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# HARBOR ENGINEERING COMPANY, INC.

1615 HUFFINGHAM ROAD • JACKSONVILLE, FLORIDA 32216  
TELEPHONE 904-724-8522 • 725-8903 • FAX 724-2775

LAKE G. RAY, JR.

LAKE G. RAY, III

May 16, 1997

Mr. Ed K. Middleswart, P.E.  
Air Program Administrator  
Florida Department of Environmental Protection  
160 Government Center  
Pensacola, Florida 32501-5794

0050056 - 004-AC

Re: Chevron Panama City Terminal  
File Number 0050056002AF

Dear Mr. Middleswart:

Chevron would like to proceed with the air permit modification as referenced in your letter of May 12, 1997. The terminal will be changing Tank #66 into diesel service within a couple of months.

Several modifications are being undertaken in the terminal at this time to comply with the current Above Ground Storage Tank Regulations (FAC 62-762). The regulations require that all above ground storage tanks be cleaned, inspected and fitted with double tank bottoms or epoxy tank bottoms before the end of the year 1999. Chevron is actively pursuing complying with these regulations. The plan is to complete the double tank bottoms within the next twelve month period.

Chevron plans to take Tank #1 completely out of service as a result of the current regulations. Tank #1 will be used only in temporary storage of product during the modification of the remaining tanks at the terminal. Product will be transferred into Tank #1 only for the duration of the modification work on another single tank in the terminal and remain out of service until another tank is modified. Tank #1 will be permanently closed and remain out of service after the cleaning and tank bottom modifications are complete. The required modifications are scheduled to be complete within the next twelve to fifteen months.

A check for \$250.00 to the Department is enclosed for the processing of the M1 modification.

Thank you for your assistance on this permit. If you have any questions, please do not hesitate to contact our office.

Sincerely,

*Lake G. Ray, III*  
Lake G. Ray, III, P.E.

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# Department of Environmental Protection

Lawton Chiles  
Governor

Northwest District  
160 Governmental Center  
Pensacola, Florida 32501-5794  
May 12, 1997

Virginia B. Wetherell  
Secretary

Lake G. Ray, III, P.E.  
Harbor Engineering Company, Inc.  
1615 Huffingham Road  
Jacksonville, Florida 32216

RE: File Number 0050056002AF

Dear Mr. Ray:

This is a response to your letter of April 28, 1997 concerning the request for minor modifications to the operating permit for your client, Chevron USA Products Terminal in Panama City, Florida. Requested changes involve taking Tank 1 out of gasoline service and retrofitting Tank 66 with a floating roof prior to changing its service from diesel to gasoline. To properly document all changes and the addition of a floating roof to Tank 66 we need the following:

1. Fee of \$250 for an AC Air Construct permit M1 minor modification to permit 0050056001AC. What are the plans concerning future use or removal of Tank 1?
2. After the changes have been effected and the new floating roof inspected to the satisfaction of the Engineer-of-Record that the design and installation meet the requirements of 40 CFR Subpart Kb, please submit a signed and sealed statement to that effect along with the reports required by Subpart KB and a fee of \$250 for an AO Air Operation permit MM minor modification to permit 0050056002AF.

If you have any questions or comments, please contact Armando Sarasua of this office at (904) 444-8364. When referring to this project, please use the file number indicated.

Sincerely,

Ed K. Middleswart, P.E.  
Air Program Administrator

EKM:asc

cc: DEP Northwest District Branch Office, Panama City



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LAKE G. RAY, JR.

LAKE G. RAY, III

• ENGINEERS  
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April 28, 1997

Mr. Andrew S. Allen, Engineer  
Air Resources Management  
Department of Environmental Protection  
160 Governmental Center  
Pensacola, Florida 32501-5794

Dear Mr. Allen:

Re: Chevron USA Products Terminal Panama City, Florida  
Permit Number 0050036002AF

Thank you for taking the time last week to review the minor modification request in operations at the Panama City Terminal. Chevron would like to proceed with altering the storage tank usage at the terminal. The alteration will involve placing Tank 1 permanently out of service and switching tank 66 from diesel fuel storage to gasoline storage. Tank 1 is currently in gasoline service. The net result will be a reduction in the quantity of air emission permitted at the terminal.

