed before or during Work with written permission of City Engineer. New class shall comply with specifications.

C. Segregated aggregate will be rejected. Before using aggregate whose particles are separated by size, mix them uniformly to grading requirements.

D. Aggregates mixed with dirt, weeds, or foreign matter will be rejected.

E. Do not dump or store aggregate in roadbed.

PART 2 PRODUCTS

2.01 MATERIALS

A. Portland Cement:

1. Sample and test cement to verify compliance with Standards of ASTM C 150, Type I or Type III.

2. Bulk cement which meets referenced standards may be used if the method of handling is approved by the City Engineer. When using bulk cement, provide satisfactory weighing devices.

3. Fly ash which meets standards of ASTM C 618 may be used as mineral fill if the method of handling is approved by the City Engineer.

B. Water: Conform to requirements for water in ASTM C 94.

C. Coarse Aggregate: Crushed stone or gravel, or combination thereof, which is clean, hard, durable, conforms to requirements of ASTM C 33, and has abrasion loss not more than 45 percent by weight when subjected to Los Angeles Abrasion Test (ASTM C 131).

1. Maximum percentage by weight of deleterious substances shall not exceed following values:

Item	Percent by Weight of Total Sample Maximum
Clay lumps and friable particles	3.0
Material finer than 75-µm (No. 200) sieve:	
Concrete subject to abrasion	3.0*
All Other concrete	5.0*
Coal and lignite:	
Where surface appearance of concrete is of importance	0.5
All other concrete	1.0

* In case of manufactured sand, if material finer than 75-µm (No. 200) sieve consists of dust of fracture, essentially free from clay or shale, these limits may be increased to 5 and 7 percent, respectively.

2. Coarse aggregate (size 1-1/2 inch to No. 4 sieve) shall conform to requirements of ASTM C 33. Gradation shall be within following limits when graded in accordance with ASTM C 136:

Sieve Designation (Square Openings)	Percentage by Weight
Retained on 1-3/4" sieve	0
Retained on 1-1/2"sieve	0 to 5
Retained on 3/4" sieve	30 to 65
Retained on 3/8" sieve	70 to 90
Retained on No. 4 sieve	95 to 100
Loss by Decantation Test *Method Tex-406-A	1.0 maximum

* In case of aggregates made primarily from crushing of stone, if material finer than 200 sieve is dust of fracture essentially free from clay or shale as established by Part III of Tex-406-A, percent may be increased to 1.5.

D. Fine Aggregate: Sand, manufactured sand, or combination thereof, composed of clean, hard, durable, uncoated grains, free from loams or other injurious foreign matter. Fine aggregate for concrete shall conform to requirements of ASTM C 33. Gradation shall be within following limits when graded in accordance with ASTM C 136:

Sieve Designation (Square Openings)	Percentage by Weight
Retained on 3/8" sieve	0
Retained on No. 4 sieve	0 to 5
Retained on No. 8 sieve	0 to 20
Retained on No. 16 sieve	15 to 50
Retained on No. 30 sieve	35 to 75
Retained on No. 50 sieve	65 to 90
Retained on No. 100 sieve	90 to 100
Retained on No. 200 sieve	97 to 100

I. When subjected to color test for organic impurities (ASTM C 40), fine aggregate shall not show color darker than standard color. Fine aggregate shall be subjected to Sand Equivalent Test (Tex-203-F). Sand equivalent value shall not be less than 80, unless higher value is shown on Drawings.

E. Mineral Filler: Class C fly ash of acceptable quality and meeting requirements of ASTM C 618 may be used as mineral admixture in concrete mixture. When fly ash mineral filler is used, it shall be stored and inspected in accordance with ASTM C 618. Fly ash shall not be used in amounts to exceed 30 percent by absolute volume of cementitious material in mix design. Cement content may be reduced if strength requirements can be met. Note: When fly ash is used, the term "cement" is defined as cement plus fly ash.

F. Air Entraining Agent: Furnish an air entraining agent conforming to requirements of ASTM C 260.

G. Water Reducer: Water reducing admixture conforming to requirements of ASTM C 494 may be used if required to improve the workability of concrete. Amount and type of such admixture shall be subject to approval by City Engineer.

H. Reinforcing Steel:

1. Provide new billet steel manufactured by open hearth process and conforming to ASTM A 615, Grade 60. Store steel to protect it from mechanical injury and rust. At time of placement, steel shall be free from dirt, scale, rust, paint, oil, or other injurious materials.

2. Cold bend reinforcing steel to shapes shown. Once steel has been bent, it may not be rebent.

3. Provide wire fabric conforming to ASTM A 82. Use fabric in which longitudinal and transverse wires have been electrically welded at points of intersection. Welds shall have sufficient strength not to be broken during handling or placing. Welding and fabrication of fabric sheets shall conform to ASTM A 185.

I. Fibrous Reinforcing: Conform to requirements of Section 03240 - Fibrous Reinforcing.

2.02 EQUIPMENT

A. Equipment shall conform to requirements of ASTM C 94.

2.03 MIXING

A. Flexural strength shall be as specified using test specimens prepared in accordance with ASTM C 31 and tested in accordance with ASTM C78 (using simple beam with third-point loading). Compressive strength shall be as specified using test specimens prepared in accordance with ASTM C 31 and tested in accordance with ASTM C 39. Contractor shall determine and measure batch quantity of each ingredient, including water for batch designs and all concrete produced for Work. Mix shall conform to these specifications and other requirements indicated on Drawings.

B. Mix design to produce concrete which will have flexural strength of 500 psi at 7 days and 600 psi at 28 days. When high-early-strength cement is used, it shall reach at least 550 psi at 7 days and 600 psi at 28 days. Slump of concrete shall be at least 1 inch, but no more than 4 inches, when tested in accordance with ASTM C 143.

1. Concrete pavement, including curb, curb and gutter, and saw-tooth curb, shall contain at least 5-1/2 sacks (94 pounds per sack) of cement per cubic yard, with not more than 6.5 gallons of water, net, per sack of cement (water-cement ratio maximum: 0.57). Cement content shall be determined in accordance with ASTM C 138. Addition of mineral filler may be used to improve workability or plasticity of concrete to limits specified.

2. Coarse dry aggregate shall not exceed 85 percent of loose volume of concrete.

3. Add air-entraining admixture to ensure uniform distribution of agent throughout batch. Base air content of freshly mixed air-entrained concrete upon trial mixes with materials to be used in Work, adjusted to produce concrete of required plasticity and workability. Percentage of air entrainment in mix shall be 4-1/2 percent plus or minus 1-1/2 percent. Air content shall be determined by testing in accordance with ASTM C 231.

4. Use retardant when temperature exceeds 90 degrees F. Proportion shall be as recommended by manufacturer. Use same brand as used for air-entraining agent. Add and batch material using same methods as used for air-entraining agent.

C. Mix design to produce concrete for sidewalks and slope paving which will have compressive strength of 2000 psi at 7 days and 3000 psi at 28 days. Slump of concrete shall be at least 2 inches, but no more than 5 inches, when tested in accordance with ASTM C 143.

1. Concrete sidewalk and slope paving shall contain at least 5 sacks (94 pounds per sack) of cement per cubic yard, with not more than 6.25 gallons of water, net, per sack of cement. Cement content shall be determined in accordance with ASTM C 138. Additions of mineral filler may be used to improve workability or plasticity of concrete to limits specified.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted base is ready to support imposed loads and meets compaction requirements.

B. Verify lines and grades are correct.

3.02 PREPARATION

A. Properly prepare, shape and compact each section of subgrade before placing forms, reinforcing steel or concrete. After forms have been set to proper grade and alignment, use subgrade planer to shape subgrade to its final cross section. Check contour of subgrade with template.

B. Remove subgrade that will not support loaded form. Replace and compact subgrade to required density.

3.03 EQUIPMENT

A. Alternate equipment and methods, other than those required by this Section, may be used provided the Contractor demonstrates that equal or better results will be obtained. Maintain equipment for preparing subgrade and for finishing and compacting concrete in good working order.

B. Subgrade Planer and Template:

1. Use subgrade planer with adjustable cutting blades to trim subgrade to exact section shown on Drawings. Select planer mounted on visible rollers which ride on forms. Planer frame must have sufficient weight so that it will remain on form, and have such strength and rigidity that, under tests made by changing support from wheels to center, planer will not develop deflection of more than 1/8 inch. Tractors used to pull planer shall not produce ruts or indentations in subgrade. When slip form method of paving

is used, operate subgrade planer on prepared track grade or have it controlled by electronic sensor system operated from string line to establish horizontal alignment and elevation of subbase.

2. Provide template for checking contour of subgrade. Template shall be long enough to rest upon side forms and have such strength and rigidity that, when supported at center, maximum deflection shall not exceed 1/8 inch. Fit template with accurately adjustable rods projecting downward at 1-foot intervals. Adjust these rods to gauge cross sections of slab bottom when template is resting on side forms.

C. Machine Finisher: Provide a power-driven, transverse finishing machine designed and operated to strike off and consolidate concrete. Machine shall have two screeds accurately adjusted to crown of pavement and with frame equipped to ride on forms. Use finishing machine with rubber tires if it operates on concrete pavement.

D. Hand Finishing:

1. Provide mechanical strike and tamping template 2 feet longer than width of pavement to be finished. Shape template to pavement section.

2. Provide two bridges to ride on forms and span pavement for finishing expansion and dummy joints. Provide floats and necessary edging and finishing tools.

E. Burlap Drag for Finishing Slab: Furnish four plies of 10-ounce burlap material fastened to bridge to form continuous strip of burlap full width of pavement. The 3-foot width of burlap material shall be in contact with pavement surface. Keep burlap drags clean and free of encrusted mortar.

F. Vibrators: Furnish mechanically operated synchronized vibrators mounted on tamping bar which rides on forms and hand-manipulated mechanical vibrators. Furnish vibrators with frequency of vibration to provide maximum consolidation of concrete without segregation.

G. Traveling Form Paver: Approved traveling form paver may be used in lieu of construction methods employing forms, consolidating, finishing and floating equipment. Requirements of this specification for subgrade, pavement tolerances, pavement depth, alignments, consolidation, finishing and workmanship shall be met. If traveling form paver does not provide concrete paving that meets the compaction, finish, and tolerance requirements of this Specification, its use shall be immediately discontinued and conventional methods shall be used.

1. Equip traveling paver with longitudinal transangular finishing float adjustable to crown and grade. Float shall be long enough to extend across pavement to side forms or edge of slab.

2. Ensure that continuous deposit of concrete can be made at paver to minimize starting and stopping. Use conventional means of paving locations inaccessible to traveling paver, or having horizontal or vertical curvature that traveling paver cannot negotiate.

3. Where Drawings require tie bars for adjacent paving, securely tie and support bars to prevent displacement. Tie bars may be installed with approved mechanical bar inserter mounted on traveling-form paver. Replace any pavement in which tie bars assume final position other than that shown on Drawings.

3.04 FORMS

A. Side Forms: Use metal forms of approved shape and section. Preferred depth of form shall be equal to required edge thickness of pavement. Forms with depths greater or less than required edge thickness of pavement will be permitted, provided difference between form depth and edge thickness if not greater than 1 inch, and further provided that forms of depth less than pavement edge are brought to required edge thickness by securely attaching wood or metal strips to bottom of form, or by grouting under form. Bottom flange of form shall be same size as thickness of pavement. Aluminum forms are not allowed. Forms shall be approved by City Engineer. Length of form sections shall be not less than 10 feet and each section shall provide for staking in position with not less than 3 pins. Flexible or curved forms of wood or metal of proper radius shall be used for curves of 200-foot radius or less. Forms shall have ample strength and shall be provided with adequate devices for secure setting so that when in-place they will withstand, without visible springing or settlement, impact and vibration of finishing machine. In no case shall base width be less than 8 inches for form 8 inches or more in height. Forms shall be free from warp, bends or kinks and shall be sufficiently true to provide straight edge on concrete. Top of each form section, when tested with straight edge, shall conform to requirements specified for surface of completed pavement. Provide sufficient forms for satisfactory placement of concrete. For short radius curves, forms less than 10 feet in length or curved forms may be used. For curb returns at street intersections and driveways, wood forms of good grade and quality may be used.

B. Form Setting:

1. Rest forms directly on subgrade. Do not shim with pebbles or dirt. Accurately set forms to required grade and alignment and, during entire operation of placing, compacting and finishing of concrete, do not deviate from this grade and alignment more than 1/8 inch in 10 feet of length. Do not remove forms for at least 8 hours after completion of finishing operations. Provide supply of forms that will be adequate for orderly and continuous placing of concrete. Set forms and check grade for at least 300 feet ahead of mixer or as approved by City Engineer.

2. Adjacent slabs may be used instead of forms, provided that concrete is well protected from possible damage by finishing equipment. These adjacent slabs shall not be used for forms until concrete has aged at least 7 days.

3.05 REINFORCING STEEL AND JOINT ASSEMBLIES

A. Place reinforcing steel and joint assemblies and position securely as indicated on Drawings. Wire reinforcing bars securely together at intersections and splices. Bars and coatings shall be free of rust, dirt or other foreign matter when concrete is placed. Secure reinforcing steel to chairs.

B. Position pavement joint assemblies at required locations and elevations, and rigidly secure in position. Install dowel bars in joint assemblies, each parallel to pavement surface and to center line of pavement, as shown.

1. Cut header boards, joint filler, and other material used for forming joints to receive each dowel bar.

2. Secure in required position to prevent displacement during placing and finishing of concrete.

3. Drill dowels into existing pavement, secure with epoxy, and provide paving headers as required to provide rigid pavement sections.

C. Chairs for steel reinforcement bars shall be of sufficient number to maintain position of bars within allowable tolerances. Reinforcement shall be placed as shown on Drawings. In plane of steel parallel to nearest surface of concrete, bars shall not vary from plan placement by more than 1/12 of spacing between bars. In plane of steel perpendicular to nearest surface of concrete, bars shall not vary from plan placement by more than 1/4 inch.

3.06 FIBROUS REINFORCING

A. Do not use fibrous reinforcing to replace structural, load-bearing, or moment-reinforcing steel.

B. Mix and place in accordance with requirements of Section 03240.

3.07 PLACEMENT

A. Place concrete only when air temperature taken in shade and away from artificial heat is above 35 degrees F and rising. Concrete shall not be placed when temperature is below 40 degrees F and falling.

B. Place concrete within 90 minutes after initial water had been added. Remove and dispose of concrete not placed within this period.

C. Concrete slump during placement shall be 1 to 4 inches, except when using traveling-form paver, slump shall be maximum of 2 inches.

D. Deposit concrete continuously in successive batches. Distribute concrete in manner that will require as little rehandling as possible. Where hand spreading is necessary, distribute concrete with shovels or by other approved methods. Use only concrete rakes in handling concrete. At placement interruption of more than 30 minutes, place transverse construction joint at stopping point Remove and replace sections less than 10 feet long.

E. Take special care in placing and spading concrete against forms and at longitudinal and transverse joints to prevent honeycombing. Voids in edge of finished pavement will be cause for rejection.

3.08 COMPACTION

A. Consolidate the concrete using mechanical vibrators as specified herein. Extend a vibratory unit across the pavement, not quite touching side forms. Space individual vibrators at close enough intervals to vibrate and consolidate entire width of pavement uniformly. Mount mechanical vibrators to avoid contact with forms, reinforcement, transverse or longitudinal joints.

B. Furnish enough hand-manipulated mechanical vibrators for proper consolidation of concrete along forms, at joints and in areas not covered by mechanically controlled vibrators.

3.09 FINISHING

A. Finish concrete pavement with power-driven transverse finishing machines or by hand finishing methods.

1. Use transverse finishing machine to make at least two trips over each area. Make last trip continuous run of not less than 40 feet. After transverse screeding, use hand-operated longitudinal float to test and level surface to required grade.

2. Hand finish with mechanical strike and tamping template in same width as pavement to be finished. Shape template to pavement section shown on Drawings. Move strike template forward in direction of placement, maintaining slight excess of material in front of cutting edge. Make minimum of two trips over each area. Screed pavement surface to required section. Work screed with combined transverse and longitudinal motion in direction work is progressing. Maintain screed in contact with forms. Use longitudinal float to level surface.

B. On narrow strips and transitions, finish concrete pavement by hand. Thoroughly work concrete around reinforcement and embedded fixtures. Strike off concrete with strike-off screed. Move strike-off screed forward with combined transverse and longitudinal motion in direction work is progressing, maintaining screed in contact with forms, and maintaining

slight excess of materials in front of cutting edge. Tamp concrete with tamping template. Use longitudinal float to level surface.

C. After completion of straightedge operation, make first pass of burlap drag as soon as construction operations permit and before water sheen has disappeared from surface. Follow with as many passes as required to produce desired texture depth. Permit no unnecessary delays between passes. Keep drag wet, clean and free from encrusted mortar during use.

3.10 JOINTS AND JOINT SEALING

D. Conform to requirements of Section 02752 - Concrete Pavement Joints.

3.11 CONCRETE CURING

A. Conform to requirements of Section 02753 - Concrete Pavement Curing.

3.12 TOLERANCES

A. Test entire surface before initial set and correct irregularities or undulations. Bring surface within requirements of following test and then finish. Place 10-foot straightedge parallel to center of roadway to bridge any depressions and touch all high spots. Do not permit ordinates measured from face of straight edge to surface of pavement to exceed 1/16 inch per foot from nearest point of contact. Maximum ordinate with 10-foot straightedge shall not exceed 1/8 inch. Grind spots in excess of required tolerances to meet surface test requirements. Restore texture by grooving concrete to meet surface finishing specifications.

3.13 FIELD QUALITY CONTROL

A. Testing will be performed under provisions of Section 01454 - Testing Laboratory Services.

B. Compressive Strength Test Specimens: Four test specimens for compressive strength test will be made in accordance with ASTM C 31 for each 150 cubic yards or less of pavement that is placed in one day. Two specimens will be tested at 7 days. The remaining two specimens will be tested at 28 days. Specimens will be tested in accordance with ASTM C 39. Minimum compressive strength shall be 3000 pounds per square inch at 7 days and 3500 pounds per square inch at 28 days.

C. When compressive test indicates failure, yield test will be made in accordance with ASTM C 138 for cement content per cubic yard of concrete. If such cement content is found to be less than that specified per cubic yard, increase batch weights until amount of cement per cubic yard of concrete conforms to requirements.

D. Minimum of one 4-inch core will be taken at random locations per 1000 feet per lane or 500 square yards of pavement to measure in-place depth. Depth shall be measured in accordance

with ASTM C 174. Each core may be tested for 28-day compressive strength according to methods of ASTM C 42. The 28-day compressive strength of each core tested shall be a minimum of 3000 pounds per square inch.

E. Contractor may, at his own expense, request three additional cores in vicinity of cores indicating nonconforming in-place depths. In-place depth at these locations shall be average depth of four cores.

F. Fill cores and density test sections with new concrete paving or non shrink grout.

3.14 NONCONFORMING PAVEMENT

A. Remove and replace areas of pavement found deficient in thickness by more than 10 percent, or that fail compressive strength tests, with concrete of thickness shown on Drawings.

B. Nonconforming pavement sections shall be replaced at no additional cost to City.

3.15 UNIT PRICE ADJUSTMENT

A. Unit price adjustments shall be made for in-place depth determined by cores as follows:

1. Adjusted Unit Price shall be ratio of average thickness as determined by cores to thickness bid upon, times unit price.

2. Adjustment shall apply to lower limit of 90 percent and upper limit of 105 percent of unit price.

3.16 PAVEMENT MARKINGS

A. Restore pavement markings to match those existing in accordance with City of Houston standard specifications and details and the City Engineer's requirements.

3.17 PROTECTION

A. Barricade pavement section to prevent use until concrete has attained minimum design strength. Cure barricade pavement section for minimum 72 hours before use. Do not open pavement to traffic until concrete is at least 10 days old. Pavement may be open to traffic earlier provided Contractor pays for testing and additional beam once 7-day specified flexural strength is obtained.

B. To provide access at driveways, city street intersections, esplanades, and other locations approved by City Engineer; Contractor may use high-early-strength cement or place an additional 2 inches of concrete pavement on untreated subgrade in lieu of specified concrete

SPECIFICATIONS
FOR

DOWNSTREAM ENVIRONMENTAL, LLC
3737 WALNUT BEND

1. GENERAL

The following specifications are for the construction of a Type V, GG pre-treatment facility using the proprietary processes developed by Downstream Environmental, LLC. The process described herein is designed to treat 110, gallons per day of grit trap, grease trap, and septage waste. In addition, the process will provide the operational flexibility to be started and stopped with a minimum effect upon the treatment efficiency.

2. TANK FABRICATION AND PIPING

The tanks shall be fabricated of carbon steel plate conforming to ASTM A-36 and structural shapes conforming to ASTM A-7. All piping shall be Schedule 40 galvanized steel pipe with fittings of either malleable iron or galvanized steel.

Tanks and structures shall be of welded on or bolted on steel construction throughout. Vessel seams shall be located to clear openings and attachment welds by at least two (2) inches. Bolt holes of flanged nozzles shall straddle a centerline parallel to the axis of the vessel or equipment mentioned in these specifications. Only qualified welders using arc fusion welding process shall perform welding. Attachment of internal baffles not subject to water pressure, hydrostatic or otherwise, or non-load bearing structural elements, may be by electric arc welding with fillets of adequate section for the joint involved or otherwise continuous full penetration single weld.

All structures and components shall be designed to withstand normal hydrostatic pressures or any partial pressures, such as when any one compartment is emptied while the other remaining compartments are full.

3. PROTECTION AGAINST CORROSION

Following shop fabrication, all surfaces shall be sandblasted to bare metal to remove dirt, rust, grease and scale. Pits shall be inspected and cleaned. Weld splatters and burrs shall be removed. Excess sand shall be flown from pockets and completely removed from all fabricated tank and structural members. Surfaces shall be completely dry prior to application of any coatings.

4. ELECTRICAL AND CONTROLS

The equipment, materials and labor for assembly and installation plus check out and start-up of the complete electrical system as shown on the drawings and stipulated in the Specifications. As a minimum requirement, the electrical system shall be in accordance with the following items.

A. American National Standards Institute/National Fire Protection Association (ANSI/NFPA), No. 70 - National Electrical Code (NEC)
B. City of Houston Building Code
C. Other applicable Codes and Standards as referenced in other Master Specifications.
D. Comply with local, county, state and federal regulations and codes in effect as of the date of purchase.
E. Equipment of foreign manufacture must meet U.S. codes and standards.
F. Equipment and materials shall conform to requirements of specification and to the criteria provided for the project.

Electrical work shall be inspected and approved by the local code inspector.

Concealed work shall be inspected before it is covered:

a) Conduit with stub-ups, underground in duct banks before concrete is poured.
b) Conduit in slabs, walls and ceilings, complete with boxes.

Controls shall be in a minimum NEMA 2 enclosure for inside installation, NEMA 3R for outside installation.

5. INLET DISPERSING GRINDER-PUMP

An inlet dispensing grinder-pump shall be provided and installed. The pump-grinder shall be capable of pumping at a rate of not less than 150 GPM at 11' TDH while grinding all particles and suspended material to a diameter no larger than 0.125". An abrasion resistant impeller of Nitrided Steel construction for exceptional hardness and durability issued. Utilizing three helical blades rotate inside a matching tubular housing to both shear and grind both organic and inorganic particulates, clogging is eliminated and pumping maintained regardless of the percentage solids or viscosity of the material being pumped. A double mechanical seal shall be used. The rotating element shall be of the cartridge style to allow easy removal and replacement with minimum downtime, without dismantling the entire pump assembly. The grinder-pump shall be driven by 10 HP, 1760 RPM, 3PH, 450 v, ODP motor.

6. PUMPS

All pumps supplied for this project shall be redundant allowing for continuous plant operation with one pump out of service. Pumps shall be installed with isolating inlet and outlet valves to allow for servicing of individual pumps without interfering with plant operation or reliability. Motors for each pump shall be ODP and suitable for 460 V, 3 phase, 60HZ, service with grease lubricated bal bearing. The motors shall not be loaded beyond the name plate rating at the design conditions required in each individual application.

