FILE FOLDER

DESCRIPTION ON TAB:

62416 Waste Oil Analysis

1988

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Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

6246 HYGIENE AND SANITATION

(PERMANENT) SECNAVINST 5212.5B
PART II, CHAP. 6, PAR 6240(1) 2 YRS

DELTA PROCESS MANAGEMENT, INC.
1985 Nonconnah Boulevard
MEMPHIS, TENNESSEE 38132
(901) 398-5151

JOB Exhib I
SHEET NO. ____ OF ____
CALCULATED BY GFM DATE March 14, 1986
CHECKED BY ____ DATE ____
SCALE Used Oil Contract #N62470-85-C-7979

USED OIL SPECIFICATION ANALYSIS SHEET

A. Fuel Oil Specifications

		Units
Water, (ASTM D396)	See enclosed ASTM D396	Vol %
Sediment, (ASTM D396)		Vol %
Bottoms, (ASTM D396)		%
Specific Gravity API, (ASTM D396)		Degrees API
Viscosity Saybolt (ASTM D396)	Seconds	SSU
BTU Value		BTU/Gallon

B. RCRA Used Oil Specifications

Arsenic	Methods per Federal Register November Regulations	5ppm max
Cadmium		2ppm max
Chromium		10ppm max
Lead		100ppm max
Flash Point		100°F
Halogens		4000ppm max

NOTE: Analysis required for fuel dealer (used oil handlers/blenders) to bid on Camp Lejeune waste and conform to RCRA.

Do not run extraneous analysis unless there is a reason (suspected contamination such as PCB's and herbicides).

TABLE (1) — PAGE (2) — PAGE 4

SAMPLE DATE	7-28-81	3-27-82	5-18-82	12-8-83	3-31-86				18 Aug 84	14 Aug 84	15 Aug 84	10-30-84	10-30-84	10-30-84	3-27-85	3-27-85	3-31-86				6-6-85			3-31-86			4-29-86			2-18-87			5-28-87				5-28-87			5-28-87			
TANK (S)	BLDG 45	SMALL TANK @ BLDG 45	BLDG 45	BLDG 45	HB S-888	HB S-889	HB S-890	HB S-891	MCAS #1	MCAS #2	MCAS #3	BLDG 45 TOP	BLDG 45 MIDDLE	BLDG 45 BOTTOM	BLDG H-20(#1)	BLDG H-20(#2)	TT S-TT-61	TT S-TT-62	TT S-TT-63	TT S-TT-64	TT S-TT-65	MCAS #1	MCAS #2	MCAS #3	MCAS TOP	MCAS MIDDLE	MCAS BOTTOM	BLDG 45 TOP BOTTOM	BLDG 45 MIDDLES	BLDG 45 BOTTOM	HB S-888	HB S-889	HB S-890	HB S-891	MCAS #1	MCAS #2	TT S-TT-61	TT S-TT-63
% WATER	58		14.0	9.5	2.1	2.4	4.8	4.0	1.17	2.6	4.9	0.30	9.0	40.0	40		16.8	15.0	47.5	15.0	10.0	8.0	0.2	0.1	0.4	0.4	30	11.0	10.7	10.5	6.40	19.5	18.5	17.6	0.76	8.4	8.1	18.4	12.0
% SEDIMENT OR B&W			0.5	15.4	<0.001	<0.001	1.60	0.70	0.37	1.81	0.42	4.7	33.0	20.0			7.8	16.5	30	15	8.5							0.38	0.40	0.37	0.20	19.5	20.0	24.0	10.80	15.5	13.0	23.0	17.5
% BOTTOMS					5.28	3.45	42.0	19.0									0.377	0.887	0.709	0.891	0.891	30.0	34.3	31.5				0.81	0.81	0.83	0.76	0.73/0.82	0.77/ND	0.72/0.96	0.75/0.88	0.74/0.93	0.75/0.83	0.74/0.98	0.73/0.89	0.76/0.88
SPECIFIC GRAVITY	0.8815@60°F		32.6@60°F	0.88 @60°F	38.56	22.88	38.46	36.56	42.850	36.78	38.56	0.875	0.922	0.966			3.1	6.10	6.8	5.2	0.9	42.4	38.2	40.4				28.6	27.8	28.0	21.0	93.6	100.8	103.8	53.10	100.8	94.1	97.0	100.6	100.2
VISCOSITY SUSPOLT			42.4	67.7	31.3	52.8	57.6	50.0	72.4/85	139.6/94.1	144.3/94.5	6.4@60°F	25.3	147.9			15,000	16,000	9,500	15,000	15,000	17,500	19,400	19,100	19,300	19,400	16,500	17,000	17,100	17,100	18,000	15,500	16,500	15,500	17,500	17,500	15,000	16,400	15,000
BTU VALUE /lb			19,269.5	16,224	124,461/gal	83,462/gal	77,711/gal	106,365/gal	11,083.6/gal	12,948.3/gal	11,917.4/gal	18,230	11,400	15,620	8,000		105°F	125°F	145°F	130°F	127°F	~93°C	45°C	50°C				57%	50°C	50°	54°	Boiling 45°C	Boiling 45°C	Boiling 45°C	35°C	40°C	35°C	No Boiling	40°C
FLASH POINT	181°F		95°C	>70°F	12.4%	12.7°F	12.6°F	14.4°F	12.2°F	13.8°F	10.6°F				130°F		0.13%	0.34%	0.15%	0.13%	0.18%	0.15	0.04	0.48	0.10 %	0.10 %	0.12%	0.25%	0.25%	0.24%	0.17%	<0.05	0.20	<0.05	0.12	0.16	0.25	0.113	0.22
TOTAL ORGANIC HALOGEN					0.13%	0.14%	0.10%	0.16%																																		
					mg/kg										mg/kg		mg/kg					mg/kg																				
ARSENIC mg/L	<0.002		<0.01	<0.01	4.87/0.002	7.40/0.001	5.20/0.001	5.40/0.001	<0.001	<0.001	<0.001				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	45.25	<0.25	40.25																		
CHROMIUM mg/L	1.88		0.75	<0.001	21.0/0.085	21.0/0.08	18.6/0.08	19.4/0.08	0.2645	0.1646	0.1646				2.5	0.5	2.0	1.8	1.9	1.9	1.1	1.4	9.0	8.2				<2.7	<2.7	<2.7	<2.7	<0.005	<0.005	<0.005	<0.005	<0.005	<5	<5	<5	<5
CHROMIUM mg/L	0.16		0.50	<0.001	7.0/0.028	7.6/0.028	7.6/0.028	8.2/0.026	0.146	0.047	0.030				Z4.6	42.2	6.4	2.7	5.4	3.6	2.7	<0.15	<0.5	3.8				<1.5	<1.5	<1.5	<1.5	0.0017	<0.00075	0.0022	0.0016	<0.0015	<1	<1	<1	<1
LEAD mg/L	316.00		109.75	<0.004	229.42.59	222.0/0.58	225.0/0.59	218.0/2.14	1.62	1.08	0.86				42.6	32.4	49	50	78	57	12	98	26	14				63.8	62.1	60.2	67.5	0.075	0.030	0.059	0.023	0.0252.35	0.0256	26	Z4	8.2	28
METHYLENE CHLORIDE									103.15	7.00	<1.0																															
XYLENE									163.7	136.15	109.1				2,930,000 ppb	5,550,000																ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE									113	255.2	16.5				261,000 ppb	743,000 ppb	1,040,000	506,000	391,000	165,000	550,000											600 ppm		700 ppm	720 ppm	1700 ppm	700 ppm	760 ppm	700 ppm	760 ppm	700 ppm	760 ppm
TRICHLOROETHYLENE	1ppb			110	3.7	<0.1	<0.1	<0.1	33.4	404.4	515.5																					NA		NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE									14.59	125.2	17.1																					ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
ACETONE									<3.0	<3.0	<3.0																					100 ppm		50 ppm	50 ppm	ND	50 ppm*	ND	ND	ND	ND
TOLUENE	12			1170	142.5	129.0	83	66	209.3	444.4	244.0																					330 ppm		320 ppm	320 ppm	1800 ppm	290 ppm	290 ppm	290 ppm	290 ppm	290 ppm
METHYL ETHYL KETONE									64.4	56.1	93.8				280,000 ppb	523,000 ppb	1,230,000	501,000	321,000	205,000	397,000											ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL PHENOLS	20			13,480	<0.1	<0.1	<0.1	<0.1	9.5	9.5	40																					38		38	14	79	48	48	48	48	48
1,1-DICHLOROETHANE	4			12,200	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0																					ND		ND	ND	ND	NA	NA	NA	NA	NA
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON)					13.2 ppm																											2400 ppm		8300 ppm	2800 ppm	2800 ppm	8000 ppm	700 ppm	700 ppm	700 ppm	700 ppm	700 ppm
DICHLOROMETHANE															600,000	1,320,000 ppb	1,200,000	1,255,000	780,000	1,755,000	2,000,000											<0.1%		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
PCB															600 ppm	1320 ppm	1800 ppm	1755 ppm	780 ppm	1755 ppm	2400 ppm											ND		ND	ND	730 ppm	ND	ND	ND	ND	ND	ND
LABORATORY	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND				.06 %	.13 %	.18%	.13 %	.08 %	.075 %	.12%																					
BENZENE / ETHYLBENZENE															ND		ND	ND	ND	ND	ND											ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
# OF LEVELS GRADED IN SAMPLE	4	1	4	4	4/1	4/1	4/1	4/1	4/1	4	4	1	1	1	1	1	3/1	3/1	3/1	3/1	3/1	1	1	1	1	1	1	1	1	1	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTES APPLICABLE	1	2																														2	2	2	2	2	2				
LABORATORY	J	J	I	G	GU	GU	GU	GU	GU	GU	GU	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC	JTC

NOT TESTED TOX < 1000 ppm

NOT TESTED TOX < 1000 ppm

NOT TESTED TOX < 1000 ppm

70°C → 158°F

80 → 176°F

77°F

25°C

14°F

-10°C

14°F

WASTE OIL GENERAL

North Carolina Department of Human Resources
Division of Health Services
P.O. Box 2091 • Raleigh, North Carolina 27602-2091

James G. Martin, Governor
David T. Flaherty, Secretary

Ronald H. Levine, M.D., M.P.H.
State Health Director

July 27, 1988

Colonel T.J. Dalzell
Assistant Chief of Staff, Facilities
U.S. Marine Corps
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

Re: Waste Oil Tanks at Holcomb Blvd.

Dear Colonel Dalzell:

By request of Mr. Danny Sharpe of your staff, I am writing to clarify the status of waste oil collected in tanks S-889 and S-891 at the Holcomb Blvd. site.

These two tanks are considered to be hazardous waste storage tanks by this office and the US EPA Region IV. Any material accumulated in the tanks are presumed to be a hazardous waste until closure is complete and certification is received and accepted by this office. In this particular case, in order to assist Camp Lejeune in the handling of this material, this office will allow any waste oil accumulated in tanks S-889 and S-891 to be handled as a non-hazardous waste <u>if</u> the analysis of the waste oil indicates <u>no detectable chlorinated organic compounds</u>. It is my understanding that the current volume of waste oil ready for shipment meets this criteria. Until closure of the tanks is complete and certification is received and accepted, each batch of waste oil must be tested for volatiles and determined not to contain detectable levels of chlorinated organics prior to a non-hazardous classification.

Upon receipt of the closure plan for these tanks, we will proceed with the review process in order to finalize the closure process and eliminate the need for this testing.

If you have any questions, please contact Mr. Gary Babb of my staff at (919) 733-2178.

Sincerely,

Jerome H. Rhodes

Jerome H. Rhodes, Head
Hazardous Waste Branch
Solid Waste Mgmt. Section

cc: Danny Sharpe
Jerry Parks
George Garcia
Jimmy Carter
Gary Babb

WASTE OIL SUMMARY

A. Tanks

1. Bldg 45
   a. Total Capacity: 273,370 Gallons
   b. Sampled
      I. 28 July 1981
      II. 18 May 1982
      III. 8 December 1983
      IV. 30 October 1984
      V. 18 February 1987
      VI. 23 June 1987 [Auburn Un. Took Samples]

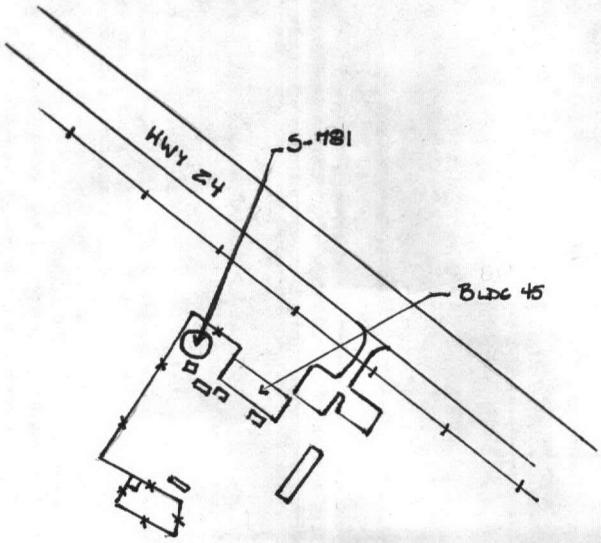
2. Holcomb Blvd, #S-888→S-891 [4 tanks]
   a. Total Capacity: 82,500 Gallons
      I. S-888→S-890 17,500 Gallons Each (52,500)
      II S-891 30,000 Gallons Each
   b. Sampled
      I. 3 May 1984 (4/4)
      II. 31 March 1986 (4/4)
      III. 28 May 1987 (4/4)
      IV. 23 June 1987 [Auburn Un. Took Samples]

3. Air Station [3 Tanks]
   a. Total Capacity: 90,000 Gallons
      30,000 Gallons Each
   b. Sampled
      I. 13 & 14 August 1984 (3/3)
      II. 5 March 1985 [Samples given to DRMO - no results]
      III. 31 March 1986 (3/3)
      IV. 29 April 1986 [One Tank-3 Level] (1/3)
      V. 28 May 1987 (2/3)
      VI. 23 June 1987 [Auburn Un. Took Samples]

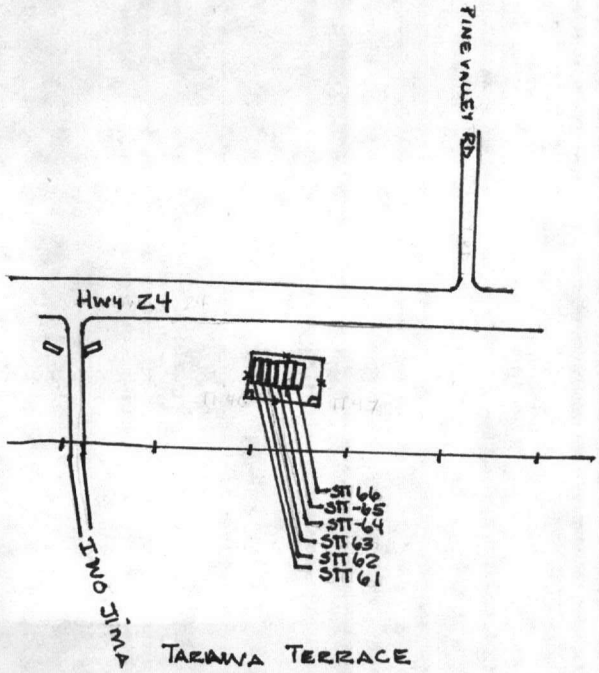
4. Tarawa Terrace, STT-61→STT-66 [6 Tanks]
   a. Total Capacity: 75,000 Gallons
      30,000 Gallon LP tanks but can only support 12,500 gallons of waste oil each.
   b. Sampled:
      I. 6 June 1985 (5/6)
      II. 31 March 1986 (5/6)
      III. 28 May 1987 (3/6)
      IV 23 June 1987 [Auburn Un. Took Samples] (4/6)
      V. 23 June 1987 [Additional tank full since 28 May 1987- cross-sectional sample showed mostly water- no analysis] (1/6)

5. Old Hospital [2 Tanks] @Bldg H-20
   a. Total Capacity: 30,000 Gallons
      15,000 Gallons each in underground tanks
   b. Sampled
      I. 27 March 1985 (2/2)
   c. Tanks thought to have been removed by public works in 1986
   d. Tanks found to be still there and full-cross-sectional samples showed mostly water-no analysis (2/2)

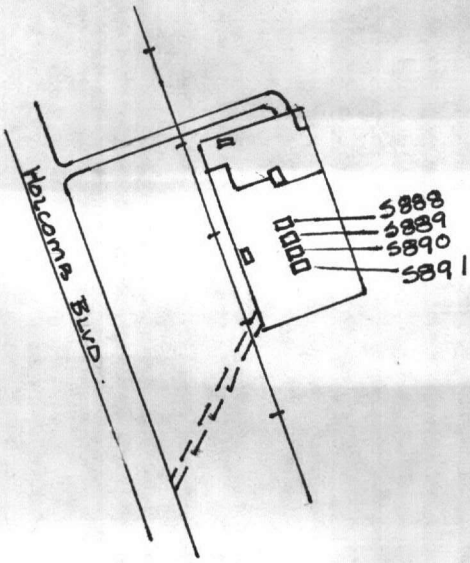
A



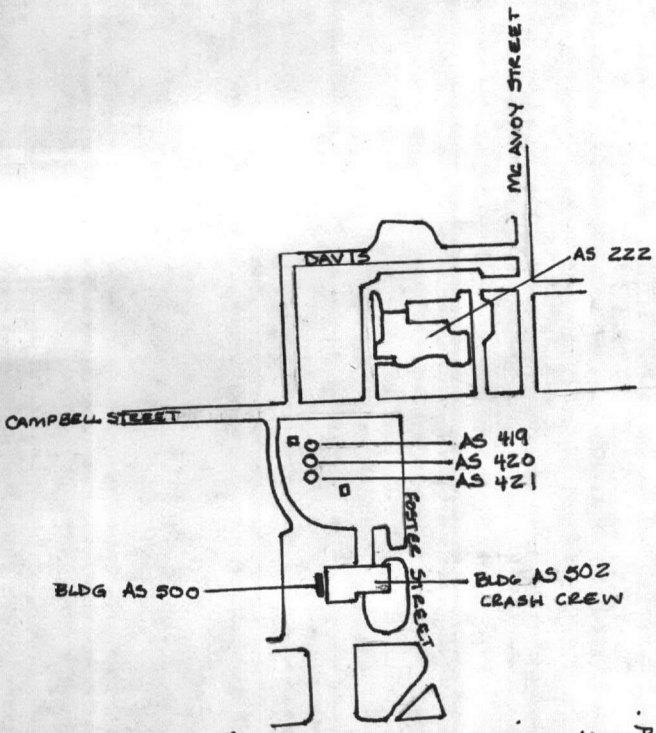
BLDG 45



TARAWA TERRACE



HOLCOMB BLVD.



MARINE CORPS AIR STATION - NEW RIVER

RAILROAD

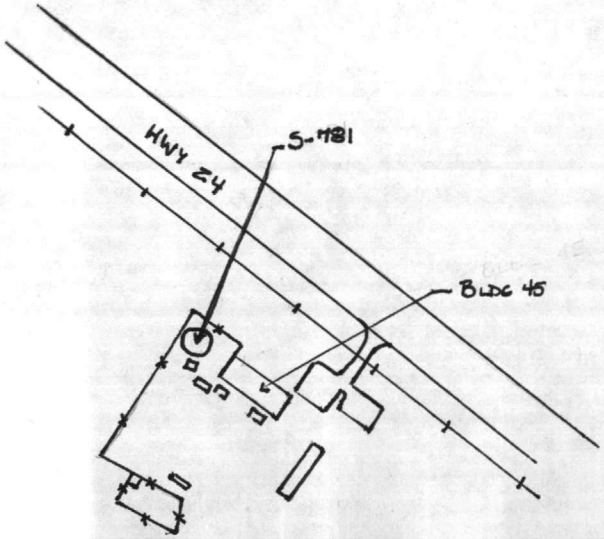
FENCE

S-781 (Bld. 45)

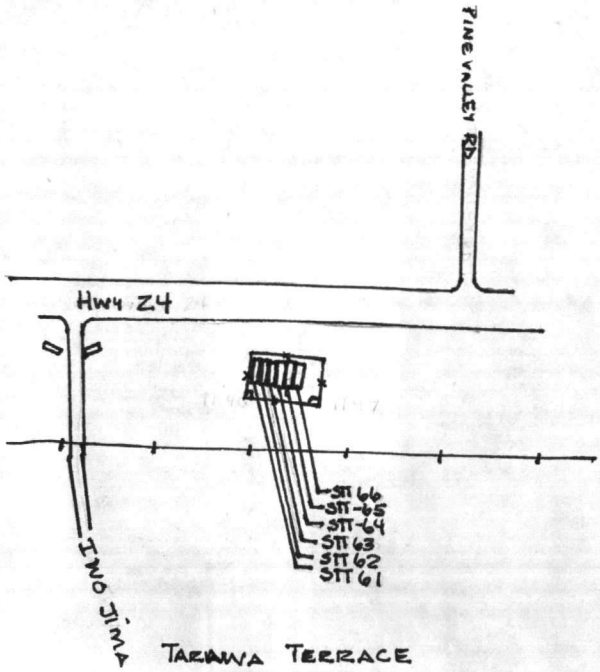
S-889
S-891 (Holcomb Blvd.)

STT-61
STT-62
STT-64
STT-65 (Tarawa Terrace)

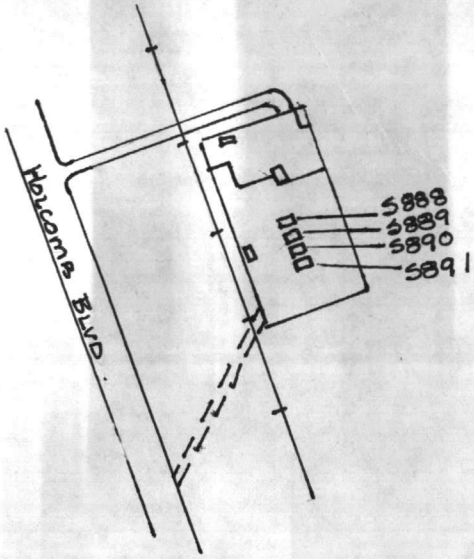
AS-419
AS-420
AS-421 (Air STATION)



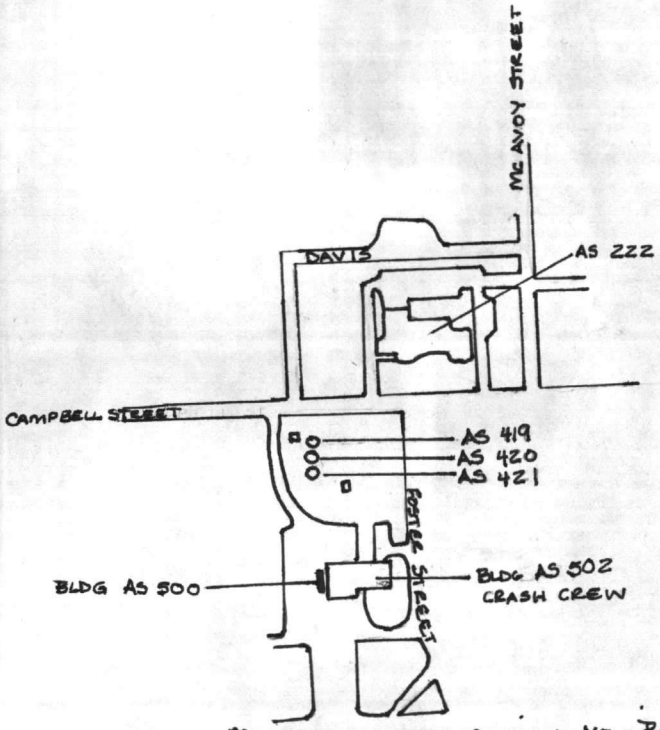
BLDG 45



TARAWA TERRACE



HOLCOMB BLVD.