A review was made of the original permit application submitted last year to determine the applicable areas of the form which will be changed. The changes are basically the numbers of the tanks only. The emissions were verified by computation to insure that the anticipated emission losses will be less after closing Tank 1 and switching the service of Tank 66.

The computations evaluate the current losses experienced with Tank 1 in gasoline service, Tank 66 in diesel fuel service and Tank 25 in diesel fuel service. Tank 25 will remain in the diesel fuel service, however the number of turns will be increased because it will be the only tank for diesel storage, therefore the existing conditions were considered.

Tank 1 is a riveted tank verses a welded tank as is Tank 66. The seals of the internal roof can not be as tight on a riveted tank because of the steel sheets forming the tank overlaps. A weld tank does not have the overlap gap. The computation shown do not reflect the emission of a riveted tank verses a welded tank. By construction alone the welded tank will allow less emissions.

The calculations reveal that the terminal currently experiences a loss of approximately 10,700 pounds per year by calculation out of the three tanks affected. The alteration will reduce

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# HARBOR ENGINEERING COMPANY, INC.

Mr. Andrew S. Allen, Engineer

April 28, 1997

Page two

the emission to 2,319 pounds per year by calculation for the two tanks to remain in service. This represents a reduction of 8,381 pounds per year.

The results of the calculations were compared with the original permit application. The two computations are in reasonable agreement with the calculations of G & E Engineering Company who did the permit calculation. The differences in assumptions will result in the minor differences in projected emissions. The application also does not provide calculations but only the results, therefore the minor differences could not be adjusted out. In any event, the calculations were provided for the "before" and "after" conditions so the basis of comparison is consistent.

The new floating roof will have the following characteristics:

1. The rim seal will be a double seal.
2. The access hatch cover and automatic gauge float cover will be bolted and gasketed.
3. The pipe column will be flexible fabric seal.
4. The ladder sliding cover will be gasketed.
5. The floating roof legs will have contact wells and seals.
6. The sample well will use a seal system that precludes vapor emission.  
Several patented devices are available.
7. The vacuum breaker will be gasketed.

Based on the above information, Chevron would request that the permit and original application be altered to reflect this change.

Enclosed are the pages of the application which have been changed and a copy of our drawing showing a layout of the terminal. If you have any questions or if we may be of assistance to you in any way, please do not hesitate to contact our office.

Sincerely yours,



Lake G. Ray, III, P.E.

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LGR/III/dn  
Enclosures

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**AIR EMISSION LOSSES COMPUTATION**

Tank 1 To be taken out of service  
Tank 66 to be converted to gasoline service from diesel

*Cone roof tank to be retrofitted with floating roof.*

Tank 1 40' high  
 96' diameter  
 1,710,618 gal capacity  
 Max annual rate 90,250,000 gal yr or 52.8 turns per year

Emissions per application 5.96 TPY  
 0.09 Standing Loses  
 5.87 Withdrawal Loses

Tank 66 48' high  
 55' diameter  
 789,642 gal capacity  
 11,293,000 gal/yr  
 Emissions per application 0.18 Tons Per Year (TPY)

Tank 25 to remain in diesel service

40' High  
 63' Diameter  
 852,222 gal capacity  
 Annual Rate 13,802,000 Gal/Yr  
 Emissions per Application 0.23 TPY

Losses from Tanks Rim Seal Losses  
 $L_T = L_R + L_W + L_F + L_D$  Gasoline Service

Where:

- $L_R$  = Rim Losses
- $L_W$  = Withdrawal Losses
- $L_F$  = Fitting Losses
- $L_D$  = Deck Losses (Does Not Apply)
- $L_T$  = Total loss

$L_R = \text{Rim Seal Loss} = K_s \cdot V^N \cdot P^* \cdot DM_v \cdot K_L$

	Tank 1	Tank 66
$K_s$ = Seal Factor	6.7	2.5
$V$ = Avg wind speed	1	1
$N$ = Seal Related Wind Speed Exponent	0	0

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AIR EMISSION COMPUTATION  
PAGE TWO

	Tank 1	Tank 66
P* = Vapor Pressure Function	0.13	0.13
D Tank Diameter	96'	55'
M <sub>V</sub> Avg Molecular Weight	66	66
K <sub>C</sub> Product Factor	1.0	1.0
P True Vapor Pressure	6.21	6.21
P <sub>A</sub> Avg Atmospheric Pressure	14.7	14.7