7. SOLIDS

The Solids / Oil recovery tanks shall use vertical-laminar flow control plates which form a unique serpentine channel, maximizing retention time and regulating the dynamics of the fluid flow. It shall then use kinetic energy of the flow to impose spin forces on the oil particles, using this "bubble spin" action to accelerate the removal process.

The unit will be capable of handling fluids with mixtures up to a 50:50 ratio. The oil/recovery tank is designed for the treatment of specific fluids with flow rate in excess of 69 gpm. The manufacturer shall provide test data proving removal efficiency of greater than 99.9% of oil and grease from contaminated oil / water mixtures and maintaining that up to 500,000 parts per million (PPM).

8. OIL FILTRATION SYSTEM

The oil filtration system shall be of the polypropylene, food quality type capable of removing 99.98% of material 0.5 microns or greater with a Beta Ratio of 5000. The dirt holding capacity of the filtration is 11.25 pounds Fine Test Dust in water at 30 gpm and 40 psig. The housing will be constructed of %-304 stainless steel with EPR seals. Inlet and outlet confections are 2" NPT.

9. INLET MECHANICAL SCREEN

The inlet mechanical screen shall perform liquid solids separation of all suspended and settleable solids at design flows up to 400 mesh. The inlet screen shall come complete with an influent flow manifold; automatic cleaning system and an enclosed screening area to prevent spill and splatter. Construction of the screening area is to be stainless steel.

10. CENTRIFUGE

A two-phase centrifugal separating device shall be installed. The unit will be capable of a minimum flow rate of 110 gpm with a solids removal efficiency of 99.99%. An internal scroll will continually remove and dewater solids for direct discharge into the solid containment bin. The unit shall be mounted on a common heavy-duty base with the motor and V-belt drive. The motors shall be ODP and suitable for 460V, 3 phase, 60HZ, service

with grease lubricated ball bearings. The motors shall not be loaded beyond the nameplate rating at the design conditions required in each individual application.

11. DMR TANKS

Two Dynamic Membrane Reaction tanks shall be installed to remove and reduce any remaining suspended or dissolved volatile solids in the system. These systems will operate with removal efficiency in excess of 98% without the use of chemical addition. The allowable reject rate of the dynamic membranes of 0%. Each of the systems is self-contained and redundant. The dynamic membranes will automatically achieve specific flux rates 1.0 to 4.5 according to the loading placed on them. Each of the tanks shall be constructed with sample ports on the inlet and outlet of each tank for monitoring and inspection.

12. OZONATION TANK

The ozonation tank shall be designed so as to maximize both contact time and dissolution of the ozone into the liquid. The tank design shall incorporate an internal skirt arrangement, enhancing the torodial flow pattern. The hopper bottom shall facilitate the collection of any remaining debris in the system before final discharge into the city sanitary sewer.

13. VACUUM CLEANING SYSTEM

A vacuum tank with isolated inlet and discharge attachments shall be provided to positively allow for spill management without dilution or increase in volume. The vacuum vessel will have a volume of no less than 1,000 gallons. Vacuum of no less than 26" HG, will be provided from the intake blowers. A 2" diameter suction hose with control valve will facilitate transfer of any spilled liquids or debris to the tank. Discharge of the tank ill be into the plant process.

14. BLOWERS

Three positive displacement air blowers shall be furnished, each to deliver 200 CFM of air measured at the blower inlet, with a discharge pressure of 7.5 psig. Air delivered, with one blower out of service, shall be sufficient to furnish all plant air requirements. The blowers shall each be furnished with a suitable driver motor with motor V-belt drive, combination filter-silencer, pressure relief valve, check valve, flexible inlet and discharge piping sections and common base for blower and motor.

15. OZONE

An ozone generator unit, complete with air inlet dryer, shall be installed. The ozone generator shall be capable of producing 10 lbs. of reactive ozone from air at an efficiency of 6%. The unit shall be self-contained and mounted in a NEMA 1 enclosure.

16. SECONDARY CONTAINMENT WALLS

Every primary containment vessel shall be placed within secondary containment walls to prevent spill migration in case of mishap. The secondary containment walls shall be sized to allow for the contents of the primary vessel plus 10%, and in case of outdoor locations, a 25-year rain event. The containment walls shall be of cinder block and concrete construction, of adequate strength to support hydrostatic loading with the containment area full.

17. ODOR CONTROL SYSTEM

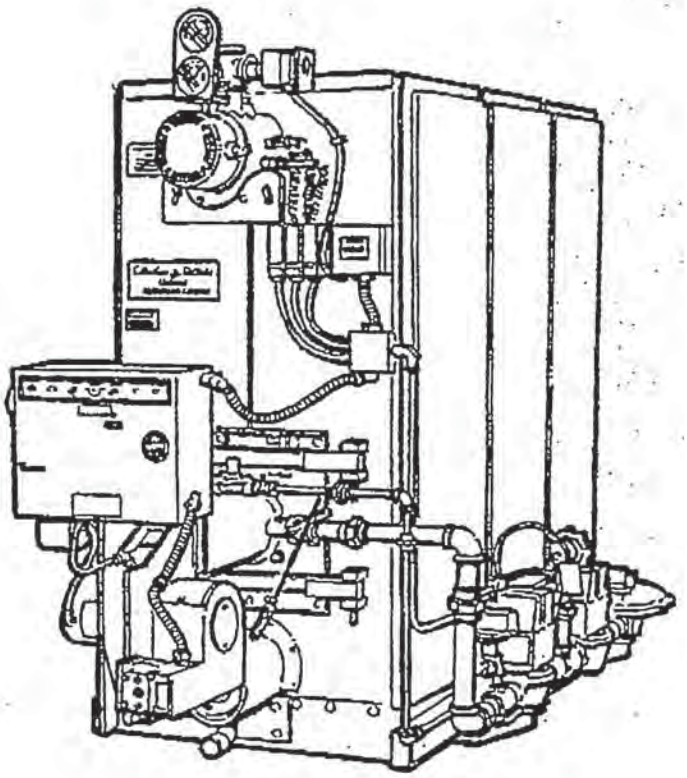
The odor control system shall be three tiered. All process tankage shall be covered and provide for closed loop ventilation. Open devices such as the screen shall be partitioned to effect closed loop ventilation. Al closed loop ventilation shall be recycled at a rate of 2,000 scfm to treat all odors and to prevent odors escaping into the building. Within the building, two recirculating fans, with plenums, operate with a total turnover rate of 28,000 SCFM. This effectively scours the building for stray mal-odors every 4 minutes. In addition, the building crown vents and exhaust fans shall be fitted with spray headers to prevent any odors from escaping the building into the environment.

All plenums, closed loops systems and exhaust ventilation points will be fitted with bioenzymatic generators which produce a uniform droplet size of 0.5 micron or less regardless of flow input to effect accurate odor control at all set points.

All material used in odor degradation shall be non-toxic, enzymatic. These enzymatics are specifically designed to capture and eliminate mal-odors including H_2S (rotten egg smell), NH_3 (ammonia), and $C_4H_8O_2$ (putrefying fat/grease odor). The manufacturer of the system shall guarantee that mal-odors are reduced to the level required by law (mal-odors will not emanate beyond the site's property lines).

Section B1

FLEXIBLE WATERTUBE BOILERS



CONTENTS

Table B1-2. Model FLX Hot Water Boiler Ratings

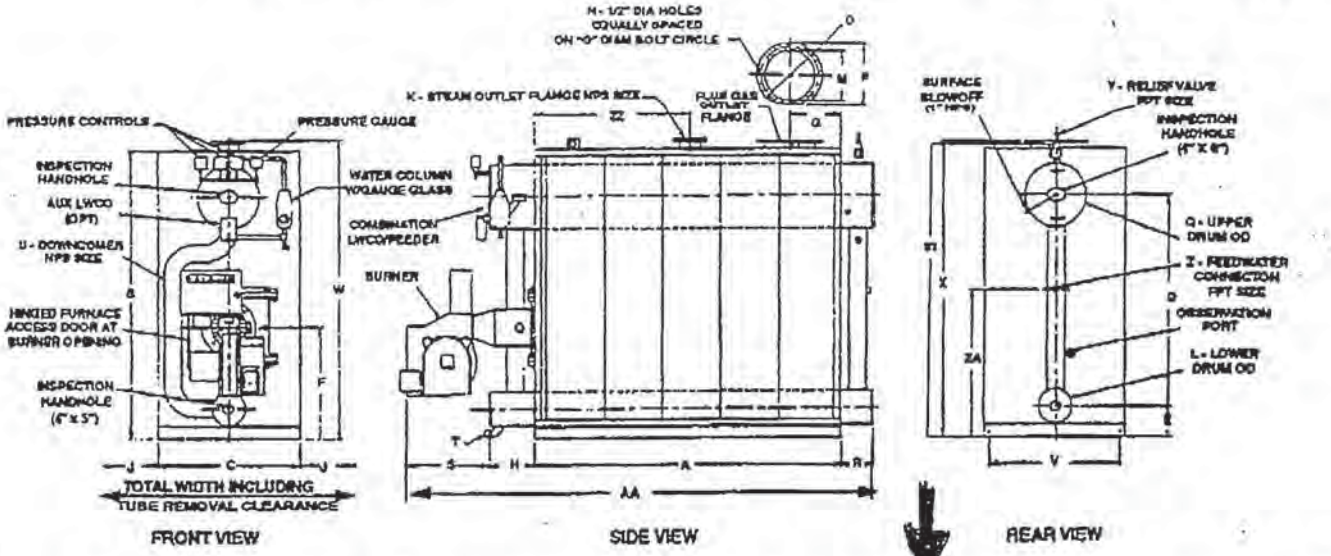
MODEL NO.		150	200	250	300	350	400	450	500	550	600	700	800	900
Fuel Consumption	Gas (cfh)[A]	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000
	Oil (gph)[B]	10.7	14.3	17.9	21.4	25.0	28.6	32.1	35.7	39.3	42.9	50.0	57.2	64.3
Output (MBH)	Gas Firing	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800	5600	6400	7200
	Oil Firing	1245	1660	2075	2490	2905	3320	3735	4250	4675	4980	5810	6640	7470
Approximate bhp.		36	48	60	72	84	96	108	119	131	143	167	191	215
Natural Gas Input: CFH (1000 Btu)		1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000
Natural Gas: Therms/Hour		15	20	25	30	35	40	45	50	55	60	70	80	90
Shipping Weight (lbs)		3900	3900	3900	5000	5000	6100	6100	6100	6100	6100	8500	8500	8500
Operating Weight (lbs)		4715	4715	4715	5930	5930	7600	7600	7600	7600	7600	10500	10500	10500
Water Content (US gal)		98	98	98	112	112	180	180	180	180	180	235	235	235
Blower Motor hp		1/3[A] 1/2[B]	1/2	3/4	1/2[A] 3/4[B]	3/4[A] 1[B]	1-1/2	1-1/2[A] 2[B]	2	3	3	5	5	5[A] 7-1/2[B]

NOTES: 212°F Feedwater.
A. Natural Gas @ 1000 Btu/cu-ft.
B. No. 2 Oil @ 140,000 Btu/gal.

Table B1-3. Model FLX Steam Boiler Ratings

MODEL NO.		150	200	250	300	350	400	450	500	550	600	700	800	900
Fuel Consumption	Gas(h)[A]	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000
	Oil (gph)[B]	10.7	14.3	17.9	21.4	25.0	28.6	32.2	35.7	39.3	42.9	50.0	57.2	64.3
Output (MBH)	Gas Firing	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800	5600	6400	7200
	Oil Firing	1245	1660	2075	2490	2905	3320	3735	4150	4565	4980	5810	6640	7470
Approximate bhp		36	48	60	72	84	96	107	119	131	143	167	191	215
Natural Gas Input: CFH (1000Btu)		1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000
Natural Gas: Therms/Hour		15	20	25	30	35	40	45	50	55	60	70	80	90
Shipping Weight (lbs)		5700	5700	5700	6155	6155	7894	7894	7894	7894	7894	10214	10214	10214
Operating Weight (lbs)		6500	6500	6500	7071	7071	9235	9235	9235	9235	9235	12030	12030	12030
Water Content (US gal)		96	96	96	110	110	157	157	157	157	157	211	211	211
Blower Motor hp		1/3[A] 1/2[B]	1/2	3/4	1/2[A] 3/4[B]	3/4[A] 1[B]	1-1/2	1-1/2[A] 2[B]	2	3	3	5	5	5[A] 7-1/2[B]

NOTES: 212 °F feedwater.
A. Natural Gas @ 1000 Btu/cu-ft.
B. No. 2 Oil @ 140,000 Btu/gal.



MODEL NO.	150	200	250	300	350	400	450	500	550	600	700	800	900
A. Length of Base	72	72	72	78	78	99	99	99	99	99	119-7/8	119-7/8	119-7/8
B. Boiler Height (Top of casing)	83-1/8	83-1/8	83-1/8	87-1/8	87-1/8	91-1/4	91-1/4	91-1/4	91-1/4	91-1/4	104	104	104
B1 - Top of Lifting Lug	87-1/8	87-1/8	87-1/8	91-1/8	91-1/8	95-1/4	95-1/4	95-1/4	95-1/4	95-1/4	108	108	108
C. Boiler Width	39-1/2	39-1/2	39-1/2	43-1/2	43-1/2	45-1/2	45-1/2	45-1/2	45-1/2	45-1/2	51-1/2	51-1/2	51-1/2
D. Center of Lower Drum - Center Upper Drum	60	60	60	64	64	67	67	67	67	67	77	77	77
E. Center of Lower Drum to Bottom	8-3/4	8-3/4	8-3/4	8-3/4	8-3/4	9-13/16	9-13/16	9-13/16	9-13/16	9-13/16	11-13/16	11-13/16	11-13/16
F. Center of Burner Opening to Bottom	24-1/2	24-1/2	24-1/2	28-1/2	28-1/2	31-3/4	31-3/4	31-3/4	31-3/4	31-3/4	36-3/4	36-3/4	36-3/4
G. Center of FG Outlet to Rear of Jacket	14-11/16	14-11/16	14-11/16	14-5/8	14-5/8	17-1/8	17-1/8	17-1/8	17-1/8	17-1/8	17-5/8	17-5/8	17-5/8
H. Drum Clearance Past Base - Front	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	14-3/4	16-7/16	16-7/16	16-7/16
J. Tube Removal Clearance	28	28	28	32	32	34	34	34	34	34	40	40	40
K. Steam Nozzle 15psig *	4 flg.	4 flg.	4 flg.	5 flg.	5 flg.	6 flg.	6 flg.	6 flg.	6 flg.	6 flg.	8 flg.	8 flg.	8 flg.
K. Steam Nozzle 150psig *	2 mpt	2 mpt	2 mpt	2 mpt	2-1/2 mpt	3 flg.	3 flg.	3 flg.	3 flg.	3 flg.	4 flg.	4 flg.	4 flg.
L. Lower Drum OD	8-5/8	8-5/8	8-5/8	8-5/8	8-5/8	10-3/4	10-3/4	10-3/4	10-3/4	10-3/4	10-3/4	10-3/4	10-3/4
M. Flue Gas Outlet ID	10	10	10	12	12	16	16	16	16	16	18	18	18
N. No. of Holes in Flue Gas Outlet Flange	4	4	4	4	4	8	8	8	8	8	8	8	8
O. Diameter of Bolt Circle (FG Outlet)	12-1/2	12-1/2	12-1/2	14-1/2	14-1/2	16-1/2	16-1/2	16-1/2	16-1/2	16-1/2	20-1/2	20-1/2	20-1/2
P. Flue Gas Outlet Flange OD	15	15	15	17	17	21	21	21	21	21	23	23	23
Q. Upper Drum OD	20	20	20	20	20	20	20	20	20	20	24	24	24
R. Drum Clearance Past Base - Rear	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	10-7/16	12-3/4	12-3/4	12-3/4
S. Burner Clearance (See Note 4, page B1-7)	19-1/4	19-1/4	19-1/4	22-1/4	22-1/4	22-1/4	22-1/4	28-1/4	28-1/4	28-1/4	26-9/16	26-9/16	26-9/16
T. Drain Connection (15 psig)	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	2	2	2	2	2	2	2	2
T. Drain Connection (150 psig)	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4
U. Downcomer (NPS) Size	4	4	4	4	4	5	5	5	5	5	6	6	6
V. Anchor Hole Width	37-1/2	37-1/2	37-1/2	41-1/2	41-1/2	43-1/2	43-1/2	43-1/2	43-1/2	43-1/2	49-1/2	49-1/2	49-1/2
W. Height of Steam Nozzle	86-3/4	86-3/4	86-3/4	90-3/4	90-3/4	94-13/16	94-13/16	94-13/16	94-13/16	94-13/16	106-13/16	106-13/16	106-13/16
X. Height of Stack Flange	85-3/8	85-3/8	85-3/8	89-3/8	89-3/8	93-1/2	93-1/2	93-1/2	93-1/2	93-1/2	106-1/2	106-1/2	106-1/2
Y. Relief Valve Outlet Size (Qty) (15 psig)	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	3	3	3	3	3	2-1/2 (2)	2-1/2 (2)	2-1/2 (2)
Y. Relief Valve Outlet Size (Qty) (150 psig)	1-1/2	1-1/2	2	2	2	2	2	2	2	2	2-1/2	2-1/2	2-1/2
Z. Feed Water Connection Size	3/4	3/4	3/4	3/4	3/4	1	1	1	1	1	1	1	1
ZA. Feed Water Location	38-3/4	38-3/4	38-3/4	42-3/4	42-3/4	46-13/16	46-13/16	46-13/16	46-13/16	46-13/16	58-13/16	58-13/16	58-13/16
ZZ. Steam Nozzle Location	36-3/8	36-3/8	36-3/8	39-3/8	39-3/8	50-3/8	50-3/8	50-3/8	50-3/8	50-3/8	60-1/2	60-1/2	60-1/2
AA. Total Length (See Note)	116-7/16	116-7/16	116-7/16	125-7/16	125-7/16	146-7/16	146-7/16	152-7/16	152-7/16	152-7/16	175-5/8	175-5/8	175-5/8
Inspection Handhole Size (Lower)	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5	4x5

Note: Contact your local Cleaver-Brooks authorized representative regarding total length for altitude-compensated boilers.
* flg = Class 150# R.F.
Mpt = Male Pipe Thread

Figure B1-2. Model FLX Steam Boiler Dimensions

PERFORMANCE DATA

Efficiency

Fuel-to-steam (fuel-to-water) efficiency is based on specific operating conditions (fuel, pressure, temperature). Nominal efficiency on all FLX hot water and low pressure steam boilers is 81% firing natural gas, and 84% firing No. 2 oil. For high pressure steam applications, contact your local Cleaver-Brooks representative for expected efficiencies.

Emissions

Expected emissions for natural gas fired FLX boilers are shown in Table B1-4.

Table B1-4. Expected Emissions (ppm, corrected to 3% O_2), Natural Gas Fired Boiler

FLUE GAS COMPONENT	HIGH-FIRE LEVEL[A] PPM_V	LOW-FIRE LEVEL[B] PPM_V
CO	0-50	0 - 50
NOx	40 - 60	30 - 60

NOTE: NOx levels based on standard product offering.
A. Based on 12% excess air.
B. Based on 15% excess air.

ENGINEERING DATA

Boiler Information

Flow Rates and Pressure Drops

Flow rates and pressure drops for the FLX hot water boilers are shown in Table B1-5. This table can be used to determine the boiler pressure drop in relation to full boiler output and system temperature drop.

Table B1-6 can be used to determine the maximum gpm circulating rate in relation to full boiler output and system temperature drop. The maximum gpm can be determined by knowing the boiler size and expected system temperature drop.

System Operating Parameters (Hot Water)

System over pressure requirements are shown in Table B1-7.

Minimum return water temperature is 120 °F; minimum supply (boiler outlet) water temperature is 150 °F in order to prevent fireside corrosion.

System Operating Parameters (Steam Boilers)

The following operating limitations must be observed for optimum operation of the boiler:

1. Minimum make-up temperature 60 °F.
2. Maximum make-up rate (for on/off make-up control) 2.0 times the evaporation rate.

Table B1-5. Model FLX Hot Water Boiler Flow Rates and Pressure Drops

MODEL NO.	ΔT = 20°F		ΔT = 40°F		ΔT = 60°F		ΔT = 80°F		ΔT = 100°F	
	ΔP (PSIG)	GPM	ΔP (PSIG)	GPM	ΔP (PSIG)	GPM	ΔP (PSIG)	GPM	ΔP (PSIG)	GPM
FLX-150	1.14	122.0	0.30	61.1	0.13	41.1	0.08	30.8	0.05	24.4
FLX-200	1.14	162.3	0.30	81.1	0.13	54.1	0.08	40.6	0.05	32.5
FLX-250	1.77	202.8	0.46	101.4	0.21	67.6	0.12	50.7	0.08	40.6
FLX-300	1.85	243.4	0.48	121.7	0.22	81.1	0.12	60.9	0.08	48.7
FLX-350	2.49	284.0	0.65	142.0	0.29	94.7	0.17	71.0	0.11	56.8
FLX-400	1.35	324.5	0.35	162.3	0.16	108.2	0.09	81.1	0.06	64.9
FLX-450	1.71	365.1	0.44	182.6	0.20	121.7	0.11	91.2	0.08	73.0
FLX-500	2.03	405.7	0.54	202.8	0.25	135.2	0.14	101.4	0.09	81.1
FLX-550	2.50	446.3	0.67	223.1	0.31	148.7	0.17	111.5	0.11	89.2
FLX-600	2.99	486.8	0.77	243.4	0.35	162.3	0.20	121.7	0.13	97.4
FLX-700	1.75	567.9	0.45	284.0	0.21	189.3	0.12	142.0	0.08	113.6
FLX-800	2.27	649.1	0.59	324.5	0.27	216.4	0.15	162.3	0.10	129.8
FLX-900	2.85	730.2	0.74	365.1	0.33	243.4	0.19	182.6	0.12	146.0

Table A8-1. Model CEW Steam Boiler Ratings

BOILER HP	125	150	200	250	300	350	400	500	600	700	750	800
RATINGS - SEA LEVEL TO 1000 FT												
Rated Capacity (lbs-steam/hr from and at 212 °F)	4313	5175	6900	8625	10350	12075	13800	17250	20700	24150	25875	27600
Btu Output (1000 Btu/hr)	4184	5021	6695	8369	10043	11716	13390	16738	20085	23433	25106	26780
APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY												
Light Oil gph (140,000 Btu/gal)	37.5	45	60	74.5	89.5	104.5	119.5	149.5	179.5	209	224	239
Gas CFH (1000 Btu)	5230	6280	8370	10460	12555	14650	16750	20925	25100	29300	31385	33500
Gas (Therm/hr)	52.3	62.8	83.7	104.6	125.5	146.5	167.5	209.3	251.0	293.0	313.9	335.0
POWER REQUIREMENTS — SEA LEVEL TO 1000 FT (60 HZ)												
Oil Pump Motor hp (oil firing only)	*	*	*	1/2	3/4	3/4	3/4	3/4	3/4	1	1	1
Blower Motor - Series 100/200[A]	2	3	7-1/2	5	7-1/2	10	20	25	30	40	60	60
Blower Motor - Series 700[A]	2	3	5	5	7-1/2	10	20	25	30	40	60	60
Air Comp. Motor (oil firing only)	**	**	**	3	3	3	5	5	7-1/2	7-1/2	7-1/2	7-1/2
Oil Meter. Pump Mtr (oil firing only)	N/A	N/A	N/A	N/A	N/A	N/A	1/2	3/4	3/4	3/4	3/4	3/4
BOILER DATA												
Heating Surface sq-ft (Fireside)	625	750	1000	1250	1500	1750	2000	2500	3000	3500	3500	3500

* Integral oil pump.

**No air compressor required (pressure atomized)

NOTE:All fractional hp motors will be single phase voltage except oil metering pump motor(3-phase); integral hp motors will be 3-phase voltage.