MARINE CORPS AIR STATION - NEW RIVER

RAILROAD

FENCE

WASTE OIL SUMMARY CONT.

iv 29 APRIL 1986 [ONE TANK - 3 LEVELS] (1/3)

v. 28 MAY 1987 (2/3) 87-53,54

vi. 23 JUNE 1987 [AUBURN UN. TOOK SAMPLES]

VII. 16 SEP 87 (1/3) VOCs 2 LEVELS 87-79,80

VIII. 6 NOV 87 (1/3) 88-27

4. TARAWA TERRACE, STT-61 → STT-66 [6 TANKS]

a. TOTAL CAPACITY: 75,000 GALLONS

30,000 GALLON LP TANKS BUT CAN ONLY SUPPORT 12,500 GALLONS OF WASTE OIL EACH.

b. SAMPLED:

i. 6 JUNE 1985 (5/6)

ii 31 MARCH 1986 (5/6) 86-16,17,18,19,20,21

iii 28 ~~MARC~~ MAY 1987 (3/6) 87-55,56,57

iv 23 JUNE 1987 [AUBURN UN. TOOK SAMPLES] (4/6)

v. 23 JUNE 1987 [ADDITIONAL TANK FULL SINCE 28 MAY 1987 - CROSS-SECTIONAL SAMPLE SHOWED MOSTLY WATER - NO ANALYSIS] (1/6) 87-60

VI. 16 SEP 87 (3/6) 87-81,82,83

VII. 6 NOV 87 (1/6) 88-28

VIII. 29 DEC 87 (2/6) 88-36,88-37

IX. MAR 88 (1/6) [SENT TO AUBURN] 88-47

X 17 MAR 88 (1/6) 88-56

5. OLD HOSPITAL [2 TANKS] @ BLDG H-20

a. TOTAL CAPACITY: 30,000 GALLONS

15,000 GALLONS EACH IN UNDERGROUND TANKS

b. SAMPLED

i. 27 MARCH 1985 (2/2)

c. TANKS THOUGHT TO HAVE BEEN REMOVED BY PUBLIC WORKS IN 1986

d. TANKS FOUND TO BE STILL THERE AND FULL - CROSS-SECTIONAL SAMPLES SHOWED MOSTLY WATER - NO ANALYSIS (2/2) 87-58,59

WASTE OIL SUMMARY

A. TANKS

1. BLDG 45

a. TOTAL CAPACITY : 273,370 GALLONS

b. SAMPLED

i. 28 JULY ~~1987~~ 1981

ii 18 MAY 1982

iii. 8 DECEMBER 1983

iv. 30 OCTOBER 1984

v. 18 FEBRUARY 1987 87-31,34 + SEP 87 FOR VOCs

vi. 23 JUNE 1987 [AUBURN UN TOOK SAMPLES]

2. HOLCOMB BLVD, #S-888 → S-891 [4 TANKS]

a. TOTAL CAPACITY : 82,500 GALLONS

i. S-888 → S-890 17,500 GALLONS EACH (52,500)

ii S-891 30,000 GALLONS EACH

b. SAMPLED

i. 3 MAY 1984

ii 31 MARCH 1986 86-22,23,24,25

iii 28 MAY 1987 (4/4) 87-49,50,51,52

iv 23 JUNE 1987 [AUBURN UN. TOOK SAMPLES]

v. 29 DEC 87 (2/4) S-888 (88-34), S-890 (88-35)

vi. MAR 88 (2/4) " (88-45) " (88-46) [SENT TO AUBURN]

3. AIR STATION [3 TANKS]

a. ~~GA~~ TOTAL CAPACITY : 90,000 GALLONS

30,000 GALLONS EACH

b. SAMPLED

i. 13 + 14 AUGUST 1984

ii 5 MARCH 1985 [SAMPLES GIVEN TO DRMO - NO RESULTS]

iii 31 MARCH 1986 86-13,14,15

22 APR 1988

JTC DATA REPORT # 88-141

LABORATORY ANALYSIS ON NAVAL SAMPLES

CONTRACT #N62470-86-C-8754

CASE # 261

Complete

PREPARED FOR:

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511-6287

PREPARED BY:

JTC ENVIRONMENTAL CONSULTANTS, INC.
4 RESEARCH PLACE, SUITE L-10
ROCKVILLE, MARYLAND 20850

APRIL 15, 1988

Ann E. Rosecrance

Ann E. Rosecrance
Laboratory Director

JTC Environmental Consultants, Inc.

Location: Camp Lejeune Date of Receipt: 3-16-88 Turnaround: routine

Date: 4-18-88 Case No. 261 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 88-141 Table 1 of 1

NAVY SAMPLE ID	JTC SAMPLE ID	ANALYSIS PARAMETER							
		Volatiles + Freon	RINSATES						
88-48 3/1/88	61-1590	see attached sheet	S-889						
88-49 3/1/88	61-1591	"	S-891						
88-50 3/3/88	61-1592	"	AS-419						
88-51 3/4/88	61-1593	"	AS-420						
88-52 3/4/88	61-1594	"	AS-421						

J T C Environmental Consultants, Inc.

PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 61-1590 PROJECT NO. NF-61 #261

CLIENT SAMPLE # 88-48 DATE RECEIVED 3-16-88

METHOD NO. 624 DETECTION LIMIT 500 ug/L

PARAMETER	RESULT ug/L	PARAMETER	RESULT ug/L
acrolein	ND	1,2-dichloropropane	ND
acrylonitrile	ND	1,3-dichloropropylene	ND
benzene	ND	ethylbenzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	methyl chloride	ND
1,2-dichloroethane	ND	methyl bromide	ND
1,1,1-trichloroethane	300* ~~ND~~	bromoform	ND
1,1-dichloroethane	ND	dichlorobromomethane	ND
1,1,2-trichloroethane	ND	trichlorofluoromethane	ND
1,1,2,2-tetrachloroethane	ND	dichlorodifluoromethane	ND
chloroethane	ND	chlorodibromomethane	ND
2-chloroethylvinylether	ND	tetrachloroethylene	ND
chloroform	ND	toluene	ND
1,1-dichloroethylene	ND	trichloroethylene	ND
1,2-trans-dichloroethylene	ND	vinyl chloride	ND
		xylenes	ND
		freon	70* ~~ND~~

ND = NOT DETECTED

* = BELOW DETECTION LIMIT

JTC Environmental Consultants, Inc.

PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 61-1591 PROJECT NO. NF-61 #261

CLIENT SAMPLE # 88-49 DATE RECEIVED 3-16-88

METHOD NO. 624 DETECTION LIMIT 500 ug/L

PARAMETER	RESULT ug/L	PARAMETER	RESULT ug/L
acrolein	ND	1,2-dichloropropane	ND
acrylonitrile	ND	1,3-dichloropropylene	ND
benzene	ND	ethylbenzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	methyl chloride	ND
1,2-dichloroethane	ND	methyl bromide	ND
1,1,1-trichloroethane	150* ~~ND~~	bromoform	ND
1,1-dichloroethane	ND	dichlorobromomethane	ND
1,1,2-trichloroethane	ND	trichlorofluoromethane	ND
1,1,2,2-tetrachloroethane	ND	dichlorodifluoromethane	ND
chloroethane	ND	chlorodibromomethane	ND
2-chloroethylvinylether	ND	tetrachloroethylene	ND
chloroform	ND	toluene	200* ~~ND~~
1,1-dichloroethylene	ND	trichloroethylene	ND
1,2-trans-dichloroethylene	ND	vinyl chloride	ND
		xylenes	350* ~~ND~~
		freon	170* ~~ND~~

ND = NOT DETECTED

* = BELOW DETECTION LIMIT

JTC Environmental Consultants, Inc.

PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 61-1592 PROJECT NO. NF-61 #261

CLIENT SAMPLE # 88-50 DATE RECEIVED 3-16-88

METHOD NO. 624 DETECTION LIMIT 500 ug/L

PARAMETER	RESULT ug/L	PARAMETER	RESULT ug/L
acrolein	ND	1,2-dichloropropane	ND
acrylonitrile	ND	1,3-dichloropropylene	ND
benzene	ND	ethylbenzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	methyl chloride	ND
1,2-dichloroethane	ND	methyl bromide	ND
1,1,1-trichloroethane	250* ~~ND~~	bromoform	ND
1,1-dichloroethane	ND	dichlorobromomethane	ND
1,1,2-trichloroethane	ND	trichlorofluoromethane	ND
1,1,2,2-tetrachloroethane	ND	dichlorodifluoromethane	ND
chloroethane	ND	chlorodibromomethane	ND
2-chloroethylvinylether	ND	tetrachloroethylene	ND
chloroform	ND	toluene	ND
1,1-dichloroethylene	ND	trichloroethylene	ND
1,2-trans-dichloroethylene	ND	vinyl chloride	ND
		xylenes	ND
		freon	290* ~~ND~~

ND = NOT DETECTED

* = BELOW DETECTION LIMIT

JTC Environmental Consultants, Inc.

PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 61-1593 PROJECT NO. NF-61 #261

CLIENT SAMPLE # 88-51 DATE RECEIVED 3-16-88

METHOD NO. 624 DETECTION LIMIT 500 ug/L

PARAMETER	RESULT ug/L	PARAMETER	RESULT ug/L
acrolein	ND	1,2-dichloropropane	ND
acrylonitrile	ND	1,3-dichloropropylene	ND
benzene	ND	ethylbenzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	methyl chloride	ND
1,2-dichloroethane	ND	methyl bromide	ND
1,1,1-trichloroethane	6,000 ~~ND~~	bromoform	ND
1,1-dichloroethane	ND	dichlorobromomethane	ND
1,1,2-trichloroethane	ND	trichlorofluoromethane	ND
1,1,2,2-tetrachloroethane	ND	dichlorodifluoromethane	ND
chloroethane	ND	chlorodibromomethane	ND
2-chloroethylvinylether	ND	tetrachloroethylene	ND
chloroform	ND	toluene	250* ~~ND~~
1,1-dichloroethylene	ND	trichloroethylene	ND
1,2-trans-dichloroethylene	ND	vinyl chloride	ND
		xylenes	100* ~~ND~~
		freon	9,060 ~~ND~~

ND = NOT DETECTED

* = BELOW DETECTION LIMIT

JTC Environmental Consultants, Inc.

PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 61-1594 PROJECT NO. NF-61 #261

CLIENT SAMPLE # 88-52 DATE RECEIVED 3-16-88

METHOD NO. 624 DETECTION LIMIT 500 ug/L

PARAMETER	RESULT ug/L	PARAMETER	RESULT ug/L
acrolein	ND	1,2-dichloropropane	ND
acrylonitrile	ND	1,3-dichloropropylene	ND
benzene	ND	ethylbenzene	ND
carbon tetrachloride	ND	methylene chloride	ND
chlorobenzene	ND	methyl chloride	ND
1,2-dichloroethane	ND	methyl bromide	ND
1,1,1-trichloroethane	750 ~~ND~~	bromoform	ND
1,1-dichloroethane	ND	dichlorobromomethane	ND
1,1,2-trichloroethane	ND	trichlorofluoromethane	ND
1,1,2,2-tetrachloroethane	ND	dichlorodifluoromethane	ND
chloroethane	ND	chlorodibromomethane	ND
2-chloroethylvinylether	ND	tetrachloroethylene	ND
chloroform	ND	toluene	150* ~~ND~~
1,1-dichloroethylene	ND	trichloroethylene	ND
1,2-trans-dichloroethylene	ND	vinyl chloride	ND
		xylenes	100* ~~ND~~
		freon	2,440 ~~ND~~

ND = NOT DETECTED

* = BELOW DETECTION LIMIT

WASTE OIL INFO.

1. SPECIFICATION FUEL OIL

ARSENIC (As)	<5 ppm
CADMIUM (Cd)	<2 ppm
CHROMIUM (Cr)	<10 ppm
LEAD (Pb)	<100 ppm
FLASH POINT	>100°F
TOTAL HALOGENS (TOX)	<1000 ppm OR

<4000 ppm IF NO ~~SPE~~ INDIVIDUAL SOLVENT CONTENT IS > 100 ppm

2. HAZARDOUS WASTE FUEL

~~TOTAL H~~ TOX >1000 pm OR

USED OIL THAT HAS BEEN MIXED WITH A HAZARDOUS WASTE

3. OFF-SPEC FUEL OIL

NOT SPEC FUEL OIL BUT NOT A HAZARDOUS WASTE FUEL

HP WWTP INFO

	MAY 87	JUNE 87	LIMIT
INFLUENT BOD	174 ~~15~~	182	NONE
EFFLUENT BOD	15	16	22
% REMOVAL	91	91	NONE

WASTE OIL DATA SUMMARY

A. BLDG 45 - 1981 ANALYSIS

1. A SCAN WAS RUN ON THE OIL FOR 88 ORGANICS OF WHICH THE FOLLOWING CONCENTRATIONS WERE DETECTED

TOLUENE	12 ppb
1,1-DICHLOROETHANE	4 ppb
1,1,1-TRICHLOROETHANE	ND
METHYLENE CHLORIDE	ND
TRICHLOROFLUOROMETHANE	ND
DICHLORODIFLUOROMETHANE	ND
TETRACHLOROETHYLENE	ND
TRICHLOROETHYLENE	1 ppb
PHENOL	16 ppm
PENTACHLOROPHENOL	0.09 ppm
2-CHLOROPHENOL	0.04 ppm
2,4-DICHLOROPHENOL	0.01 ppm
2,4,6-TRICHLOROPHENOL	0.3 ppm

2. A SCAN WAS RUN ON THE OIL FOR 26 PESTICIDES AND PCB'S OF WHICH NONE WERE DETECTED
3. 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113) WAS NOT TESTED FOR.
4. A TOX WAS NOT RUN, HOWEVER OF THE EIGHT DETECTED ORGANICS ABOVE TO HAVE HALOGENS PRESENT.

B. BLDG 45 - 1983 ANALYSIS

1. THIS OIL WAS TESTED FOR THE FOLLOWING SOLVENTS

TOLUENE	1,170 ppm
1,1-DICHLOROETHANE	12,200 ppm
TRICHLOROETHYLENE	110 ppm
PHENOL	<20
PENTACHLOROPHENOL	<50
2-CHLOROPHENOL	<20
2,4-DICHLOROPHENOL	<20
2,4,6-TRICHLOROPHENOL	<40
TOTAL PHENOLS	13,480 ppm

2. NO TOX WAS RUN BUT BASED ON THE ABOVE DATA IT WOULD BE AT LEAST 1.331 %

3. FREON 113 WAS NOT TESTED FOR.

C. TT TANKS - 5 WERE ANALYZED 6/6/85 AND 3/31/86 - ~~SAME~~
SAME OIL

TANK		5T61	5T62	5T63	5T64	5T65
FREON 113		1800 ppm	1253.4 ppm	780 ppm	1755 ppm	2000 ppm
TRICHLOROFLUOROMETHANE		ND	666 ppm	195 ppm	13.5 ppm	ND
XYLENE	NON-HALOGENATED	1040 ppm	506 ppm	391 ppm	155 ppm	550 ppm
TOLUENE	NON-HALOGENATED	1250 ppm	501 ppm	321 ppm	205 ppm	397 ppm
TOX %		0.13%	0.34%	0.15%	0.13%	0.18%
TOX ppm		1300	3400	1500	1300	1800
POSSIBLE CONCLUSION:		ALL FREON	FREON +	FREON +	ALL FREON	ALL FREON

D. COMMAND WASTE OIL MINI-STUDY 1985

COMMAND		MCAS-NR	2ND FSSG	2ND MAR DIV
BTU/lb		13,600	14,800	14,700
ARSENIC	mg/kg	<1.0	<1.0	<1.0
CADMIUM	mg/kg	<0.5	~~<20~~ 6.0	4.7
CHROMIUM	mg/kg	1.0	1.4	4.3
LEAD	mg/kg	37.2	48.9	336
BENZENE ppm	DET LEVEL WAS 50 ppm	15.7	ND	111.0
ETHYLBENZENE ppm	DET LEVEL WAS 50 ppm	63.4	ND	93.6
TOLUENE ppm	DET LEVEL WAS 50 ppm	134.0	77.9	456.0
TOTAL XYLENES ppm	DET LEVEL WAS 50 ppm	274.0	83.6	437.0
FREON 113 ppm	DET LEVEL WAS 50 ppm	17,400		ND
TOX (BASED ON FREON)	DET LEVEL WAS 50 ppm	1.74 %		0

CONCLUSIONS:

1. BASED ON THE FIRST WASTE OIL PUT INTO THE TARAWA TERRACE LP TANKS ~~TH~~ WHICH WAS ANALYZED TWICE (6/6/85 + 3/31/86) THE MAIN HALOGENATED SOLVENT COMPOSING ~~OUR~~ THE TOX IN OUR WASTE OIL IS 1,1,2-TRICHLORO-1,2,2,TRIFLUOROETHANE (FREON 113).

   USERS OF FREON 113 ARE

   ① E.C.+M.S. LAB - WASTE IS EVAPORATED DURING OIL + GREASE ANALYSIS

   ② 2ND FSSG - USES AEROSAL CANS TO CLEAN GAUGES

   ③ MCAS-NEW RIVER - BUYS SOLVENT DRUMS

   ④ BASE MAINTENACE (?) - NO KNOWN WASTE STREAM

2. BASED ON THE MINI-STUDY OF ~~OIL~~ WASTE OIL GENERATED BY ~~THE VARIOUS COMMANDS~~ MCAS-NR, 2ND FSSG AND 2ND MAR DIV, THE FREON 113 IS BEING ADDED TO THE WASTE OIL ~~AND~~ AT MCAS-NR. 2ND MAR DIV ~~OIL~~ WASTE OIL, ~~SHOWF~~ WHICH HAD THE HIGHEST LEVEL OF LEAD (10 X GREATER THAN 2ND FSSG OR MCAS-NR), DID NOT SHOW ANY FREON 113. 2ND FSSG ~~LOOKS~~ DATA MAY BE INCOMPLETE OR DID NOT SHOW ANY FREON 113.

3. BASED ON MY OWN KNOWLEDGE THAT BASE MAINTENANCE HAS NOT SEGREGATED THE WASTE OIL, IT APPEARS TO ME THAT ~~THE~~ MOST OF THE TOTAL ORGANIC HALOGEN LEVEL HAS TO ~~BE~~ COME FROM MCAS-NEW RIVER

As of 15 NOV 88

STORAGE LOCATION	LAST SAMPLE DATE	SAMPLE #	REPORT #	COMMENTS
S-781	18 FEB 87	87-31 - 87-34	JTC 87-444	Rinseate from tank cleanings were added to sludge. Rinseate analysis analysis is JTC 88-141.
AS-419	20 JUN 88	88-64	JTC 88-359	
STT-61	28 MAY 87	87-55	JTC 87-247	
STT-62	28 MAY 87	87-56	JTC 87-247	
STT-63	17 MAR 88	88-56	JTC 88-144	
STT-64	15 SEP 87	87-81	JTC 87-441	
STT-65	15 SEP 87	87-82	JTC 87-441	
STT-66	5 OCT 88	89-03	JTC 88-471	
S-888	15 AUG 88	88-74	88-380	
S-889	15 JUN 88	88-61	88-353	
S-890	17 OCT 88	89-22	88-483	Partial Results
S-891	17 OCT 88	89-23	88-483	Partial Results

T-6246

6240
NREAD
MAR 17 1988

Dr. A. Ray Tarrer
Professor of Chemical Engineering
Engineering Extension Service
Auburn University
Auburn, Alabama 36849-3501

Dear Dr. Tarrer:

Enclosed are samples from three waste oil tanks at Marine Corps Base, Camp Lejeune. This oil is being turned over to our Defense Reutilization and Marketing Office. On March 11, 1988, Mr. Danny Sharpe of the Base Environmental Office spoke to you on the phone about the oil in these tanks. These samples are provided for your use in determining if your facility can use the oil. Sample number 88-45 is from Tank S-888, Sample number 88-46 is from Tank S-890, and Sample number 88-47 is from Tank STT-66.

Sincerely,

T. J. DALZELL
Colonel, U. S. Marine Corps
Assistant Chief of Staff, Facilities
By direction of the Commanding General

Blind Copy to:
EC&MS (2)

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a) AMTRACS IS DRAINING RADIATORS AS WELL AS OIL IN WASTE OIL TANK.

b) HB TANKS FULL

c) MCAS 2 OF 3 TANKS FULL

d) TT 3 OF 6 TANKS FULL

~~4 JUN~~

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23 JUN 87 : TOM + I ACCOMPANIED JIM KANG ~~AT~~ FROM AUBURN UNIVERSITY AS HE SAMPLED ALL FULL WASTE OIL TANKS. THAT INCLUDED BLDG 45, HB (4/4), MCAS (2/3) AND TT (4/6). THE LAB ALSO PULLED A SAMPLE OF THE 4TH TANK AT TT. THE SAMPLE IS ALMOST ~~ENTIRELY~~ ALL WATER. ANTIFREEZE IS ALSO PRESENT.

6 JUL 87: DEWATERED FIRST TANK AT HOLCOMB BLVD. WATER CARRIED TO HADNOT POINT WASTEWATER PLANT AND EMPTIED INTO FIRST DRYING BED OUTSIDE OFFICE. BIOCHEMICAL OXYGEN DEMAND ~~[illegible]~~ (BOD) WERE COLLECTED.

7 JUL 87: BOD SAMPLES WERE SET UP OF ~~THE DEW WATER~~ THE WATER AT THE DEWATERING PROCESS, AT THE DRYING BED DRAIN AND AT THE WEIR OF THE PRIMARIES. SEVERAL DILUTIONS WERE USED.

8 JUL 87: BODs WERE CHECKED. THE 200 mL + 100 mL DILUTIONS OF THE WATER AT THE WEIR WERE COMPLETELY DEPLETED. THE 25 mL DILUTION SHOWED A BOD OF 92 mg/L FOR THE FIRST 24 HOURS

9 JUL 87: THE 25 mL DILUTION AT THE WEIR HAD A BOD OF 164 mg/L FOR A 2+DAY BOD

0 JUL 87: THE 3 DAY BOD AT THE WEIR HAD A BOD OF 228 mg/L
RECEIVED ANALYSIS OF 28 MAY 87 SAMPLES EXCEPT FOR SPECIFIC SOLVENT CONTENT IN 6 TANKS

2 JUL 87: FINAL 5-DAY BOD WERE READ FOR 6 JUL 87 SAMPLES

WATER @ DEWATERING @ HB	: 34,500 mg/L
WATER @ DRYING BED DRAIN	: 35,000 mg/L
WATER @ PRIMARY WEIR	: ~~B~~ 304 mg/L

(~~#~~ WASTE OIL TANK WATER MIXED WITH INFLUENT)

HP INFLUENT	84 mg/L
HP EFFLUENT	14 mg/L
HP % REMOVAL	83 %

3 JUL 87: 5-DAY BODs WERE READ FOR 7 JUL 87 SAMPLE (USUAL WW)

HP INFLUENT	164 mg/L
HP EFFLUENT	10 mg/L

HP % REMOVAL 94%

WASTE TREATMENT LABORATORY WORKSHEET
MCBCL 11345/5 (REV. 11-85)

VERITIFED WINKLER: Yes

OVEN TEMP °: SPECIAL SAMPLES

DATE: 7-6-87

PLANT		BOD ELEMENT 00310 #	DO_1	DO_5	DEP	BOD mg/l	%
HP	R	5 ML	9.0	7.3	1.7	340	304
WEIR	T	25 ML	9.0	CAN'T 1 DAY 2.3	6.7	268	one
	R	100	8.5	OUT IN 1 DAY			
WEIR 10 ML SEED	T	200	8.4	OUT IN 1 DAY 0.0			WINKLER
CG	R						
	T						
DRAIN	R						
DRY BED	T	1/10 ML	8.9	5.4	3.5	35000	
DRAIN OB	R	1 ML	8.8	0	—	CAN'T CAL	WINK
	T						
DEWAT LEACING #1 TANK	R	1/100	9.0	5.55	3.45	34,500	
	T	ML					
RR	R	1 ML	8.8	0	—	CAN'T CAL	WINK
	T						
DUP	R						
	T						
STD		50					
SEED		SEED	9.0	7.45	1.55	31	
BLK	A	SPECIAL					
	B	1	8.8	8.7			

#	DISH & SOLID	DISH	SOLID	VOLUME	SOLIDS mg/l	%

COLIFORM DIL	TOTAL	FECAL

WEIR OF PRIMARIES
H.P. 1150 7-6-87

DRAIN FROM DRY BED.