Tank 1 Gasoline Service

$$L_R = 6.7 (1)^0 (0.13) (96) (66) (1) = 5519 \text{ L3/yr}$$

Tank 66 Gasoline Service

$$L_R = 2.5 (1)^0 (0.13) (55) (66) (1) = 1180 \text{ L3/yr}$$

L<sub>w</sub>- Withdrawal Loss Gasoline Service

$$L_w = \frac{0.943 Q C W_L}{D} \left[ 1 + \frac{N_C F_C}{D} \right]$$

Where:

Q = Throughput Bbls/Yr	2,149,000	2,149,000
C = Shell Clingage	0.0015	0.0015
W <sub>L</sub> = Liquid Density Lbs/gal	5.6	5.6
D = Tank Diameter	96	55
N <sub>C</sub> = Number of Columns	6	1
F <sub>C</sub> = Effective Column Diameter	0.67'	0.67'

Tank 1

$$L_w = \frac{(0.943) (2,149,000) (0.0015)}{96} \left[ 1 + \frac{6(0.67)}{96} \right]$$

$$L_w = 185 \text{ Lbs/yr}$$

Tank 66

$$L_w = \frac{(0.943) (2,149,000) (0.0015) 5.6}{55} \left[ 1 + \frac{1(.67)}{55} \right]$$

$$L_w = 313 \text{ Lb/Yr}$$

Deck Fitting Loss

$$L_F = F_F P^* M_V K_C$$

AIR EMISSION COMPUTATION  
PAGE THREE

Tank 1	N	KF	NKF
Access Hatch	1	25	25
Auto Gage	1	28	28
Column Well	6	32	192
Ladder Well	1	76	76
Roof Leg	30	7.9	237
Vacumn Breaker	1	0.7	0.7
Sample Pipe	1	12	<u>12</u>
			571

$P^* = 0.3$

$M_v = 66$

$K_c = 1$

$L_F = 571 (0.13) (66) (1) = 4,899 \text{ Lb/Yr}$

Tank 66

Accesss Hatch	1	(1.6) =	1.6 Bolted Gasket
Auto Gage	1	(5.1) =	5.1 Bolted Gasket
Column Well	1	(10) =	10 Sleeve Seal
Ladder Well	1	(56) =	56 Gasketd
Roof Leg	10	(1.9) =	7.9 Contact Sealed
Vacumn Breaker	1	(0.7) =	0.7 Gasketed
Sample Pipe	1	(12) =	<u>12</u> Slit Seal
			86

$L_F = 86 (0.13) (66) (1) = 738 \text{ Lb/Yr}$

Tanks in Diesel Service Tank 25 + Tank 66

Breathing Loss =  $L_B$  Lb/Yr

	Tank 25	Tank 66
$M_v$ Vapor Molecular Weight	130	130
$P_A$ Average Atmosphere	14.7	14.7
$P$ Vapor Pressure	.001	.001
$D$ Tank Diameter	63 (1297)	55 (1025)

AIR EMISSION COMPUTATION  
PAGE FOUR

H	One-half Tank Height	20 (4.6)	24 (5.06)
ΔT	Diurnal Temp Change	14°	14°
F <sub>P</sub>	Paint Factor	1	1
C	Small Tank Adjustment	1	1
K <sub>C</sub>	Product Factor	1	1

$$L_B = 2.26 \times 10^{-2} M_V \left( \frac{P}{P_A - P} \right)^{0.68} D^{1.73} H^{0.51} \Delta T^{0.5} F_P C K_C$$

$$L_B = .0226 (130) \left( \frac{.001}{14.7} \right)^{0.68} D^{1.73} H^{0.51} \sqrt{14} (1) (1) (1)$$

$$L_B = 0.00176 D^{1.73} H^{0.51}$$

Tank 25

$$L_B = 10.5$$

Tank 66

$$L_B = 9.3$$

Tanks 25 & 66 Working Losses = L<sub>w</sub> Diesel Service

$$L_w = 2.4 \times 10^5 M_V P V N K_N K_C$$

	Tank 25 Before	Tank 25 After	Before Tank 66
M <sub>V</sub> = Vapor MW	130	130	130
P <sub>A</sub> = Vapor Pressure	.001	.001	
V = Tank Cap Gal	852,222	852,222	852,222
N = Turnovers	16	29	14
K <sub>N</sub> = Turnover Factor	1	1	1
K <sub>C</sub> = Product Factor	1	1	1