A. For altitudes over 1000 ft. contact your local Cleaver-Brooks representative for verification of motor hp.

Table A8-2. Model CEW Hot Water Boiler Ratings

BOILER HP	125	150	200	250	300	350	400	500	600	700	750	800
RATINGS — SEA LEVEL TO 1000 FT												
Btu Output (1000 Btu/hr)	4184	5021	6695	8369	10043	11716	13390	16738	20085	23433	25106	26780
APPROXIMATE FUEL CONSUMPTION AT RATED CAPACITY												
Light Oil gph (140,000 Btu/gal)	37.5	45	60	74.5	89.5	104.5	119.5	149.5	179.5	209	224	239
Gas CFH (1000 Btu)	5230	6280	8370	10460	12555	14650	16750	20925	25100	29300	31385	33500
Gas (Therm/hr)	52.3	62.8	83.7	104.6	125.5	146.5	167.5	209.3	251	293	313.8	335
POWER REQUIREMENTS — SEA LEVEL TO 1000 FT (60 HZ)												
Oil Pump Motor hp (oil firing only)	*	*	*	1/2	3/4	3/4	3/4	3/4	3/4	1	1	1
Blower Motor - Series 100/200[A]	2	3	7-1/2	5	7-1/2	10	20	25	30	40	60	60
Blower Motor - Series 700[A]	2	3	5	5	7-1/2	10	20	25	30	40	60	60
Air Comp. Motor (oil firing only)	**	**	**	3	3	3	5	5	7-1/2	7-1/2	7-1/2	7-1/2
Oil Meter. Pump Mtr (oil firing only)	N/A	N/A	N/A	N/A	N/A	N/A	1/2	3/4	3/4	3/4	3/4	3/4
BOILER DATA												
Heating Surface sq-ft (Fireside)	625	750	1000	1250	1500	1750	2000	2500	3000	3500	3500	3500

* Integral oil pump

**No air compressor required (pressure atomized)

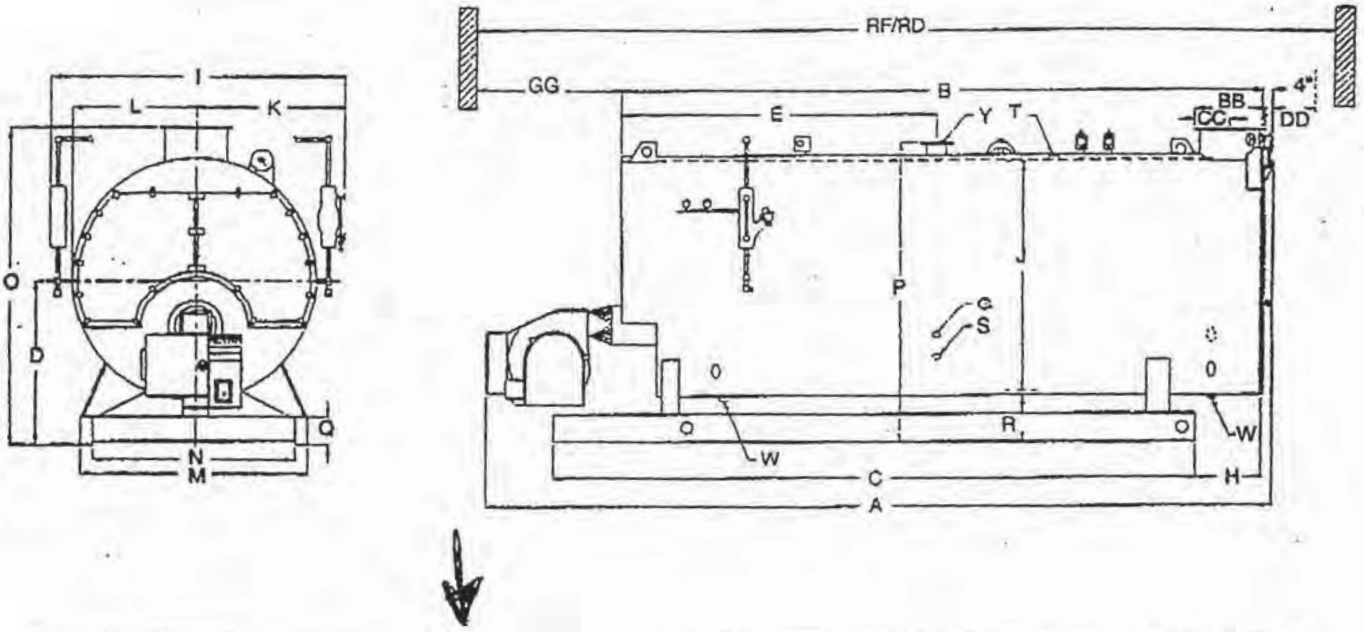
NOTE All fractional hp motors will be single phase voltage except oil metering pump motor(3-phase); integral hp motors will be 3-phase voltage.

A For altitudes over 1000 ft contact your local Cleaver-Brooks representative for verification of motor hp.

BOILER HP	DIM	125	150	200	250	300	350	400	500	600	700	750	800
HEIGHTS													
Base To Boiler Centerline	D	46	46	46	56	56	56	56	67	67	67	67	67
Base To Vent Outlet	O	85	85	85	106	106	106	106	126	126	126	126	126
Base To Steam Outlet	P	82-3/8	82-3/8	82-3/8	101-1/2	101-1/2	101-1/2	101-1/2	122	122	122	122	122
Base Frame	Q	12	12	12	10	10	10	10	12	12	12	12	12
Base to Bottom Boiler	R	16	16	16	17	17	17	17	19	19	19	19	19
CONNECTIONS													
Chemical Feed	G	1	1	1	1	1	1	1	1	1	1	1	1
Feedwater Inlet (Both Sides)	S	1-1/2	1-1/2	2	2	2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2
Steam Nozzle (15 psig)[A]	Y	8	8	10	10	12	12	12	12	12	12	12	12
Steam Nozzle (150 psig)[B]	Y	4	4	4	6	6	6	6	8	8	8	8	8
Drain - Front & Rear (15 psig)	W	1-1/2	1-1/2	2	2	2	2	2	2	2	2	2	2
Blowdown - Front & Rear (150 psig)	W	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	2	2	2	2	2	2
Surface Blowoff	T	1	1	1	1	1	1	1	1	1	1	1	1
Vent Stack Diameter (Flanged)	BB	16	16	16	20	20	20	20	24	24	24	24	24
Flange to Center Vent	CC	9-1/8	9-1/8	9-1/8	10-5/8	10-5/8	10-5/8	10-5/8	12-5/8	12-5/8	12-5/8	12-5/8	12-5/8
MISCELLANEOUS													
Rear Door Swing	DD	30	30	30	39	39	39	39	46	46	46	46	46
Tube Removal - Front Only	GG	124	147	195	128	152	177	202	171	206	242	242	242
Min. Boiler Room Length For Tube Removal Front	RF	312	368	454	335	383	433	483	437	507	578	578	578
Min. Boiler Room Length For Tube Removal Thru Door	RD	255	278	326	296	320	345	370	374	409	444	444	444
WEIGHTS													
Normal Water Weight		6600	8050	11000	11394	13468	15861	17938	21353	25531	29835	29835	29835
Shipping Weight (150 psig)		12950	14000	16850	21750	24300	26500	28750	38800	43950	50950	51200	51200
Shipping Weight (15 psig)		12150	12950	15600	20300	22450	25250	27650	35800	40950	47850	48250	48250

NOTES:
Accompanying dimensions, while sufficiently accurate for layout purposes, must be confirmed for actual option requirements.
A. 150 psig Flange.
B. 300 psig Flange.
C. Overall width may increase with the addition of electrical options due to control panel mounting.

Figure A8-1. Model CEW Steam Boiler Dimensions (Page 2 of 2)



BOILER HP	DIM	125	150	200	250	300	350	400	500	600	700	750	800
LENGTHS													
Overall	A	201-3/4	224-3/4	272-3/4	216-7/16	240-7/16	265-7/16	300	282-1/2	319	354	356-7/8	359
Shell	B	158	181	229	168	192	217	242	219-3/4	254-3/4	289-3/4	289-3/4	289-3/4
Base Frame	C	166-3/4	189-3/4	237-3/4	179-1/2	203-1/2	228-1/2	225-7/8	203-3/4	238-3/4	273-3/4	273-3/4	273-3/4
Base Frame to Rear Flange	H	19-1/8	19-1/8	19-1/8	22	22	22	22	22	22	22	22	22
Flange to Steam Nozzle	E	56	72	108	70	90	108	118	100-3/4	110-3/4	127-1/4	127-1/4	127-1/4
WIDTHS													
Overall[C] (15 psig)	I	85	85	85	103	103	103	103	123	123	123	123	123
Overall[C] (150 psig)	I	85	85	85	103	103	103	103	123	123	123	123	123
I. D. Boiler	J	60	60	60	78	78	78	78	96	96	96	96	96
Center to Water Column	K	45	45	45	54	54	54	54	64	64	64	64	64
Center to Lagging	L	33	33	33	42	42	42	42	51	51	51	51	51
Base Outside	M	52-1/2	52-1/2	52-1/2	64	64	64	64	71-7/8	71-7/8	71-7/8	71-7/8	71-7/8
Base Inside	N	44-1/2	44-1/2	44-1/2	56	56	56	56	58-7/8	58-7/8	58-7/8	58-7/8	58-7/8

Figure A8-1. Model CEW Steam Boiler Dimensions (Page 1 of 2)

GAUMER Process Heaters

713 460-5200 or 800 460-5200
Fax 713 460-1444
sales@gaumer.com
http://www.gaumer.com

Flanged - Type IF

APPLICATIONS:

60 and 45 Watts Per Square Inch

Industrial water heating - many aqueous solutions which are compatible with steel and Incoloy.

23 and 20 Watts Per Square Inch

For heat transfer oil, cleaners, high temperature air and gas heating.

15 and 12 Watts Per Square Inch

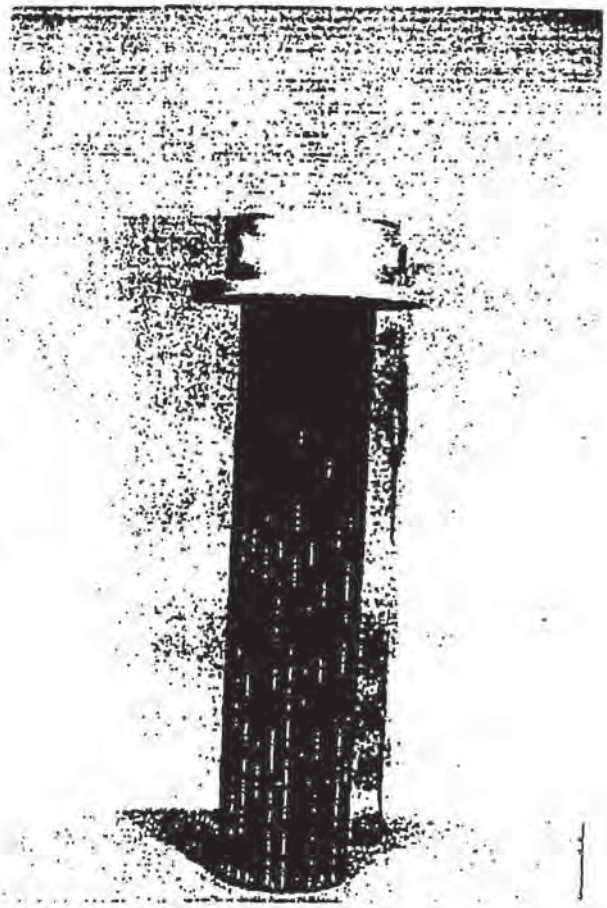
For lubricating oils, medium viscosity oils, high temperature air and gas heating.

8 and 6 Watts Per Square Inch

For #5 and #6 fuel oil heating, viscous materials, raw crude oil, residual oils, high temperature air and gas heating.

4 and 2 Watts Per Square Inch

For asphalt and other hard-to-heat substances, extra high temperature air and gas.



STANDARD FEATURES:

Heating Elements
- Incoloy 800 Sheath Material
- Heavy Wall (.035 in.)
- Large diameter (.475 in.)
- Sealed Terminals

Spacers
- High Temp Alloy Material
- Rugged Design
- "Eventlow" Configuration

Construction
- Welded Heating Elements
- Welded Terminal Housing
- Welded Spacers

Installation
- Flying Leadwires Provided
- Only Standard Materials Needed in Field

Service
- Wiring Modifiable in Field
- Assembly Repairable at Factory

SPECIAL FEATURES:

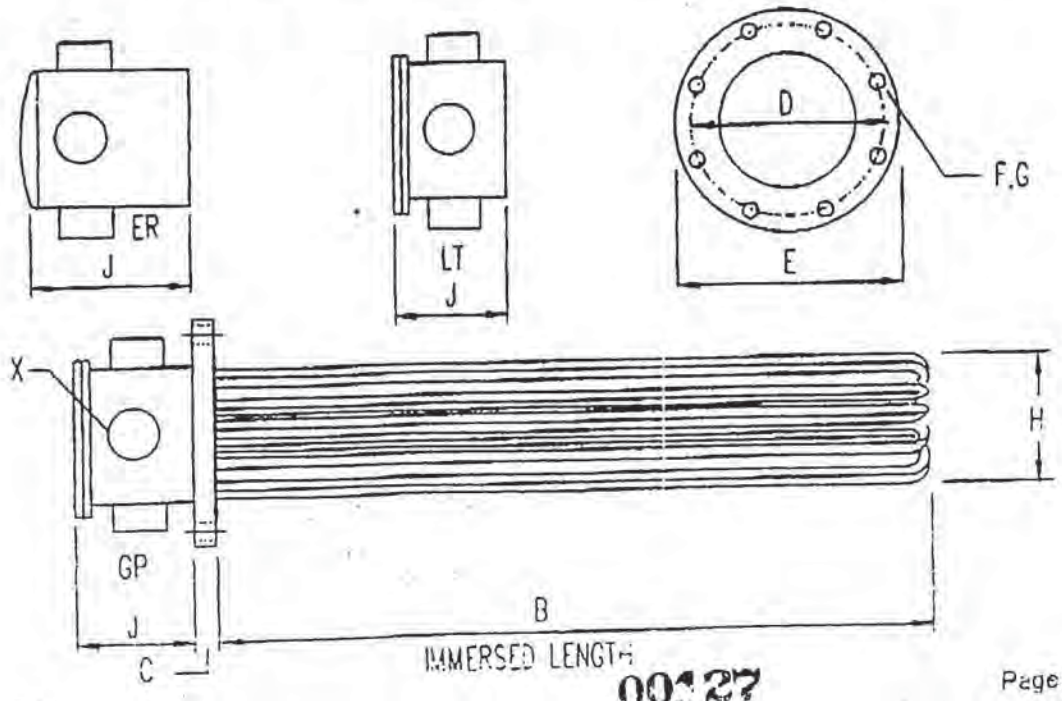
-ER	Explosion Resistant Terminal Enclosure
-LT	Moisture Resistant Terminal Enclosure
-J(K)	Sheath Sensing Thermocouple attached to one element for overheat protection
-S	Stainless Steel Flange - Type 304
-S(316)	Stainless Steel Flange - Type 316
-SpHtr	Space Heater Mounted in Terminal Enclosure
-OSTHsg	Offset (Spaced Away) Terminal Housing
-XX	Special Feature not Listed Above
3(?)-(P/N)	300(?)# ANSI Flange

Flanged Heaters

Type IF

Gaumer Drawing No. IF-200
(Dimension Flange Heater Detail)

Flange Size (in.)	Pressur Class	Flange Dimensions (inches)			Flange HoleSize	No. of Holes	Min.Hole Diam.	Housing Height (inches)			X - No and Size Conduit Connection		
(in)	(lb.)	C Thick	D Diam:	E Diam:	F	G	H	J GP:	J ER:	J LT:	GP:	ER:	LT:
3	150	0-15/16	6	7-1/2	3/4	4	2-3/4	2-5/8	5-1/2	2-5/8	1@1	1@1-1/4	1@1
3	300	1-1/8	6-5/8	8-1/4	7/8	8	2-3/4	2-5/8	5-1/2	2-5/8	1@1	1@1-1/4	1@1
4	150	0-15/16	7-1/2	9	3/4	8	3-13/16	5-1/2	6-1/2	5-1/2	3@1-1/4	2@1/2	3@1-1/4
4	300	1-1/4	7-7/8	10	7/8	8	3-13/16	5-1/2	6-1/2	5-1/2	3@1-1/4	2@1/2	3@1-1/4
5	150	0-15/16	8-1/2	10	7/8	8	4-13/16	5-1/2	6-1/2	5-1/2	3@1-1/4	2@1/2	3@1-1/4
5	300	1-3/8	9-1/4	11	7/8	8	4-13/16	5-1/2	6-1/2	5-1/2	3@1-1/4	2@1/2	3@1-1/4
6	150	1	9-1/2	11	7/8	8	5-3/4	5-1/2	8	5-1/2	3@1-1/4	2@1/2	3@1-1/4
6	300	1-7/16	10-5/8	12-1/2	7/8	12	5-3/4	5-1/2	8	5-1/2	3@1-1/4	2@1/2	3@1-1/4
8	150	1-1/8	11-3/4	13-1/2	7/8	8	7-13/16	5-1/2	9	5-1/2	3@1-1/2	3@1-1/2	3@1-1/2
8	300	1-5/8	13	15	1	12	7-13/16	5-1/2	9	5-1/2	3@1-1/2	3@1-1/2	3@1-1/2
10	150	1-3/16	14-1/4	16	1	12	9-5/8	7	11	7	3@1-1/2	3@1-1/2	3@1-1/2
10	300	1-7/8	15-1/4	17-1/2	1-1/8	16	9-5/8	7	11	7	3@1-1/2	3@1-1/2	3@1-1/2
12	150	1-1/4	17	19	1	12	11-5/8	7	11	7	3@2	3@2	3@2
12	300	2	17-3/4	20-1/2	1-1/4	16	11-5/8	7	11	7	3@2	3@2	3@2
14	150	1-3/8	18-3/4	21	1-1/8	12	12-1/2	7	11	7	3@2	3@2	3@2
14	300	2-1/8	20-1/4	23	1-1/4	20	12-1/2	7	11	7	3@2	3@2	3@2
16	150	1-7/16	21-1/4	23-1/2	1-1/8	16	14-1/2	9	13	9	4@2	4@2	4@2
16	300	2-1/4	22-1/2	25-1/2	1-3/8	20	14-1/2	9	13	9	4@2	4@2	4@2
18	150	1-9/16	22-3/4	25	1-1/4	16	16-3/8	9	13	9	4@2	4@2	4@2
18	300	2-3/8	24-3/4	28	1-3/8	24	16-3/8	9	13	9	4@2	4@2	4@2
20	150	1-11/16	25	27-1/2	1-1/4	20	18-5/16	9	13	9	4@2	4@2	4@2
20	300	2-1/2	27	30-1/2	1-3/8	24	18-5/16	9	13	9	4@2	4@2	4@2
24	150	1-7/8	29-1/2	32	1-3/8	20	22-1/8	11	15	11	6@2	6@2	6@2
24	300	2-3/4	32	36	1-5/8	24	22-1/8	11	15	11	6@2	6@2	6@2



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Houston, TX 77040 (713) 460-5200 Fax (713) 460-1444

Flanged Heaters

Type IF

WattDensity: 23

Flng Size	Lgth	KW	Volts	Catalog No.
6	52	40.0	480	6F12N52M4
6	52	50.0	240	6F15N52M2
6	52	50.0	480	6F15N52M4
6	64	50.0	240	6F12N64M2
6	64	50.0	480	6F12N64M4
6	64	62.5	240	6F15N64M2
6	64	62.5	480	6F15N64M4
6	77	60.0	240	6F12N77M2
6	77	60.0	480	6F12N77M4
6	77	75.0	240	6F15N77M2
6	77	75.0	480	6F15N77M4
6	88	67.2	480	6F12N88M4
6	88	84.0	480	6F15N88M4
6	106	75.6	480	6F12N106M4
6	106	94.5	480	6F15N106M4
6	120	93.6	480	6F12N120M4
6	120	117.0	480	6F15N120M4
8	18	18.0	240	8F18N18M2
8	18	18.0	480	8F18N18M4
8	18	24.0	240	8F24N18M2
8	18	24.0	480	8F24N18M4
8	20	22.5	240	8F18N20M2
8	20	22.5	480	8F18N20M4
8	20	30.0	240	8F24N20M2
8	20	30.0	480	8F24N20M4
8	25	27.0	240	8F18N25M2
8	25	27.0	480	8F18N25M4
8	25	36.0	240	8F24N25M2
8	25	36.0	480	8F24N25M4
8	33	36.0	240	8F18N33M2
8	33	36.0	480	8F18N33M4
8	33	48.0	240	8F24N33M2
8	33	48.0	480	8F24N33M4
8	40	45.0	240	8F18N40M2
8	40	45.0	480	8F18N40M4
8	40	60.0	240	8F24N40M2
8	40	60.0	480	8F24N40M4
8	48	54.0	240	8F18N48M2
8	48	54.0	480	8F18N48M4
8	48	72.0	240	8F24N48M2
8	48	72.0	480	8F24N48M4
8	52	60.0	240	8F18N52M2
8	52	60.0	480	8F18N52M4
8	52	80.0	240	8F24N52M2
8	52	80.0	480	8F24N52M4
8	64	76.5	240	8F18N64M2
8	64	76.5	480	8F18N64M4
8	64	102.0	240	8F24N64M2
8	64	102.0	480	8F24N64M4
8	77	90.0	240	8F18N77M2
8	77	90.0	480	8F18N77M4

WattDensity: 23

Flng Size	Lgth	KW	Volts	Catalog No.
8	77	120.0	240	8F24N77M2
8	77	120.0	480	8F24N77M4
8	88	100.8	480	8F18N88M4
8	88	134.4	480	8F24N88M4
8	106	113.4	480	8F18N106M4
8	106	151.2	480	8F24N106M4
8	120	140.4	480	8F18N120M4
8	120	187.2	480	8F24N120M4
10	18	27.0	480	10F27N18M4
10	18	36.0	480	10F36N18M4
10	20	33.7	480	10F27N20M4
10	20	45.0	480	10F36N20M4
10	25	40.5	480	10F27N25M4
10	25	54.0	480	10F36N25M4
10	33	54.0	480	10F27N33M4
10	33	72.0	480	10F36N33M4
10	40	67.5	480	10F27N40M4
10	40	90.0	480	10F36N40M4
10	48	81.0	480	10F27N48M4
10	48	108.0	480	10F36N48M4
10	52	90.0	480	10F27N52M4
10	52	120.0	480	10F36N52M4
10	64	114.7	480	10F27N64M4
10	64	153.0	480	10F36N64M4
10	77	135.0	480	10F27N77M4
10	77	180.0	480	10F36N77M4
10	88	151.2	480	10F27N88M4
10	88	201.6	480	10F36N88M4
10	106	170.0	480	10F27N106M4
10	106	226.8	480	10F36N106M4
10	120	210.6	480	10F27N120M4
10	120	280.8	480	10F36N120M4
12	18	36.0	480	12F36N18M4
12	18	48.0	480	12F48N18M4
12	20	45.0	480	12F36N20M4
12	20	60.0	480	12F48N20M4
12	25	54.0	480	12F36N25M4
12	25	72.0	480	12F48N25M4
12	33	72.0	480	12F36N33M4
12	33	96.0	480	12F48N33M4
12	40	90.0	480	12F36N40M4
12	40	120.0	480	12F48N40M4
12	48	108.0	480	12F36N48M4
12	48	144.0	480	12F48N48M4
12	52	120.0	480	12F36N52M4
12	52	160.0	480	12F48N52M4
12	64	153.0	480	12F36N64M4
12	64	204.0	480	12F48N64M4
12	77	180.0	480	12F36N77M4
12	77	240.0	480	12F48N77M4
12	88	201.6	480	12F36N88M4

3/21/97

00138

Attachment 22b

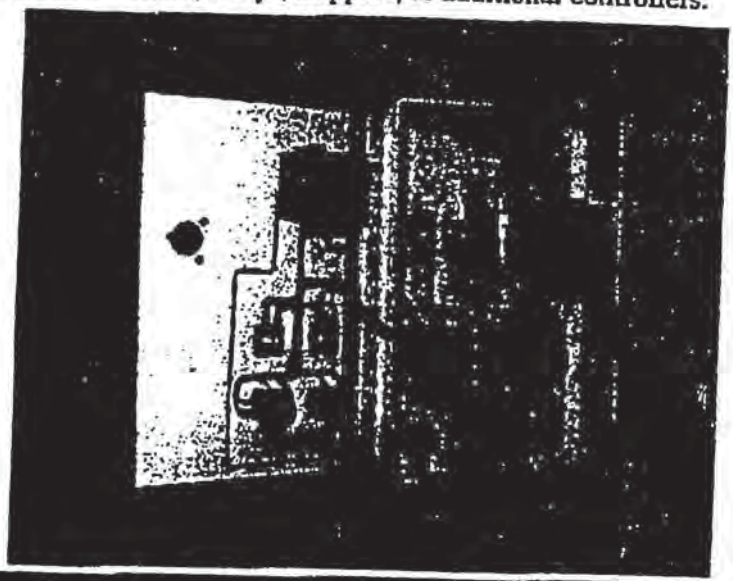
CONTROL PANELS

NEMA XII - Standard Contactor Control System

Applications:
Designed to fulfill the needs of the control systems for most process heating applications.