Dewaterings HB Wastel #1 TANK

TUES DO_1 — 9.0
WED — 6.7 DO_2 = 9.2
THUR — 4.9 DO_3 = 16.4
FRI 3.3 DO_4 = 22.8
SUN 2.68

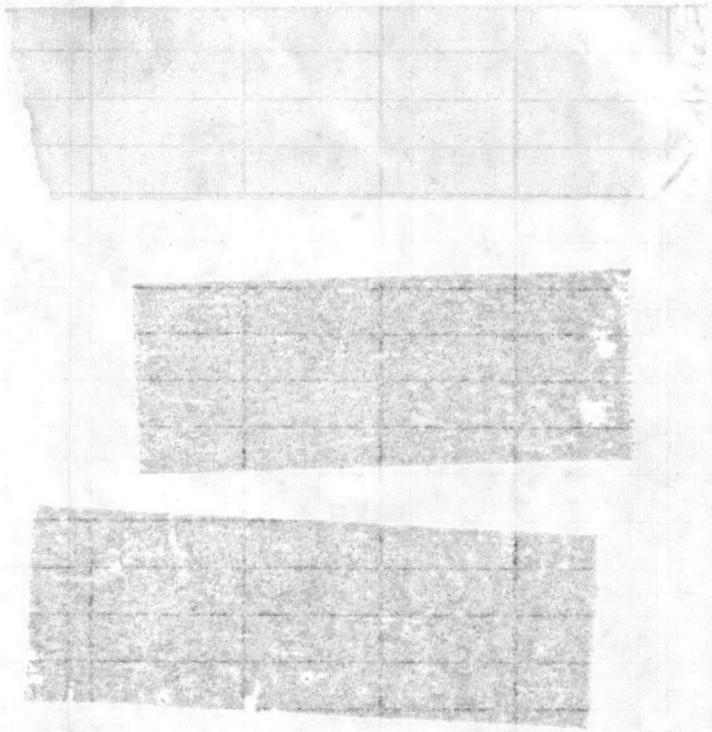
WEIR 25 ML

REMARKS

CS,

CHECK WEIR 25 ML THURS FRI

WEIR 25 DO — 1st DAY 6.7 − 1 ↓ 4.9 3.3



WASTE TREATMENT LABORATORY WORKSHEET
MCBCL 11345/5 (REV. 11-85)

VERITIFED WINKLER: Y ✓

OVEN TEMP °: SPECIAL SAMPLES

DATE: 7-6-87

PLANT		BOD ELEMENT 00310 #	DO_1	DO_5	DEP	BOD mg/l	%	SUSPENDED SOLIDS ELEMENT C0530 #	DISH & SOLID	DISH	SOLID	VOLUME	SOLIDS mg/l	%	COLIFORM DIL	TOTAL MFC/100 ML	FECAL MFC/100 ML
HP	R	5 ML	9.0	7.3	1.7	340	304										
WEIR	T	25 ML	9.0	CK 1 DAY 2.3	6.7	268	and										
	R	100	8.5	OUT IN 1 DAY			WINKLER										
WEIR 18 ML SEED	T	200	8.4	OUT IN 1 DAY 0	0												
CG	R																
	T																
DRAIN	R																
DRY BED	T	1/10 ML	8.9	5.4	3.5	35000											
DRAIN OB	R	1 ML	8.8	0	—	CAN'T CAL	WINK										
	T																
DEWAT	R	1/100	9.0	5.55	3.45	34,500											
LEACING #1 TANK	T	ML															
RR	R	1 ML	8.8	0	—	CAN'T CAL	WINK										
	T																
DUP	R																
	T																
STD		50															
SEED		SEED	9.0	7.45	1.55	31											
BLK	A	SPECIAL															
	B	1	8.8	8.7													

WEIR OF PRIMARIES
H.P. 1150 7-6-87

DRAIN FROM
DRY BED.

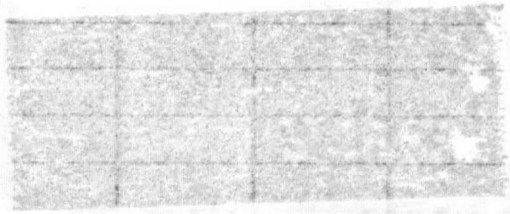
Dewaterings
HB WATER #1 TANK

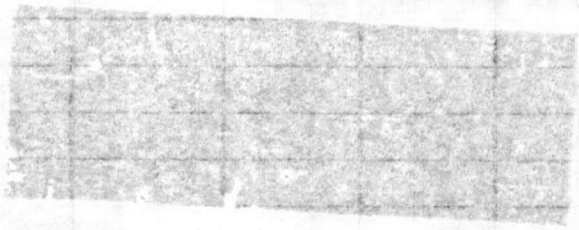
REMARKS

CS,

CHECK WEIR 25 ML THURS FRI

WEIR 25 DO- 1st DAY 6.7 - 1 ↓ 4.9 3.3





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WATER @ DEWATERING @ HB	34,500 mg/L
WATER @ DRYING BED DRAIN	35,000 mg/L
WATER @ PRIMARY WEIR	304 mg/L
(WASTE OIL TANK WATER MIXED WITH INFLUENT)	
HP INFLUENT	84 mg/L
HP EFFLUENT	14 mg/L
HP % REMOVAL	83 %

13 JUL 87: 5-DAY BODs WERE READ FOR 7 JUL 87 SAMPLE (USUAL WW)

HP INFLUENT	164 mg/L
HP EFFLUENT	10 mg/L

HP % REMOVAL 94%

*700,000 GALLONS

CONTINUATION SHEET	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	DLA200-81-R-0021	12	77 PAGES

NAME OF OFFEROR OR CONTRACTOR

BIDDING SCHEDULE — ESTIMATED ANNUAL

ITEM NO.	SECTION B SUPPLIES/SERVICES & PRICE/COST	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0142	Contaminated containers, empty (may contain up to one (1) inch of any material listed in this schedule)(various size containers less than 55 gallon drum).	2,500	LB	.40	1,000.00
0143	Oil (may be contaminated with but not limited to anything listed in bidding schedule plus water, thinner, fuels, paint, MEK, hydraulic fluid, heavy metal and degreaser)(contained in 16 tanks of various sizes located at Lejeune)	550,500	GL	.80	440,400.00
	Underground tanks 1. 15,000 gl 2. 15,000 gl				
	Above ground tanks 3. 30,000 gl AS 4. 30,000 gl AS 5. 30,000 gl AS 6. 17,500 gl Holcomb 7. 17,500 gl Holcomb 8. 17,500 gl Holcomb 9. 30,000 gl Holcomb 10. 273,000 gl Bldg 45 11. 12,500 gl TT 12. 12,500 gl TT 13. 12,500 gl TT 14. 12,500 gl TT 15. 12,500 gl TT 16. 12,500 gl TT				
0143A	Water Purification Tablets	200	LB	1.25	250.00

WASTE OIL INFO.

1. SPECIFICATION FUEL OIL

ARSENIC (As)	<5 ppm
CADMIUM (Cd)	<2 ppm
CHROMIUM (Cr)	<10 ppm
LEAD (Pb)	<100 ppm
FLASH POINT	>100°F
TOTAL HALOGENS (TOX)	<1000 ppm OR

<4000 ppm IF NO ~~SPE~~ INDIVIDUAL SOLVENT CONTENT IS > 100 ppm

2. HAZARDOUS WASTE FUEL

~~TOTAL H~~ TOX >1000 pm OR

USED OIL THAT HAS BEEN MIXED WITH A HAZARDOUS WASTE

3. OFF-SPEC FUEL OIL

NOT SPEC FUEL OIL BUT NOT A HAZARDOUS WASTE FUEL

HP WWTP INFO

		MAY 87	JUNE 87	LIMIT
INFLUENT	BOD	174 ~~15~~	182	NONE
EFFLUENT	BOD	15	16	22
	% REMOVAL	91	91	NONE

CONTINUATION SHEET	REFERENCE NO. OF DOCUMENT BEING CONTINUED	PAGE	OF
	DLA200-81-R-0021	12	79 PAGES

NAME OF OFFEROR OR CONTRACTOR

BIDDING SCHEDULE — ESTIMATED ANNUAL

ITEM NO.	SECTION B SUPPLIES/SERVICES & PRICE/COST	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0142	Contaminated containers, empty (may contain up to one (1) inch of any material listed in this schedule)(various size containers less than 55 gallon drum).	2,500	LB	.40	1,000.00
0143	Oil (may be contaminated with but not limited to anything listed in bidding schedule plus water, thinner, fuels, paint, MEK, hydraulic fluid, heavy metal and degreaser)(contained in 16 tanks of various sizes located at Lejeune)	550,500	GL	.80	440,400.00
	Underground tanks 1. 15,000 gl 2. 15,000 gl				
	Above ground tanks 3. 30,000 gl — ~~Holcomb~~ AS 4. 30,000 gl AS 5. 30,000 gl AS 6. 17,500 gl Holcomb 7. 17,500 gl Holcomb 8. 17,500 gl Holcomb 9. 30,000 gl Holcomb 10. 273,000 gl — BLC 45 11. 12,500 gl TT 12. 12,500 gl TT 13. 12,500 gl TT 14. 12,500 gl TT 15. 12,500 gl TT 16. 12,500 gl TT				
0143A	Water Purification Tablets	200	LB	1.25	250.00

WASTE OIL SUMMARY (AS PROVIDED TO EPA IN 1987)

A. TANKS

1. BLDG 45

a. CAPACITY: ~~27~~ 273,370 GALLONS

b. SAMPLED:

i. 28 JULY 1981

ii. 18 MAY 1982

iii 8 DECEMBER 1983

iv 30 OCTOBER 1984

v 18 FEB 1987

2. HOLCOMB BLVD, S-888, S-889, S-890, ~~S-890~~ S-891

a. CAPACITY:

i. S-888 - S-890 17,585 ~~EACH~~ GALLONS EACH

ii S-891 30,000 GALLONS EACH

b. SAMPLED:

i 3 MAY 1984

ii 31 MARCH 1986

3. AIR STATION (3 TANKS)

a. CAPACITY: 30,000 GALLONS EACH

b. SAMPLED.

i 13+14 AUGUST 1984

ii 5 MARCH 1985 (SAMPLES GIVEN TO DRMO) - NO RESULTS

iii 31 MARCH 1986

iv 29 APRIL 1986 (ONE TANK - 3 LEVELS)

4. TARAWA TERRACE (6 TANKS)

a. CAPACITY: 30,000 GALLONS EACH

b. SAMPLED:

i 6 JUNE 1985 (5 TANKS)

ii 31 MARCH 1986 (5 TANKS)

5. OLD HOSPITAL (2 TANKS) BLDG H-20

a. SAMPLED. 27 MARCH 1985

b. TANKS WERE REMOVED IN 1986.

B. STUDY. - ~~5 MARCH 19~~ COLLECTED FROM 5-27 MARCH 1985

1. JTC SAMPLE ID # 12-0763 – 12-0771 IS OIL FROM AIR STATION FACILITIES' WASTE OIL TANKS

2. JTC. SAMPLE ID # 12-0772 - 12-0776 IS OIL FROM 2ND FSSG FACILITIES' WASTE OIL TANKS

3. JTC SAMPLE ID # ~~12-0919~~ 12-0911 - 12-0917 IS OIL FROM 2ND MARINE DIVISION'S WASTE OIL TANKS.

ORIGINAL FILED 11337

ROUTINE REPLY, ENDORSEMENT, TRANSMITTAL OR INFORMATION SHEET

OPNAV 5216/158 (Rev. 7-78)
SN 0107-LF-052-1691

A WINDOW ENVELOPE MAY BE USED
Formerly NAVEXOS 3789

CLASSIFICATION (*UNCLASSIFIED when detached from enclosures, unless otherwise indicated*)

FROM (*Show telephone number in addition to address*)
LANTNAVFACENGCOM Code 114

DATE 8 July 85

SUBJECT
Lab Results on Waste Oil Samples

SERIAL OR FILE NO.

TO:
Mr. Danny Sharpe
Natural Resources & Environmental Affairs
Marine Corps Base
Camp Lejeune, NC 28542-5001

REFERENCE

ENCLOSURE
JTC Lab Report #54 date 28 Jan 1985

VIA:

ENDORSEMENT ON

☐ FORWARDED ☐ RETURNED ☐ FOLLOW-UP, OR TRACER ☒ REQUEST ☐ SUBMIT ☐ CERTIFY ☐ MAIL ☐ FILE

GENERAL ADMINISTRATION	CONTRACT ADMINISTRATION	PERSONNEL
FOR APPROPRIATE ACTION	NAME & LOCATION OF SUPPLIER OF SUBJECT ITEMS	REPORTED TO THIS COMMAND:
UNDER YOUR COGNIZANCE	SUBCONTRACT NO. OF SUBJECT ITEM	
INFORMATION	APPROPRIATION SYMBOL, SUBHEAD, AND CHARGEABLE ACTIVITY	DETACHED FROM THIS COMMAND
APPROVAL RECOMMENDED ☐ YES ☐ NO	SHIPPING AT GOVERNMENT EXPENSE ☐ YES ☐ NO	OTHER
☐ APPROVED ☐ DISAPPROVED	A CERTIFICATE, VICE BILL OF LADING	
COMMENT AND/OR CONCURRENCE	COPIES OF CHANGE ORDERS, AMENDMENT OR MODIFICATION	
CONCUR	CHANGE NOTICE TO SUPPLIER	
LOANED, RETURN BY:	STATUS OF MATERIAL ON PURCHASE DOCUMENT	
SIGN RECEIPT & RETURN		
REPLY TO THE ABOVE BY:		
REFERENCE NOT RECEIVED		
SUBJECT DOCUMENT FORWARDED TO:		
SUBJECT DOCUMENT RETURNED FOR:		
SUBJECT DOCUMENT HAS BEEN REQUESTED, AND WILL BE FORWARDED WHEN RECEIVED		
COPY OF THIS CORRESPONDENCE WITH YOUR REPLY		
ENCLOSURE NOT RECEIVED		
ENCLOSURE FORWARDED AS REQUESTED		
ENCLOSURE RETURNED FOR CORRECTION AS INDICATED		
CORRECTED ENCLOSURE AS REQUESTED		
REMOVE FROM DISTRIBUTION LIST		
REDUCE DISTRIBUTION AMOUNT TO:		

REMARKS (*Continue on reverse*)

Enclosed is the lab report on the waste oil samples that you collected, I also sent a copy of this to Jim Speakman at EnSafe for the study.

SIGNATURE & TITLE Paul Parker

COPY TO:
EnSafe, Memphis TN
(901) 372-7962

CLASSIFICATION (*UNCLASSIFIED when detached from enclosures, unless otherwise indicated*)

☆ U.S. Government Printing Office: 1983—605-010/8603 2-1

REPORT # 54

LABORATORY ANALYSIS ON

NAVAL SAMPLES

(A/E CONTRACT N62470-84-B-6932)

JTC REPORT # 85-254

PREPARED FOR:

DEPARTMENT OF THE NAVY

ATLANTIC DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

NORFOLK, VA 23511

PREPARED BY:

JTC ENVIRONMENTAL CONSULTANTS, INC.

4 RESEARCH PLACE, SUITE L-10

ROCKVILLE, MARYLAND 20850

JUNE 28, 1985

Ann E. Rosecrance

Ann E. Rosecrance
Laboratory Director

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 1 Date of Sample Receipt 3/28/85 & 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID	ANALYSIS PARAMETER							
		pH (Corrosivity)	Flashpoint °F	Reactivity		PCB µg/g			
				Cyanide ppm	Sulfide ppm				
#23A Bldg HP100	12-0920	7.18	< 85	0.9	<1	<1			
#23B Bldg HP100	12-0921	6.55	< 85	<1.0	<1	<1			
#27H Bldg 251	12-0922	1.52	>200	0.02	<0.1	<1			
#27I Bldg 251	12-0923	<1.0	>200	0.03	<0.1	<5			
#28J Landfill	composite 12-0924	6.32	>200	<0.10	1.0	<5			
#28K Landfill	12-0925								
#28L Landfill	12-0926								
#29 Bldg TP457	12-0927	<1.0	153	<0.05	<0.1	<1			
#30 Bldg TP457	12-0928	4.89	<85	<0.05	<0.2	<10			
#31 Bldg TP457	12-0929	5.25	<85	<0.05	<0.5	<10			
#32O Bldg TP451	12-0930	9.56	<85	<1.0	<0.5	<10			
#32P Bldg TP451	12-0931	6.85	<85	6.2	<1	0.05 µg/ml			
#32Q Bldg TP451	12-0932	6.91	<85	<1.0	<0.5	<0.1 µg/ml			

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 2 Date of Sample Receipt 3/28/85 + 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID	ANALYSIS PARAMETER						
		% water / % sediment	% sulfur	Flashpoint °F	BTU per lb.	Reactivity: Cyanide ppm	Reactivity: Sulfide ppm	Corrosivity pH
#4 Bldg 515 hanger	12-0763	25	0.11	164	13,600	<1.0	<1	7.72
#5 Bldg 518 hanger	12-0764							
#6 Bldg 504	12-0765							
#7 [redacted] 504	12-0766							
#8 Bldg 4147	12-0767							
#9 Bldg 4100	12-0768							
#10 Bldg 4108 comp	12-0769							
#11 Bldg 4108	12-0770							
#12 Bldg 4106	12-0771							
#13 Bldg 1601	12-0772	14	0.48	165	14,800	1.3	5	8.80
#14 Bldg 1607	12-0773							
#15 Bldg 909	12-0774							
#16 Bldg 901	12-0775							
#17 Bldg 902	12-0776							
#18 [redacted] 1205-1206	12-0911	24	0.74	171	14,700	2.4	20	9.00
#19 Bldg 1505-1506	12-0912							
#20 Bldg 1450	12-0913							
#21 Bldg 1854	12-0914							
#22 Bldg A2	12-0915							
#25A Bldg 1775	12-0916							
#25B Bldg 1775	12-0917							
#24A Bldg H20	12-0918	60	0.54	130	8,000	2.8	<1	7.86
#24B Bldg H20	12-0919	x	x	x	x	x	x	7.39

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 3 Date of Sample Receipt 3/28/85 & 5/23/85

NAVY SAMPLE ID		JTC SAMPLE ID	ANALYSIS PARAMETER							
			Phenol ppm	PCB mg/g	VOA					
#4 Bldg 515 hanger	composite	12-0763	20	<1	See attached sheet +					
#5 Bldg 518 hanger		12-0764								
#6 Bldg 504		12-0765								
#7 Bldg 504		12-0766								
#8 Bldg 4147		12-0767								
#9 Bldg 4100		12-0768								
#10 Bldg 4108 comp		12-0769								
#11 Bldg 4108		12-0770								
#12 Bldg 4106		12-0771								
#13 Bldg 1601	composite	12-0772	30	<1	See attached sheet					
#14 Bldg 1607		12-0773								
#15 Bldg 909		12-0774								
#16 Bldg 901		12-0775								
#17 Bldg 902		12-0776								
#18 Bldg 1205-1206	composite	12-0911	15	<1	See attached sheet +					
#19 Bldg 1505-1506		12-0912								
#20 Bldg 1450		12-0913								
#21 Bldg 1854		12-0914								
#22 Bldg A2		12-0915								
#25A Bldg 1775		12-0916								
#25B Bldg 1775		12-0917								
#24A Bldg H20		12-0918	510	<1	" +					
#24B Bldg H20		12-0919	x	<1	" +					

+ Tentatively identified compounds report also attached x sample fraction lost

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 4 Date of Sample Receipt 3/28/85 + 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID	ANALYSIS PARAMETER							
		As mg/kg	Ba mg/kg	Cd mg/kg	Cr mg/kg	Pb mg/kg	Hg mg/kg	Se mg/kg	Ag mg/kg
#4 Bldg 515 hanger	12-0763								
#5 Bldg 518 hanger	12-0764								
#6 Bldg 504	12-0765								
#7 Bldg 504	12-0766								
#8 Bldg 4147	12-0767	<1.0	<20	<0.5	1.0	37.2	<0.10	<0.40	<1.0
#9 Bldg 4100	12-0768								
#10 Bldg 4108 comp	12-0769								
#11 Bldg 4108	12-0770								
#12 Bldg 4106	12-0771								
#13 Bldg 1601	12-0772								
#14 Bldg 1607	12-0773								
#15 Bldg 909	12-0774	<1.0	<20	6.0	1.4	48.9	<0.10	1.1	1.1
#16 Bldg 901	12-0775								
#17 Bldg 902	12-0776								
#18 Bldg 1205-1206	12-0911								
#19 Bldg 1505-1506	12-0912								
#20 Bldg 1450	12-0913								
#21 Bldg 1854	12-0914	<1.0	<20	4.7	4.3	336	<0.10	1.6	<1.0
#22 Bldg A2	12-0915								
#25A Bldg 1775	12-0916								
#25B Bldg 1775	12-0917								
#24A Bldg H20	12-0918	<1.0	<20	2.5	24.4	42.6	<0.10	1.7	<1.0
#24B Bldg H20	12-0919	<1.0	<20	0.5	42.2	32.4	<0.10	2.0	1.0

Composite

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 5 Date of Sample Receipt 3/28/85 & 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID	ANALYSIS PARAMETER							
		As	Ba	Cd	Cr	Pb	Hg	Se	Ag
#23A Bldg HP100	12-0920	<1.0 mg/kg	<20 mg/kg	22.6 mg/kg	1.6 mg/kg	148 mg/kg	0.18 mg/kg	1.5 mg/kg	<1.0 mg/kg
#23B Bldg HP100	12-0921	<1.0 mg/kg	<20 mg/kg	4.8 mg/kg	1.4 mg/kg	0.8 mg/kg	<0.10 mg/kg	2.2 mg/kg	<1.0 mg/kg
#27H Bldg 251	12-0922	<50 ug/L	1170 ug/L	2440 ug/L	65 ug/L	9850 ug/L	<1.0 ug/L	141 ug/L	<50 ug/L
#27I Bldg 251	12-0923	290 ug/L	<1000 ug/L	680 ug/L	13,100 ug/L	3,120 ug/L	<1.0 ug/L	1960 ug/L	<50 ug/L
#28J Landfill (composite)	12-0924	2.3 mg/kg	<20 mg/kg	<0.50 mg/kg	2.3 mg/kg	4.5 mg/kg	<0.10 mg/kg	<0.40 mg/kg	<1.0 mg/kg
#28K Landfill (composite)	12-0925								
#28L Landfill (composite)	12-0926								
#29 Bldg TP457	12-0927	*	*	*	*	*	*	*	*
#30 Bldg TP457	12-0928	<50 ug/L	7800 ug/L	<25 ug/L	<50 ug/L	62.5 ug/L	22 ug/L	<20 ug/L	<50 ug/L
#31 Bldg TP457	12-0929	<50 ug/L	3130 ug/L	<25 ug/L	185 ug/L	21 ug/L	<1.0 ug/L	<20 ug/L	<50 ug/L
#32O Bldg TP451	12-0930	+	+	+	+	+	1925	+	+
#32P Bldg TP451	12-0931	<50 ug/L	1295 ug/L	<25 ug/L	63,600 ug/L	6250 ug/L	3.7 ug/L	<20 ug/L	<50 ug/L
#32Q Bldg TP451	12-0932	<50 ug/L	1535 ug/L	130 ug/L	93,900 ug/L	40,200 ug/L	7.9 ug/L	<20 ug/L	<50 ug/L

* sample depleted

\+ sample requires redigestion prior to completion of analysis

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0763 to 12-0771 composite PROJECT NO. NF-12

CLIENT SAMPLE ID 4-12 1:5000 Dilution DATE RECEIVED 3/28/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit
2V acrolein	N.D.
3V acrylonitrile	N.D.
4V benzene	15,700 * ~~N.D.~~
6V carbon tetrachloride	N.D.
7V chlorobenzene	N.D.
10V 1,2-dichloroethane	N.D.
11V 1,1,1-trichloroethane	N.D.
13V 1,1-dichloroethane	N.D.
14V 1,1,2-trichloroethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.
16V chloroethane	N.D.
19V 2-chloroethylvinyl ether	N.D.
23V chloroform	N.D.
29V 1,1-dichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.