Tank 25 Before

$$L_w = 2.4 \times 10^5 (130) (.001) (852,222) (29) (1) (1) = 77$$

Tank 66 Diesel Service

$$L_w = 2.4 \times 10^5 (130) (.001) (782,642) (14) (1) (1) = 34$$

AIR EMISSION COMPUTATION  
PAGE FIVE

Emissions Comparison

	Before	After
Tank 1 <i>gasoline - riveted to be out of service</i>		
Rim Loss	5519	0
Withdrawal Loss	185	0
Deck Fitting Loss	4,899	0
	<u>10,603</u>	
Tank 25 <i>Deisel - increase throughput</i>		
Working	43	77
Breathing	<u>11</u>	<u>11</u>
	54	88
Tank 66 <i>Deisel - Welded convert to gasoline install floating roof</i>	Before (Deisel)	After (gasoline)
Working	34	0
Breathing	9.3	0
Rim Loss	0	1180
Withdrawal Loss	0	313
Deisel Fitting Loss	0	738
		<u>2,231</u>
	10,700 Lb/Yr	2,319 Lb/Yr

$$\Delta = 8381 \frac{16 \text{ VOC}}{\text{yr}}$$

$$7.2 \frac{\text{T VOC}}{\text{yr}}$$



**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section: High Volatility Product Storage Tanks including the following:  <div style="margin-left: 40px;">                     Tank 66 (Unleaded Gasoline) Internal Floating Roof                      Tank 67 (Aviation Gasoline) Internal Floating Roof                      Tank 78 (Unleaded Gasoline) Internal Floating Roof                      Tank 84 (Unleaded Gasoline) External Floating Roof                 </div>		
2. ARMS Identification Number: <span style="margin-left: 100px;">[ ] No Corresponding ID</span> <span style="margin-left: 50px;">[ ] Unknown</span> 0050056002		
3. Emissions Unit Status Code: <div style="text-align: center;">A</div>	4. Acid Rain Unit? <div style="text-align: center;">[ ] Yes [ X ] No</div>	5. Emissions Unit Major Group SIC Code: <div style="text-align: center;">29</div>
6. Initial Startup Date (DD-MON-YYYY): NA		
7. Long-term Reserve Shutdown Date (DD-MON-YYYY): NA		
8. Package Unit: Manufacturer: NA <span style="margin-left: 150px;">Model Number: NA</span>		
9. Generator Nameplate Rating: NA <span style="margin-left: 100px;">MW</span>		
10. Incinerator Information: NA <div style="margin-left: 100px;">                     Dwell Temperature: °F                      Dwell Time: seconds                      Incinerator Afterburner Temperature : °F                 </div>		
11. Emissions Unit Comment:  <div style="margin-left: 40px;">                     For permitting purposes, the four storage tanks storing highly volatile products are grouped as a single source.                 </div>		

**B.**

<p>1. Description (limit to 200 characters): Tanks 66,67, and 78 are equipped with internal floating roofs. Tank 84 is equipped with an external floating roof and a geodesic dome</p>
<p>2. Control Device or Method Code: 091</p>

**C.**

<p>1. Description (limit to 200 characters):  NA</p>
<p>2. Control Device or Method Code: NA</p>

**E. EMISSION POINT (STACK/VENT) INFORMATION**  
**(Regulated Emissions Units Only)**

**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram:	
Tanks 66,67,78, and 84	
2. Emission Point Type Code:	
<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4	
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):	
NA	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:	
NA	
5. Discharge Type Code:	
<input type="checkbox"/> D <input checked="" type="checkbox"/> F <input type="checkbox"/> H <input type="checkbox"/> P <input type="checkbox"/> R <input type="checkbox"/> V <input type="checkbox"/> W	
6. Stack Height:	feet
NA	
7. Exit Diameter:	feet
NA	
8. Exit Temperature:	°F
NA	