Features:
Heavy gauge gasketed enclosure finished in blue enamel with integral "Dead Front" switch, "Off-On" selector switch, "Power-On" pilot light, "Heat-On" pilot light, illuminated reset button and indicating electronic temperature controller. Internally mounted components include circuit breaker with mechanism, control transformer, control mercury contactor, safety magnetic contactor, electronic over-temperature controller, fuses and terminal strips.

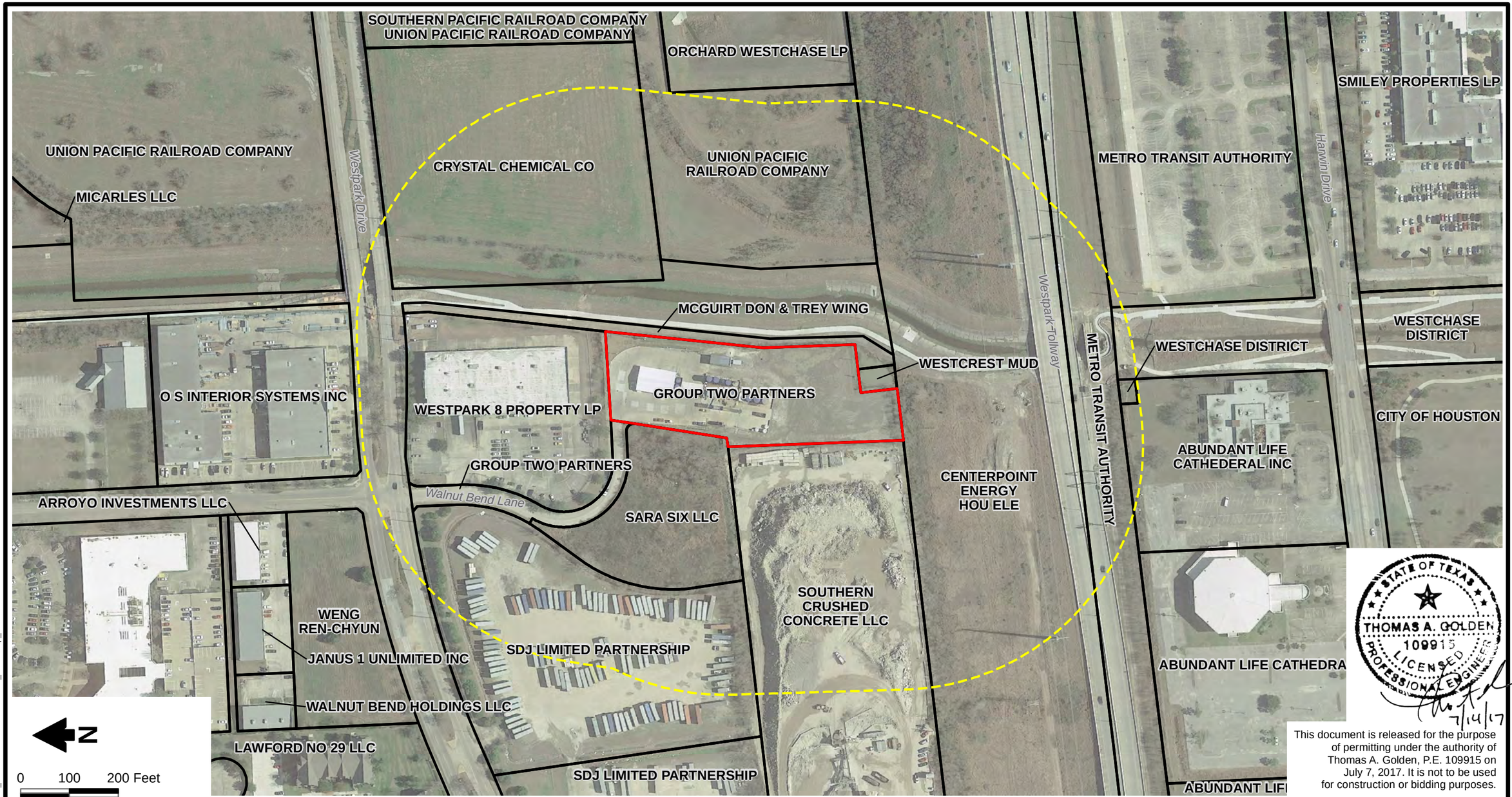
Options:
Additional electrical and electronic components such as timers, relays, steppers, or additional controllers.



Model Number	KW	3 Phase Voltage	Amps	Circuit Breaker Size	No. of Circuits	Dimensions In Inches Ht.	Width	Depth	Wt.
CP12-20-2-IC	6	240	15	20	1	24	16	8	75
CP12-20-4-IC	12	480	15	20	1	24	16	8	75
CP12-40-2-IC	12	240	30	40	1	24	16	8	75
CP12-40-4-IC	25	480	30	40	1	24	16	8	75
CP12-60-2-IC	19	240	45	60	1	24	16	8	75
CP12-60-4-IC	38	480	45	60	1	24	16	8	75
CP12-70-2-IC	22	240	53	70	1	24	16	8	75
CP12-70-4-IC	44	480	53	70	1	24	16	8	75
CP12-90-2-IC	30	240	72	90	1	24	20	8	100
CP12-90-4-IC	60	480	72	90	1	24	20	8	100
CP12-100-2-2C	32	240	78	100	2	24	24	10	105
CP12-100-4-2C	65	480	78	100	2	24	24	10	105
CP12-150-2-3C	50	240	120	150	3	30	24	10	110
CP12-150-4-3C	100	480	120	150	3	30	24	10	110
CP12-250-2-3C	66	240	158	250	3	36	30	10	125
CP12-250-4-3C	132	480	158	250	3	36	30	10	125
CP12-250-4-4C	160	480	192	250	4	42	36	10	175
CP12-400-4-6C	260	480	312	400	6	60*	36	12	240
CP12-600-4-8C	400	480	480	600	8	60*	48	12	460
CP12-800-4-10C	532	480	638	800	10	60*	60	12	510

* Enclosure on 12" legs with stepper controller.

GAUMER COMPANY 13616 Hempstead Rd. Houston, TX 77040 (713) 460-5200 Fax (713) 460-1444



Explanation

- Site
- Parcel
- 500ft radius

This document is released for the purpose of permitting under the authority of Thomas A. Golden, P.E. 109915 on July 7, 2017. It is not to be used for construction or bidding purposes.

January 23, 2017 aerial imagery from Google Earth

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geosciences Firm No. 50045

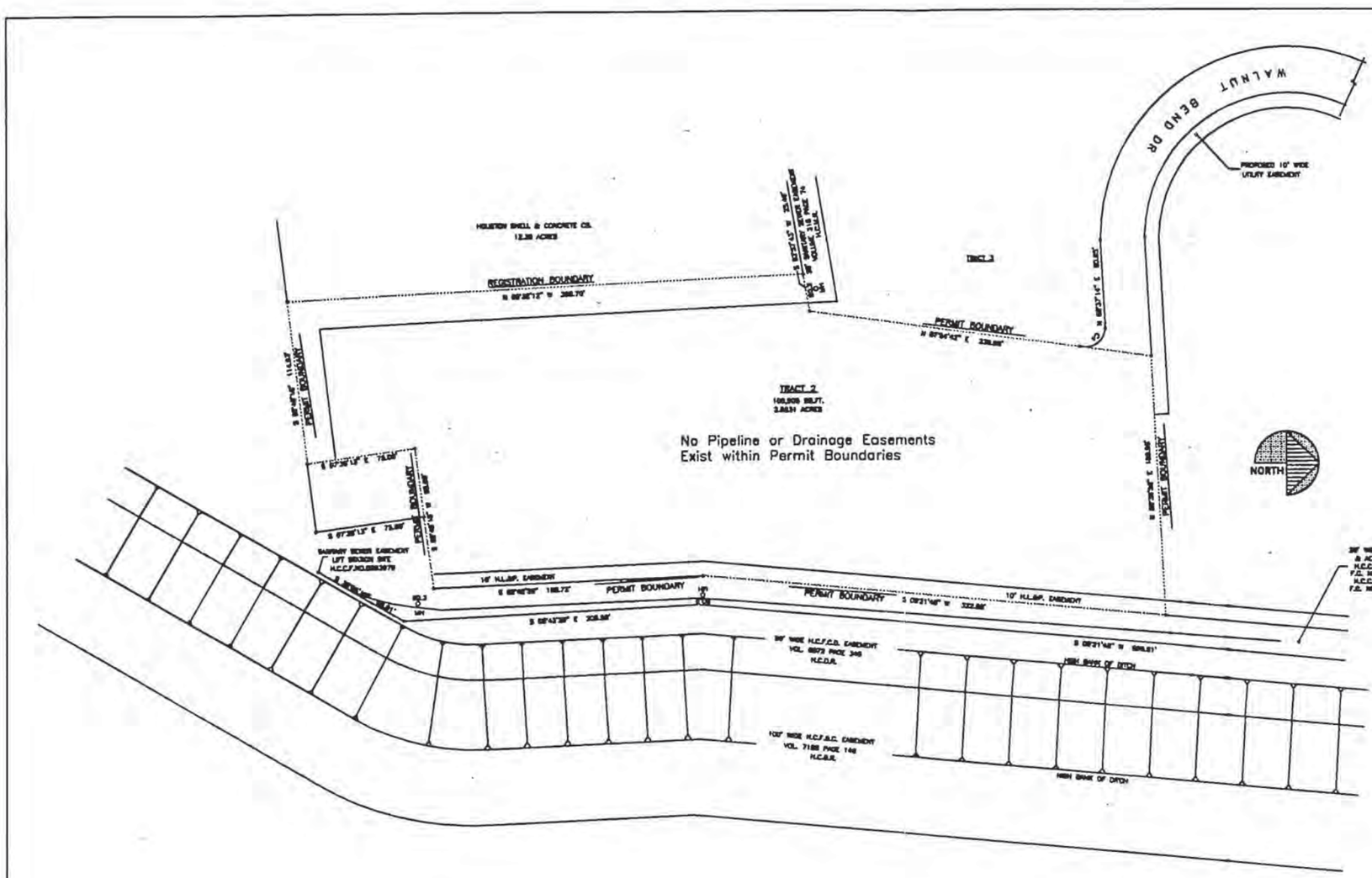
7/7/2017 JN TX16.0165.00

DOWNSTREAM ENVIRONMENTAL, LLC
B.R. PERRIN PLANT

Land Ownership

Attachment 2h

\\ss6abq\Data5\Projects\TX16.0165_SouthWaste_Downstream\GIS\MXDs\land_ownership_500ft.mxd



STATE OF TEXAS
GEORGE W. NOYES
86495
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PROFESSIONAL ENGINEER

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3/29/02

Attachment 3d

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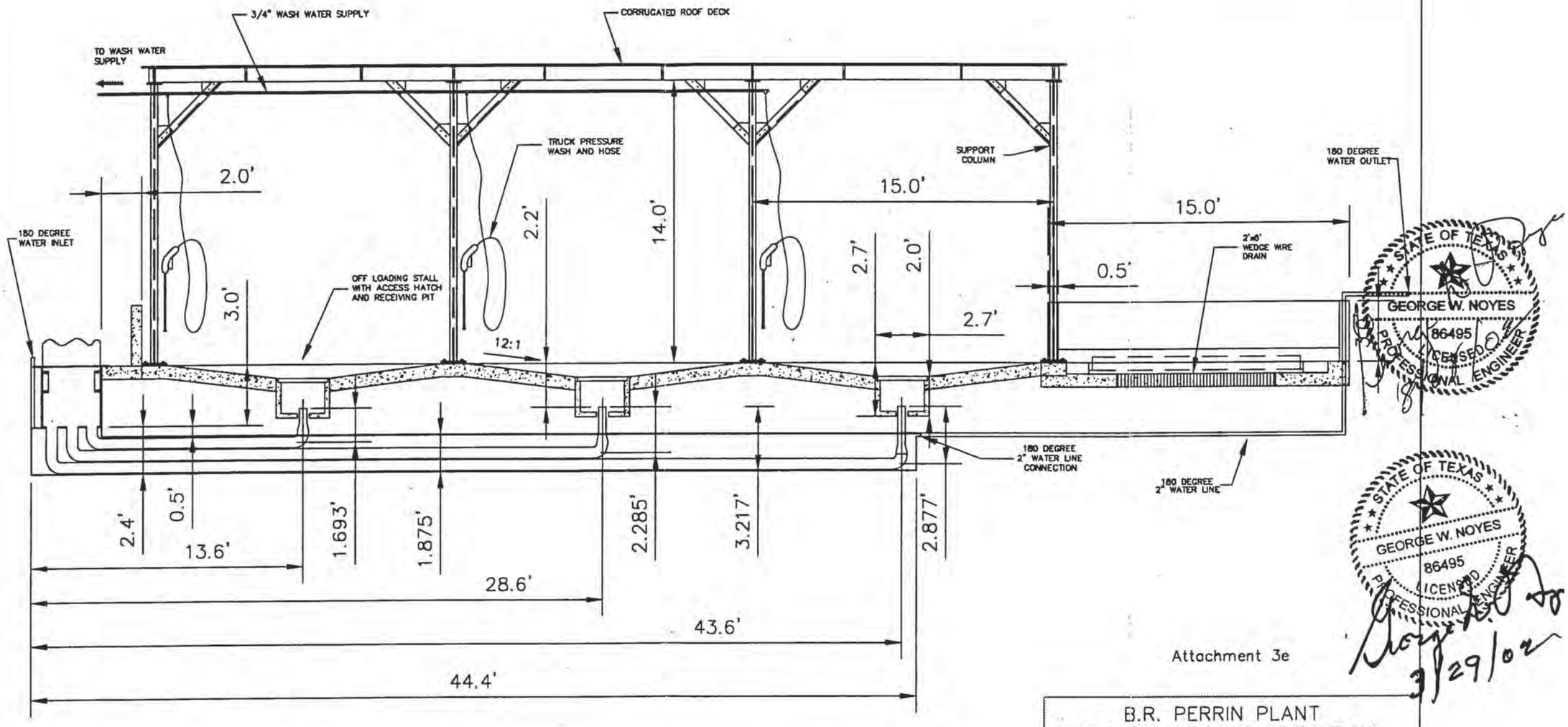
SCALE 1"=40'-0"

B.R. PERRIN PLANT
SITE PLOT & UTILITIES
3737 WALNUT BEND, HOUSTON TX 77042
DOWNSTREAM ENVIRONMENTAL

NO.	REVISION	DATE
-	-	-

SCALE: AS NOTED | DRAWN BY: DGN
DATE: FEB 02 | REVISED:
DRAWING NUMBER: DE102



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Attachment 3e

3/29/02

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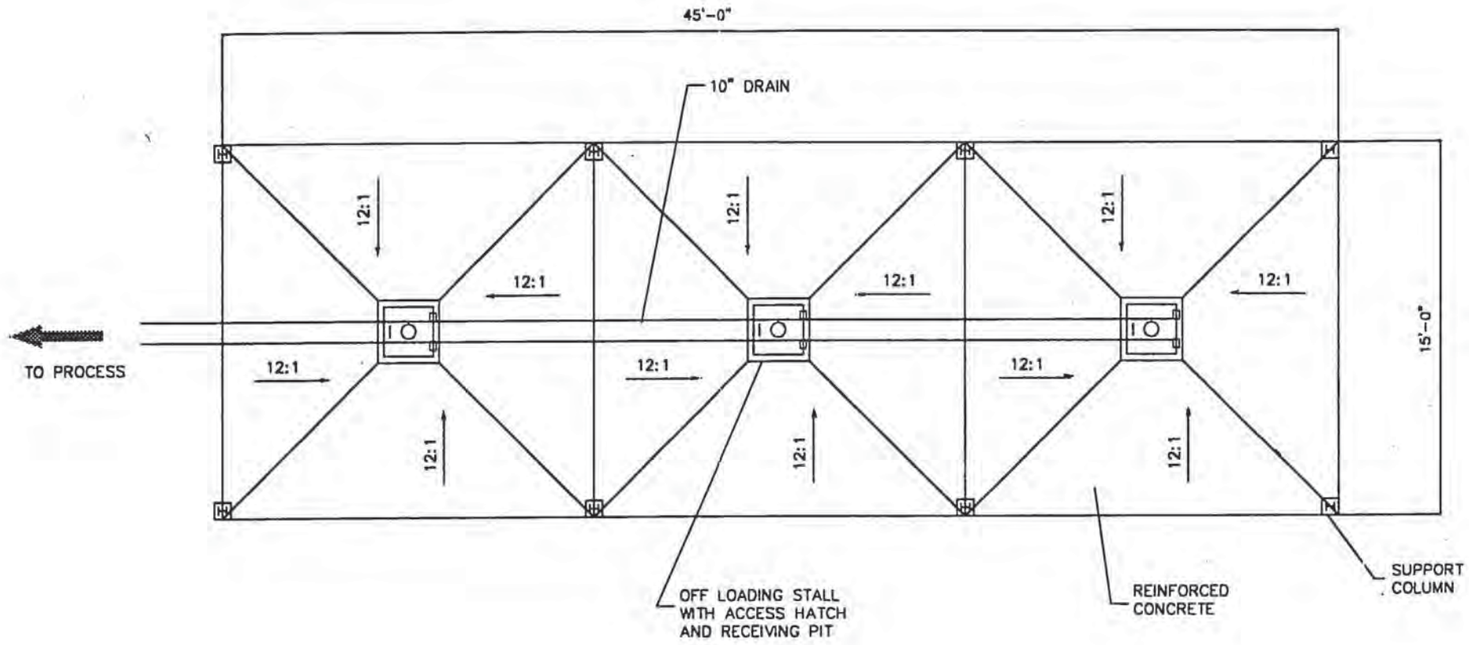
No.	REVISION	DATE

B.R. PERRIN PLANT
UNLOADING STALLS–ELEVATION
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL

SCALE: none	DRAWN BY: DGN
DATE: JAN02	REVISED:
	DRAWING NUMBER: DE–B10



PLAN

SCALE 1/4"=1'-0"

SCALER IN FEET

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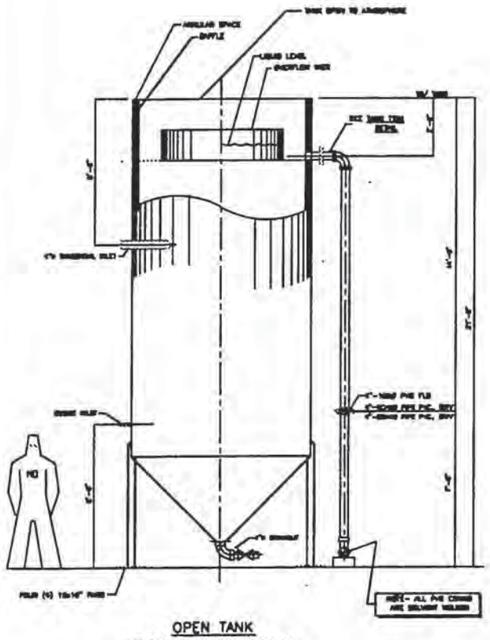
Attachment 3f

No.	REVISION	DATE

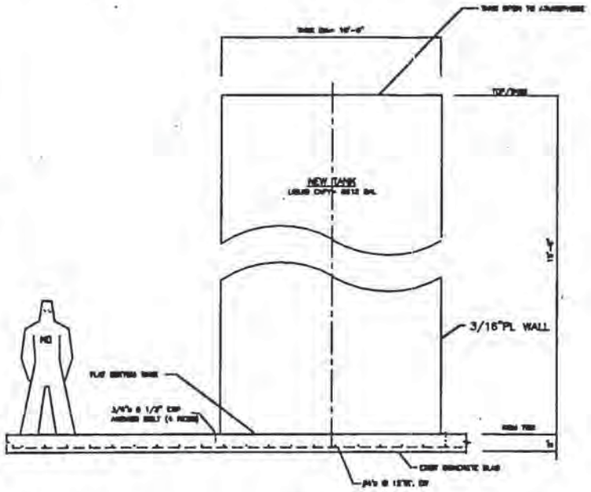
B.R. PERRIN PLANT
SITE LAYOUT
3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, L.L.C.

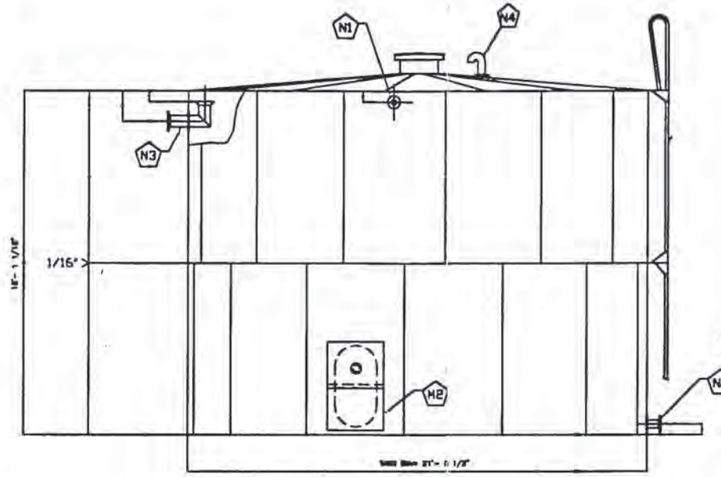
SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE-B11



OPEN TANK
TREATED WATER/OZONE
CONTACT TANK
N.T.S

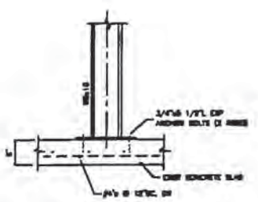


OPEN TANK
DMR TANKS #1 & #2
N.T.S.

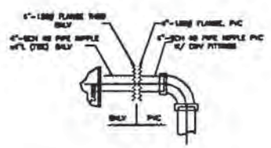


CLOSED TANK w/VENT
INLET STORAGE TANK
N.T.S.

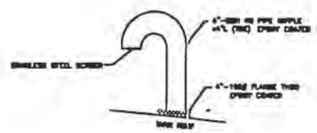
NOZZLE	ORIENTATION	ELEVATION	SIZE	DESCRIPTION
N1		187 1/16"	3"ø	INLET
N2		6"	4"ø	OULET
N3		176 1/16"	6"ø	O-FLO
N4		196 1/16"	4"ø	SCREENED VENT
H2		SHELL	24"x 46"	CLEAN-OUT



FOUNDATION DETAIL
TREATED WATER/OZONE
CONTACT TANK
NTS
(TYP/4 LEGS)



TANK DETAIL
NTS



VENT DETAIL
INLET STORAGE TANK
N.T.S.