PARAMETER	RESULT ug/lit
32V 1,2-dichloropropane	N.D.
33V 1,3-dichloropropylene	N.D.
38V ethylbenzene	63,400 ~~N.D.~~
44V methylene chloride	N.D.
45V methyl chloride	N.D.
46V methyl bromide	N.D.
47V bromoform	N.D.
48V dichlorobromomethane	N.D.
49V trichlorofluoromethane	N.D.
50V dichlorodifluoromethane	N.D.
51V chlorodibromomethane	N.D.
85V tetrachloroethylene	N.D.
86V toluene	134,000 ~~N.D.~~
87V trichloroethylene	N.D.
88V vinyl chloride	N.D.
total xylenes	274,000

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0763 to 12-0771 composite Client Sample ID 4-12 (1:5000 Dilution)

COMPOUND	ESTIMATED CONCENTRATION
1,1,2-trichloro-1,2,2-trifluoroethane	17,400,000 ug/l
3-methylpentane	47,100
2-methylpentane	96,200
hexane	100,000
3-methylhexane	47,200
C_7H_{16}	39,800
Trimethylcyclohexane	108,000
C_9H_{16}	129,000
Ethyl-methyl-cyclohexane	606,000
Methyl-propyl-benzene	267,000

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0772 to 12-0776 composite PROJECT NO. NF-12

CLIENT SAMPLE ID 13-17 1:5000 Dilution DATE RECEIVED 3/28/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit	PARAMETER	RESULT ug/lit
2V acrolein	N.D.	32V 1,2-dichloropropane	N.D.
3V acrylonitrile	N.D.	33V 1,3-dichloropropylene	N.D.
4V benzene	N.D.	38V ethylbenzene	N.D.
6V carbon tetrachloride	N.D.	44V methylene chloride	N.D.
7V chlorobenzene	N.D.	45V methyl chloride	N.D.
10V 1,2-dichloroethane	N.D.	46V methyl bromide	N.D.
11V 1,1,1-trichloroethane	N.D.	47V bromoform	N.D.
13V 1,1-dichloroethane	N.D.	48V dichlorobromomethane	N.D.
14V 1,1,2-trichloroethane	N.D.	49V trichlorofluoromethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.	50V dichlorodifluoromethane	N.D.
16V chloroethane	N.D.	51V chlorodibromomethane	N.D.
19V 2-chloroethylvinyl ether	N.D.	85V tetrachloroethylene	N.D.
23V chloroform	N.D.	86V toluene 77,900	~~N.D.~~
29V 1,1-dichloroethylene	N.D.	87V trichloroethylene	ND
30V 1,2-trans-dichloroethylene	N.D.	88V vinyl chloride	N.D.
		total xylenes	83,600

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0911 to 12-0917 Composite PROJECT NO. NF-12

CLIENT SAMPLE ID 18-22, 25A, 25B 1:5000 Dilution DATE RECEIVED 5/23/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit	PARAMETER	RESULT ug/lit
2V acrolein	N.D.	32V 1,2-dichloropropane	N.D.
3V acrylonitrile	N.D.	33V 1,3-dichloropropylene	N.D.
4V benzene	111,000 ~~N.D.~~	38V ethylbenzene	93,600 ~~N.D.~~
6V carbon tetrachloride	N.D.	44V methylene chloride	N.D.
7V chlorobenzene	N.D.	45V methyl chloride	N.D.
10V 1,2-dichloroethane	N.D.	46V methyl bromide	N.D.
11V 1,1,1-trichloroethane	N.D.	47V bromoform	N.D.
13V 1,1-dichloroethane	N.D.	48V dichlorobromomethane	N.D.
14V 1,1,2-trichloroethane	N.D.	49V trichlorofluoromethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.	50V dichlorodifluoromethane	N.D.
16V chloroethane	N.D.	51V chlorodibromomethane	N.D.
19V 2-chloroethylvinyl ether	N.D.	85V tetrachloroethylene	N.D.
23V chloroform	N.D.	86V toluene	456,000 ~~N.D.~~
29V 1,1-dichloroethylene	N.D.	87V trichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.	88V vinyl chloride	N.D.
		total xylenes	437,000

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0911 to 12-0917 Client Sample ID composite 18-22, 25A, 25B (1:5000 Dilution)

COMPOUND	ESTIMATED CONCENTRATION
2-methylbutane	237,000
pentane	165,000
methylcyclopentane	133,000
2,3-dimethylbutane	58,300
3-methylpentane	232,000
2-methylpentane	609,000
hexane	272,000
2,3-dimethylpentane	53,000
3-methylhexane	228,000
2-methylhexane	199,000
2,5-dimethylheptane	226,000
Trimethyl-cyclohexane	29,000
Ethyl-methyl-cyclohexane	27,700

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0918 PROJECT NO. NF-12

CLIENT SAMPLE ID 24A 1:5000 Dilution DATE RECEIVED 5/23/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit
2V acrolein	N.D.
3V acrylonitrile	N.D.
4V benzene	60,800 ~~N.D.~~
6V carbon tetrachloride	N.D.
7V chlorobenzene	N.D.
10V 1,2-dichloroethane	N.D.
11V 1,1,1-trichloroethane	N.D.
13V 1,1-dichloroethane	N.D.
14V 1,1,2-trichloroethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.
16V chloroethane	N.D.
19V 2-chloroethylvinyl ether	N.D.
23V chloroform	N.D.
29V 1,1-dichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.

PARAMETER	RESULT ug/lit
32V 1,2-dichloropropane	N.D.
33V 1,3-dichloropropylene	N.D.
38V ethylbenzene	61,100 ~~N.D.~~
44V methylene chloride	2,930,000 ~~N.D.~~
45V methyl chloride	N.D.
46V methyl bromide	N.D.
47V bromoform	N.D.
48V dichlorobromomethane	N.D.
49V trichlorofluoromethane	N.D.
50V dichlorodifluoromethane	N.D.
51V chlorodibromomethane	N.D.
85V tetrachloroethylene	N.D.
86V toluene	295,000 ~~N.D.~~
87V trichloroethylene	N.D.
88V vinyl chloride	N.D.
total xylenes	261,000

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0918 Client Sample ID 24A (1:5000 Dilution

COMPOUND	ESTIMATED CONCENTRATION
2-methylbutane	74,700 ug/l
1,1,2-trichloro 1,2,2-trifluoroethane	600,000
pentane	99,900
methylcyclopentane	85,600
2,3-dimethylbutane	46,000
3-methylpentane	141,000
2-methylpentane	363,000
hexane	148,000
3-methylhexane	136,000
2,4-dimethylpentane	110,000
2,2,3-trimethylpentane	234,000
2-methyl heptane	26,00
Trimethyl hexane	26,000

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0919 PROJECT NO. NF-12

CLIENT SAMPLE ID 24B 1:5000 Dilution DATE RECEIVED 5/23/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit	PARAMETER	RESULT ug/lit
2V acrolein	N.D.	32V 1,2-dichloropropane	N.D.
3V acrylonitrile	N.D.	33V 1,3-dichloropropylene	N.D.
4V benzene	86,400 ~~N.D.~~	38V ethylbenzene	146,000 ~~N.D.~~
6V carbon tetrachloride	N.D.	44V methylene chloride	5,500,000 ~~N.D.~~
7V chlorobenzene	N.D.	45V methyl chloride	N.D.
10V 1,2-dichloroethane	N.D.	46V methyl bromide	N.D.
11V 1,1,1-trichloroethane	N.D.	47V bromoform	N.D.
13V 1,1-dichloroethane	N.D.	48V dichlorobromomethane	N.D.
14V 1,1,2-trichloroethane	N.D.	49V trichlorofluoromethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.	50V dichlorodifluoromethane	N.D.
16V chloroethane	N.D.	51V chlorodibromomethane	N.D.
19V 2-chloroethylvinyl ether	N.D.	85V tetrachloroethylene	N.D.
23V chloroform	N.D.	86V toluene	523,000 ~~N.D.~~
29V 1,1-dichloroethylene	N.D.	87V trichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.	88V vinyl chloride	N.D.
		total xylenes	743,000

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0919 Client Sample ID 24B (1:5000 Dilution)

COMPOUND	ESTIMATED CONCENTRATION
1,1,2-trichloro-1,2,2-trifluoroethane	1,320,000 ug/l
pentane	149,000
3-hexene	16,900
C_6H_{12}	133,000
C_6H_{14}	75,400
3-methylpentane	200,000
2-methylpentane	538,000
hexane	207,000
methylcyclohexane	249,000
2,3-dimethylpentane	52,200
3-methylhexane	221,000
2-methylhexane	193,000
2,5-dimethylheptane	592,000
2-methylheptane	111,000
Trimethylcyclohexane	128,000
Ethyl-methyl-cyclohexane	38,600

T-6241/2

ROUTINE REPLY, ENDORSEMENT, TRANSMITTAL OR INFORMATION SHEET

OPNAV 5216/158 (Rev. 7-78)
SN 0107-LF-052-1691

A WINDOW ENVELOPE MAY BE USED
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CLASSIFICATION (*UNCLASSIFIED when detached from enclosures, unless otherwise indicated*)

FROM (*Show telephone number in addition to address*)
LANTNAVFACENGCOM Code 114

DATE

SUBJECT
New EPA Regulations on Used Oil Fuels

SERIAL OR FILE NO.

TO:
Marine Corps Base
Facilities
ATTN: NREAD
Camp Lejeune, NC 28542

REFERENCE

ENCLOSURE
1. NAVFAC Guide on the new Regulations.

VIA:

ENDORSEMENT ON

☐ FORWARDED ☐ RETURNED ☐ FOLLOW-UP, OR TRACER ☒ REQUEST ☐ SUBMIT ☐ CERTIFY ☐ MAIL ☐ FILE

GENERAL ADMINISTRATION	CONTRACT ADMINISTRATION	PERSONNEL
FOR APPROPRIATE ACTION	NAME & LOCATION OF SUPPLIER OF SUBJECT ITEMS	REPORTED TO THIS COMMAND:
UNDER YOUR COGNIZANCE	SUBCONTRACT NO. OF SUBJECT ITEM	
INFORMATION	APPROPRIATION SYMBOL, SUBHEAD, AND CHARGEABLE ACTIVITY	DETACHED FROM THIS COMMAND
APPROVAL RECOMMENDED ☐ YES ☐ NO	SHIPPING AT GOVERNMENT EXPENSE ☐ YES ☐ NO	OTHER
☐ APPROVED ☐ DISAPPROVED	A CERTIFICATE, VICE BILL OF LADING	
COMMENT AND/OR CONCURRENCE	COPIES OF CHANGE ORDERS, AMENDMENT OR MODIFICATION	
CONCUR	CHANGE NOTICE TO SUPPLIER	
LOANED, RETURN BY:	STATUS OF MATERIAL ON PURCHASE DOCUMENT	
SIGN RECEIPT & RETURN		
REPLY TO THE ABOVE BY:		
REFERENCE NOT RECEIVED		
SUBJECT DOCUMENT FORWARDED TO:		
SUBJECT DOCUMENT RETURNED FOR:		
SUBJECT DOCUMENT HAS BEEN REQUESTED, AND WILL BE FORWARDED WHEN RECEIVED		
COPY OF THIS CORRESPONDENCE WITH YOUR REPLY		
ENCLOSURE NOT RECEIVED		
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CORRECTED ENCLOSURE AS REQUESTED		
REMOVE FROM DISTRIBUTION LIST		
REDUCE DISTRIBUTION AMOUNT TO:		

REMARKS (*Continue on reverse*)

Elizabeth Betz,

Here is our guide that has been developed to be use as a "quick and easy guide" For the new regs. They are also attached For your Fun!

SIGNATURE & TITLE Paul Parker A/V 565-2933 on (804) 445-2933

COPY TO:
1145

CLASSIFICATION (*UNCLASSIFIED when detached from enclosures, unless otherwise indicated*)

☆U.S. Government Printing Office: 1984—705-012/8553 2-1

Subj: GUIDE TO NEW EPA REGULATIONS ON HAZARDOUS WASTE AND USED OIL FUELS

Ref: (a) 40 CFR Parts 260 to 270

Encl: (1) Federal Register, Vol 50, #230 , 29 November 1985, page 49202 to 49207 (text of new regulations)
(2) EPA Form 8700-R (Rev. 11-85), notification for hazardous waste and used oil fuels activities

SUMMARY

This guide summarizes the final regulations on the management of hazardous waste and used oil fuels burned for energy recovery that were issued by EPA under RCRA on 29 November 1985 (enclosure (1)) and discusses their impact on Navy activities, since the generation and burning of used oils is a common practice.

Because the regulations are quite complex, we are issuing this simplified explanation in order to:

- Clarify what actions Navy activities need to take to comply.
- Clarify which activities are exempt from the regulations.

Generally, the intent of the regulations is to halt the burning of fuels that have hazardous constituents, in boilers that could emit these constituents to the air. Three categories of fuel are defined in the regulations: -

1. Hazardous waste fuels.
2. Off specification used oil fuels.
3. Specification used oil fuels.

Most of the regulations apply to the first two of these.

The regulations have been boiled down to the chart provided in Part III of the discussion. Activities should read Parts I and II of the discussion to see if any of the materials they handle are affected by the new regulations. If so, use the Regulatory Responsibility Chart to see what actions, if any, you must take.

DISCUSSION

There are three parts following:

I. Definition of Terms
II. Explanation of Chart
III. Regulatory Responsibility Chart and Footnotes

I. Definition of Terms

This section contains a description of the terms as defined for the purpose of the regulations by EPA. First, the three types of fuels are defined, then the management categories are defined.

Fuels:

Hazardous Waste Fuel. Two criteria must be met for something to be considered a hazardous waste fuel:

1. The waste is burned to recover its energy content, it is not incinerated in a RCRA standards incinerator.

2. The waste is a hazardous waste because it is listed in, or meets the general criteria in, 40 CFR 261.

Some examples of hazardous waste fuels are:

- A fuel produced by mixing a RCRA hazardous waste with virgin or used oil fuel stocks.

- A fuel containing used oil where the fuel has a total halogen content between 1,000 ppm and 4,000 ppm and no proof is given that the halogens are not in the form of hazardous halogenated waste such as methylene chloride or trichloroethane.

- A fuel containing used oil that is contaminated with PCBs from a PCB transformer.

Off Specification Used Oil Fuels. 40 CFR 266.40 defines these as a subset of hazardous waste fuels. They include any used oil fuel that is hazardous solely because it has any constituent or property in excess of the allowable level listed in Table 1, below. These fuels are treated differently from hazardous waste fuels in that they can be blended with clean fuels to upgrade them to specification used oil fuels. Used oil received directly from collectors who receive oil from generators is assumed to be off specification unless demonstrated otherwise.

Table 1
Used oil fuel specifications:

Constituent/property	Allowable level
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash Point	100°F minimum
Total Halogens	4,000 ppm maximum

Some examples of off specification used oil fuels are:

- Used motor oil with a lead content above 100 ppm.

- Used oil with a flash point less than 100°F (perhaps contaminated with gasoline).

- Used oil with a total halogen content in excess of 4,000 ppm for which proof is given the halogens are not in the form of a halogenated hazardous waste such as methylene chloride or trichloroethane.

Specification Used Oil Fuels. These include used oil fuels that do not exceed any allowable level for the constituents or properties listed in table 1 and contain no added hazardous waste. You may upgrade off specification used fuel to this category by blending with other fuels.

NOTE: Navy specifications for FOR (Fuel Oil Reclaimed) are not adequate. To meet Naval and environmental needs, specification fuel must conform to both FOR standards and those from Table 1. New FOR standards will be issued shortly by the Navy Petroleum Office to include the EPA specifications.

Some examples of specification used oil fuels are:

- Used motor oil with a lead content below 100 ppm.

- Used oil with a total halogen content less than 1,000 ppm.

- Used oil with a total halogen content between 1,000 ppm and 4,000 ppm for which proof is given that the halogens are not in the form of a halogenated hazardous waste such as methylene chloride or trichloroethane.

Exempt Materials. The handling of some materials is exempt from this regulation because they fit into none of the above categories such as:

- Recovered fuels that may be contaminated (but not with used oil or solvents) but have not actually been used. For example, JP-4 and JP-5 jet fuel and DF-2 diesel fuel that have been removed from a vehicles tank so the vehicle can be serviced are contaminated by definition and Navy regulations may forbid their reuse as a vehicle fuel.

- Used oil that is recycled by some method other than burning (1) 261.6, unless hazardous waste has been mixed in.

- Used oil used in firefighting training.

- Used oil that may contain hazardous waste that is burned in a device which has qualified under 40 CFR 264 or 265 as an incinerator. *

- Used oil that may contain hazardous wastes that is managed by a method other than burning. *

* These materials and practices are already regulated under 40 CFR 262-265 and 270.

Management Categories:

Small Quantity Generator. One who generates less than 1,000 Kg (2,200 lb.) of used oil or hazardous waste or less than the quantities of "acutely hazardous wastes" defined in 40 CFR 261.5, in any one month period. Note that a recent addition to RCRA creates a subset of small quantity generators defined as those producing 100 Kg to 1000 Kg of hazardous waste per month, (50 FR 28708, 15 July 1985). Those in this subset must now prepare a manifest to accompany any hazardous waste shipped off-site.

An example of a small quantity generator is an auto service garage that generates less than 1,000 Kg (2,200 lb.) of used motor oils during any one month period.

Generator. One who generates more than 1,000 Kg (2,200 lb.) of used oil or hazardous waste or more than the quantities of "acutely hazardous wastes" defined in 40 CFR 261.5, in any one month period.

Transporter. One who transports hazardous waste or used oil fuels off-site by air, rail, highway or water, even if the sites are owned by the same party. The definition for "on-site" from RCRA is "the same or geographically contiguous property which may be divided by public or private right of way, provided the entrance and exit between the properties is at a crossroads intersection, and access is provided by crossing as opposed to going along, the right of way. Non-contiguous properties owned by the same person but connected by a right of way which he controls and to which the public does not have access is also considered on-site property." 40 CFR 260.10.

An example of a transporter is:

- A contractor who pumps used oil from a sites holding tanks and transports it to another site.
- A Navy owned tank truck that picks up used oil from a site on a Naval base and must travel along a public right of way before emptying, even if it empties at another Naval site.

Burner. One who burns any quantity of hazardous waste or used oil fuel for energy recovery.

NOTE: Three categories of burners are specifically exempted from these regulations:

- Marine and diesel engines may burn specification and off specification used oil fuels, provided it has not been mixed with a hazardous waste, without being regulated.

- Specification and off specification used oil fuel may be burned in space heaters provided the heater is vented outdoors and only oil that was generated on site or received from do-it-yourself oil changers is used.

Industrial Boiler. Any boiler that produces electric power, steam or heated or cooled air, or other gasses or fluids for use in a manufacturing process.

Utility Boiler. Boilers used to produce electric power, steam, heat or cooled air or other gasses or fluids for sale.

Nonindustrial Boiler. Anything that is not an industrial or a utility boiler.

Marketer. One who sells hazardous waste or used oil fuel to a burner.

An example of a marketer is:

- A Defense Reutilization Marketing Office that sells a used oil fuel to someone who burns it to produce heat.

- A Naval Supply Center that produces specification used oil fuel and distributes it to activities who burn it to recover its energy. Though this type of internal distribution is not strictly "marketing", Naval Supply Centers are required to notify as marketers. Otherwise the responsibilities for notification would fall on each of the activities burning the fuel.

II. Explanation of Chart

To use the chart, you should first study Section I to determine the categories materials you manage may fit into. Then find the management categories that describe your activities.

Next, go to Part III, the Regulatory Responsibility Chart. Look at the column under each management category that describes what you do. As you go down the column, each entry you come to in the boxes indicates that, for the fuel type in parentheses, the action in that row must be taken to comply. The letter appearing after the parentheses indicates a footnote on the following page which you should check for exemptions and an explanation. The numbers after the parentheses indicates the section number of the new regulations which are enclosed with this report. Read these when indicated for a more detailed explanation of what to do.

For example, look at the column under nonindustrial boilers. In the first box down, you find the letters H and O in parentheses for hazardous waste fuel and off specification fuels. The row says to stop burning these two types of fuel. Next, look at footnote E since it appears next to the parentheses. It tells you that certain burners (space heaters and marine and diesel engines) are exempt from the regulations. You may continue to burn off specification fuels in these types of burners. Finally, the number written to the right, (266.31 in this case) directs you to the text of the new

regulations for reference.

Since the letter S for specification fuel does not appear in this box, you may continue to burn it in any nonindustrial burner.

Continue down the column in a similar fashion to see if any of the other actions must be taken.

III. Regulatory Responsibility Chart

ACTION:	MANAGEMENT CATEGORIES: Small Quantity Generator	Generator	Transporter	Burner, Nonindustrial Boiler	Burner, Ind. & Utility Boilers	Marketers	Compliance Date
Stop burning	-	-	-	(H) 266.31 (O)E, 266.31	-	-	12/09/85
Notify EPA (Encl. (2))	-	-	(H) 266.33	(S)A	(H) 266.35 (O) 266.44 (S)A	(H) 266.34 (O) 266.43 (S)A	01/29/86
Test oil for specification	-	-	-	(S)A	(S)A	(S)A	05/29/86
Manifests or invoice/voucher or Records	-	-	(H)F, 266.33 (O)F		(H) 266.35 (O) 266.44	(S)A (H,O)F	03/29/86
Submit new or revised RCRA Part A Application	-	-	-	-	(H) 266.35	(H) 266.34	05/29/86
Comply with Storage Standards	-	(H)G, 266.32	(H), 266.33	-	(H)G, 266.35	(H)G, 266.34	05/29/86
Other	-	-	-	-	(H,O)B	(H,O)C&D	03/29/86

Fuel Types Affected:
- H - Hazardous Waste Fuel
- O - Off Specification Used Oil Fuel
- S - Specification Used Oil Fuel

A, B, C, D, E, F = See footnotes on following page

FOOTNOTES

A. If you are the first to claim that the used oil fuel you burn or market meets the specifications (1), 265.40, you must:

- Test fuel to prove it meets specifications, (1), 266.40.
- Notify EPA that fuel meets specifications and is therefore exempt from further regulations, (1), p. 49195.
- Marketers must keep records of their specification oil fuel sales (1), 266.43.