Emissions Unit Information Section 2 of 6

9. Actual Volumetric Flow Rate: NA	acfm	
10. Percent Water Vapor : NA	%	
11. Maximum Dry Standard Flow Rate: NA	dscfm	
12. Nonstack Emission Point Height: See comment below	feet	
13. Emission Point UTM Coordinates: Zone: East (km): North (km):		
14. Emission Point Comment (limit to 200 characters):		
<u>Tank Height</u>	<u>Tank Diameter</u>	<u>Storage Capacity</u>
Tank 66 48'1"	55'	789,642 gallons
Tank 67 48'1"	55'	699,552 gallons
Tank 78 48'	67'	1,053,990 gallons
Tank 84 46'1"	69	1,103,970 gallons

**F. SEGMENT (PROCESS/FUEL) INFORMATION**  
**(Regulated and Unregulated Emissions Units)**

**Segment Description and Rate:** Segment 1 of 8

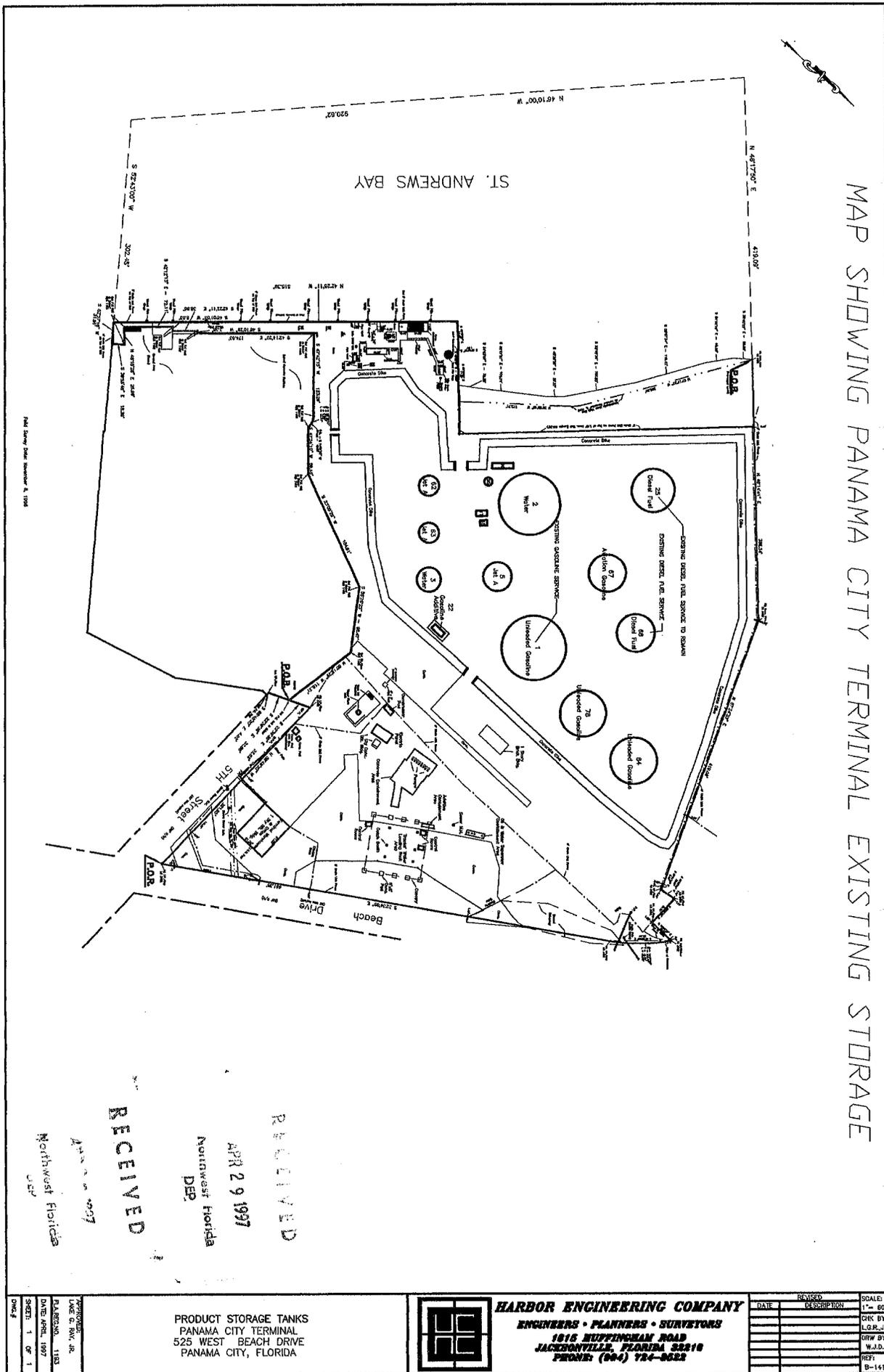
<p>1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode)          (limit to 500 characters):</p> <p>Tank 66-Standing Losses</p>	
<p>2. Source Classification Code (SCC):          40400111</p>	
<p>3. SCC Units:          1,000 gallons storage Capacity</p>	
<p>4. Maximum Hourly Rate:          NA</p>	<p>5. Maximum Annual Rate:          NA</p>
<p>6. Estimated Annual Activity Factor:          700(1,000gallons)</p>	
<p>7. Maximum Percent Sulfur:          NA</p>	<p>8. Maximum Percent Ash:          NA</p>
<p>9. Million Btu per SCC Unit:          NA</p>	
<p>10. Segment Comment (limit to 200 characters):          NA</p>	