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Attachment 3g

REV.	DATE	DESCRIPTION	DRAWN BY	APPR'D.
0				
1				

B.R. PERRIN PLANT

DOWNSTREAM ENVIRONMENTAL, L.L.C.
MECHANICAL
MISC SECTIONS & DETAILS
3737 WALNUT BEND,
HOUSTON TEXAS 77042

HOUSTON, TEXAS

DATE: FORM | SCALE: NOTED | DRAWING NUMBER: DE 011 | REV: -

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GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER

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GEORGE W. NOYES
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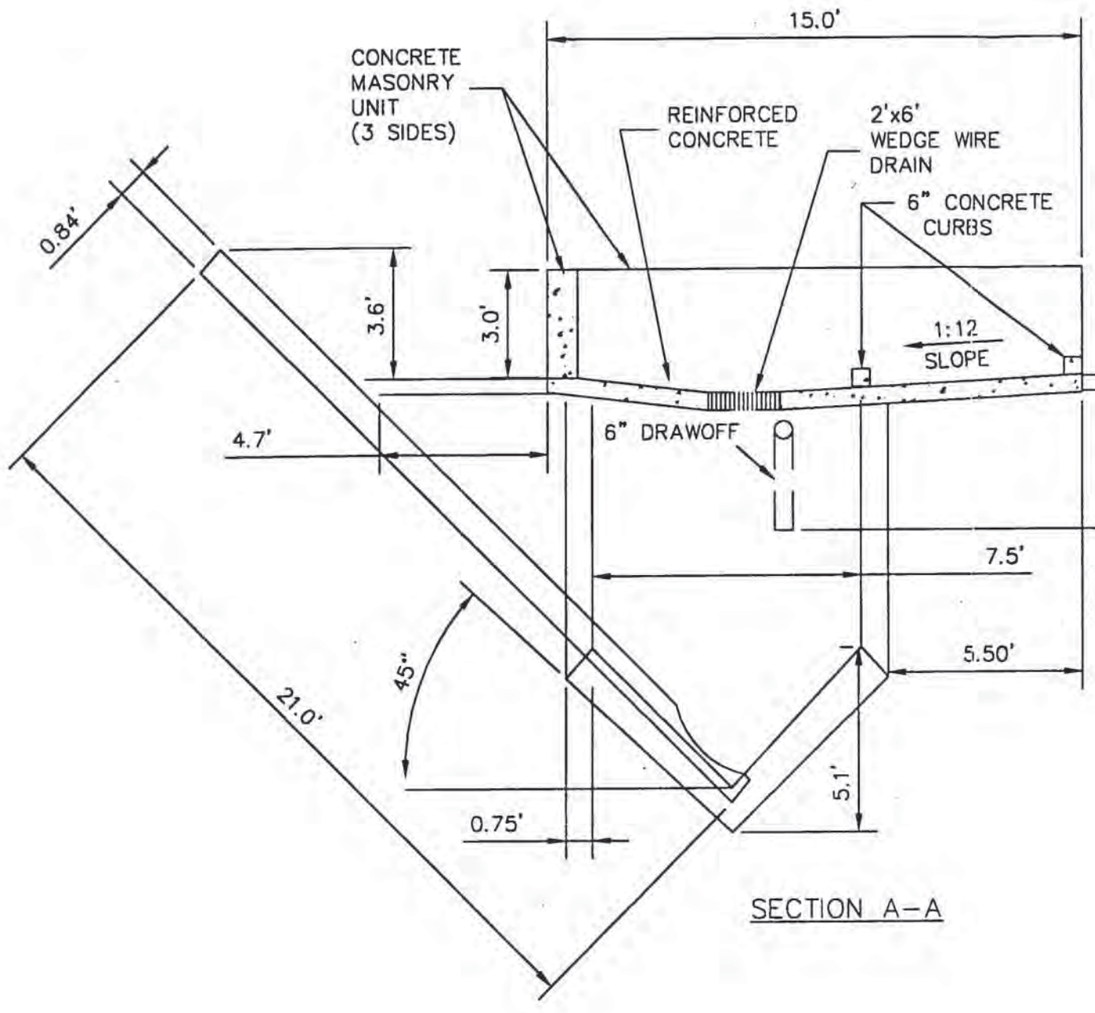
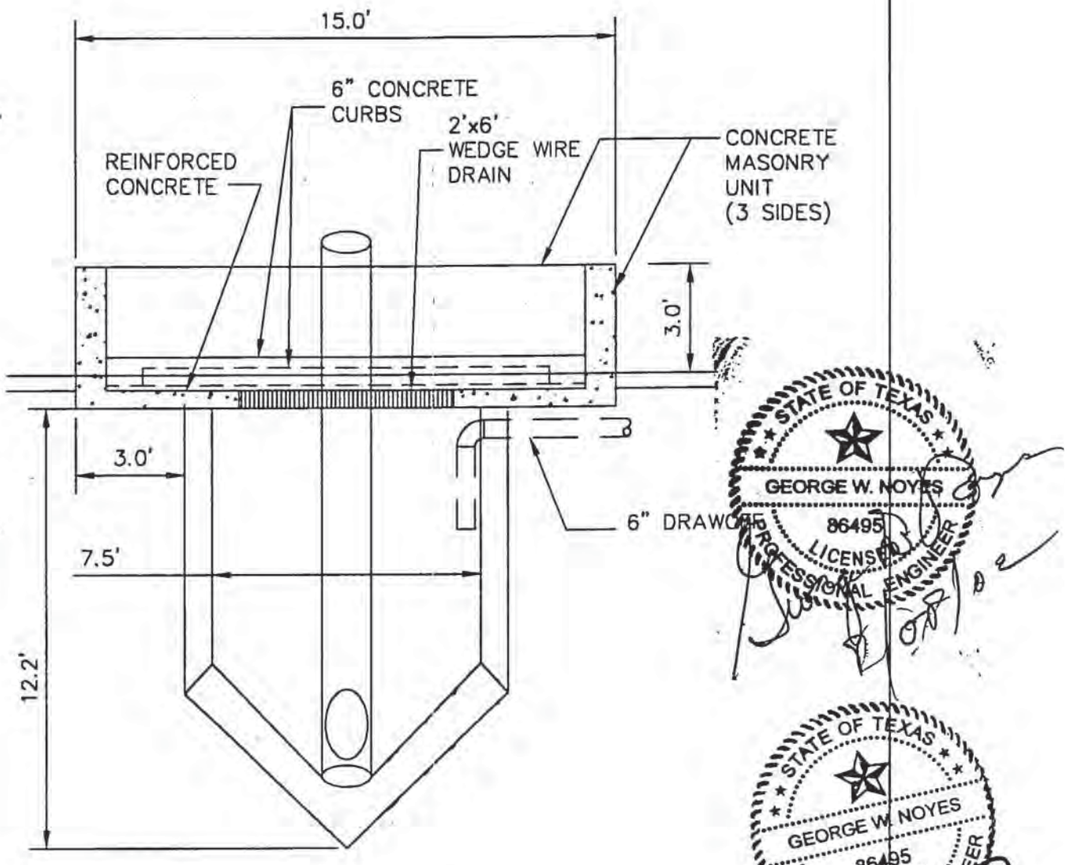
00133



SECTION A–A



SECTION B–B

Attachment 3h

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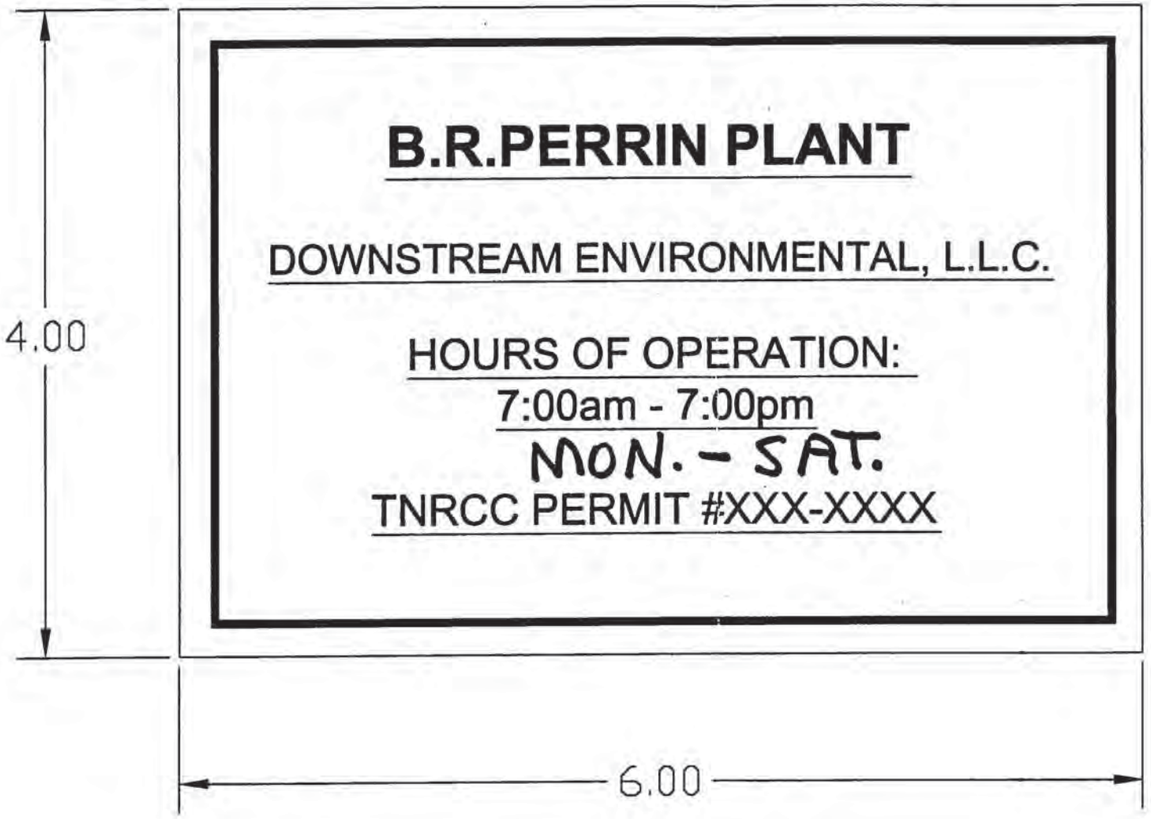
REV.	DESCRIPTION	DATE

GRIT UNLOADING BASIN
SECTIONS

3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE211–01



Lettering is to be
4" Minimum

Attachment 3i

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B.R.PERRIN PLANT SIGN 3737 WALNUT BEND, HOUSTON, TEXAS 77042	
DOWNSTREAM ENVIRONMENTAL, L.L.C.	
SCALE: NONE	DRAWN BY: DGN
DATE: FEB02	REVISED:
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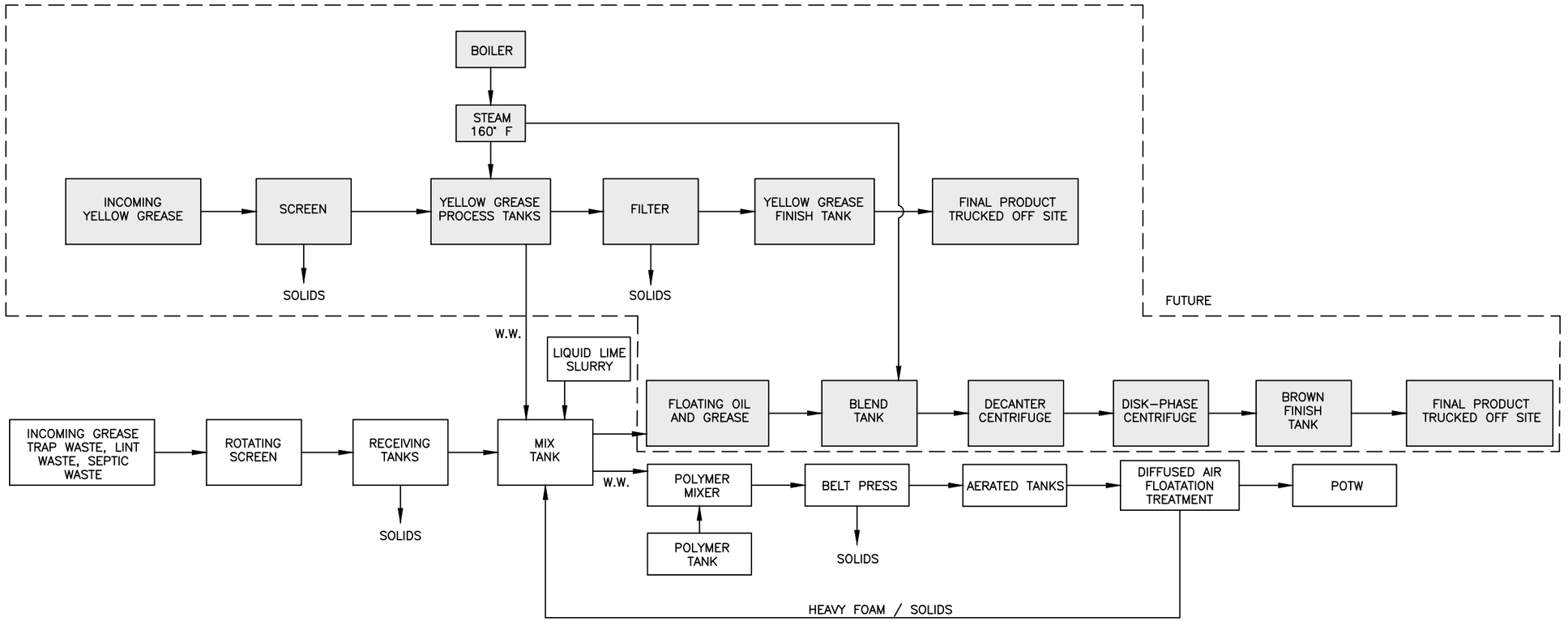
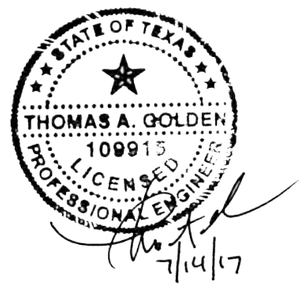


Explanation

= FUTURE PROCESS



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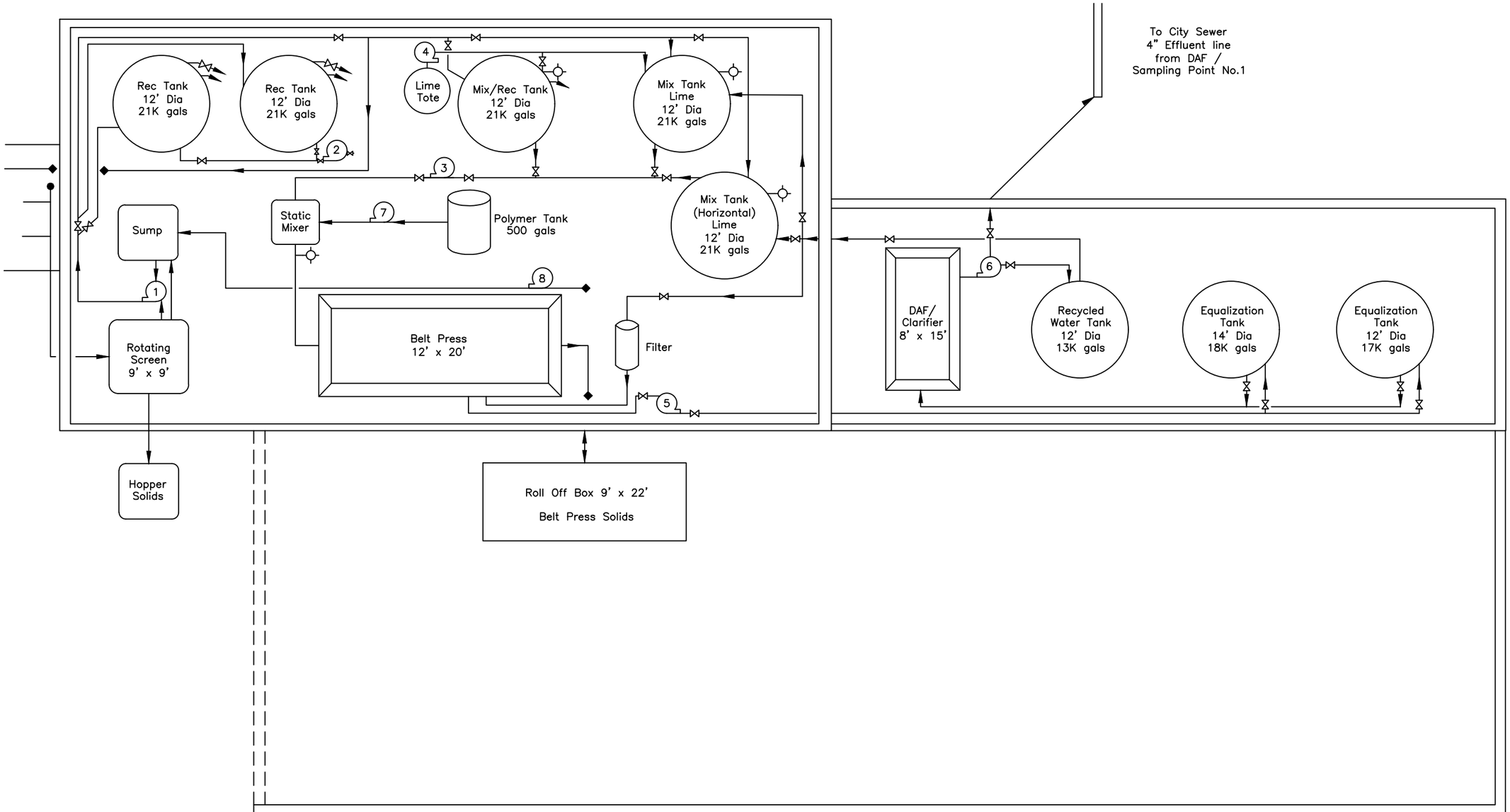
DOWNSTREAM ENVIRONMENTAL, LLC
B.R. PERRIN PLANT

Process Flow Diagram

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geoscience Firm No. 50045
7/6/2017

Attachment 4

\\ss6abq\Data$\Projects\TX16.0165_SouthWaste_Downstream\CAD\SW_Downstream_Flow Diagrams.dwg



Explanation

PUMPS:

1. Rotary Screen Pump
2. Mix Tank Pump
3. Sludge Transfer Pump
4. Lime Slurry Pump
5. Press Discharge Pump
6. DAF Pump
7. Polymer Pump
8. Stormwater/Spill Transfer Pump

PH TAP:

1. Mix/Rec Tank Sample Tap
2. Mix Tank Lime Sample Tap
3. Polymer Mixer Sample Tap

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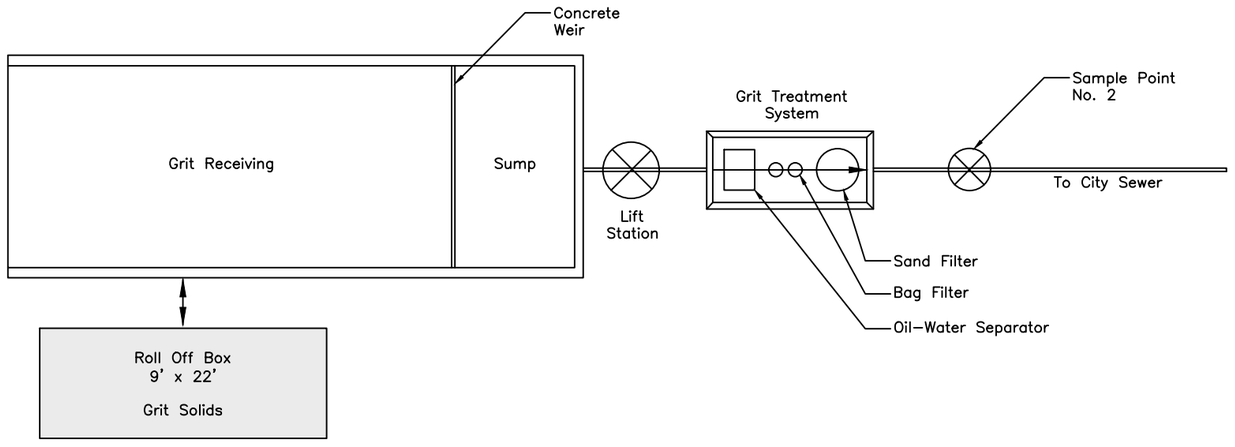
Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geoscience Firm No. 50045
7/6/2017

DOWNSTREAM ENVIRONMENTAL, LLC
B.R. PERRIN PLANT

Treatment Process Schematic - FOG, Lint, and Septic

Attachment 5-1

\\ss6abq\Data5\Projects\TX16.0165_SouthWaste_Downstream\CAD\SW_Downstream_Flow Diagrams.dwg



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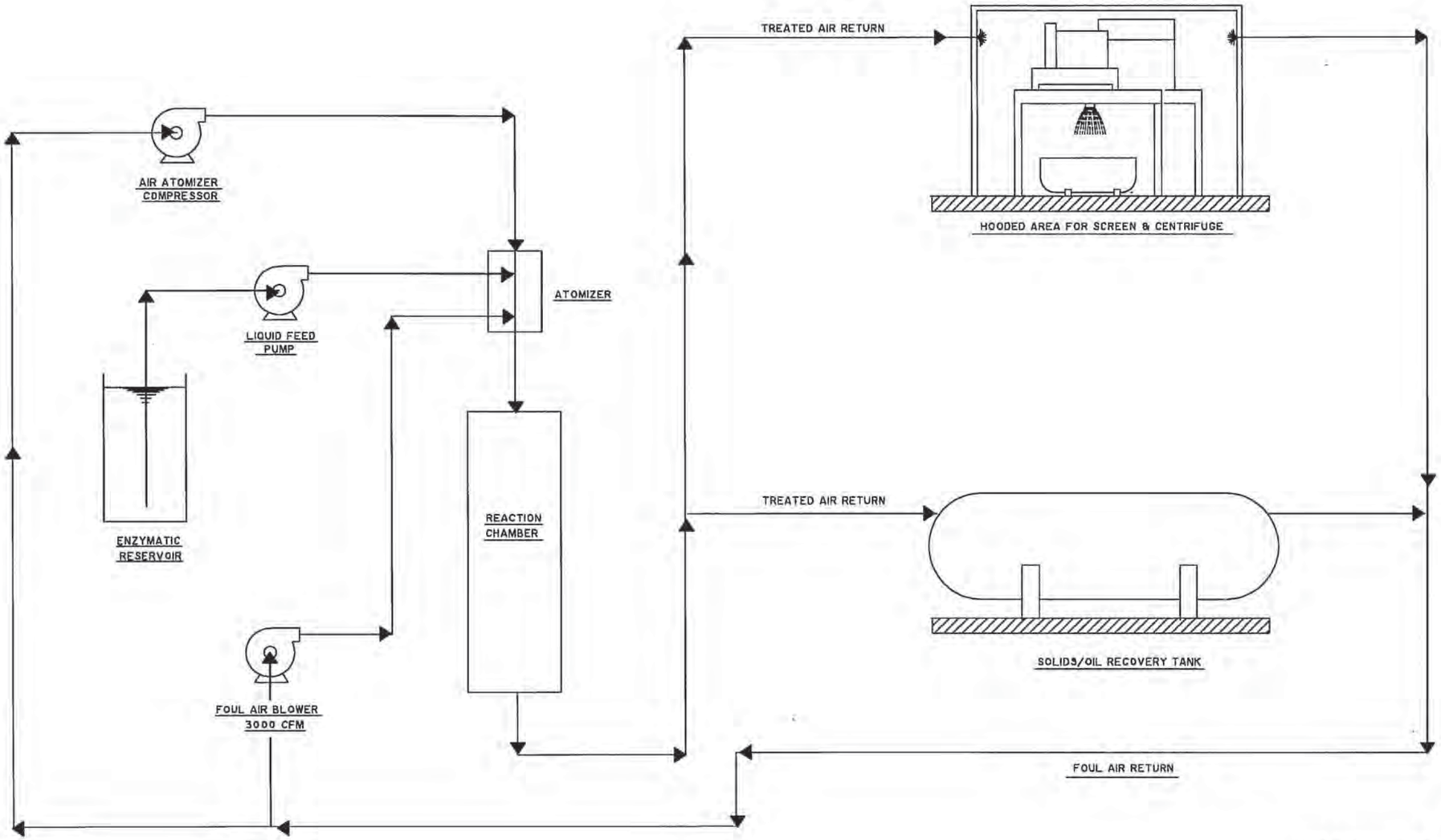
DOWNSTREAM ENVIRONMENTAL, LLC
B.R. PERRIN PLANT