B. Make a one time certification to your marketer that:

- You have notified EPA of your burning.
- You will burn fuel only in an industrial or utility boiler. (1), 266.44

C. Receive a one time certification from your clients who burn that:

- They have notified EPA of their burning.
- They will burn fuel only in an acceptable boiler. (1), 266.34

D. If you receive hazardous or off specification used oil from another marketer you must:

- Make a one time certification to the marketer that you have notified EPA of your activities, (1), 266.34 and 266.43

E. There are some nonindustrial burners that are exempt from the regulations:

1. Used oil space heaters burning specification and off specification used oil fuel, (1), 266.41
2. Marine and diesel engines burning specification and off specification used oil fuel.

NOTE: Marketers of fuel for marine and diesel engines are still required to notify EPA, though they are exempt from testing, invoices, certification and recordkeeping for fuel sold for this use ((1), 49193, E)

F. Hazardous waste fuel shipments must be physically accompanied by a manifest. Off specification used oil fuel shippers must prepare and send an invoice that need not accompany the shipment. These documents should records any hazardous or off specification constituents. Burners and marketers must keep copies of these documents. *

G. Generators of hazardous waste fuel who do not store their hazardous waste fuel more than 90 days are not subject to the full storage requirements, even if they are marketers or burners. They must comply with reduced storage requirements listed in (a), 262.34.

* All documents mentioned must be kept on file for 3 years.

Encl (1)

recycling. This proposal does not restrict combustion of hazardous wastes or recycled oil in industrial devices. Nor does it restrict other recycling, such as used oil rerefining and solvent reclamation. We recognize that the regulation will cause some market shifts, but maintain that net recycling will not decrease. Commenters confused impacts of this proposal with those of more extensive regulations of the Phase II standards that include industrial burners—which this rule does not address. Many commenters apparently presumed that recycled oil was banned from industrial boilers. The Agency may apply a similar specification to recycled oil burned in boilers under the Phase II regulations. The costs and impacts of that rule, however, will be presented when that rule is proposed. Those costs and impacts are not part of today's rule. We maintain that today's regulation does not impose major impacts that require an RIA.

2. *Hazardous Waste Fuel.* Commenters suggested that permits for small hazardous waste storage facilities may cost $25,000, not the $10,000 we suggested in the proposal.[102] EPA estimated a $10,000 expenditure because we utilized the cost of amending an existing Part B permit in our cost estimate, not the cost of obtaining a new permit. The rule requires Part B storage permits only for facilities marketing hazardous waste fuels (and for new hazardous waste fuel burner facilities). We have assumed virtually all hazardous waste fuel contains listed hazardous waste. Thus, the marketer's feedstock tanks (i.e., tanks for incoming wastes) are already subject to regulation, the marketer's facilities affected by today's rule would already have RCRA permits.

In the proposal, the Agency applied unit costs to represent the total incremental costs of these requirements above current requirements and practices. The costs related to this regulation are not the total investments, revenues, or value of products of associated businesses, as some commenters suggested. We estimate that this regulation will impose direct costs of up to $21 million per year (annualized). This is one of the reasons why this regulation is not a major rule and does not require an RIA.

[102] It should be noted that these storage facility cost estimates do not include the cost of providing secondary containment (or alternate equivalent controls), a requirement EPA recently proposed for hazardous waste storage facilities. See 50 FR 26444–26504 (June 26, 1985).

III. Explanation of Compliance Dates

At proposal (see 50 FR 1714), EPA expressly requested comment on staggering the compliance dates for the regulatory requirements to make them effective as soon as practicable during the 1985–86 heating season. Although commenters did not indicate that the compliance dates were unreasonable, we have decided that the proposed 30 day compliance date for notifications may not give notifiers enough time to request and receive notification applications from their State hazardous waste agency, and to complete and submit the form. Thus, the final rule allows notifiers two months after today to notify regarding their waste-as-fuel activities.

We are making a corresponding change to the compliance date for the manifest (or invoice) system. Given that marketers and burners must include their U.S. EPA Identification Number (assigned after receipt of notification) on manifests and invoices, and that it may take as long as two months after receipt of an application to apprise a notifier of his Identification Number, (if he is not renotifying to identify waste-as-fuel activities) the compliance date for the manifest (or invoice) system is four months after today. (The proposed compliance date was 90 days after publication.)

Compliance dates for the prohibitions (i.e., 10 days after today) and for the storage controls (i.e., six months after today) are adopted as proposed.

The compliance date for each regulatory requirement is shown in the "DATES" section at the beginning of this preamble.

IV. List of Subjects

40 CFR Part 261

Hazardous waste, Recycling.

40 CFR Part 264

Hazardous waste, Insurance, Packaging and containers, Reporting and recordkeeping requirements, Security measures, Surety bonds.

40 CFR Part 265

Hazardous waste, Insurance, Packaging and containers, Reporting and recordkeeping requirements, Security measures, Surety bonds, Water supply.

40 CFR Part 266

Hazardous waste, Recycling.

40 CFR Part 271

Administrative practice and procedure, Confidential business information, Hazardous materials transportation, Hazardous waste, Indian lands, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Water pollution control, Water supply.

Dated: November 8, 1985.

Lee M. Thomas,

Administrator.

For the reasons set out in the Preamble, Title 40 of the Code of Federal Regulations is amended as follows:

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

1. The authority citation for Part 261 continues to read as follows:

Authority: Secs. 1006, 2002(a), 3001, and 3002, of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6912(a), 6921, and 6922).

2. Section 261.3 is amended by adding to paragraph (c)(2)(ii) the following (B):

§ 261.3 Definition of hazardous waste.

* * * * *

(c) * * *

(2) * * *

(ii) * * *

(B) Wastes from burning any of the materials exempted from regulation by § 261.6(a)(3) (iv), (vi), (vii), or (viii).

* * * * *

3. Section 261.5 is amended by revising paragraph (b) to read as follows:

§ 261.5 Special requirements for hazardous waste generated by small quantity generators.

* * * * *

(b) Except for those wastes identified in paragraphs (e), (f), (g), (h), and (k) of this section, a small quantity generator's hazardous wastes are not subject to regulation under Parts 262 through 266 and Parts 270 and 124 of this chapter, and the notification requirements of Section 3010 of RCRA, provided the generator complies with the regulations of paragraphs (f), (g), (h), and (k) of this section.

* * * * *

4. Section 261.5 is amended by adding a new paragraph (k) to read as follows:

§ 261.5 Special requirements for hazardous waste generated by small quantity generators.

* * * * *

(k) If a small quantity generator's hazardous wastes are mixed with used oil, the mixture is subject to Subpart E of Part 266 of this chapter if it is destined to be burned for energy recovery. Any material produced from such a mixture by processing, blending, or other

treatment is also so regulated if it is destined to be burned for energy recovery.

5. Section 261.6 is amended by revising paragraphs (a)(2)(iii), and (a)(3)(iii), and adding new paragraphs (a)(3) (viii) and (ix). Although only the above changes are made under this rulemaking, the entire § 261.6, including provisions not affected by today's rules, is printed here for the reader's convenience.

§ 261.6 Requirements for recyclable materials.

(a)(1) Hazardous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of paragraphs (b) and (c) of this section, except for the materials listed in paragraphs (a)(2) and (a)(3) of this section. Hazardous wastes that are recycled will be known as "recyclable materials."

(2) The following recyclable materials are not subject to the requirements of this section but are regulated under Subparts C through G of Part 266 of this chapter and all applicable provisions in Parts 270 and 124 of this chapter:

(i) Recyclable materials used in a manner constituting disposal (Subpart C);

(ii) Hazardous wastes burned for energy recovery in boilers and industrial furnaces that are not regulated under Subpart O of Part 264 or 265 of this chapter (Subpart D);

(iii) Used oil that exhibits one or more of the characteristics of hazardous waste and is burned for energy recovery in boilers and industrial furnaces that are not regulated under Subpart O of Part 264 or 265 of this chapter (Subpart E);

(iv) Recyclable materials from which precious metals are reclaimed (Subpart F);

(v) Spent lead-acid batteries that are being reclaimed (Subpart G).

(3) The following recyclable materials are not subject to regulation under Parts 262 through Parts 266 or Parts 270 or 124 of this chapter, and are not subject to the notification requirements of section 3010 of RCRA:

(i) Industrial ethyl alcohol that is reclaimed;

(ii) Used batteries (or used battery cells) returned to a battery manufacturer for regeneration;

(iii) Used oil that exhibits one or more of the characteristics of hazardous waste but is recycled in some other manner than being burned for energy recovery;

(iv) Scrap metal;

(v) Fuels produced from the refining of oil-bearing hazardous wastes along with normal process streams at a petroleum refining facility if such wastes result from normal petroleum refining, production, and transportation practices;

(vi) Oil reclaimed from hazardous waste resulting from normal petroleum refining, production, and transportation practices, which oil is to be refined along with normal process streams at a petroleum refining facility;

(vii) Coke and coal tar from the iron and steel industry that contains hazardous waste the iron and steel production process;

(viii) (A) Hazardous waste fuel produced from oil-bearing hazardous wastes from petroleum refining, production, or transportation practices, or produced from oil reclaimed from such hazardous wastes, where such hazardous wastes are reintroduced into a process that does not use distillation or does not produce products from crude oil so long as the resulting fuel meets the used oil specification under § 266.40(e) of this chapter and so long as no other hazardous wastes are used to produce the hazardous waste fuel;

(B) Hazardous waste fuel produced from oil-bearing hazardous waste from petroleum refining production, and transportation practices, where such hazardous wastes are reintroduced into a refining process after a point at which contaminants are removed, so long as the fuel meets the used oil fuel specification under § 266.40(e) of this chapter; and

(C) Oil reclaimed from oil-bearing hazardous wastes from petroleum refining, production, and transportation practices, which reclaimed oil is burned as a fuel without reintroduction to a refining process, so long as the reclaimed oil meets the used oil fuel specification under § 266.40(e) of this chapter; and

(ix) Petroleum coke produced from petroleum refinery hazardous wastes containing oil at the same facility at which such wastes were generated, unless the resulting coke product exceeds one or more of the characteristics of hazardous waste in Part 261, Subpart C.

(b) Generators and transporters of recyclable materials are subject to the applicable requirements of Parts 262 and 263 of this chapter and the notification requirements under section 3010 of RCRA, except as provided in paragraph (a) of this section.

(c)(1) Owners or operators of facilities that store recyclable materials before they are recycled are regulated under all applicable provisions of Subparts A through L of Parts 264 and 265 and Parts 266, 270, and 124 of this chapter and the notification requirements under section 3010 of RCRA, except as provided in paragraph (a) of this section. (The recycling process itself is exempt from regulation.)

(2) Owners or operators of facilities that recycle recyclable materials without storing them before they are recycled are subject to the following requirements, except as provided in paragraph (a) of this section:

(i) Notification requirements under section 3010 of RCRA;

(ii) Sections 265.71 and 265.72 (dealing with the use of the manifest and manifest discrepancies) of this chapter.

PART 264—STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

6. The authority citation for Part 264 continues to read as follows:

Authority: Secs. 1006, 2002(a), 3004, 3005, of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6912(a), 6924, and 6925).

7. Section 264.340 is amended by revising paragraph (a)(2) to read as follows:

§ 264.340 Applicability.

(a) * * *

(2) Owners or operators who burn hazardous waste in boilers or in industrial furnaces in order to destroy them, or who burn hazardous waste in boilers or in industrial furnaces for any recycling purpose and elect to be regulated under this subpart.

* * * * *

PART 265—INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE AND DISPOSAL FACILITIES

8. The authority citation for part 265 continues to read as follows:

Authority: Secs. 1006, 2002(a), 3004, and 3005 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6924, and 6925).

9. Section 265.340 is amended to revise paragraph (a)(2) to read as follows:

§ 265.340 Applicability.

(a) * * *

(2) Owners or operators who burn hazardous waste in boilers or in industrial furnaces in order to destroy them, or who burn hazardous waste in boilers or in industrial furnaces for any

recycling purpose and elect to be regulated under this subpart.

PART 266—STANDARDS FOR THE MANAGEMENT OF SPECIFIC WASTES AND SPECIFIC TYPES OF WASTE MANAGEMENT FACILITIES

10. The authority citation for Part 266 is revised to read as follows:

Authority: Secs. 1006, 2002(a), 3004, and 3014 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6912(a), 6924, and 6934).

11. Subpart D is revised to read as follows:

Subpart D—Hazardous Waste Burned for Energy Recovery

Sec.
266.30 Applicability.
266.31 Prohibitions.
266.32 Standards applicable to generators of hazardous waste fuel.
266.33 Standards applicable to transporters of hazardous waste fuel.
266.34 Standards applicable to marketers of hazardous waste fuel.
266.35 Standards applicable to burners of hazardous waste fuel.

Subpart D—Hazardous Waste Burned for Energy Recovery

§ 266.30 Applicability.

(a) The regulations of this subpart apply to hazardous wastes that are burned for energy recovery in any boiler or industrial furnace that is not regulated under Subpart O of Part 264 or 265 of this chapter, except as provided by paragraph (b) of this section. Such hazardous wastes burned for energy recovery are termed "hazardous waste fuel". Fuel produced from hazardous waste by processing, blending, or other treatment is also hazardous waste fuel. (These regulations do not apply, however, to gas recovered from hazardous waste management activities when such gas is burned for energy recovery.)

(b) The following hazardous wastes are not subject to regulation under this subpart:

(1) Used oil burned for energy recovery that is also a hazardous waste solely because it exhibits a characteristic of hazardous waste identified in Subpart C of Part 261 of this chapter. Such used oil is subject to regulation under Subpart E of Part 266 rather than this subpart; and

(2) Hazardous wastes that are exempt from regulation under §§ 261.4 and 261.6(a) (3) (v)–(ix) of this chapter, and hazardous wastes that are subject to the special requirements for small quantity generators under § 261.5 of this chapter.

§ 266.31 Prohibitions.

(a) A person may market hazardous waste fuel only:

(1) To persons who have notified EPA of their hazardous waste fuel activities under section 3010 of RCRA and have a U.S. EPA Identification Number; and

(2) If the fuel is burned, to persons who burn the fuel in boilers or industrial furnaces identified in paragraph (b) of this section.

(b) Hazardous waste fuel may be burned for energy recovery in only the following devices:

(1) Industrial furnaces identified in § 260.10 of this chapter;

(2) Boilers, as defined in § 260.10 of this chapter, that are identified as follows:

(i) Industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes; or

(ii) Utility boilers used to produce electric power, steam, or heated or cooled air or other gases or fluids for sale.

(c) No fuel which contains any hazardous waste may be burned in any cement kiln which is located within the boundaries of any incorporated municipality with a population greater than 500,000 (based on the most recent census statistics) unless such kiln fully complies with regulations under this chapter that are applicable to incinerators.

§ 266.32 Standards applicable to generators of hazardous waste fuel.

(a) Generators of hazardous waste that is used as a fuel or used to produce a fuel are subject to Part 262 of this chapter.

(b) Generators who market hazardous waste fuel to a burner also are subject to § 266.34.

(c) Generators who are burners also are subject to § 266.35.

§ 266.33 Standards applicable to transporters of hazardous waste fuel.

Transporters of hazardous waste fuel (and hazardous waste that is used to produce a fuel) are subject to Part 263 of this chapter.

§ 266.34 Standards applicable to marketers of hazardous waste fuel.

Persons who market hazardous waste fuel are termed "marketers", and are subject to the following requirements. Marketers include generators who market hazardous waste fuel directly to a burner, persons who receive hazardous waste from generators and produce, process, or blend hazardous waste fuel from these hazardous wastes, and persons who distribute but do not process or blend hazardous waste fuel.

(a) *Prohibitions.* The prohibitions under § 266.31(a);

(b) *Notification.* Notification requirements under section 3010 of RCRA for hazardous waste fuel activities. Even if a marketer has previously notified EPA of his hazardous waste management activities and obtained a U.S. EPA Identification Number, he must renotify to identify his hazardous waste fuel activities.

(c) *Storage.* The applicable provisions of § 262.34, and Subparts A through L of Part 264, Subparts A through L of Part 265, and Part 270 of this chapter.

(d) *Off-site shipment.* The standards for generators in Part 262 of this chapter when a marketer initiates a shipment of hazardous waste fuel;

(e) *Required notices.* (1) Before a marketer initiates the first shipment of hazardous waste fuel to a burner or another marketer, he must obtain a one-time written and signed notice from the burner or marketer certifying that:

(i) The burner or marketer has notified EPA under Section 3010 of RCRA and identified his waste-as-fuel activities; and

(ii) If the recipient is a burner, the burner will burn the hazardous waste fuel only in an industrial furnace or boiler identified in § 261.31(b).

(2) Before a marketer accepts the first shipment of hazardous waste fuel from another marketer, he must provide the other marketer with a one-time written and signed certification that he has notified EPA under section 3010 of RCRA and identified his hazardous waste fuel activities; and

(f) *Recordkeeping.* In addition to the applicable recordkeeping requirements of Parts 262, 264, and 265 of this chapter, a marketer must keep a copy of each certification notice he receives or sends for three years from the date he last engages in a hazardous waste fuel marketing transaction with the person who sends or receives the certification notice.

(The notification requirements contained in paragraph (b) of this section were approved by OMB under control number 2050–0028. The storage requirements contained in paragraph (c) of this section were approved by OMB under control number 2050–0009. The manifest and invoice requirements contained in paragraph (d) of this section were approved by OMB under control numbers 2050–0039 and 2050–0047, respectively. The certification requirements contained in paragraph (e) of this section

were approved by OMB under control number 2050-0047. The recordkeeping requirements contained in paragraph (f) of this section were approved by OMB under control number 2050-0047.)

§ 266.35 Standards applicable to burners of hazardous waste fuel.

Owners and operators of industrial furnaces and boilers identified in § 266.31(b) that burn hazardous fuel are "burners" and are subject to the following requirements:

(a) *Prohibitions.* The prohibitions under § 266.31(b);

(b) *Notification.* Notification requirements under section 3010 of RCRA for hazardous waste fuel activities. Even if a burner has previously notified EPA of his hazardous waste management activities and obtained a U.S. EPA Identification Number, he must renotify to identify his hazardous waste fuel activities.

(c) *Storage.* (1) For short term accumulation by generators who burn their hazardous waste fuel on site, the applicable provisions of § 262.34 of this chapter;

(2) For existing storage facilities, the applicable provisions of Subparts A through L of Part 265, and Parts 270 and 124 of this chapter; and

(3) For new storage facilities, the applicable provisions of Subparts A through L of Part A 264, and Parts 270 and 124 of this chapter;

(d) *Required notices.* Before a burner accepts the first shipment of hazardous waste fuel from a marketer, he must provide the marketer a one-time written and signed notice certifying that:

(1) He has notified EPA under section 3010 of RCRA and identified his waste-as-fuel activities; and

(2) He will burn the fuel only in a boiler or furnace identified in § 266.31(b).

(e) *Recordkeeping.* In addition to the applicable recordkeeping requirements of Parts 264 and 265 of this chapter, a burner must keep a copy of each certification notice that he sends to a marketer for three years from the date he last receives hazardous waste fuel from that marketer.

(The notification requirements contained in paragraph (b) of this section were approved by OMB under control number 2050-0028. The storage requirements contained in paragraph (c) of this section were approved by OMB under control number 2050-0009. The certification requirements contained in paragraph (d) of this section were approved by OMB under control number 2050-0047. The recordkeeping requirements contained in paragraph (e) of this section were approved by OMB under control number 2050-0047.)

12. Subpart E is added as follows:

Subpart E—Used Oil Burned for Energy Recovery

Sec.
266.40 Applicability.
266.41 Prohibitions.
266.42 Standards applicable to generators of used oil burned for energy recovery.
266.43 Standards applicable to marketers of used oil burned for energy recovery.
266.44 Standards applicable to burners of used oil burned for energy recovery.

Subpart E—Used Oil Burned for Energy Recovery

§ 266.40 Applicability.

(a) The regulations of this subpart apply to used oil that is burned for energy recovery in any boiler or industrial furnace that is not regulated under Subpart O of Part 264 or Part 265 of this chapter, except as provided by paragraphs (c) and (e) of this section. Such used oil is termed "used oil fuel". Used oil fuel includes any fuel produced from used oil by processing, blending, or other treatment.

(b) "Used oil" means any oil that has been refined from crude oil, used, and, as a result of such use, is contaminated by physical or chemical impurities.

(c) Except as provided by paragraph (d) of this section, used oil that is mixed with hazardous waste and burned for energy recovery is subject to regulation as hazardous waste fuel under Subpart D of Part 266. Used oil containing more than 1000 ppm of total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in Subpart D of Part 261 of this chapter. Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste (for example, by showing that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in Appendix VIII of Part 261 of this chapter).

(d) Used oil burned for energy recovery is subject to regulation under this subpart rather than as hazardous waste fuel under Subpart D of this part if it is a hazardous waste solely because it:

(1) Exhibits a characteristic of hazardous waste identified in Subpart C of Part 261 of this chapter, provided that it is not mixed with a hazardous waste; or

(2) Contains hazardous waste generated only by a person subject to the special requirements for small quantity generators under § 261.5 of this chapter.

(e) Except as provided by paragraph (c) of this section, used oil burned for energy recovery, and any fuel produced from used oil by processing, blending, or other treatment, is subject to regulation under this subpart unless it is shown not to exceed any of the allowable levels of the constituents and properties in the specification shown in the following table. Used oil fuel that meets the specification is subject only to the analysis and recordkeeping requirements under §§ 266.43(b) (1) and (6). Used oil fuel that exceeds any specification level is termed "off-specification used oil fuel".

USED OIL EXCEEDING ANY SPECIFICATION LEVEL IS SUBJECT TO THIS SUBPART WHEN BURNED FOR ENERGY RECOVERY [a]

Constituent/property	Allowable level
Arsenic	5 ppm maximum.
Cadmium	2 ppm maximum.
Chromium	10 ppm maximum.
Lead	100 ppm maximum.
Flash Point	100 °F minimum.
Total Halogens	4,000 ppm maximum.[b]

[a] The specification does not apply to used oil fuel mixed with a hazardous waste other than small quantity generator hazardous waste.

[b] Used oil containing more than 1,000 ppm total halogens is presumed to be a hazardous waste under the rebuttable presumption provided under § 266.40(c). Such used oil is subject to Subpart D of this part rather than this subpart when burned for energy recovery unless the presumption of mixing can be successfully rebutted.

§ 266.41 Prohibitions.

(a) A person may market off-specification used oil for energy recovery only:

(1) To burners or other marketers who have notified EPA of their used oil management activities stating the location and general description of such activities, and who have an EPA identification number; and

(2) To burners who burn the used oil in an industrial furnace or boiler identified in paragraph (b) of this section.