10. Percent Water Vapor: NA	%		
11. Maximum Dry Standard Flow Rate: NA	dscfm		
12. Nonstack Emission Point Height: NA	feet		
13. Emission Point UTM Coordinates:			
Zone:	East (km): North (km):		
14. Emission Point Comment:			
	<u>Tank Height</u>	<u>Tank Diameters</u>	<u>Storage Capacity</u>
Tank 25	39'7"	63'	852,222 gallons
Tank 62	40'2"	30'	211,492 gallons
Tank 63	39'11"	30'	211,492 gallons

MAP SHOWING PANAMA CITY TERMINAL EXISTING STORAGE



Field Survey Data November 4, 1998

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PREPARED BY  
 LANE G. RAY, JR.  
 PLANNING, 1183  
 DATE: APRIL, 1997  
 SHEET: 1 OF 1  
 DWG. #

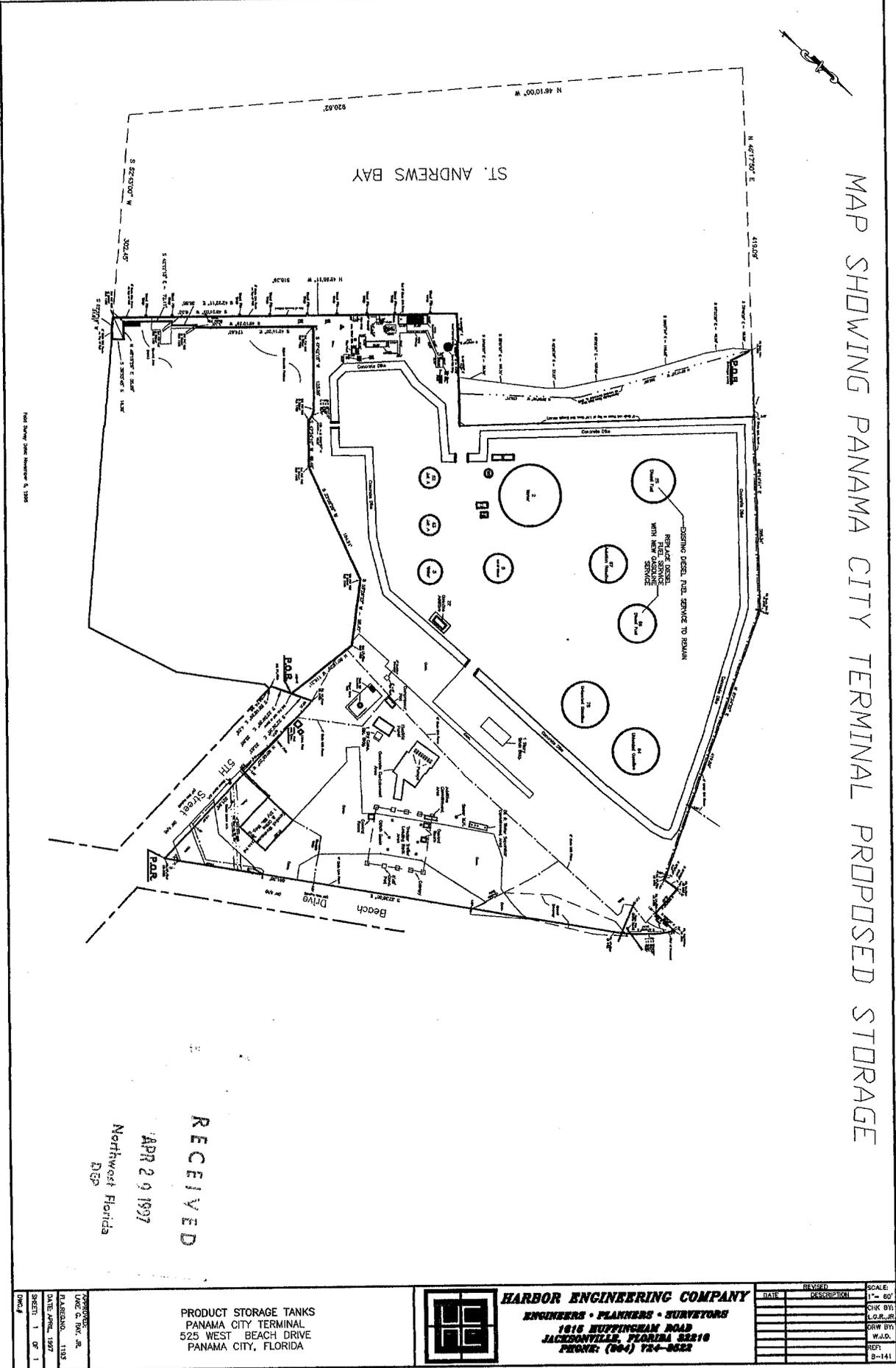
PRODUCT STORAGE TANKS  
 PANAMA CITY TERMINAL  
 525 WEST BEACH DRIVE  
 PANAMA CITY, FLORIDA