Treatment Process Schematic - Grit

Daniel B. Stephens & Associates, Inc.
Texas Registered Engineering Firm F-286
Texas Registered Geoscience Firm No. 50045
7/6/2017

Attachment 5-2

\\ss6abq\Data5\Projects\TX16.0165_SouthWaste_Downstream\CAD\SW_Downstream_Flow Diagrams.dwg



Attachment 6a

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No.	REVISION	DATE

B.R. PERRIN PLANT
PRIMARY ODOR CONTROL
3737 WALNUT BEND, HOUSTON, TX

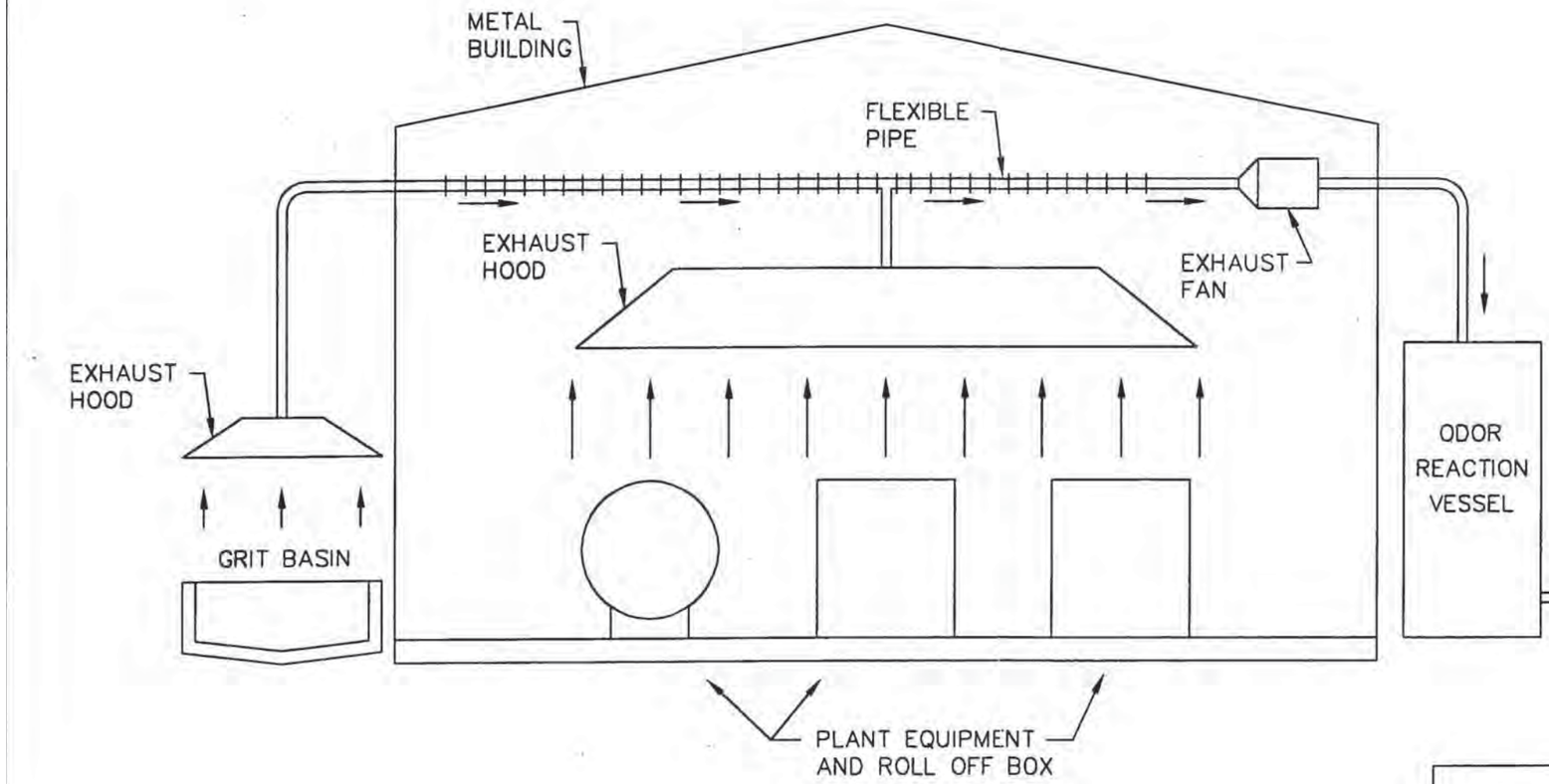
DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: NOT TO SCALE	DRAWN BY: DGN
DATE: FEB02	REVISED:

DRAWING NUMBER: DE 007

STATE OF TEXAS
GEORGE W. HOYES
86195
LICENSED PROFESSIONAL ENGINEER

00138



Attachment 6b

B.R. PERRIN PLANT
ODOR CONTROL SYSTEM
SECTION

3737 WALNUT BEND, HOUSTON TX 77042

DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:

DRAWING NUMBER: GS-A7

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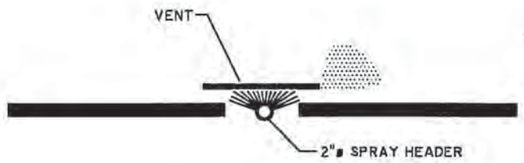
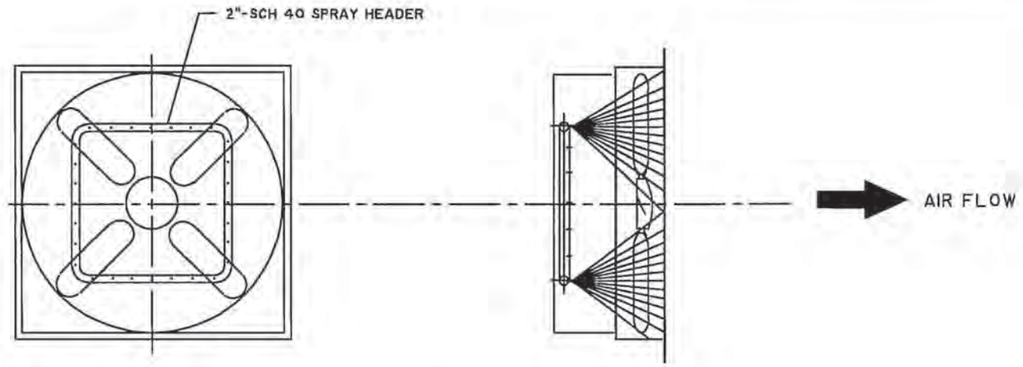
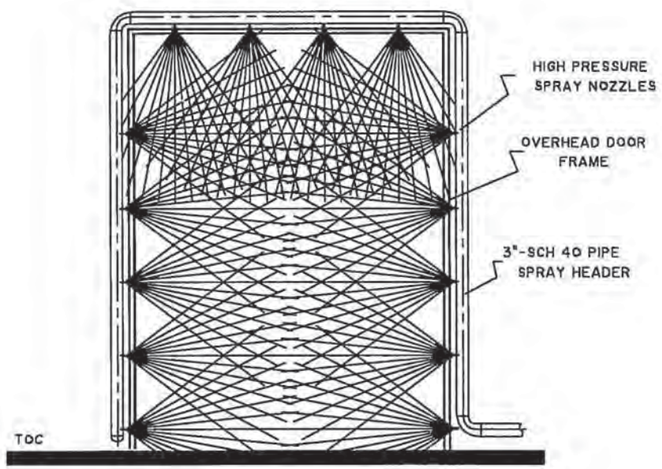


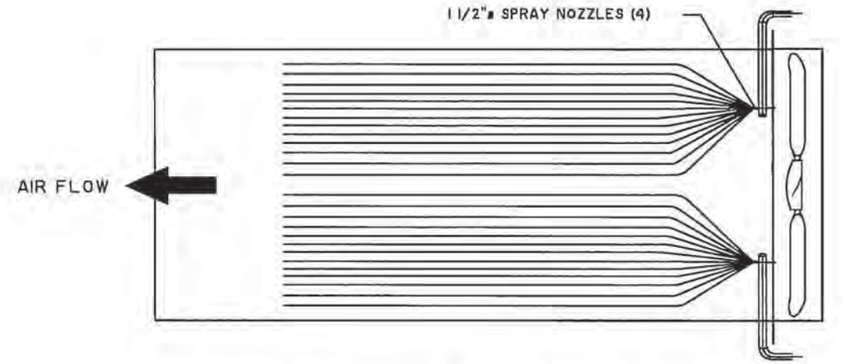
ROOF RIDGE VENT



12000 CFM
EXHAUST FAN



OVERHEAD DOOR



INTERNAL RECIRCULATION FAN
WITH PLENUM

Attachment 6c

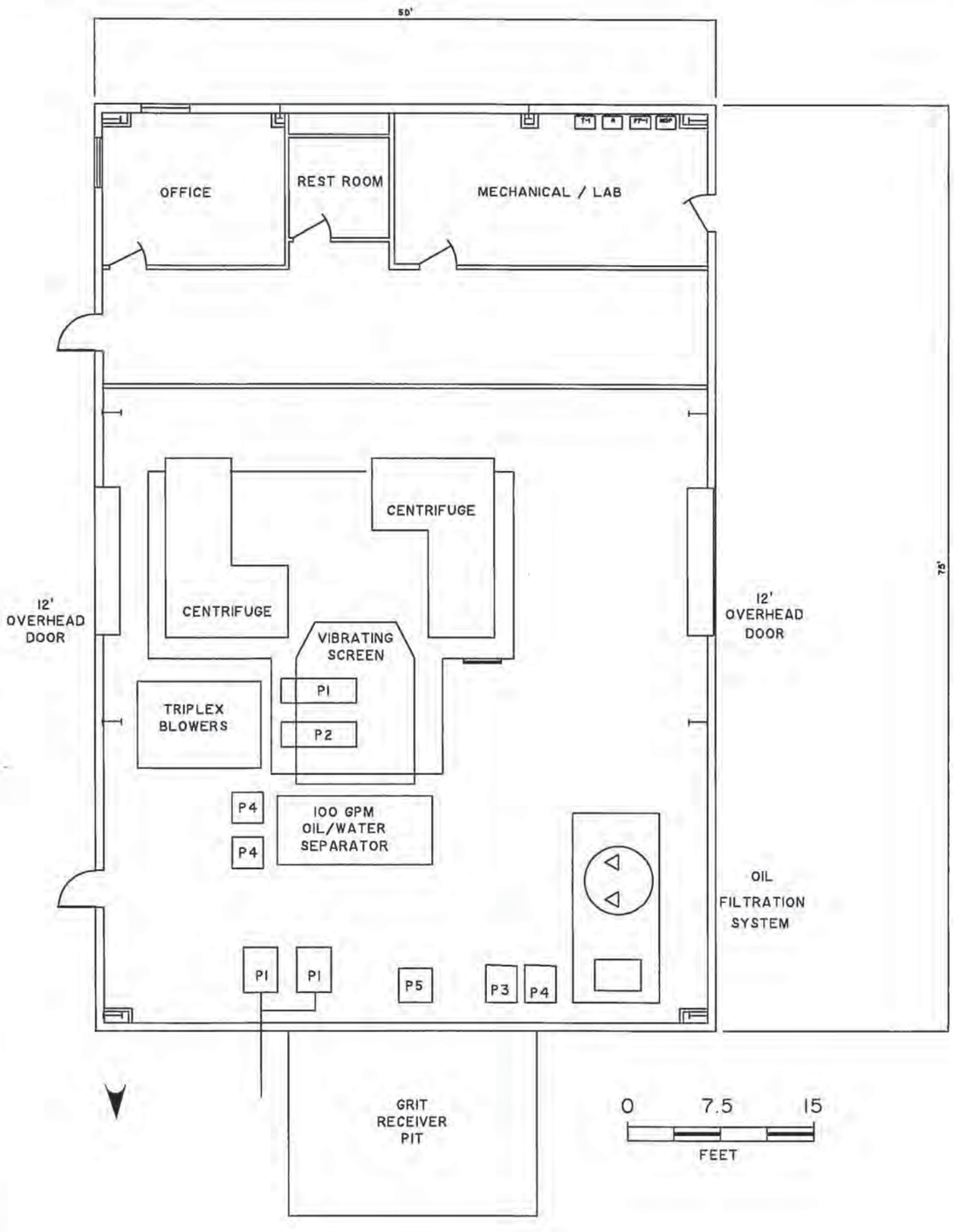
This Document is Sealed
for Permit Purposes Only

REV	DESCRIPTION	DATE

B.R. PERRIN PLANT
BUILDING ODOR CONTROL
3737 WALNUT BEND, HOUSTON TX

DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: NOT TO SCALE	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE 009



PUMP SCHEDULE

P1 &P2 CENTRIFUGE-FEED PROGRESSIVE CAVITY, 125 GPM

P3&P4 BIO-REACTOR FEED CENTRIFUGAL, 125 GPM @ 50' TDH

P5 GRIT RECEIVER DRAIN 30 GPM

" " ROPE TYPE SKIMMER, 12 GPM

SLAB ELEV. = 81.00'

PLATFORM ELEV = 11'-0"

BUILDING HEIGHT = 20'-0"

ALL PIPING TO BE 3"-SCH40 INLUSLATED

NORTH

Attachment 8

STATE OF TEXAS
GEORGE W. NOYES
86455
LICENSED
PROFESSIONAL ENGINEER

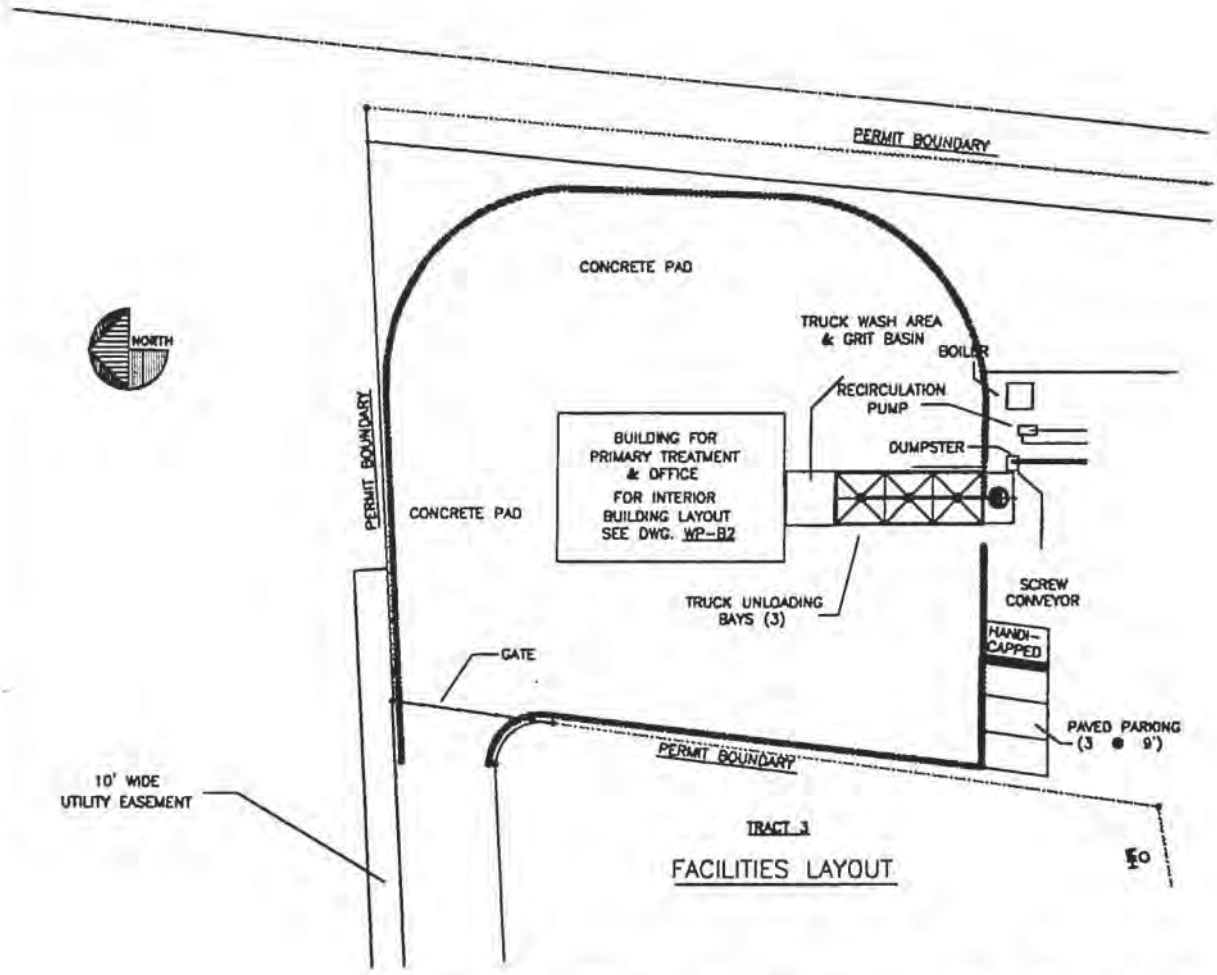
This Document is Sealed for Permit Purposes Only

NO	REVISION	DATE
-	-	-
1	ADD SCALE	JUL02

B.R. PERRIN PLANT
BUILDING LAYOUT
3737 WALNUT BEND, HOUSTON TEXAS 77042
DOWNSTREAM ENVIRONMENTAL, L.L.C.

SCALE: as noted	DRAWN BY: DBN
DATE: FEB02	REVISED: JUL02
	DRAWING NUMBER: WP-B2 , Rev.1

000141
A



This Document is Sealed for Permit Purposes Only

0 50 100
SCALER, IN FEET

55' RIG MINIMUM TURNING RADIUS

NOTE-ALL ROADWAYS IN THIS AREA ARE BASED ON THE ABOVE

NO.	REVISION	DATE
-	-	-

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED PROFESSIONAL ENGINEER

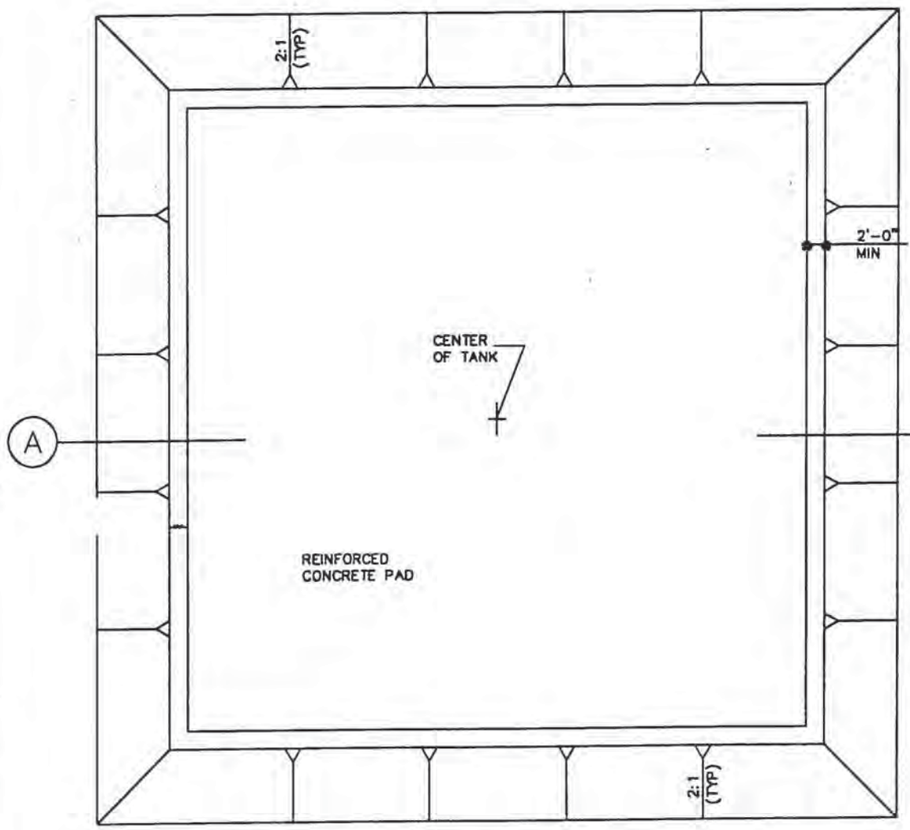
3/29/02

B.R. PERRIN
TURNING PAD LAYOUT
3737 WALNUT BEND, HOUSTON, TEXAS 77042
DOWNSTREAM ENVIRONMENT, L.L.C.