(b) Off-specification used oil may be burned for energy recovery in only the following devices:

(1) Industrial furnaces identified in § 260.10 of this chapter; or

(2) Boilers, as defined in § 260.10 of this chapter, that are identified as follows:

(i) Industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes;

(ii) Utility boilers used to produce electric power, steam, or heated or cooled air or other gases or fluids for sale; or

(iii) Used oil-fired space heaters provided that:

(A) The heater burns only used oil that the owner or operator generates or used oil received from do-it-yourself oil

changers who generate used oil as household waste:

(B) The heater is designed to have a maximum capacity of not more than 0.5 million Btu per hour; and

(C) The combustion gases from the heater are vented to the ambient air.

§ 266.42 Standards applicable to generators of used oil burned for energy recovery.

(a) Except as provided in paragraphs (b) and (c) of this section, generators of used oil are not subject to this subpart.

(b) Generators who market used oil directly to a burner are subject to § 266.43.

(c) Generators who burn used oil are subject to § 266.44.

§ 266.43 Standards applicable to marketers of used oil burned for energy recovery.

(a) Persons who market used oil fuel are termed "marketers". However, the following persons are not marketers subject to this Subpart:

(1) Used oil generators, and collectors who transport used oil received only from generators, unless the generator or collector markets the used oil directly to a person who burns it for energy recovery. However, persons who burn some used oil fuel for purposes of processing or other treatment to produce used oil fuel for marketing are considered to be burning incidentally to processing. Thus, generators and collectors who market to such incidental burners are not marketers subject to this subpart;

(2) Persons who market only used oil fuel that meets the specification under § 266.40(e) and who are not the first person to claim the oil meets the specification (i.e., marketers who do not receive used oil from generators or initial transporters and marketers who neither receive nor market off-specification used oil fuel).

(b) Marketers are subject to the following requirements:

(1) *Analysis of used oil fuel.* Used oil fuel is subject to regulation under this subpart unless the marketer obtains analyses or other information documenting that the used oil fuel meets the specification provided under § 266.40(e).

(2) *Prohibitions.* The prohibitions under § 266.41(a);

(3) *Notification.* Notification to EPA stating the location and general description of used oil management activities. Even if a marketer has previously notified EPA of his hazardous waste management activities under section 3010 of RCRA and obtained a U.S. EPA Identification Number, he must renotify to identify his used oil management activities.

(4) *Invoice system.* When a marketer initiates a shipment of off-specification used oil, he must prepare and send the receiving facility an invoice containing the following information:

(i) An invoice number;

(ii) His own EPA identification number and the EPA identification number of the receiving facility;

(iii) The names and addresses of the shipping and receiving facilities;

(iv) The quantity of off-specification used oil to be delivered;

(v) The date(s) of shipment or delivery; and

(vi) The following statement: "This used oil is subject to EPA regulation under 40 CFR Part 266";

Note.—Used oil that meets the definition of combustible liquid (flash point below 200 °F but at or greater than 100 °F) or flammable liquid (flash point below 100 °F) is subject to Department of Transportation Hazardous Materials Regulations at 49 CFR Parts 100–177.

(5) *Required notices.* (i) Before a marketer initiates the first shipment of off-specification used oil to a burner or other marketer, he must obtain a one-time written and signed notice from the burner or marketer certifying that:

(A) The burner or marketer has notified EPA stating the location and general description of his used oil management activities; and

(B) If the recipient is a burner, the burner will burn the off-specification used oil only in an industrial furnace or boiler identified in § 266.41(b); and

(ii) Before a marketer accepts the first shipment of off-specification used oil from another marketer subject to the requirements of this section, he must provide the marketer with a one-time written and signed notice certifying that he has notified EPA of his used oil management activities; and

(6) *Recordkeeping*—(i) *Used Oil Fuel That Meets the Specification.* A marketer who first claims under paragraph (b)(1) of this section that used oil fuel meets the specification must keep copies of analysis (or other information used to make the determination) of used oil for three years. Such marketers must also record in an operating log and keep for three years the following information on each shipment of used oil fuel that meets the specification. Such used oil fuel is not subject to further regulation, unless it is subsequently mixed with hazardous waste or unless it is mixed with used oil so that it no longer meets the specification.

(A) The name and address of the facility receiving the shipment;

(B) The quantity of used oil fuel delivered;

(C) The date of shipment or delivery; and

(D) A cross-reference to the record of used oil analysis (or other information used to make the determination that the oil meets the specification) required under paragraph (b)(6)(i) of this section.

(ii) *Off-Specification Used Oil Fuel.* A marketer who receives or initiates an invoice under the requirements of this section must keep a copy of each invoice for three years from the date the invoice is received or prepared. In addition, a marketer must keep a copy of each certification notice that he receives or sends for three years from the date he last engages in an off-specification used oil fuel marketing transaction with the person who sends or receives the certification notice.

(The analysis requirements contained in paragraph (b)(1) of this section were approved by OMB under control number 2050–0047. The notification requirements contained in paragraph (b)(3) of this section were approved by OMB under control number 2050–0028. The invoice requirements contained in paragraph (b)(4) of this section were approved by OMB under control number 2050–0047. The certification requirements contained in paragraph (b)(5) of this section were approved by OMB under control number 2050–0047. The recordkeeping requirements contained in paragraph (b)(6) of this section were approved by OMB under control number 2050–0047.)

§ 266.44 Standards applicable to burners of used oil burned for energy recovery.

Owners and operators of facilities that burn used oil fuel are "burners" and are subject to the following requirements:

(a) *Prohibition.* The prohibition under § 266.41(b);

(b) *Notification.* Burners of off-specification used oil fuel must notify EPA stating the location and general description of used oil management activities, except that owners and operators of used oil-fired space heaters that burn used oil fuel under the provisions of § 266.41(b)(2) are exempt from these notification requirements. Even if a burner has previously notified EPA of his hazardous waste management activities under Section 3010 of RCRA and obtained an identification number, he must renotify to identify his used oil management activities.

(c) *Required notices.* Before a burner accepts the first shipment of off-specification used oil fuel from a marketer, he must provide the marketer a one-time written and signed notice certifying that:

(1) He has notified EPA stating the location and general description of his used oil management activities; and

(2) He will burn the used oil only in an industrial furnace or boiler identified in § 266.41(b); and

(d) *Used oil fuel analysis.* (1) Used oil fuel burned by the generator is subject to regulation under this subpart unless the burner obtains analysis (or other information) documenting that the used oil meets the specification provided under § 266.40(e).

(2) Burners who treat off-specification used oil fuel by processing, blending, or other treatment to meet the specification provided under § 266.40(e) must obtain analyses (or other information) documenting that the used oil meets the specification.

(e) *Recordkeeping.* A burner who receives an invoice under the requirements of this section must keep a copy of each invoice for three years from the date the invoice is received. Burners must also keep for three years copies of analyses of used oil fuel as may be required by paragraph (d) of this section. In addition, he must keep a copy of each certification notice that he sends to a marketer for three years from the date he last receives off-specification used oil from that marketer.

(The notification requirements contained in paragraph (b) of this section were approved by OMB under control number 2050–0028. The certification requirements contained in paragraph (c) of this section were approved by OMB under control number 2050–0047. The analysis requirements contained in paragraph (d) of this section were approved by OMB under control number 2050–0047. The recordkeeping requirements contained in paragraph (e) of this section were approved by OMB under control number 2050–0047.)

PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

12. The authority citation for Part 271 is revised to read as follows:

Authority: Secs. 1006, 2002(a), and 3006 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6912(a), and 6926).

13. Section 271.1(j) is amended by changing the table heading and by adding the following entry to Table 1 in chronological order by date of publication:

TABLE 1.—REGULATIONS IMPLEMENTING THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

Date of publication in the FEDERAL REGISTER	Title of regulation
* * * * *	
Nov. 29, 1985	Standards for the Management of Specific Wastes and Specific Types of Facilities.
* * * * *	

Appendix—Form—Notification of Hazardous Waste Activity

EPA Form 8700–12 (Revised 11/85)

(This form will not appear in the Code of Federal Regulations.)

BILLING CODE 6560-50-M

Encl (2)

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Form Approved OMB No. 2050-0028 Expires 9-30-86
GSA No. 0246-EPA-GT

United States Environmental Protection Agency
Washington, DC 20460

EPA Notification of Hazardous Waste Activity

Please refer to the *Instructions for Filing Notification* before completing this form. The information requested here is required by law (*Section 3010 of the Resource Conservation and Recovery Act*).

For Official Use Only

Comments

Installation's EPA ID Number | Approved | Date Received (yr. mo. day)

T/A C 1

I. Name of Installation

II. Installation Mailing Address

Street or P.O. Box

City or Town | State | ZIP Code

III. Location of Installation

Street or Route Number

City or Town | State | ZIP Code

IV. Installation Contact

Name and Title (*last, first, and job title*) | Phone Number (*area code and number*)

V. Ownership

A. Name of Installation's Legal Owner | B. Type of Ownership (*enter code*)

VI. Type of Regulated Waste Activity (*Mark 'X' in the appropriate boxes. Refer to instructions.*)

A. Hazardous Waste Activity

- ☐ 1a. Generator
- ☐ 1b. Less than 1,000 kg/mo.
- ☐ 2. Transporter
- ☐ 3. Treater/Storer/Disposer
- ☐ 4. Underground Injection
- ☐ 5. Market or Burn Hazardous Waste Fuel (*enter 'X' and mark appropriate boxes below*)
  - ☐ a. Generator Marketing to Burner
  - ☐ b. Other Marketer
  - ☐ c. Burner

B. Used Oil Fuel Activities

- ☐ 6. Off-Specification Used Oil Fuel (*enter 'X' and mark appropriate boxes below*)
  - ☐ a. Generator Marketing to Burner
  - ☐ b. Other Marketer
  - ☐ c. Burner
- ☐ 7. Specification Used Oil Fuel Marketer (Or On-Site Burner) Who First Claims the Oil Meets the Specification.

VII. Waste Fuel Burning: Type of Combustion Device (*enter 'X' in all appropriate boxes to indicate type of combustion device(s) in which hazardous waste fuel or off-specification used oil fuel is burned. See instructions for definitions of combustion devices.*)

☐ A. Utility Boiler ☐ B. Industrial Boiler ☐ C. Industrial Furnace

VIII. Mode of Transportation (*transporters only — enter 'X' in the appropriate box(es)*)

☐ A. Air ☐ B. Rail ☐ C. Highway ☐ D. Water ☐ E. Other (*specify*)

X. First or Subsequent Notification

Mark 'X' in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your installation's EPA ID Number in the space provided below.

☐ A. First Notification ☐ B. Subsequent Notification (*complete item C*)

C. Installation's EPA ID Number

EPA Form 8700-12 (Rev. 11-85) Previous edition is obsolete.

Continue on reverse

ID — For Official Use Only														
C													T/A	C
W														1

IX. Description of Hazardous Wastes *(continued from front)*

A. Hazardous Wastes from Nonspecific Sources. Enter the four-digit number from 40 *CFR* Part 261.31 for each listed hazardous waste from nonspecific sources your installation handles. Use additional sheets if necessary.

1	2	3	4	5	6
7	8	9	10	11	12

B. Hazardous Wastes from Specific Sources. Enter the four-digit number from 40 *CFR* Part 261.32 for each listed hazardous waste from specific sources your installation handles. Use additional sheets if necessary.

13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30

C. Commercial Chemical Product Hazardous Wastes. Enter the four-digit number from 40 *CFR* Part 261.33 for each chemical substance your installation handles which may be a hazardous waste. Use additional sheets if necessary.

31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48

D. Listed Infectious Wastes. Enter the four-digit number from 40 *CFR* Part 261.34 for each hazardous waste from hospitals, veterinary hospitals, or medical and research laboratories your installation handles. Use additional sheets if necessary.

49	50	51	52	53	54

E. Characteristics of Nonlisted Hazardous Wastes. Mark 'X' in the boxes corresponding to the characteristics of nonlisted hazardous wastes your installation handles. *(See 40 CFR Parts 261.21 — 261.24)*

☐ 1. Ignitable *(D001)* ☐ 2. Corrosive *(D002)* ☐ 3. Reactive *(D003)* ☐ 4. Toxic *(D000)*

X. Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature	Name and Official Title *(type or print)*	Date Signed

EPA Form 8700-12 (Rev. 11-85) Reverse

BILLING CODE 6560-50-C

IV. Line-by-Line Instructions for Completing EPA Form 8700-12

Type or print in black ink all items except Item XI, "Signature," leaving a blank box between words. When typing, hit the space bar once between characters and three times between words. If you must use additional sheets, indicate clearly the number of the item on the form to which the information on the separate sheet applies.

Items I–III—Name, Mailing Address, and Location of Installation:

Complete Items I–III. Please note that the address you give for Item III, "Location of Installation," must be a physical address, *not a post office box or route number.* If the mailing address and physical facility location are the same, you can print "Same" in box for Item III.

Item IV—Installation Contact:

Enter the name, title, and business telephone number of the person who should be contacted regarding information submitted on this form.

Item V—Ownership:

(A) *Name:* Enter the name of the legal owner(s) of the installation, including the property owner. Use additional sheets if necessary to list more than one owner.

(B) *Type:* Using the codes listed below, indicate the legal status of the owner of the facility:

FF=Federally Owned, Federally Operated
FC=Federally Owned, Operated By A Private Contractor to the Federal Government
FP=Federally Owned, Privately Operated
PF=Privately Owned, Constructed For Use By The Federal Government and Operated By The Federal Government
PL=Privately Owned, Leased And Operated By The Federal Government
PI=Privately Owned, Indian Land
FI=Federally Owned, Indian Land
C=County
D=District
M=Municipal
P=Private
S=State

Item VI—Type of Regulated Waste Activity:

(A) *Hazardous Waste Activity:* Mark the appropriate box(es) to show which hazardous waste activities are going on at this installation.

(1) *Generator:* (a) If you generate a hazardous waste that is identified by characteristic or listed in 40 CFR Part 261, mark an "X" in this box.

(b) In addition, *if you generate less than 1000 kilograms of non-acutely-hazardous waste per calendar month, mark an "X" in this box.*

(2) *Transporter:* If you move hazardous waste by air, rail, highway, or water then mark an "X" in this box. All transporters must complete Item VIII. Transporters do not have to complete Item X of this form, but must sign the certification in Item XI. Refer to Part 263 of the CFR for an explanation of the Federal regulations for hazardous waste transporters.

(3) *Treater/Storer/Disposer:* If you treat, store or dispose of regulated hazardous waste, then mark an "X" in this box. You are reminded to contact the appropriate addressee listed for your State in Section III(C) of this package to request Part A of the RCRA Permit Application. Refer to Parts 264 and 265 of the CFR for an explanation of the Federal regulations for hazardous waste facility owners/operators.

(4) *Underground Injection:* Persons who generate and/or treat or dispose of hazardous waste must place an "X" in this box if an injection well is located at their installation. An injection well is defined as any hole in the ground, including septic tanks, that is deeper than it is wide and that is used for the subsurface placement of fluids.

(5) *Market or Burn Hazardous Waste Fuel:* If you market or burn hazardous waste fuel, place an "X" in this box. Then mark the appropriate boxes underneath to indicate your specific activity. *If you mark "Burner" you must complete Item VII—"Type of Combustion Device."*

Note.—Generators are required to notify for waste-as-fuel activities only if they market directly to the burner.

"Other Marketer" is defined as any person, other than the generator marketing his hazardous waste, who markets hazardous waste fuel.

(B) Used Oil Fuel Activities: Mark an "X" in the appropriate box(es) below to indicate which used oil fuel activities are taking place at this installation.

(3) Off-Specification Used Oil Fuel: If you market or burn off-specification used oil, place an "X" in this box. Then mark the appropriate boxes underneath to indicate your specific activity. *If you mark "Burner" you must complete Item VII—Type of Combustion Device."*

Note.—Used oil generators are required to notify only if marketing directly to the burner.

"Other Marketer" is defined as any person, other than a generator marketing his or her used oil, who markets used oil fuel.

(7) Specification Used Oil Fuel: If you are the first to claim that the used oil meets the specification established in 40 CFR Part 266.40(e) and is exempt from further regulation, you must mark an "X" in this box.

Item VII—Waste-Fuel Burning: Type of Combustion Device:

Enter an "X" in all appropriate boxes to indicate type(s) of combustion devices in which hazardous waste fuel or off-specification used oil fuel is burned. (Refer to definition section for complete description of each device.)

Item VIII—Mode of Transportation:

Complete this item only if you are the transporter of hazardous waste. Mark an "X" in each appropriate box to indicate the method(s) of transportation you use.

Item IX—First or Subsequent Notification:

Place an "X" in the appropriate box to indicate whether this is your first or a subsequent notification. If you have filed a previous notification, enter your EPA Identification Number in the boxes provided.

Note.—When the owner of a facility changes, the new owner must notify U.S. EPA of the change, even if the previous owner already received a U.S. EPA Identification Number. Because the U.S. EPA ID Number is "site-specific," the new owner will keep the existing ID number. If the facility moves to another location, the owner/operator must notify EPA of this change. In this instance a new U.S. EPA Identification Number will be assigned, since the facility has changed locations.

Item X—Description of Hazardous Waste:

(Only persons involved in hazardous waste activity (Item VI(A)) need to complete this item. Transporters requesting a U.S. EPA Identification Number do not need to complete this item, but must sign the "Certification" in Item XI.)

You will need to refer to Title 40 CFR Part 261 (enclosed) in order to complete this section. Part 261 identifies those wastes that EPA defines as hazardous. If you need help completing this section please contact the appropriate addressee for your state as listed in Section III(C) of this package.

Section A—If you handle hazardous wastes that are listed in the "nonspecific sources" category in Part 261.31, enter the appropriate 4-digit numbers in the boxes provided.

Section B—If you handle hazardous wastes that are listed in the "specific industrial sources" category in Part 261.32, enter the appropriate four-digit numbers in the boxes provided.

Section C—If you handle any of the "commercial chemical products" listed as wastes in Part 261.33, enter the appropriate four-digit numbers in the boxes provided.

Section D—Disregard, since EPA has not yet published infectious waste regulations.

Section E—If you handle hazardous wastes which are not listed in any of the categories above, but do possess a hazardous characteristic, you should describe these wastes by their hazardous characteristic. (An explanation of each characteristic found at Part 261.21–261.24.) Place an "X" in the box next to the characteristic of the wastes that you handle.

Item XI—Certification:

This certification must be signed by the owner, operator, or an authorized representative of your installation. An "authorized representative" is a person responsible for the overall operation of the facility (i.e., a plant manager or superintendent, or a person of equal responsibility). *All notifications must include this certification to be complete.*

V. Definitions

The following definitions are included to help you to understand and complete the Notification Form:

Act or RCRA—means the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. Section 6901 *et seq.*

Authorized Representative—means the person responsible for the overall operation of the facility or an operational unit (i.e., part of a facility), e.g., the plant manager,

superintendent or person of equivalent responsibility.

Boiler—means an enclosed device using controlled flame combustion and having the following characteristics:

(1) The unit has physical provisions for recovering and exporting energy in the form of steam, heated fluids, or heated gases;

(2) The unit's combustion chamber and primary energy recovery section(s) are of integral design (i.e., they are physically formed into one manufactured or assembled unit);

(3) The unit continuously maintains an energy recovery efficiency of at least 60 percent, calculated in terms of the recovered energy compared with the thermal value of the fuel; and

(4) The unit exports and utilizes at least 75 percent of the recovered energy, calculated on an annual basis (excluding recovered heat used internally in the same unit to, for example, preheat fuel or combustion air or drive fans or feedwater pumps).

Burner—means the owner or operator of a utility boiler, industrial boiler or industrial furnace that burns waste-fuel for energy recovery and that is not regulated as a RCRA hazardous waste incinerator.

Disposal—means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

Disposal Facility—means a facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure.

EPA Identification (I.D.) Number—means the number assigned by EPA to each generator, transporter, and treatment, storage, or disposal facility.

Facility—means all contiguous land, and structures, other appurtenaces, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).

Generator—means any person, by site, whose act or process produces hazardous waste identified or listed in Part 261 of this chapter or whose act first causes a hazardous waste to become subject to regulation.

Hazardous Waste—means a hazardous waste as defined in 40 CFR Part 261.

Hazardous Waste Fuel—means hazardous waste and any fuel that contains hazardous waste that is burned for energy recovery in a boiler or industrial furnace that is not subject to regulation as a RCRA hazardous waste incinerator. However, the following hazardous waste fuels are subject to regulation as used oil fuels:

(1) Used oil fuel that is also a hazardous waste solely becasue it exhibits a characteristic of hazardous waste identified in Subpart C of 40 CFR Part 261, provided it is not mixed with hazardous waste; and

(2) Used oil fuel mixed with hazardous wastes generated by a small quantity generator subject to 40 CFR Part 261.5.

Industrial Boiler—means a boiler located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes.

Industrial Furnace—means any of the following enclosed devices that are integral components of manufacturing processes and that use controlled flame combustion to accomplish recovery of materials or energy: cement kilns, lime kilns, aggregate kilns (including asphalt kilns), phosphate kilns, coke ovens, blast furnaces, smelting furnaces, refining furnaces, titanium dioxide chloride process oxidation reactors, and methane reforming furnaces (and other devices as the Administrator may add to this list).

Marketer—means a person who markets hazardous waste fuel or used oil fuel. However, the following marketers are not subject to waste-as-fuel requirements (including notification) under Subparts D and E of 40 CFR Part 266:

(1) Generators and initial transporters (i.e., transporters who receive hazardous waste or used oil directly from generators including initial transporters who operate transfer stations) who do not market directly to persons who burn the fuels; and

(2) Persons who market used oil fuel that meets the specification provided under 40 CFR 266.40(e) and who are not the first to claim the oil meets the specification.

Off-Specification Used Oil Fuel—means used oil fuel that does not meet the specification provided under 40 CFR 266.40(e).

Operator—means the person responsible for the overall operation of a facility.

Owner—means a person who owns a facility or part of a facility, including land owner.

Specification Used Oil Fuel—means used oil fuel that meets the specification provided under 40 CFR 266.40(e).

Storage—means the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

Transportation—means the movement of hazardous waste by air, rail, highway, or water.

Transporter—means a person engaged in the off-site transportation of hazardous waste by air, rail, highway, or water.

Treatment—means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste nonhazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

Used Oil—means any oil that has been refined from crude oil, used, and as a result of such use, is contaminated by physical or chemical impurities. Wastes that contain oils that have not been used (e.g., fuel oil storage tank bottom clean-out wastes) are not used oil unless they are mixed with used oil.

Used Oil Fuel—means any used oil burned (or destined to be burned) for energy recovery including any fuel produced from used oil by processing, blending or other treatment, and that does not contain hazardous waste (other than that generated by a small quantity generator and exempt from regulation as hazardous waste under provisions of 40 CFR 261.5). Used oil fuel may itself exhibit a characteristic of hazardous waste and remain subject to regulation as used oil fuel provided it is not mixed with hazardous waste.

Utility Boiler—means a boiler that is used to produce electricity, steam or heated or cooled air for sale.

Waste Fuel—means hazardous waste fuel or off-specification used oil fuel.