**HARBOR ENGINEERING COMPANY**  
 ENGINEERS • PLANNERS • SURVEYORS  
 1816 HUFFINGHAM ROAD  
 JACKSONVILLE, FLORIDA 32218  
 PHONE: (904) 724-8822

REVISED		SCALE:
DATE	DESCRIPTION	1" = 80'
		SIX (5)
		L.G.R. 28
		GRW BY
		W.J.D.
		REF:
		B-141

MAP SHOWING PANAMA CITY TERMINAL PROPOSED STORAGE



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 DGP

DATE	1997
SHEET	1 OF 1
DATE	APRIL 1997
DATE	APRIL 1997
DATE	APRIL 1997

PRODUCT STORAGE TANKS  
 PANAMA CITY TERMINAL  
 525 WEST BEACH DRIVE  
 PANAMA CITY, FLORIDA



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 JACKSONVILLE, FLORIDA 32210  
 PHONE: (904) 724-9622

DATE	REVISION	DESCRIPTION	SCALE
			1" = 60'
			CHK BY
			D.S.M.
			DRW BY
			W.J.D.
			REF
			B-141

\_perMits\_|\_Events\_|\_Payment\_|\_Facility\_|\_party\_|\_Reports\_|\_Help\_|\_eXit\_

----- Permitting Application -----

+----- ARMS Facility -----+

Facility Name: CHEVRON U.S.A., INCORPORATED AIRS ID: 0050056

County: BAY Owner: CHEVRON U.S.A., INCORPORATED

Office: NW Br: PANAMA CITY Category: POINT

+----- Project -----+

AIR Permit #: - - - - - Project #: 004 CRA Reference #: - - - - -

Permit Office: NWD (DISTRICT) Agency Action: Pending

Project Name: CHEVRON U.S.A. Desc: modification to 0050056002

Type/Sub/Req: AF/MM Minor Modification \$250 Logged: 22-MAY-1997

Received: 21-MAY-1997 Issued: - - - - - Expires: - - - - -

Fee: 250.00 Realized: - - - - - Dele: - - - - - Override: NONE

+----- Related Party -----+

Role: APPLICANT Begin: 22-MAY-1997 End: - - - - -

Name: CHEVRON U.S.A., INCORPORATED SSN/FEID: Unavailable

Addr: POST OFFICE BOX 2527

City: PANAMA CITY State: FL Zip: - - - - - Country: - - - - -

Phone: 904-785-7426 Fax: - - - - -

+----- Processors -----+

Processor: SARASUA A Y Active: 22-MAY-1997 Inactive: - - - - -

Enter 'Y' if this is the PRIMARY processor.

Count: \*1

<Replace>