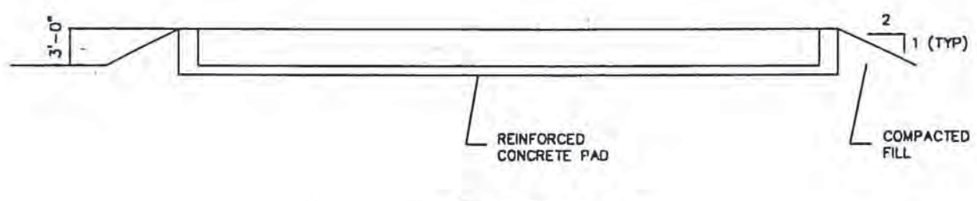
STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED PROFESSIONAL ENGINEER

SCALE: AS NOTED
DRAWN BY: DCN
DATE: FEB02
REVISED:
DRAWING NUMBER: DE107

Attachment 8b

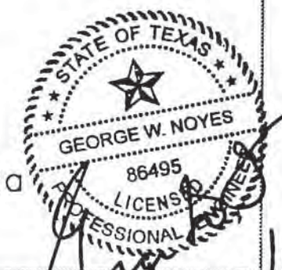


PLAN VIEW



SECTION A-A

Attachment 9a



3/29/10

0 10 20 30 40 50
SCALER, IN FEET

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for Permit Purposes Only

No.	REVISION	DATE

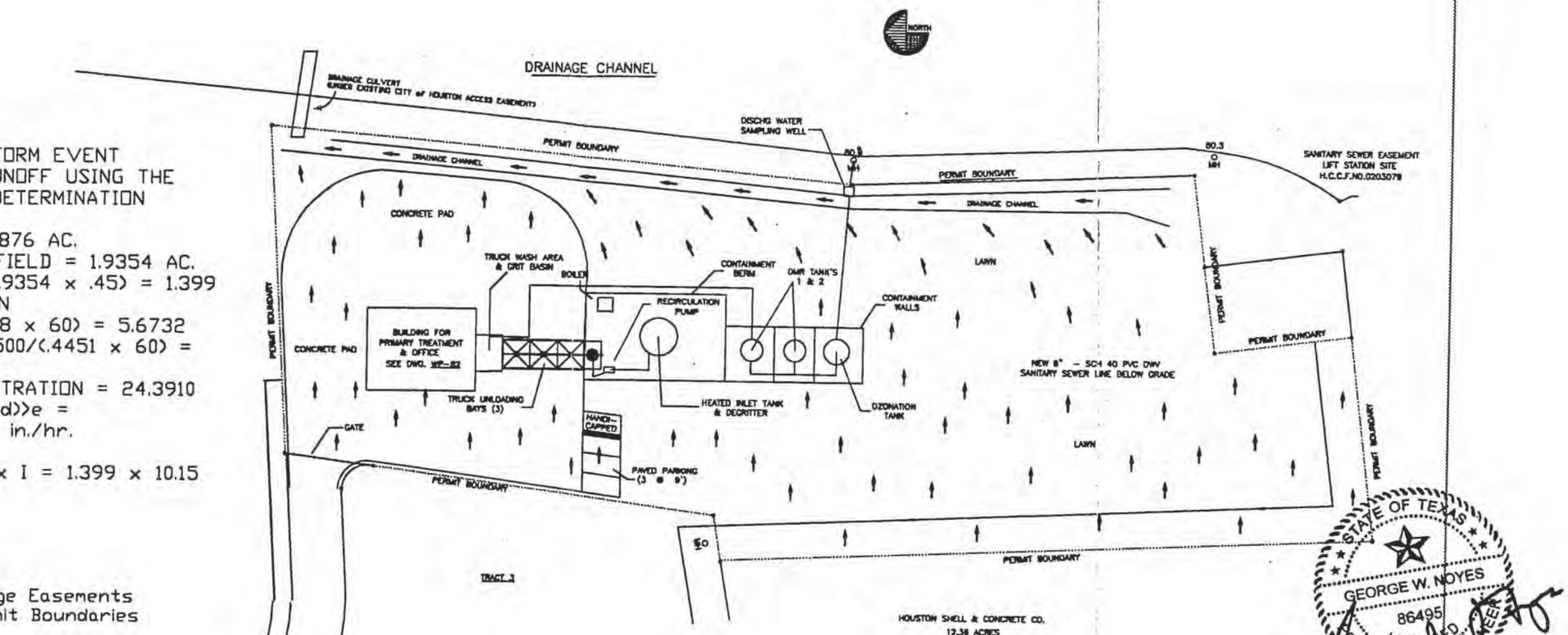
B.R. PERRIN PLANT
SECONDARY CONTAINMENT
STRUCTURE
3737 WALNUT BEND, HOUSTON TX 7704

DOWNSTREAM ENVIRONMENTAL

SCALE: n/a	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE-B6

10 MINUTE, 25 YEAR STORM EVENT
DETERMINE SURFACE RUNOFF USING THE RATIONAL METHOD OF DETERMINATION
(Q = CA x I)
TOTAL SLAB AREA = .5876 AC.
TOTAL GRASS / OPEN FIELD = 1.9354 AC.
CA = (.5876 x .9) + (1.9354 x .45) = 1.399
TIME of CONCENTRATION
SLAB AREA = 180/(.5288 x 60) = 5.6732
GRASSY OPEN AREA = 500/(.4451 x 60) = 18.7266
TOTAL TIME of CONCENTRATION = 24.3910
I(25 yr event) =b/(t+d))e =
81/(10+7.7)).724 = 10.15 in./hr.
THEREFORE;
Q(25 yr event) = CA x I = 1.399 x 10.15 = 14.20 cfs

No Pipeline or Drainage Easements Exist Within the Permit Boundaries



Attachment 13

This Document is Sealed for Permit Purposes Only

NO.	REVISION	DATE
–	–	–

B.R. PERRIN PLANT
DRAINAGE PATTERN
3737 WALNUT BEND, HOUSTON, TX 77042
DOWNSTREAM ENVIRONMENTAL

SCALE: AS NOTED	DRAWN BY: DGN
DATE: FEB02	REVISED:
	DRAWING NUMBER: DE 503

STATE OF TEXAS
GEORGE W. NOYES
86495
LICENSED
PROFESSIONAL ENGINEER
3/29/02

PART III
POST-CLOSURE PLAN
Attachment 13

§330.463 Post-Closure Care Maintenance Requirements.

(a) Post-closure care maintenance requirements for The B.R. Perrin Plant.

(1) For a minimum of the first five years after professional engineer certification of the completion of closure as accepted by the executive director, the owner or operator shall retain the right of entry to and maintain all rights-of-way of a closed MSW management unit in order to conduct periodic inspections of the closed unit. The owner or operator shall correct, as needed, erosion of cover material, lack of vegetative growth, leachate or methane migration, and subsidence or ponding of water on the unit. If any of these problems occur after the end of the five-year post-closure period or persist for longer than the first five years of post-closure care, the owner or operator shall be responsible for their correction until the executive director determines that all problems have been adequately resolved. The executive director may reduce the post-closure period for the unit if all wastes and waste residues have been removed during closure.

(2) Any monitoring programs (ground water monitoring, resistivity surveys, methane monitoring, etc.) in effect during the life of the unit shall be continued during the post-closure care period.

(3) If there is evidence of a release from a municipal solid waste unit, the executive director may require an investigation into the nature and extent of the release and an assessment of measures necessary to correct an impact to groundwater.

§330.465 Completion of Post-Closure Care and Maintenance

(a) Following completion of the post-closure care maintenance period for each municipal solid waste landfill unit, the owner or operator shall submit to the executive director for review and approval a certification, signed by an independent licensed professional engineer, verifying that post-closure care has been completed in accordance with the approved post-closure plan. The submittal to the executive director shall include all applicable documentation necessary for the certification of completion of post-closure care.

(b) Upon completion of the post-closure care period for the final unit at a facility, the owner and operator shall also submit to the executive director a request for voluntary revocation of the facility permit.

PART III
ATTACHMENT 15

Surface Water Protection Plan

The Facility is designed to control rainfall run-on and run-off. Surrounding site topography will minimize the amount of run-on to the site. Perimeter ditches and swales collect and route stormwater around the facility to one of two outfalls located along the eastern fenceline. Where stormwater velocities are the highest, 3- to 6-inch-diameter crushed rock dissipates energy from the stormwater flow before discharging off-site. Stormwater ultimately flows to a tributary to the Brazos Bayou, located approximately 75 feet east of the fenceline, across a shared use path.

Stormwater collection ditches will be periodically inspected, cleaned, and regraded as necessary to maintain unobstructed flow. Outfall structures will be inspected following each rain event. Sediment and other materials trapped at the rock outfall will be removed as necessary. In addition, the outfalls are sampled in accordance with Texas Pollutant Discharge Elimination System (TPDES) permit number WQ0005200000 issued March 8, 2017.

On-site pavement, curbing, and secondary containment dikes mitigate the potential for contact stormwater to be conveyed off-site. However, if contaminated stormwater is detected at an outfall at unacceptable levels, the process will be shut down and the local wastewater authority will be contacted. Waste materials producing contact stormwater will then be collected using either vacuum trucks or other equipment. Depending on the nature of the materials, wastes will either be returned to the on-site receiving tanks or transported off-site to a facility licensed to accept that type of waste. Any equipment and machinery used in the cleanup effort will be washed down on-site using standard operating procedures.

User: Downstream
Project: BRPerrin
SubTitle: 25 Year, 24 Hour, Stormwater Runoff
State: Texas
County: Harris

Date: 10/17/2002
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
3737 Site		Outlet	2.52	87	.406

Total area: 2.52 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
5.0	6.8	8.3	9.6	11.0	12.5	3.75

Storm Data Source: Harris County, TX (NRCS)
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

00150

99c

Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 25-Yr (cfs)
SUBAREAS	
3737 Site	14.08
REACHES	
OUTLET	14.08

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 25-Yr (cfs)	(hr)
SUBAREAS		
3737 Site	14.08	12.26
REACHES		
OUTLET	14.08	

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
3737 Site	2.52	0.406	87	Outlet	

Total Area: 2.52 (ac)

Downstream

BRPerrin
25 Year, 24 Hour, Stormwater Runoff
Harris County, Texas

Sub-Area Time of Concentration Details

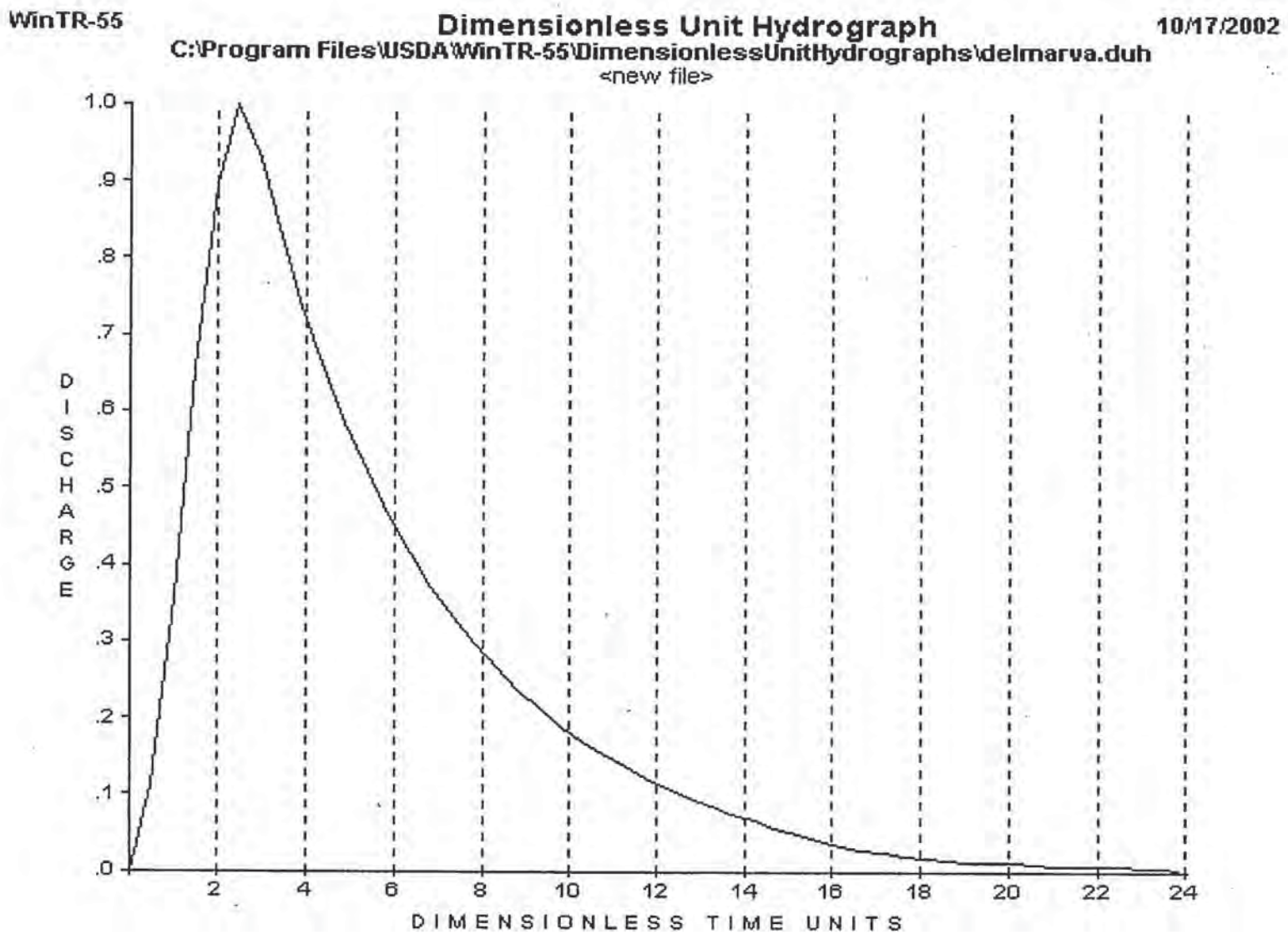
Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
3737 Site							
SHEET	99	0.0032	0.150				0.270
SHALLOW	99	0.0005	5				0.076
SHALLOW	99	0.0005	5				0.060
CHANNEL	200						
						Time of Concentration	.406

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
3737 Site	Open space; grass cover 50% to 75% (fair)	D	1.935	84
	Paved parking lots, roofs, driveways	D	.587	98
	Total Area / Weighted Curve Number		2.52	87

00150b

49c


WinTR-55
Dimensionless Unit Hydrograph
10/17/2002
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1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
.0
DISCHARGE
2
4
6
8
10
12
14
16
18
20
22
24
DIMENSIONLESS TIME UNITS

001 50a

A9c

WinTR-55 Output Hydrograph

Project: BRPerrin
Subarea: (3737 Site) Storm: 25-Yr
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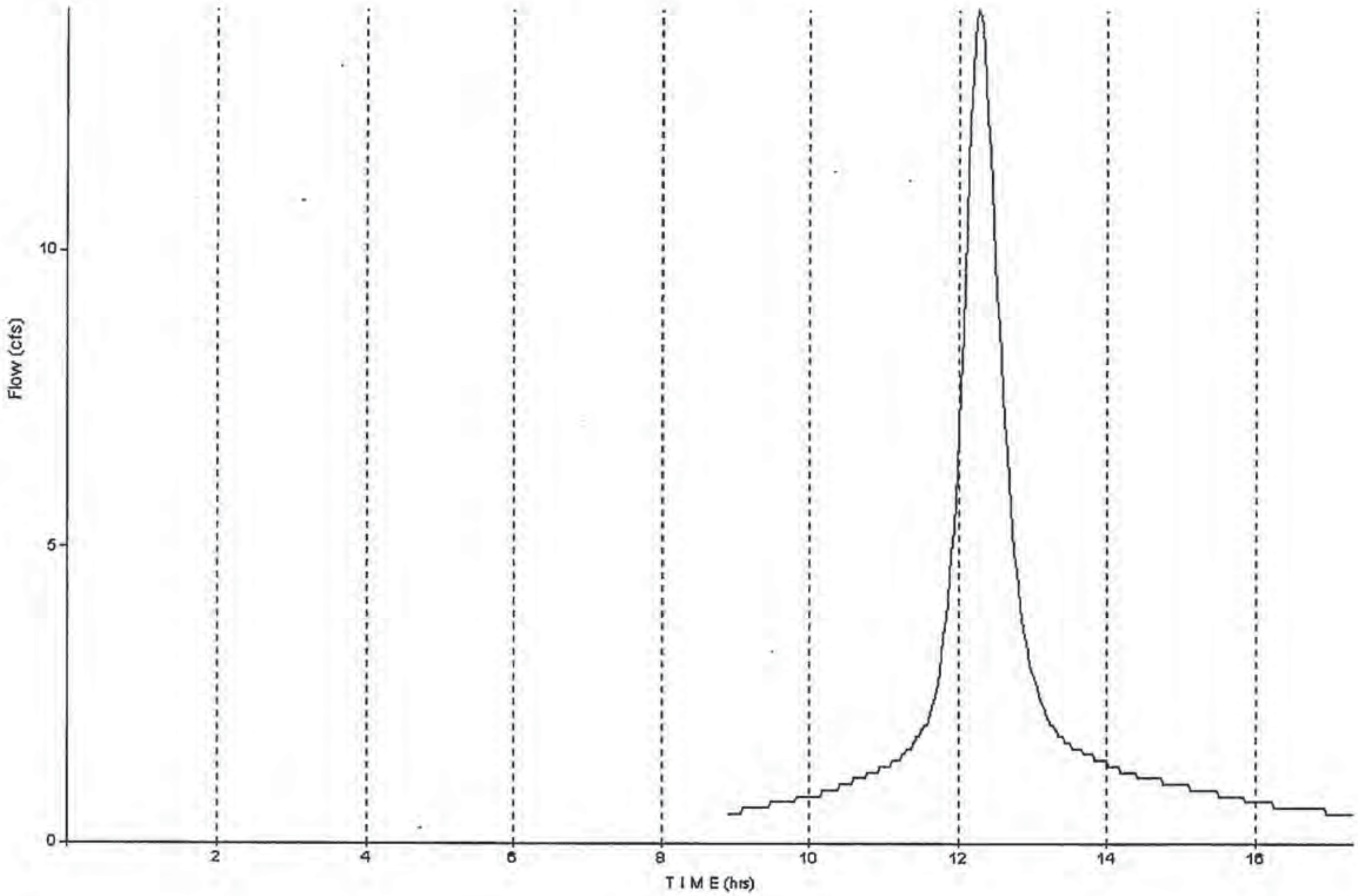
10/17/2002



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Part IV

(Clean Copy)

SITE OPERATING PLAN

Downstream Environmental, LLC
TYPE V MSW PROCESSING FACILITY

B.R. Perrin Plant
3737 Walnut Bend
Houston, TX 77042

TCEQ MSW PERMIT NUMBER MSW 2298
TCEQ REGISTRY NUMBER FOR FACILITY — RN101662617
DOWNSTREAM ENVIRONMENTAL
TCEQ CUSTOMER NUMBER — CN600896872

Original: April 3, 2002
Revised: October 17, 2002
Revised: April 24, 2003
Revised: January 31, 2008
Revised: July 15, 2017

Prepared by:
Downstream Environmental, LLC
16350 Park Ten Place, Suite 215
Houston, TX 77084

PART IV

Chapter (330.57)

TABLE OF CONTENTS
SITE OPERATING PLAN (RE: 330.114)

1.0 INTRODUCTION

This Site Operating Plan is being submitted as a New and Complete Replacement to the Revised Site Operating Plan dated January 31, 2008.

The Site Operating Plan (SOP) contains information about how Downstream Environmental, LLC will conduct operations at their Municipal Solid Waste (MSW) Type V GG Solid Waste Facility, but is not intended to be a comprehensive operating manual. This SOP has been produced using a format developed by TCEQ and represents the general instruction for facility management and personnel to operate the facility in a manner consistent with the approved design and the TCEQ rules to protect human health and the environment and prevent nuisances.

The SOP is Part IV of the MSW permit application and consists of the information required by Title 30, Texas Administrative Code (TAC), Chapter 330, Subchapter E: Operational Standards for Municipal Solid Waste Storage and Processing Units, 30 TAC §330.201-1330.249. At a minimum, the SOP must include provisions for facility management and operating personnel to meet the general and site-specific requirements of these rules.

Facility Name: DOWNSTREAM ENVIRONMENTAL, LLC
TCEQ MSW Permit Number: MSW 2298
Facility Address: 3737 Walnut Bend
Houston, Texas 77042
RN Number: RN101662617
CN Number: CN600896872
Date: July 15, 2017

Each section is divided by rule citation. Facility personnel are documented in Table 1 of Section 2.1.5. Inspection forms are provided in Table 2 of Section 2.1.5.

2.0 WASTE ACCEPTANCE, DISPOSAL, ANALYSIS AND MANAGEMENT (§330.203, §330.205, AND §330.207)

This section describes the procedures followed at the facility for waste acceptance, disposal, and evaluation.

2.1 §330.203 - Waste Acceptance and Analysis

2.1.1 Authorized Wastes

The Type V GG facility will receive the following wastes for storage and processing (where applicable):

Table 1
Commercial and industrial municipal solid waste

Waste Stream	Source	Characteristic	Est. GPD	Max. Storage Time	Processing Time	Intended Destination
Grease trap	Restaurants	Water, solids, FOG	27,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/Coil Sanitary Sewer
Grit trap	Car washes	Water & solids	10,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Lint Trap	Laundromats	Water & solids	1,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/Coil Sanitary Sewer
Septic tank pumpings	Homes	Water & solids	10,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/Coil Sanitary Sewer
Domestic septage	Homes	Water & solids	10,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Chemical toilet waste	Portapottys	Water & solids	3,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Municipal wastewater treatment plant sludge	POTW & PUD	Water & solids	1,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Domestic sewage treatment plant sludge	POTW & PUD	Water & solids	1,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Water-supply treatment plant sludge	City Water Plant	Water & solids	1,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer
Non-hazardous industrial liquid waste	Industrial Wash water	Water & solids	5,000	<48 hrs.	<12 hrs.	Solids/Landfill Liquids/CoH Sanitary Sewer

In accordance with 30 TAC §330.203(c)(1) and 30 TAC §330.203(c)(2), no incoming wastes are analyzed at our facility. *Methods for sampling and analysis of the effluent will be conducted in accordance with U.S. Environmental Protection Agency (EPA) Methods, and will meet the requirements specified in 30 TAC §330.203(c)(1)&(2). Records for sampling of effluent will be maintained for a minimum of three years.* Effluent discharged from processing areas are sampled and analyzed by the City of Houston's Industrial Wastewater Operations in accordance with the City of Houston's Industrial Waste Ordinance Chapter 47; Article V. **See**: **Exhibit No. 2 attached**.

2.1.2 Receipt of Industrial Wastes

Class 1 industrial solid wastes are not accepted at the facility.

2.1.3 Receipt of Special Wastes

No Special Wastes (per §330.3) are accepted at the facility without specific approval of TCEQ.

2.1.4 Prohibited Wastes

Wastes authorized above shall not contain:
Regulated Hazardous Waste; andPolychlorinated Biphenyl (PCB) Waste.

2.1.5 Measures for Controlling Prohibited Wastes — *Table 1— Personnel Types and Descriptions*

Procedures to detect and control the receipt of prohibited wastes include:

1. *Please be advised that* the facility *shall maintain an MSW Supervisor Occupational License, Grade B or above, for Type V Storage and Processing Facility.*
2. Informing facility customers of prohibited wastes by posting one or more signs at the facility entrance listing prohibited wastes.
3. Periodically providing customers with a written list of prohibited wastes.
4. Facility personnel training and activities:

Table 2 Personnel Types and Descriptions

Position	Number	Training	Responsibilities
Lead *Plant Manager* Operator/Facility Supervisor	1	*The facility shall maintain an MSW Supervisor Occupational License, Grade B (or above).*	Managing daily work operations; equipment maintenance and repair; personnel safety.
Waste Unloading Attendant	1	6 months minimum experience in operations or on the job training by supervisor or by manager in SOP requirements for prohibited waste	Responsible for screening for prohibited or unauthorized waste.
Gate Attendant	1	Training by supervisor or manager in the SOP, record keeping requirements, and waste screening	Levies fees on customers, operates the scale, keeps appropriate records, controls facility access, screens for unauthorized waste, and provides general customer direction and information.
Litter Control	1	Internal safety and personal protective equipment	Picks up wind blown litter as directed.

More detailed job descriptions along with written descriptions of the type and amount of introductory and continued training provided to each employee will be maintained in the facility operating record.

- Training for appropriate facility personnel responsible for inspecting or observing incoming loads to recognize regulated hazardous waste and PCB waste;

- Maintaining records of incoming load inspections (as specified above);

- Notification of the executive director of any incident involving a regulated hazardous waste or a PCB waste; and

- Screening to prevent receipt of regulated hazardous wastes or PCB wastes at the facility.

Facility personnel will be trained to inspect vehicles and identify items that may contain prohibited wastes. At a minimum, the gatehouse attendant and equipment operators will be trained in inspection procedures for prohibited waste. The personnel will be trained on an on-the-job basis by their supervisors. Records of employee training on prohibited waste control procedures will be maintained in the facility operating record. The personnel will be trained to look for the following indications of prohibited waste:

- Yellow hazardous waste or PCB labels
- DOT hazard placards or markings
- Liquid wastes
- 55-gallon drums
- 85-gallon over pack drums
- Powders or dusts
- Odors or chemical fumes
- Bright or unusual colored wastes
- Sludges

If facility personnel identify any of the above indications with an incoming load, then that load will be directed to an area out of the flow of traffic, and the personnel will further assess the load. If the load is determined to contain prohibited waste the load will be rejected and directed back to the generator. All gate/scale attendants will be diligent in looking for trucks bringing in waste loads from potential sources of prohibited waste such as industrial facilities, microchip and computer manufacturers, metal plating industry, automotive and vehicle repair service companies, and dry cleaning establishments.

The facility may receive up to 150,000 gallons of waste daily. No waste will be stored onsite for greater than 48 hours prior to processing.

Facility Inspections and Maintenance

Table 2 outlines the facility inspection and maintenance list of the facility. The facility supervisor or a designee will perform the task. The inspection documentation will be retained in the operating record.