[FR Doc. 85-27903 Filed 11-27-85; 8:45 am]

BILLING CODE 6560-50-M

	Capacity	Present	
45)	273,370	179,694	All pickup presently going to 45
AS	30,000	30,000 ✓	
	30,000	30,000 ✓	
	30,000	30,000 ✓	
~~TT~~ 803	17,585	17,585	Sampled except for Bottoms & Total Halogens
	17,585	17,585	
	17,585	17,585	
	30,000	30,000	
		82,755	
TT	30,000 (15,000)	15,000	5 Sampled except for Bottoms & Total Halogens
	30,000 (15000)	15,000	
	30,000 (15000)	15,000	
	30,000 (15,000)	15,000	
	30,000 (15,000)	15,000	
	30,000 (15,000)	15,000 ✓	

Oil Pick-up Contracts

803 - 4 Tanks 82,755
AS - 2 T

11-14 April - only 159,000 gal

WASTE OIL TANKS

DATE COLLECTED: 31 MARCH 1986

SAMPLE #

86-13	AIR STATION	TANK #1	FURTHEREST FROM CRASH CREW
-14		#2	
-15		#3	

86-16	TT	STT-61	
-17		62	
-18		63	
-19		64	
-20		65	
-21		66	NOT FULL ONLY ABOUT TWO FEET

86-22	HB	S-888
23		-889
24		-890
25		891

COLLECTED BY: D. BECKER
B. BETZ
L. LANE

	(2) # SAMPLES	(1) LETTER DATE	(3) DELIVERY DATE
- AS WASTE OIL	3 SAMPLES	2 APR	4 APR
HB WASTE OIL	4 SAMPLES	2 APR	5 APR
AS ~~HI~~. WASTE	8 SAMPLES	3 APR	6 APR
π WASTE OIL	5 SAMPLES	4 APR	6 APR

Danny DDS

ROUTING AND TRANSMITTAL SLIP

Date 3/20/86

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. D.R.M.O / Mrs. Hipp		
2. BMO		
3. NREAD		
4.		
5. SUBJ: USED OIL (ACTIONS)		

	Action		File		Note and Return
	Approval		For Clearance		Per Conversation
	As Requested		For Correction		Prepare Reply
	Circulate		For Your Information		See Me
	Comment		Investigate		Signature
	Coordination		Justify		

REMARKS

Please look this over & come to mtg ~~TUESday~~ WEDNESDAY / 11:00 3/26/86 Bldg 1 FAC conf Rm.

...l if ?'s.

Scotch® 7664 "Post-it" Routing-Request Pad

ROUTING - REQUEST

Please
- ☐ READ
- ☐ HANDLE
- ☐ APPROVE

and
- ☐ FORWARD
- ☐ RETURN
- ☐ KEEP OR DISCARD
- ☐ REVIEW WITH ME

Date _____

To DANNY
Betsy
Please PLAN ON Attending

From D Stange

...se this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

...ame, org. symbol, Agency/Post)	Room No.—Bldg.
Bob	Phone No. 3034/35

S/N 0107-LF-000-4100

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

☆GPO: 1984—705-012/17826 2-1

Dan DDS

ROUTING AND TRANSMITTAL SLIP

Date 3/20/86

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. D.R.M.O / Mrs. Hipp		
2. BMO		
3. NREAD		
4.		
5. SUBJ: USED OIL (ACTIONS)		

	Action		File		Note and Return
	Approval		For Clearance		Per Conversation
	As Requested		For Correction		Prepare Reply
	Circulate		For Your Information		See Me
	Comment		Investigate		Signature
	Coordination		Justify		

REMARKS

Please look this over & come to mtg ~~TUESDAY~~ WEDNESDAY / 11:00 3/26/86 Bldg 1 FAC conf Rm.

Call if ?'s.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post) Bob A

Room No.—Bldg.

Phone No. 3034/35

5041-102 S/N 0107-LF-000-4100

☆GPO: 1984—705-012/17826 2-1

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

MEANSCO FORM 200-1

LETTER OF TRANSMITTAL

FROM:

George F. Mather
Delta Process Management, Inc.
1985 Nonconnah Blvd.
Memphis, TN 38132

DATE March 17, 1986
PROJECT HM/HW & Used Oil Study
LOCATION Camp Lejeune, NC
ATTENTION Distribution
RE: Used Oil
High Inventory
Contract N62470-85-C-7979

TO:

Paul Parker
Commander, Atlantic Division
Naval Facilities Engineering Command
Norfolk, VA 23511-6287

GENTLEMEN:

WE ARE SENDING YOU [X] HEREWITH [ ] DELIVERED BY HAND [ ] UNDER SEPARATE COVER

VIA Federal Express THE FOLLOWING ITEMS:

[ ] PLANS [ ] PRINTS [ ] SHOP DRAWINGS [ ] SAMPLES [ ] SPECIFICATIONS

[ ] ESTIMATES [ ] COPY OF LETTER [ ]

Exhibit	DATE OR NO.	DESCRIPTION
--	3/14/86	Cover letter.
I.	3/14/86	Used Oil Specification Analysis and ASTM D396.
II.	3/17/86	List of Used Oil Handlers Acceptable to EnSafe Study Team. (Alphabetical)

THESE ARE TRANSMITTED AS INDICATED BELOW

[XX] FOR YOUR USE [ ] APPROVED AS NOTED [ ] RETURN CORRECTED PRINTS
[ ] FOR APPROVAL [ ] APPROVED FOR CONSTRUCTION [ ] SUBMIT COPIES FOR
[ ] AS REQUESTED [ ] RETURNED FOR CORRECTIONS [ ] RESUBMIT COPIES FOR
[ ] FOR REVIEW AND COMMENT [ ] RETURNED AFTER LOAN TO US [ ] FOR BIDS DUE
[ ]

REMARKS: We believe the Camp Lejeune used oil inventory and RCRA regulations require some immediate reaction to get something started.

cc: Robert Alexander
(Bob, if you concur, please copy F. Cone; N. Hipp; D. Sharpe; and others as required.)
Jim Speakman

Regards,
SIGNED: George F. Mather
(George F. Mather)

IF ENCLOSURES ARE NOT AS INDICATED, PLEASE NOTIFY US AT ONCE.

DELTA PROCESS MANAGEMENT, INC.
1985 Nonconnah Boulevard
MEMPHIS, TENNESSEE 38132
(901) 398-5151

JOB Cover Letter
SHEET NO. _____ OF _____
CALCULATED BY GFM DATE March 14, 1986
CHECKED BY _____ DATE _____
SCALE Used Oil Contract N62470-85-C-7979

Per our briefing on March 13, 1986, we feel that Camp Lejeune must take immediate steps to alleviate its used oil inventory problems even prior to the draft report. Accordingly, several interim steps for your consideration are detailed below:

1. Used Oil Fuel Specifications Analysis

   Obtain analysis that characterize the used oil as a fuel for blending by responsible used dealers. Exhibit I is a used oil specification/analysis sheet like a typical oil handler uses.

   It includes the November, 1985, RCRA used oil specification. It does not include extraneous analysis that serve to confuse the handler and possibly raise unwarranted concerns.

   If contamination is suspected such as PCB's or herbicides, then have those analysis run on an as required basis.

   In time, many of these analysis could be done by the base itself.

2. Tank Procedure

   Assuming T-45 does have a current analytical history, concentrate your efforts on the other discrete, smaller storage tanks such as the LP tanks at Tarawa Terrace, Holston Road, and the vertical tanks at MCAS. For these tanks (not T-45), one sample drawn at mid-level should be reasonably representative. Elizabeth Betz has the proper sampling equipment. Draw sample when the tank is full and ready to come out of service. You may want to top off the tank or tanks in a given tank farm first. When the tank is full (topped off), draw sample and "carseal" tank to stop further additions. Thus, possibly deleterious contamination is prevented. Obtain a priority on the analytical work.

3. Used Oil Handlers

   Contact the used oil handlers per the enclosed list. Provide them with tank I.D. number, gallonage estimate, and analysis. Offer them the opportunity to inspect the tanks and obtain their own sample, should they desire. You may have other qualified firms you wish to add but any firm bidding must have the technical and environmental expertise; financial, legal and insurance capability; adequate facilities with legitimate used oil customers (large fuel oil burners). Also look for firms which could recycle an acceptable boiler fuel for future burning at base boiler(s).

Regards,

Gary D. Noel

DELTA PROCESS MANAGEMENT, INC.
1985 Nonconnah Boulevard
MEMPHIS, TENNESSEE 38132
(901) 398-5151

JOB Exhibit I
SHEET NO. _____ OF _____
CALCULATED BY GFM DATE March 14, 1986
CHECKED BY _____ DATE _____
SCALE Used Oil Contract #N62470-85-C-7979

USED OIL SPECIFICATION ANALYSIS SHEET

A. Fuel Oil Specifications

		Units
Water, (ASTM D396)	See enclosed	Vol %
Sediment, (ASTM D396)	ASTM D396	Vol %
Bottoms, (ASTM D396)		%
Specific Gravity API, (ASTM D396)		Degrees API
Viscosity Saybolt (ASTM D396)		SSU
BTU Value	Seconds	BTU/Gallon

B. RCRA Used Oil Specifications

Arsenic	Methods per	5ppm max
Cadmium	Federal Register	2ppm max
Chromium	November	10ppm max
Lead	Regulations	100ppm max
Flash Point		100°F
Halogens		4000ppm max

NOTE: Analysis required for fuel dealer (used oil handlers/blenders) to bid on Camp Lejeune waste and conform to RCRA.

Do not run extraneous analysis unless there is a reason (suspected contamination such as PCB's and herbicides).

EXHIBIT I ASTM D396 EXCERPT

Standard Specification for FUEL OILS[1]

This standard is issued under the fixed designation D 396; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

This method has been approved for use by agencies of the Department of Defense and for listing in the DoD Index of Specifications and Standards.

1. Scope

1.1 This specification (Note 1) covers grades of fuel oil intended for use in various types of fuel-oil-burning equipment under various climatic and operating conditions.

NOTE 1—For information on the significance of the terminology and test methods used in this specification, see the Appendix.

1.2 This specification is for the use of purchasing agencies in formulating specifications to be included in contracts for purchases of fuel oils and for the guidance of consumers of fuel oils in the selection of the grades most suitable for their needs.

NOTE 2—Nothing in this specification, shall preclude observance of federal, state, or local regulations which may be more restrictive.

1.3 The values stated in SI units are to be regarded as standard. The values stated in inch-pound units are for information only.

2. Applicable Documents

2.1 *ASTM Standards:*

D 56 Test Method for Flash Point by Tag Closed Tester[2]

D 86 Method for Distillation of Petroleum Products[2]

D 93 Test Methods for Flash Point by Pensky-Martens Closed Tester[2]

D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation[2]

D 97 Test Methods for Pour Point of Petroleum Oils[2]

D 129 Test Method for Sulfur in Petroleum Products (General Bomb Method)[2]

D 130 Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test[2]

D 287 Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)[2]

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)[2]

D 473 Test Method for Sediment in Crude Oils and Fuel Oils by Extraction[2]

D 482 Test Method for Ash from Petroleum Products[2]

D 524 Test Method for Ramsbottom Carbon Residue of Petroleum Products[2]

D 1266 Test Method for Sulfur in Petroleum Products (Lamp Method)[2]

D 1552 Test Method for Sulfur in Petroleum Products (High-Temperature Method)[2]

D 1659 Test Method for Maximum Fluidity Temperature of Residual Fuel Oil[2]

D 1796 Test Method for Water and Sediment in Fuel Oils by Centrifuge Method (Laboratory Procedure)[3]

D 2622 Test Method for Sulfur in Petroleum Products (X-Ray Spectrographic Method)[3]

D 3245 Test Method for Pumpability of Industrial Fuel Oils[4]

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[1] This specification is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants.

Current edition approved Aug. 29, 1980. Published October 1980. Originally published as D 396 – 34 T. Last previous edition D 396 – 79.

[2] *Annual Book of ASTM Standards*, Vol 05.01.

[2a] Discontinued, see *1983 Annual Book of ASTM Standards*, Vol 05.01.

[3] *Annual Book of ASTM Standards*, Vol 05.02.

[4] *Annual Book of ASTM Standards*, Vol 05.03.

General Requirements

4.1 The grades of fuel oil specified herein shall be homogeneous hydrocarbon oils, free from inorganic acid, and free from excessive amounts of solid or fibrous foreign matter likely to make frequent cleaning of suitable strainers necessary.

4.2 All grades containing residual components shall remain uniform in normal storage and not separate by gravity into light and heavy components outside the viscosity limits for the grade.

Detailed Requirements

5.1 The various grades of fuel oil shall conform to the limiting requirements shown in Table 1.

5.2 Modifications of limiting requirements to meet special operating conditions agreed upon between the purchaser, the seller, and the supplier shall fall within limits specified for each grade, except as stated in supplementary footnotes for Table 1.

Test Methods

6.1 The requirements enumerated in this specification shall be determined in accordance with the following ASTM methods,[5] except as may be required under 5.1.1.

5.1.1 *Flash Point*—Method D 93, except where other methods are prescribed by law for the determination of minimum flash point. For grades No. 1 and No. 2, Method D 56, may be used as an alternative with the same limits, provided the flash point is below 79.4°C (175°F) and the viscosity is below 5.8 cSt (45 SUS) at 38°C (100°F). This method will give slightly lower values. In cases of dispute, Method D 93 shall be used as the referee method.

5.1.2 *Pour Point*—Method D 97. Alternative test methods that indicate flow point properties may be used for low sulfur residual fuels by agreement between purchaser and supplier.

5.1.3 *Water and Sediment*—The water and sediment in Grades Nos. 1, 2, 4, and 5 shall be determined in accordance with Method D 1796 and Grade No. 6 by Method D 95, and Method D 473.

5.1.4 *Carbon Residue*—Method D 524.

5.1.5 *Ash*—Method D 482.

5.1.6 *Distillation*—Distillation of Grade No. 1 and No. 2 oils shall be determined in accordance with Method D 86.

5.1.7 *Viscosity*—Viscosity shall be determined in accordance with Method D 445.

5.1.8 *Gravity*—Method D 287.

5.1.9 *Corrosion*—Method D 130, 3 h test at 50°C (122°F).

5.1.10 *Sulfur*—The sulfur content of any grade may be determined by any of the following methods: Method D 129, Method D 1552, or Method D 2622. In addition, the sulfur of Grade No. 1 may be determined by Method D 1266.

[5] For information on the precision of the ASTM methods of test for fuel oils refer to "An Evaluation of Methods for Determination of Sulfur in Fuel Oils" by A. R. Crawford, Esso Mathematics & Systems Inc. and G. V. Dyroff, Esso Research and Engineering Co., 1969. This document is available from the Publications Section, American Petroleum Institute, 2101 L. St., N.W., Washington, D.C. 20037.

TABLE 1 Detailed Requirements for Fuel Oils[A]

Grade of Fuel Oil	Flash Point, °C (°F)	Pour Point, °C (°F)	Water and Sediment, vol %	Carbon Residue on 10% Bottoms, %	Ash, weight %	Distillation Temperatures, °C (°F)		Saybolt Viscosity, s[D]				Kinematic Viscosity, cSt[D]						Specific Gravity 60/60°F (deg API)	Copper Strip Corrosion	Sulfur, %
						10% Point	90% Point	Universal at 38°C (100°F)		Furol at 50°C (122°F)		At 38°C (100°F)		At 40°C (104°F)		At 50°C (122°F)				
	Min	Max	Max	Max	Max	Max	Min	Max	Min	Max	Min	Min	Max	Min	Max	Min	Max	Max	Max	Max
No. 1 A distillate oil intended for vaporizing pot-type burners and other burners requiring this grade of fuel	38 (100)	−18[C] (0)	0.05	0.15	...	215 (420)	...	288 (550)	...	...	...	1.4	2.2	1.3	2.1	...	...	0.8499 (35 min)	No. 3	0.5
No. 2 A distillate oil for general purpose heating for use in burners not requiring No. 1 fuel oil	38 (100)	−6[C] (20)	0.05	0.35	...	...	282[C] (540)	338 (640)	(32.6)	(37.9)	...	2.0[C]	3.6	1.9[C]	3.4	...	...	0.8762 (30 min)	No. 3	0.5[B]
No. 4 (Light) Preheating not usually required for handling or burning	38 (100)	−6[C] (20)	0.50	...	0.05	...	...	...	(32.6)	(45)	...	2.0	5.8	...	...	...	...	0.8762[G] (30 max)	...	...
No. 4 Preheating not usually required for handling or burning	55 (130)	−6[C] (20)	0.50	...	0.10	...	...	...	(45)	(125)	...	5.8	26.4[F]	5.5	24.0[F]	...	...	...	...	...
No. 5 (Light) Preheating may be required depending on climate and equipment	55 (130)	...	1.00	...	0.10	...	...	...	(>125)	(300)	...	>26.4	65[F]	>24.0	58[F]	...	...	...	...	...

Grade of Fuel Oil	Flash Point, °C (°F)		Pour Point, °C (°F)		Water and Sediment, vol %		Carbon Residue on 10 % Bottoms, %		Ash, weight %		Distillation Temperatures, °C (°F)				Saybolt Viscosity, s[D]				Kinematic Viscosity, cst						Specific Gravity 60/60°F (deg API)		Copper Strip Corrosion		Sulfur, %
											10 % Point		90 % Point		Universal at 38°C (100°F)		Furol at 50°C (122°F)		At 38°C (100°F)		At 40°C (104°F)		At 50°C (122°F)						
	Min	Max	Min	Max	Max	Max	Max	Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Max	Max	Max	Max	Max
No. 5 (Heavy) Preheating may be required for burning and, in cold climates, may be required for handling	55 (130)	...	...		1.00		...		0.10		...		...		(>300)	(900)	(23)	(40)	>65	194[F]	>58	168[F]	(42)	(81)	...		...		...
No. 6 Preheating required for burning and handling	60 (140)		[G]		2.00[E]		...		...		...		...		(>900)	(9000)	(>45)	(300)	...	...	...	...	>92	638[F]	...		...		...

[A] It is the intent of these classifications that failure to meet any requirement of a given grade does not automatically place an oil in the next lower grade unless in fact it meets all requirements of the lower grade.

[B] In countries outside the United States other sulfur limits may apply.

[C] Lower or higher pour points may be specified whenever required by conditions of storage or use. When pour point less than −18°C (0°F) is specified, the minimum viscosity for grade No. 2 shall be 1.7 cSt (31.5 SUS) and the minimum 90 % point shall be waived.

[D] Viscosity values in parentheses are for information only and not necessarily limiting.

[E] The amount of water by distillation plus the sediment by extraction shall not exceed 2.00 %. The amount of sediment by extraction shall not exceed 0.50 %. A deduction in quantity shall be made for all water and sediment in excess of 1.0 %.

[F] Where low sulfur fuel oil is required, fuel oil falling in the viscosity range of a lower numbered grade down to and including No. 4 may be supplied by agreement between purchaser and supplier. The viscosity range of the initial shipment shall be identified and advance notice shall be required when changing from one viscosity range to another. This notice shall be in sufficient time to permit the user to make the necessary adjustments.

[G] This limit guarantees a minimum heating value and also prevents misrepresentation and misapplication of this product as Grade No. 2.

[H] Where low sulfur fuel oil is required, Grade 6 fuel oil will be classified as low pour +15°C (60°F) max or high pour (no max). Low pour fuel oil should be used unless all tanks and lines are heated.

APPENDIX

X1. SIGNIFICANCE OF ASTM SPECIFICATION FOR FUEL OILS

X1.1 Scope

X1.1.1 ASTM Specification D 396 divides fuel oils into grades based upon the types of burners for which they are suitable. It places limiting values on several of the properties of the oils in each grade. The properties selected for limitation are those that are believed to be of the greatest significance in determining the performance characteristics of the oils in the types of burners in which they are most commonly used.

X1.2 Classes

X1.2.1 Because of the methods employed in their production, fuel oils fall into two broad classifications: distillates and residuals. The distillates consist of overhead or distilled fractions. The residual are bottoms remaining from the distillation, or blends of these bottoms with distillates. In Specification D 396, Grades No. 1 and No. 2 are distillates and the grades from No. 4 to No. 6 are usually residual, although some heavy distillates may be sold as Grade No. 4.

X1.3 Grades

X1.3.1 *Grade No. 1* is a light distillate intended for use in burners of the vaporizing type in which the oil is converted to a vapor by contact with a heated surface or by radiation. High volatility is necessary to ensure that evaporation proceeds with a minimum of residue.

X1.3.2 *Grade No. 2* is a heavier distillate than grade No. 1. It is intended for use in atomizing type burners which spray the oil into a combustion chamber where the tiny droplets burn while in suspension. This grade of oil is used in most domestic burners and in many medium capacity commercial-industrial burners where its ease of handling and ready availability sometimes justify its higher cost over the residual fuels.

X1.3.3 *Grade No. 4 (Light)* is usually a light residual but it sometimes is a heavy distillate. It is intended for use both in pressure-atomizing commercial-industrial burners not requiring higher cost distillates and in burners equipped to atomize oils of higher viscosity. Its permissible viscosity range allows it to be pumped and atomized at relatively low storage temperatures.

X1.3.4 *Grade No. 4* is usually a light residual, but it sometimes is a heavy distillate. It is intended for use in burners equipped with devices that atomize oils of higher viscosity than domestic burners can handle. Its permissible viscosity range allows it to be pumped and atomized at relatively low storage temperatures. Thus, in all but extremely cold weather it requires no preheating for handling.

X1.3.5 *Grade No. 5 (Light)* is residual fuel of intermediate viscosity for burners capable of handling fuel more viscous than grade No. 4 without preheating. Preheating may be necessary in some types of equipment for burning and in colder climates for handling.

X1.3.6 *Grade No. 5 (Heavy)* is a residual fuel more viscous than Grade No. 5 (light) and is intended for use in similar service. Preheating may be necessary in some types of equipment for burning and in colder climates for handling.

X1.3.7 *Grade No. 6*, sometimes referred to as "Bunker C," is a high-viscosity oil used mostly in commercial and industrial heating. It requires preheating in the storage tank to permit pumping, and additional preheating at the burner to permit atomizing. The extra equipment and maintenance required to handle this fuel usually preclude its use in small installations.

X1.3.8 Residual fuel oil supplied to meet regulations requiring low sulfur content may differ from the grade previously supplied. It may be lower in viscosity (and fall into a different grade number). If it must be fluid at a given temperature, Method D 97 may not accurately reflect the pour point which can be expected after a period of storage. It is suggested that the purchaser and supplier discuss the proper handling and operating techniques for a given low-sulfur residual fuel oil in the installation where it is to be used.

X.1.4 Significance of Test Methods

X.1.4.1 The significance of the properties of the oil on which limitations are placed by the specification is as follows:

X1.4.1.1 *Flash Point*—The flash point of a fuel oil is an indication of the maximum temperature at which it can be stored and handled without serious fire hazard. The minimum permissible flash point is usually regulated by federal, state, or municipal laws and is based on accepted practice in handling and use.

X1.4.1.2 *Pour Point*—The pour point is an indication of the lowest temperature at which a fuel oil can be stored and still be capable of flowing under very low forces. The pour point is prescribed in accordance with the conditions of storage and use. Higher pour point fuels are permissible where heated storage and adequate piping facilities are provided. An increase in pour point may occur when residual fuel oils are subjected to cyclic temperature variations that may occur in the course of storage or when the fuel is preheated and returned to storage tanks. To predict these properties, test methods such as British Admiralty Method VII, Method D 3245-IP 230/69

or Method D 1659, ma[illegible] required.

X1.4.1.3 *Water and Sediment*—Appreciable amounts of water and sediment in a fuel oil tend to cause fouling of facilities for handling it, and to give trouble in burner mechanisms. Sediment may accumulate in storage tanks and on filter screens or burner parts, resulting in obstruction to flow of oil from the tank to the burner. Water in distillate fuels may cause corrosion of tanks and equipment and it may cause emulsions in residual fuels.

X1.4.1.4 *Carbon Residue*—The carbon residue of a fuel is a measure of the carbonaceous material left after all the volatile components are varporized in the absence of air. It is a rough approximation of the tendency of a fuel to form deposits in vaporizing burners, such as pot-type and sleeve-type burners, where the fuel is vaporized in an air-deficient atmosphere.