Table 3 - Facility Inspection and Maintenance List

ITEM	TASK	Frequency
Fence/Gates	Inspect perimeter fence and gates for damage. Make repairs if necessary.	Weekly
Windblown Waste	Police working area, wind fences, access roads, entrance areas, and perimeter fence for loose trash. Clean up as necessary.	Daily as specified in Section 4.5.
Waste Spilled on Route to the Facility-	Police the entrance areas and all roads at least 2 miles from the facility entrances for loose trash. Clean up as necessary.	Daily as specified in Section 4.8.
Facility Access Road	Inspect facility access road for damage from vehicle traffic, erosion, or excessive mud accumulation. Maintain as needed with crushed rock or stone. Grading equipment will be used at least once per week to control or remove mud accumulations on roads as well as minimize depressions, ruts, and potholes.	Daily — more often during wet weather or extended dry weather periods.
Facility Signs	Inspect all facility signs for damage, general location, and accuracy of posted information.	Weekly
Odor	Inspect the perimeter of the facility to access the performance of facility operations to control odor.	Daily
Perimeter Channels/Ponds	Inspect perimeter channels and detention ponds to verify that they are functioning as designed (e.g., excess sediment removed, outlet structures intact).	Weekly and within 72-hours of a rainfall event of 0.5 inches or more.

2.2 §330.205 - Facility-Generated Wastes

The facility currently does not operate any lagoons, open top storage tanks, open vessels, and/or underground storage units as a means of storing contaminated liquid. In accordance with 30 TAC §330.205(a), Downstream ensures that all wastes leaving the facility are adequately managed at the volumes and concentrations estimated in the facility design. All solids and oils are transported to permitted landfill for disposal or recycled as appropriate in accordance with all regulations. All residual liquids are discharged into the City of Houston's sanitary sewer in accordance with City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.205(d), Downstream ensures that their facility is operated in a manner that all sludge produced by the facility will pass the USEPA paint and filter liquids test method 9095, as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (USEPA Publication SW-846, September, 1986). The facility is designed to be operated to produce a sludge that is acceptable at any municipal solid waste landfill, and does not

exceed the standards established for benzene, lead and TPH. See: Table 1 of Section 2.2. Any sludge exceeding these limits will be returned to Downstream's facility for further processing.

Table 4

Contaminant	Total Limit	TCLP Limit
Benzene	10 milligrams per kilogram (mg/kg)	0.5 milligrams per liter (mg/L)
Lead	30 mg/kg	1.5 mg/L
Total petroleum hydrocarbons (TPH)	1,500 mg/kg	not applicable

2.3 §330.207 - Contaminated Water Management

Sanitary wastewaters are generated at the facility. Rainwater contact with municipal solid waste is currently minimized at the facility by temporarily halting facility operations during heavy rain. A building covering the offload facility has been completed. Rainwater that contacts waste at the offload facility is captured by a concrete slab area and inlets that drain via pipes to the facility's treatment process. Downstream captures and treats rainwater that comes in contact with waste being processed.

In accordance with 30 TAC §330.207(a), Downstream's facility captures and processes rainwater mixed with municipal solid waste and the effluent is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(d), Downstream's contaminated water, including rainwater mixed with municipal solid waste, is not discharged into a septic system. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(e), Downstream does not discharge contaminated water off-site. All facility generated wastewater is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(f), Downstream does not discharge contaminated water off-site. All facility generated wastewater is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(g), Downstream does not discharge any contaminated water to a treatment facility. All facility generated wastewater is discharged into the City of

Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(h), Downstream does not discharge contaminated water off-site. All facility generated wastewater is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

In accordance with 30 TAC §330.207(g), Downstream does not discharge contaminated water off-site. All facility generated wastewater is discharged into the City of Houston's sanitary sewer. See: City of Houston Industrial Waste Ordinance Chapter 47; Article V, attached as Exhibit No. 2.

3.0 STORAGE REQUIREMENTS, APPROVED CONTAINERS, AND STATIONARY COMPACTOR OPERATION (§330.209, §330.211, AND §330.215)

3.1 §330.209 - Storage Requirements

All solid waste will be stored in such a manner that it does not constitute a fire, safety, or health hazard or provide food or harborage for animals and vectors, and shall be contained or bundled so as not to result in litter. This includes staged and partially full transportation units awaiting off-site transport.

The accumulation timeframes for the facility are presented in Section 2.1 of this SOP. Finally, sludges generated by the facility are transported off-site for disposal at a Type I Landfill.

An on-site storage area for source-separated or recyclable materials will be provided. Control of odors, vectors, and windblown waste from the storage area will be maintained as described in Section 3.1.1.

3.1.1 Odor Control

Transportation trailers (or roll-offs) are filled quickly and immediately tarped after being filled to minimize uncovered waste. Filled transfer units are transported offsite daily to an approved solid waste landfill, Monday through Friday. The facility has an odor control system that includes covered processing and enclosed storage tanks, the building has doors that remain closed with air flow from outside-in.

Also, the facility has been designed to prevent nuisance odors from leaving the property boundary through waste handling, storage and clean-up procedures that minimize the contact between unprocessed waste and air. These procedures are:

- The unprocessed wastes stored in the respective basins are misted with an odor controlling solution to minimize escaping odors and vapors.

- All process tanks will be covered vessels or under full coverage roof.

- Pipelines and valves will be checked weekly for leaks.

- All equipment and enclosures will be maintained in good operating condition so that the odor control is effective.

The facility will control any ponded water onsite so that objectionable odors can be dealt with if they occur. Any ponded water will either be pumped out or swept by 'a squeegee towards the drains. If necessary, a deodorant will be used. If nuisance odors are found to be passing the facility boundary, the facility operator may be required to suspend operations until the nuisance is abated.

3.1.2 Vector Control

Wastes are fully contained within the processing site, and materials will be stored in an enclosed building, vessel, or container. Spills will be removed and processed immediately. If necessary, a licensed professional will apply pesticides for control of vectors to ensure that proper chemicals are used and that they are properly applied. If a problem develops, a professional pest control service will be consulted. The services provided may include placing rat baits for rodent control, spraying insecticides, and/or placing insect baits for insect control. Additional pesticide management may occur as recommended by the pesticide service. Daily sanitation is performed as a good housekeeping practice, reducing the attraction of potential vectors. Minimizing ponded water also reduces the attraction of potential vectors.

The facility reserves the right to train its employees and obtain applicable licenses and/or certifications to apply pesticides at the facility. The pesticides would be applied in accordance with manufacturer's instructions and in conformance with applicable federal, state, and local regulations.

3.1.3 Windblown Waste Control

Windblown waste control measures are described in Section 10.1 of this SOP.

3.2 §330.211 - Approved Containers

All solid waste will be stored in covered or closed containers that are durable and designed for safe handling and easy cleaning. Reusable containers will be maintained in a clean condition so that they do not constitute a nuisance and to retard the harborage, feeding, and propagation of vectors. All containers to be emptied manually will be capable of being serviced without the collector coming into physical contact with the solid waste. Containers to be mechanically handled will be designed to prevent spillage or leakage during storage, handling, or transport.

3.3 §330.215 - Requirements for Stationary Compactors

No stationary compactor in used at the site.

3.4 §330.217 - Pre-Operation Notice

These requirements do not apply to this Type V MSW liquid waste processing facility.

4.0 RECORDKEEPING, REPORTING, AND REPORT SIGNATURE REQUIREMENTS (§330.219)

4.1 §330.219 - Recordkeeping and Reporting Requirements

Personnel operator licenses issued in accordance with 30 TAC Chapter 30, Subchapter F (Municipal Solid Waste Facility Supervisors), will be maintained as required.

In accordance with 30 TAC 330.219, a copy of the permit documents and other required plans or related documents shall be maintained at the facility. As-built construction plans and specifications shall also be maintained at the facility. These documents shall be considered a part of the operating record for the facility.

The facility shall promptly record and retain in the operating record the following information within seven (7) working days of completion or receipt of analytical data related to them:

- all location-restriction demonstrations;
- inspection records and training procedures;
- closure plans and any monitoring, testing, or analytical data relating to closure requirements;
- all cost estimates and financial assurance documentation relating to financial assurance for closure;
- copies of all correspondence and responses relating to the operation of the facility, modifications to the permit, approvals, and other matters pertaining to technical assistance;
- all documents, manifests, shipping documents, trip tickets, etc., involving special waste;
- any other document(s) as specified by the approved authorization or by the executive director; and
- record retention provisions for trip tickets as required by 30 TAC 312.145 (relating to Transporters - Record Keeping).

Other written records as specified in this SOP will be maintained as part of the operating record for the facility. The facility shall retain all information contained within the operating record and the different required plans for the life of the facility. The executive director may set alternative schedules for recordkeeping and notification requirements as specified in subsections 30 TAC 330.219 (a) - (e). All information contained in the operating record shall be furnished upon request to the Executive Director and shall be made available at all reasonable times for inspection by the Executive Director or authorized agency representatives.

For signatories to reports, the following conditions apply:

- All reports and other information requested by the executive director as described in 30 TAC 305.44(a) shall be signed by the owner or operator or by a duly authorized representative of the owner or operator. A person is a duly authorized representative only if:

    1. The authorization is made in writing by the owner or operator as described in 30 TAC 305.44(a);
    2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity or for environmental matters for the owner or operator, such as the position of plant manager, environmental manager, or a position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and
    3. The written authorization is submitted to the executive director.

- If an authorization under this section is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of this section must be submitted to the executive director prior to, or together with, any reports, information, or applications to be signed by an authorized representative.

- Any person signing a report shall make the certification in 30 TAC 305.44(b).

The facility will maintain records to document the annual waste acceptance rate for the facility. Documentation must include maintaining the quarterly municipal solid waste summary reports and the annual municipal solid waste summary reports required by 30 TAC §330.675 in the operating record.

4.2 In accordance with 30 TAC 330.203 (c), required analytical data records in this document are maintained at the facility for a minimum of three years.

4.2 §330.219(h)(2) - Maintenance Of Training Records and Required Licenses

Personnel training records will be maintained in accordance with §330.219(b)(2). Personnel operator licenses issued in accordance with §330, Subchapter F, Municipal Solid Waste Facility Supervisors, will be maintained as required.

5.0 FIRE PROTECTION PLAN (§330.221)

5.1 Fire Protection Plan

The following steps are taken regularly at the facility by designated personnel to prevent fires:

- Operators will be alert for signs of burning waste such as smoke, steam, or heat being released from incoming waste loads.
- Equipment used to move waste will be routinely cleaned through the use of high pressure water or steam cleaners. The high pressure water or steam cleaning will remove combustible waste and caked material that can cause equipment overheating and increase fire potential.
- Smoking is not permitted near waste management areas.

5.2 Procedures in the Event of a Fire

Staff will take the following steps if a fire is discovered:

- Contact the Local Fire Department by calling 911. The City of Houston has tanker trucks and other assets that can respond rapidly to fires at the Site.
- Alert other facility personnel.
- Assess extent of fire, possibilities for the fire to spread, and alternatives for extinguishing the fire.
- If it appears that the fire can be safely fought with available fire fighting devices until arrival of the Local Fire Department, attempt to contain or extinguish the fire.
- Upon arrival of Local Fire Department personnel, direct them to the fire and provide assistance as appropriate.
- Do not attempt to fight the fire alone. Do not attempt to fight the fire without adequate personal protective equipment. Be familiar with the use and limitations of firefighting equipment available onsite.

5.3 Fire Fighting Methods

Fire fighting methods for burning solid waste include smothering the waste or separating burning material from other waste. Small fires can also be controlled with hand-held extinguishers.

If a fire occurs on a vehicle or piece of equipment, the equipment operator will attempt to bring the vehicle or equipment to a safe stop. If safety of personnel will allow, the vehicle will be parked away from fuel supplies, uncovered solid wastes, and other vehicles. The engine will be shut off and the brake engaged to prevent movement of the vehicle or piece of equipment.

5.4 Fire Equipment

The facility will be equipped with fire extinguishers of a type, size, location, and number as recommended by the City of Houston fire department. At a minimum, fire extinguishers will be maintained on each truck and in the transfer area. Each fire extinguisher will be fully charged and ready for use. Each extinguisher will be inspected on an annual basis and recharged as necessary. A qualified service company will perform these inspections, and all extinguishers will display a current inspection tag. Inspection and recharging will be performed following each use.

5.5 Fire Protection Training

Training of on-site personnel in firefighting techniques, fire prevention, response, and the fire protection aspects of the SOP will be provided by established professionals on an annual basis. Personnel will be familiar with the use and limitations of firefighting equipment available onsite. Records of this training will be included in the operating record for the facility.

5.6 TCEQ Notification

Any fire related to waste management activities that cannot be extinguished within 10 minutes of discovery will be reported to the TCEQ regional office. The regional office will be contacted by telephone as soon as possible, but no later than 4 hours following fire discovery. The regional office will be provided a written description of the cause and extent of the fire and the resulting fire response within 14 days of fire detection. The written description sent to the TCEQ regional office will contain as much information as possible regarding the fire and fire-fighting efforts. The fire prevention and fire control procedures for the facility will be revisited following the occurrence of a significant fire to determine if modifications are warranted.

6.0 ACCESS CONTROL (§330.223)

6.1 Facility Security

In accordance with 30 TAC §330.223(a), Downstream's facility is designed with appropriate barriers to protect human health and safety and the environment.

Public access will be controlled to minimize unauthorized vehicular traffic, unauthorized and illegal dumping, and public exposure to hazards associated with waste management. Controlled access will be provided by a private entrance road and gate. *An attendant shall be onsite during operating hours, and access to the facility is controlled by a lockable gate that is opened and closed electronically in compliance with 30 TAC §330.223(c).*

6.2 Vehicle Access

Public and private access roads to the facility consist of a two-lane paved road. All on-site, internal roads are concrete paved. On-site personnel within the facility will provide direction to public unloading areas. Operations at unloading areas, including providing sufficient maneuvering room and guidance from the gate attendant, will be conducted in a manner that allows the prompt and efficient unloading of waste in accordance with 30 TAC §330.223(b).

Customers will be limited to disposing of waste during the facility's posted operating hours, 7:00 a.m. to 7:00 p.m., Monday through Saturday.

During hours that the facility is not open to the public, vehicle access is controlled by gates with remote control entry in accordance with 30 TAC §330.223(c). Off-road access to the site is limited by the following:

- Private entrance road limits access to the site from the West, which includes a six foot wooden fence with electronic gates.

- A six foot chain link fence with three-strand barbed wire top and bayou limit access to the site from the East and South.

- Neighbors and six foot wooden fence fencing limit access to the site from the North.

In the event that there is an access breach, the facility will comply with the following notification requirements:

Table 5

Requirements	**Access Breach** Repaired Within 8 Hours of Detection	**Access Breach** Not Permanently Repaired Within 8 Hours of Detection
Notify region office of breach and repair schedule	Not required	Within 24 hours
Make temporary repairs	Not required	Within 24 hours
Make permanent repairs	Within 8 hours	Within schedule submitted to regional office in initial notice
Notify regional office when permanent repair completed	Not required	Within schedule submitted to regional office in initial notice

7.0 UNLOADING OF WASTE (§330.225)

The unloading of solid waste shall be confined to a small area for unloading. An attendant shall be provided at all times to monitor all incoming loads of waste. The attendant shall be on duty during operating hours at the active disposal area where liquid waste trucks shall be offloading their loads into the storage tank area. The use of an electric entrance gate, and personnel on the site at all times when trucks come through the front gate shall be used for the prevention of in discriminate dumping. The owner or operator is not required to accept any solid waste which they determine will cause or may cause problems in maintaining full and continuous compliance with these Sections.

The unloading of waste in unauthorized areas is prohibited. Necessary steps shall be taken by the owner or operator to ensure compliance with this provision. Any waste deposited in an unauthorized area shall be removed promptly by vacuum truck and disposed of by offloading at the facility.

The unloading of prohibited waste at the municipal solid waste facility shall not be allowed. Necessary steps shall be taken by the owner or operator to ensure compliance with this provision. Any prohibited waste shall be returned promptly to the transporter or generator of the waste.

The facility in question will NOT have a brush and/or construction-demolition (B and CD) waste area on site designated to receive B and CD waste.

8.0 SPILL PREVENTION AND CONTROL (§330.227)

In accordance with 30 TAC §330.227, storage and processing areas are designed to control and contain spills and contaminated water from leaving the facility. The design is sufficient to

control and contain a worst case spill or release. Unenclosed containment areas also account for precipitation for a 25-year, 24-hour storm.

Facility personnel will be on-site and attend all unloading operations. Unloading will be via pressurization of the tank truck and discharging into the storage tank. The discharge hose will be secured in the receiving dock in such a way to prevent splashing during unloading. A concrete or metal retaining wall surrounds the waste storage to contain any spillage which might occur during unloading operations. Floor drains located in the receiving area flow: will direct any spillage back into the storage tank that will be periodically cleaned and treated.

All tanks used to store waste material or processed material will be surrounded with concrete pads with concrete footings or spill pans sufficient to contain spills or leaks plus expected rainwater. All tanks will be enclosed with the exception of the roll-off boxes, pre-treatment screens and recyclable fats, oils and greases as they are being loaded. All rainwater collected in the spill area will be discharged to the drain and storage tank system for processing.

Processing of wastewater will occur on a 24-hour basis. Tank overflow devices will be used to prevent spillage. Qualified personnel will periodically inspect all connections and piping during facility operations. If leakage is detected, processing of waste will be suspended and the leak will be repaired.

9.0 FACILITY OPERATING HOURS AND SIGN (§330.229 AND §330.231)

9.1 §330.229 - Facility Operating Hours

The facility is will be authorized to accept waste and operate during the following timeframes:

- The facility may accept waste from the public from 7:00 am to 7:00 pm Monday through Saturday. The hours will be posted on a sign at the entrance to the facility.

The facility is normally closed to the public on Sundays, Christmas Day, New Years Day, Thanksgiving Day, Easter and Fourth of July.

9.2 §330.231 - Facility Sign

The entrance to the site through which wastes are received conspicuously displays a sign measuring at least 4 feet by 4 feet with letters at least 3 inches in height stating the name of the facility, type of disposal site, the hours and days of operation, a 24 hour emergency phone number to contact a supervisor/manager with the authority to obligate the facility after hours, local emergency fire department phone number, and the MSW permit number. The general condition of these signs is checked weekly.

10.0 LITTER AND WINDBLOWN MATERIAL CONTROL (§330.233 AND §330.235)

10.1 §330.233 - Control of Windblown Material and Litter

The wastes received by the facility are liquids. They are unloaded from the incoming vehicles by gravity and are further processed in enclosed tanks and vessels or enclosed buildings. Wastes of this type are not typically susceptible to becoming windblown litter, so special litter control practices would not be suitable or effective at the site. All driveways and other areas within the facility boundary, however, will be inspected daily on the days the facility is in operation for litter and other debris and if present, will be collected to minimize unhealthy, unsafe or unsightly conditions. Operations personnel will collect windblown material daily from inside and outside the facility and dispose of it properly in accordance with Table 2.

10.2 §330.235 - Materials Along the Route to the Facility

Operator shall take steps to insure that vehicles hauling waste to the site have enclosed vessels for waste; specifically, vacuum trucks. No trucks with open containers or drums will be accepted. Violators will be reported to the City of Houston Health Department. If there is spillage en route to the site, and the spillage is within the right-of-way of public roads for two miles from the facility's entrance, in either direction. The operator will summon a vacuum truck to the scene to vacuum up the spill and the spillage will be disposed of at operator's plant. The street will be washed with a pressure washer after the material is vacuumed off the street.

All cleanup activities along and within the right-of-way of public access roads serving the site shall be coordinated with local authorities and the Texas Department of Transportation prior to commencement of any cleanup operations.

11.0 FACILITY ACCESS ROADS (§330.237)

All-weather roads shall be provided within the site for the unloading areas designed for wet weather operation. The tracking of mud and trash onto public roadways from the site shall be minimized. All of the driveways, including the ingress and egress roads are concrete and the trucks shall be fully unloaded and have a tank cleaned prior to exiting the facility.

Dust from on-site and other roadways shall not become a nuisance to surrounding areas and water source and necessary equipment or other means of dust control approved by the Executive Director shall be provided. In fact, the facility in question does not generate dust as a byproduct of this operation.

All on-site and other access roads shall be maintained on a regular basis. Litter and other debris shall be frequently picked up and taken to the active disposal area or trash can for final disposal. Access roadway shall be regarded as necessary to minimize depression, ruts and potholes on Applicant's ingress egress road.

12.0 NOISE POLLUTION AND VISUAL SCREENING (§330.239)

Noise generated by the facility is primarily the result of the operations of pumps and vacuum trucks. No excessively loud devices are used at the facility. Adequate distances to neighboring properties and the absence of residences in the immediate vicinity have yielded no problems arising from noise. Additionally, most facility operations are performed behind fencing and inside buildings, which provide adequate barrier to noise pollution at the facility.

13.0 OVERLOADING AND BREAKDOWN (§330.241)

The design capacity of the solid waste facility will not be exceeded during operation. The facility will not accumulate solid waste in quantities that cannot be processed within such time as will preclude the creation of odors, insect breeding, or harborage of other vectors. If such accumulations occur, additional solid waste will not be received until the adverse conditions are abated.

Solid wastes (other than the special wastes described in this SOP) are stored no longer than two days prior to transport off-site. Special wastes are accumulated and transported off-site in accordance with the schedule previously provided in this SOP.

If a significant work stoppage should occur due to a mechanical breakdown or other causes, the facility will restrict additional solid waste receipt. Under such circumstances, incoming solid waste is diverted to an approved backup storage, processing or disposal facility. If the work stoppage is anticipated to last long enough to create objectionable odors, insect breeding, or harborage of vectors, steps will be taken to remove the accumulated solid waste from the facility to an approved backup storage, processing, or disposal facility within 24 hours.

Backup Provision: In the event of equipment repairs or during equipment maintenance periods, the facility will obtain equipment from other facilities, contractors, or local rental companies to avoid interruption of waste services.

14.0 SANITATION (§330.243)

At processing facilities, all working surfaces that come in contact with waste shall be washed down on a weekly basis after the completing of processing. Processing facilities that operate on a continuous basis shall be swept daily and washed down at least two times per week.

Wash water shall not be allowed to accumulate on the site without proper treatment to prevent the creation of odors or add attraction to vectors. The facility in question's wash water will be captured, pumped out of the capture wells and then recycled through the facility itself.

All wash waters will be collected and disposed of in an authorized manner.

15.0 VENTILATION AND AIR POLLUTION CONTROL (§330.245)

In accordance with 30 TAC §330.245(d), the facility has been designed and is operated to provide adequate ventilation for odor control and employee safety. The owner or operator will prevent nuisance odors from leaving the boundary of the facility. If nuisance odors are found to be passing the facility boundary, the facility owner or operator will suspend operations until the nuisance is abated. Air emissions from the facility will not cause or contribute to a condition of air pollution as defined in the Texas Clean Air Act.

In accordance with 30 TAC §330.245(h), the facility is designed to allow a minimal time of exposure of liquid waste to the air.

The facility is designed to control any and all ponded water by its collection into the spill area and is then discharged to the drain and storage tank system for processing to avoid its becoming a nuisance. *There is no ponded water collected on the site. In the event that ponded water should occur due to heavy rains, said water will be removed to avoid becoming a nuisance or create objectionable odors. The only water that could possibly pond onsite would be as a result of heavy rainstorms. Ponded water from rainstorms, should they become a problem, can be remedied by dirt fill spread with a front loader that is onsite.* In the event that objectionable odors do occur, appropriate measures will be taken to alleviate the condition in accordance with 30 TAC §330.245(k).

16.0 HEALTH AND SAFETY (§330.247)

The operator has developed and implemented a written safety plan in connection with the operator training program. Supervision of all activities will be maintained to ensure the safety of all persons on the premises. All employees are required to attend an appropriate health and safety training class prior to starting their assigned job, and to take refresher training when applicable, per OSHA standards for general industry. Salvaging and scavenging will be prohibited at all times.

17.0 EMPLOYEE SANITATION FACILITIES (§330.249)

The facility will have potable water and sanitary facilities for all employees and visitors.

18.0 NON-APPLICABLE RULES

Rules that are not applicable at the facility are:

- §330.207(h), applicable only for liquid waste transfer facilities;
- §330.213, applicable only for citizen's collection stations; and
- §330.219(d) and (h); applicable only for special waste or medical wastes, which are not accepted at this facility, or applicable only for composting and landfill mining facilities.