To obtain measurable values of carbon residue in the lighter distillate fuel oils, it is necessary to distill the oil to remove 90 % of it in accordance with ASTM Method D 86, Test for Distillation of Petroleum Products,[2] and then determine the carbon residue concentrated in the remaining 10 % bottoms.

X1.4.1.5 *Ash*—The amount of ash is the quantity of noncombustible material in an oil. Excessive amounts may indicate the presence of materials that cause high wear of burner pumps and valves, and contribute to deposits on boiler heating surfaces.

X1.4.1.6 *Distillation*—The distillation test shows the volatility of a fuel and the ease with which it can be vaporized. The test is of greater significance for oils that are to be burned in vaporizing type burners than for the atomizing type. For example, the maximum 10 % and 90 % distilled temperatures are specified for grade No. 1 fuel. The limiting 10 % value assures easy starting in vaporizing type burners and the 90 % limit excludes heavier fractions that would be difficult to vaporize.

The lim[illegible] specified for grade No. 2 heating oil define a product that is acceptable for burners of the atomizing type in household heating installations. Distillation limits are not specified for fuel oils of grades Nos. 4, 5, and 6.

X1.4.1.7 *Viscosity Limits for Grades Nos. 1 and 2*—The viscosity of an oil is a measure of its resistance to flow. In fuel oil it is highly significant since it indicates both the relative ease with which the oil will flow or may be pumped, and the ease of atomization.

Viscosity limits for No. 1 and No. 2 grades are specified to help maintain uniform fuel flow in appliances with gravity flow, and to provide satisfactory atomization and constant flow rate through the small nozzles of household burners. For the heavier grades of industrial and bunker fuel oils, viscosity is of major importance, so that adequate preheating facilities can be provided to permit them to be pumped to the burner and to provide good atomization. However, it is equally important that the maximum viscosity under the existing conditions be such that the oil can be pumped satisfactorily from the storage tank to the preheater.

X1.4.1.8 *Gravity*—Gravity alone is of little significance as an indication of the burning characteristics of fuel oil. However, when used in conjunction with other properties, it is of value in weight-volume relationships and in calculating the heating value of an oil.

X1.4.1.9 *Corrosion*—The corrosion test serves to indicate the presence or absence of materials that might corrode copper, brass, and bronze components of the fuel system. This property is specified only for No. 1 distillate fuel.

X1.4.1.10 Limited sulfur content of fuel oil may be required for special uses in connection with heat treatment, nonferrous metal, glass, and ceramic furnaces or to meet federal, state or local legislation or regulations.

I. ALTERNATE ENERGY RESOURCES, INC.

A. Firm address and phone number:

Alternate Energy Resources, Inc.
2730 Walden Drive
Augusta, GA 30904
(404) 738-1571

B. Contact: John R. Schnorbach

C. Firm reclaims used oil. It also cleans out tanks containing #1 thru #6 oil. Firm has 10 to 12 employees with $700,000 in sales.

D. Firm goes thru water removal then filtration. Water is sent to municipal sewer.

E. Firm has 400,000 gallons in storage tanks with 2,000 to 3,000 gallon per day processing capacity.

F. The firm has a number of trucks.

G. Insurance coverage is at $1,000,000 and reported good financial stability.

H. Part B permit has been applied for. State contact is Jim Ushery, (404) 656-7802.

I. Water over 25% is an added charge. No PCB's or listed solvents accepted.

J. Used oil is sold to industrial burners and asphalt batch plants.

K. Purchase Camp Lejeune's oil in 1978 or 1979 from high bidder at that time. Have not been contacted in recent past.

L. Reference: Fen Vac Company, (803) 552-8306, D. Shively.

M. Received name from Piedmont Waste Exchange and Project ROSE (Alabama).

II. BAUMGARDNER OIL COMPANY

A. Firm address and phone number:

Baumgardner Oil Company
1514 Black Gap Road
Fayetteville, PA 17222 (south-central Pennsylvania)
1-800-233-0960

B. Contact: Dirk Baumgardner

C. Wastes accepted: all petroleum base oils; regularly scheduled pick-up service.

D. Recycling services: reprocesses oil into heating fuel.

E. Lab facilities: yes.

F. Transport: yes.

G. Source of contact:
1. U-Filler-Up (Lube World outlets in North Carolina)
2. Piedmont Waste Exchange

H. Baumgardner picks up waste oil and reprocesses it for large fuel customers. They do not blend with virgin crude. Numerous attempts at re-refining lube oil were too expensive. They also do tank cleaning as required.

I. Baumgardner has 75 employees and is one of the largest waste oil firms in the U.S. (possibly the largest in the N.E.). Brochure is forthcoming. The firm is a private family owned concern. They have been in business 38 years.

J. Baumgardner distills off water and then filters the resulting waste oil. The water goes to a municipal sewer and the solids to a landfill after drying (looking for alternates for solids). Firm has over fifty tank trucks and 1,200,000 gallons storage capacity.

Firm has Part B permit underway and the necessary air and water permits.

K. Required analysis include RCRA standards (<1000 ppm Halogens), PCB's (0 ppm), BS & W (ASTM D396 bottoms sediment & water = <10%).

Plant lab has a gas chromatograph (GC) & atomic adsorption (AA = for metals). Baumgardner prefers to obtain sample from customer to do their own analysis.

L. Baumgardner has been in business 38 years. They service the local Army Base waste oil/fuel requirements. K-Mart, DuPont, Union Carbide, Firestone, Procter & Gamble, and Norfolk Western are customers. They do waste oil/fuel oil waste exchanges with Fort Bragg.

M. They have not heard from Camp Lejeune in awhile. They did look at some waste oil several years ago, found 10,000 ppm TCE and reported to DPDO that this oil was hazardous waste. It was taken by Southern Oil, an Atlanta broker.

N. Price for good used oil has gone from paying 25¢-30¢ per gallon to pick up at no charge (early March).

III. FOUR SEASONS TANK CLEANING, INC.

A. Firm address and phone number:

Four Seasons Tank Cleaning, Inc.
P.O. Box 7217
Greensboro, N.C. 27407
(919) 273-2718

B. Contact: Robert Barefoot

C. Wastes accepted: petroleum base oils in 500 gallon or more quantities.

D. Transport: yes.

E. Other services: cleanup of hazardous waste spills; cleanout of above and below ground tanks; cleaning transport tankers; caustic wash and steaming.

F. Four Seasons is a 12 year old firm. Sales are $3/4 million with 13 employees including two chemical engineers and a chemist. Fuel is sold to one large industrial account with a captive incinerator (1000 gallon per day requirement). Four Seasons also does tank cleaning and disposal of sludges.

G. Licensed transporter with 9 trucks, including 316SS trucks and a vacuum rig.

H. They feel they have adequate insurance (INA) and are financially sound.

I. Restrictions on waste oils include State limits on PCB's, adequate BTU content, and acceptable lead levels.

J. They filter and distill the waste oil prior to sale. The water from distillation is sent to the city municipal treatment plant and the residue solids to GSX which has a landfill in South Carolina.

K. Customers include R.J. Reynolds, Alcoa, Burlington, Cone Mills, and DuPont.

L. Regulatory matters are in good shape, suggested contacting Joe Deacon at the State Environmental Office.

M. They used to hear from Camp Lejeune but have not since 1984.

N. Received name from U-Filler-Up and Piedmont Waste Exchange.

IV. HOLSTON ENERGY, INC.

A. Firm address and phone number:

Holston Energy, Inc.
P.O. Box 720
Waynesville, N.C. 28786
(704) 452-2836

B. Contact: Eric L. Helquist, Vice President (introductory letter enclosed).

C. Wastes accepted: petroleum base oils; minimum pickup of 6,000 gallons per trip.

D. Recycling services: reprocesses oil into No. 4 boiler fuel. EPA certified. Received their name from U-Filler-Up and from Piedmont Waste Exchange.

E. Letter on firm enclosed. Firm has 25 employees with sales in the $6-$10 million per year. Present ownership has been in place since 1984.

Holston buys and sells virgin fuel oil products and they process/blend used oil to a fuel grade.

F. Holston removes solids with a Sweco shaker and then a light oil distillate and water mixture are removed overhead by evaporation. The bottoms (black oil) is blended with virgin oil as a fuel product. The water is sent to a municipal sewer while the light distillate is blended into fuel. The final #4 industrial fuel oil has a 190-200 viscosity.

G. Holston has a capacity greater than 20,000 gallons per day and typically handle more than 2 million gallons of used oil per year.

H. The firm has six trucks.

I. Holston's insurance is pooled thru North Carolina Petroleum Marketing Association plus an umbrella (Travelers).

J. The company has a good cash position.

K. Phase I RCRA work is complete. They will not file a Part B.

L. Received name of firm from Piedmont Waste Exchange, Project ROSE (Alabama), and Craig Dillingham (used oil independent hauler). Dillingham called the firm excellent, reputable, and competent.

HOLSTON ENERGY INC.

February 19, 1986

Delta Process Management, Inc.
Attn: Mr. George Mather
1985 Nonconnah Blvd
Memphis, TN 38132

Dear Mr. Mather:

I write in reference to our conversation recently concerning the storage of used oil products at the Camp LeJeune facility. As I have gone back over the records here at Holston, there was once a relationship with Camp LeJeune, however, as it turns out the oil was quite contaminated both with off-specification elements and very high concentrations of moisture. Both of these are now unacceptable to our present method of operation.

We are a legitimate used oil recycling operation with a several-step process including distillation and evaporation of total moisture. We are presently operating under the guidelines of EPA's new Phase I regulations and please find below the current maximum limitations which would make the material either on-specification or off-specification:

Arsenic	5 ppm
Cadmium	2 ppm
Chromium	10 ppm
Lead	100 ppm
PCB's	50 ppm
Total halogens	1000 ppm
Flash point	100° F minimum

George, these are the specifications which we would like the material to fall under as well as a considerably lower moisture content than what we have seen at Camp LeJeune in the past. We do operate our own fleet of transport trucks and would enjoy further discussion on this matter.

If we at Holston Energy can be of any further service concerning this study or any other matter, please do not hesitate to contact me.

Best regards,

Eric L. Helquist
Vice President

ELH/pat

PO BOX 720 WAYNESVILLE, NC 28786

V. NATIONAL OIL SERVICE OF FLORIDA

A. Firm address and phone number:

National Oil Service Of Florida
105 South Alexander Street
Plant City, FL 33566
(813) 754-1504

B. Contact: Frank Shibelti or Gary Allen

C. Have not contacted yet. Reputed to be the largest or one of the largest used oil firms. Obtained name from other large used oil firms (competitor) and Project ROSE.

VI. RADIUM PETROLEUM

A. Firm address and phone number:

Petroleum Recycling Corporation
P.O. Box 10713
Knoxville, TN 37921
(615) 693-7627

(Also:
2708 Cross Lane
Knoxville, TN 37931)

B. Contact: Ron Hurt

C. Branch operation of Radium Petroleum, one of the larger U.S. waste oil firms, headquartered in Shawnee, Kansas (Kansas City). Radium is owned by Deffenbaugh Industries, a fair sized regional garbage pickup and landfill firm. Radium also has a branch which I visited, Memphis Waste Oil Service, as reported below.

D. Petroleum Recycling has 9 employees and has been in business ten years.

E. At Knoxville, the waste oil is filtered many times and water is cooked off. The facility has 500,000 gallons of diked storage facilities with a capacity of 20,000 gallons in 36 hours.

F. Radium has over 300 trucks and has many large national accounts (DuPont, Huntsville, Fort Campbell, Cincinnati Water District).

G. A complete survey questionaire has been forwarded to Radium's legal counsel for additional information.

H. Memphis Waste Oil Service (Earl Angus, 501-732-2548) appeared to be a well run facility and simple in concept. Filter sludges were shipped back to headquarters for their analysis and disposal. Water was sent to the city sewer. The facility had a small laboratory for BS & W analysis, PCB checks, etc. A small boiler, operating on reprocessed waste oil, provided steam for the water cook off operation. The facility filtered the waste oil four times with the filter bags recycled by a small laundry device (steam heated).

Although the plant had been with Radium less than 2 years, progress was being made to upgrade its appearance and capability.

I. Branch operation rely heavily on additional legal, technical, and management skills from the Kansas City headquarters.

J. Received firms name indirectly from DRMO (different region) and Project ROSE.

MEANSCO FORM 200-1

LETTER OF TRANSMITTAL

FROM:

George F. Mather
Delta Process Management, Inc.
1985 Nonconnah Blvd.
Memphis, TN 38132

DATE March 19, 1986
PROJECT HM/HW & Used Oil Study
LOCATION Camp Lejeune, N.C.
ATTENTION Distribution
RE: Used Oil Preliminary Cost Estimate
Contract #N62470-85-C-7979

TO:

Paul Parker, Code 114
Commander, Atlantic Division
Naval Facilities Engineering Command
Norfolk, VA 23511-6287

GENTLEMEN:

WE ARE SENDING YOU [X] HEREWITH [ ] DELIVERED BY HAND [ ] UNDER SEPARATE COVER

VIA Federal Express THE FOLLOWING ITEMS:

[ ] PLANS [ ] PRINTS [ ] SHOP DRAWINGS [ ] SAMPLES [ ] SPECIFICATIONS

[ ] ESTIMATES [ ] COPY OF LETTER [ ]

COPIES	DATE OR NO.	DESCRIPTION
1	3/14/86	Used Oil Preliminary Project Cost Estimate (2 pages).

THESE ARE TRANSMITTED AS INDICATED BELOW

[ ] FOR YOUR USE [ ] APPROVED AS NOTED [ ] RETURN CORRECTED PRINTS
[ ] FOR APPROVAL [ ] APPROVED FOR CONSTRUCTION [ ] SUBMIT COPIES FOR
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[ ] FOR REVIEW AND COMMENT [ ] RETURNED AFTER LOAN TO US [ ] FOR BIDS DUE
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REMARKS: As requested by Robert Alexander for 1987 budget purposes, preliminary ball park Used Oil Project costs are enclosed.

cc: Robert Alexander
Jim Speakman

Regards,

IF ENCLOSURES ARE NOT AS INDICATED, SIGNED:

COMPANY			SHEET NO.
MCB CAMP LEJEUNE			1 OF 2
PROJECT USED OIL	LOCATION		
DESCRIPTION OF WORK	ESTIMATOR	CHECKED BY	DATE March 14, 1986

NO.	DESCRIPTION	UNIT	QUANTITY	UNIT MATERIAL COST	TOTAL COST MATERIAL	UNIT MAN HOUR	TOTAL MAN HOURS
I	Containment Pads						
	exclusive of LUST:						
	Estimate 100 locations, segregation, spill	Pad	10' x 20' x 6"/27ft3	x $250	= $1000 each	=	100K
	control, grounding, and signs.	Lockers	@ $1000	per setup	$1000 each	=	100K
	(More 55 gallon drums for waste oil collection?)						
							200K
II	Used Oil Storage & Treatment						
	A. Used Oil Fuel Farm @ Courthouse Bay	Preliminary water/sludge removal/filtration				=	10K
	B. Used Oil Tank Farms "Modular design" per						
	standards but skid mounted for possible						
	relocation. Very simple design without						
	pumps or complex instrumentation.	1.	4TK's x 17Mgal each with piping			=	80K
	Flexible piping for blending, mixing,	2.	Strainers			=	10K
	segregation, settling, water removal, etc:	3.	Site development			=	10K
		4.	Concrete(20 x 100 x 6" / 27ft3/yd x 1.5 x $300/yd + unload pad)			=	20K
		5.	Engineering and project management			=	20K
		6.	Electrical and grounding			=	10K
					SUBTOTAL EACH		150K
					FOR TWO (2)		$ 300K
III	Waste Oil Boiler						
	20,000 lb per hour steam boiler with extra						
	controls and features for waste oil (inter-						
	locks/burner nozzles/filters)(blend facilities static or jet eductor)						
	TOTALS						$ 600K

COMPANY		SHEET NO.
MCB CAMP LEJEUNE		2 OF 2

PROJECT	LOCATION
USED OIL	

DESCRIPTION OF WORK	ESTIMATOR	CHECKED BY	DATE
			March 14, 1986

NO.	DESCRIPTION	UNIT	QUANTITY	UNIT MATERIAL COST	TOTAL COST MATERIAL	UNIT MAN HOUR	TOTAL MAN HOURS
IV	Special Items						
	Oil/water skimmer(s) (portable)		Considered vehicular equipment?	(COLLATERAL)			20K
	Extended drained unit(s) (portable)						20K
	Skimmer truck (additional)						100K
	Cont. fuel dewatering (portable)						10K
							$ 150K
						$750 -	1000K
						Range	
	TOTALS						

NREAD

EMS LabNotes©

1986 NUMBER 1

PUBLISHED BY EMS LABORATORIES, INC.
Indianapolis (317) 243-8304
Charlotte (704) 393-1853

REGULATION OF USED OIL

I Introduction

Since the promulgation of final regulations under the Resource Conservation and Recovery Act (RCRA) in May 1980, the status of used oils has remained somewhat clouded. At various times during the last few years the listing of used oils as hazardous wastes appeared imminent, but final regulatory action never came to pass.

The USEPA has issued some final and some proposed rules to regulate these used oils as hazardous wastes.

The purposes of this presentation are to provide an overview of the proposed and final regulations and to outline the analytical requirements placed upon the regulated community.

II Definitions

The following regulatory definitions have been proposed: **"Used oil"** is petroleum-derived or synthetic oil including, but not limited to, oil which is used as a: i) lubricant (engine, turbine, or gear); ii) hydraulic fluid (including transmission fluid); iii) metalworking fluid (including cutting, grinding, machining, rolling, stamping, quenching, and coating oils); or iv) insulating fluid or coolant, and which is contaminated through use or subsequent management. **"Recycled Oil"** means oil that is either burned for energy recovery, used to produce a fuel, reclaimed (including used oil thad is reprocessed or rerefined), or otherwise recycled, or that is collected, accumulated, stored, transported, or treated prior to recycling. The term includes mixtures of recycled oil and other material, but not mixtures containing hazardous waste (other than used oil). Used oil containing more than 1000 PPM of total halogens is presumed to be mixed with chlorinated hazardous waste listed in part 261, subpart D. Persons may rebut this presumption by demonstrating that the used oil has not been mixed with hazardous waste. EPA will not presume mixing has occurred if the used oil does not contain significant concentrations of chlorinated

(Continued on page 2)

TCLP Now Available

The "Toxicity Characteristic Leaching Procedure" or **"TCLP"** which will replace the EP Toxicity test is now being performed by EMS. The procedure used is the latest draft of the method as proposed in the Federal Register, January 14, 1986.

The TCLP involves the use of a leaching medium *buffered* at pH 5 as well as the use of a Zero Headspace Extractor (ZHE). Use of this ZHE makes the leachate amenable to the determination of volatile organics. Numerous analytes have been added to the TCLP leachate including, but not limited to volatile organics.

(Continued on page 3)

(Continued from page 1)

hazardous constituents listed in Appendix VIII. (Recycled oil is a subset of used oil.)

The following definitions are current regulatory definitions:

"Hazardous Waste Fuel" means hazardous waste and any fuel that contains hazardous waste that is burned for energy recovery in a boiler or industrial furnace that is not subject to regulation as a RCRA hazardous waste incinerator. However, the following hazardous waste fuels are subject to regulation as used oil fuels:

1. Used oil fuel that is also a hazardous waste solely because it exhibits a characteristic of hazardous waste identified in Subpart C of 40 CFR 261, provided it is not mixed with hazardous waste; and
2. Used oil fuel mixed with hazardous waste generated by a small quantity generator subject to 40 CFR 261.5.

"Waste fuel" means hazardous waste fuel or off-specifications used oil fuel.

"Specification used oil fuel" means used oil fuel that meets the specification provided below:

Constituent/Property	*Allowable Level*
Arsenic	5 ppm (max)
Cadmium	2 ppm (max)
Chromium	10 ppm (max)
Lead	100 ppm (max)
Flash Point	100 deg. F
Total Halogens (TX)	4000 ppm (max)*

*If TX level is more than 1000 ppm, it is presumed to be a hazardous waste under the rebuttable resumption of 40 CFR 266.40 (c).

"Off-specification used oil fuel" means used oil fuel that does not meet the specification above.

"Used oil" currently means any oil that has been refined from crude oil, used, and as a result of such use, is contaminated by physical or chemical impurities. Wastes that contain oils that have not been used are not used oil unless they are mixed with used oil.

"Used oil fuel" means any used oil burned or destined to be burned for energy recovery including any fuel produced from used oil by processing, blending, or other treatment, and that does not contain hazardous waste (other than that generated by a small quantity generator and exempt from regulation as hazardous waste under provisions of 40 CFR 261.5). Used oil fuel may itself exhibit a characteristic of hazardous waste and remain subject to regulation as used oil fuel provided it is not mixed with hazardous waste.

III New Final Regulations

EPA has now begun to regulate those hazardous wastes and used oils that are marketed and burned for energy recovery. The chief purpose of these rules is to prohibit the burning of hazardous waste and contaminated used oil in non-industrial boilers. The prohibitions are implemented and enforced by placing administrative controls on marketers and burners of these fuels.

These new rules also establish a rebuttable presumption that used oil containing more than 1000 ppm *total halogens (TX)* is mixed with halogenated hazardous waste and, therefore is a hazardous waste. The presumption may be rebutted by showing the used oil has not been mixed with hazardous wastes by showing it does not contain significant levels of halogenated hazardous constituents. Used oil presumed to be mixed with hazardous waste is subject to regulation as hazardous waste fuel when burned for energy recovery.

In addition the rule establishes a specification for used oil fuel (i.e., used oil not mixed with hazardous waste) that is essentially exempt from all regulation and may be burned in non-industrial boilers. The specification sets allowable levels for designated toxic constituents, flash point, and total halogens.

Burning of hazardous waste fuel and off-specification used oil fuel in industrial and utility boilers and industrial furnaces is still exempt from regulation. EPA intends to regulate such burning under permit standards to be proposed in 1986.

The new rules also apply RCRA hazardous waste storage standards to facilities storing hazardous waste fuels. The regulations describe several different types of fuels, including specification fuel, off-specification fuel, and hazardous waste fuel. The specification fuel has limitations for arsenic, lead, cadmium, chromium, total halogens, and flash point. Being outside the limits on any one of these specifications results in the fuel being classified as an off-specification fuel. There is a separate set of regulations regarding the handling of off-specification fuel, which are more rigorous than the specification fuel. Finally, the hazardous waste fuel will require that processors, blenders, and users of the fuel *obtain full part B permits*. Initially this will entail a notification on January 29, 1986, submittal of a part A application on May 29, 1986, and finally, a full part B permit when it is requested by the EPA or state. Off-specification fuel will only require the notification on January 29th, and conformance with certain storage

requirements and record keeping. It is therefore important to avoid producing a reclaimed fuel which falls into the hazardous waste category. The EPA's main enforcement mechanism is the rebuttable presumption, which uses total halogens (TX) as an indicator of mixing, but which allows for case by case rebuttals. If the total halogen level is more than 1000 ppm, the oil is presumed to be a hazardous waste under this rebuttable presumption, unless the presumption of mixing with hazardous waste can be successfully rebutted.

REBUTTING THE PRESUMPTION

EPA will not presume mixing has occurred if the *used oil* does not contain significant concentrations (eg. 100 ppm) of chlorinated hazardous constituents listed in Appendix VIII.

In order to make this demonstration, an oil analysis may be the method of choice. By *measuring* no significant concentrations of Appendix VIII chlorinated organics, an excellent case can be made that the oil has not been mixed with hazardous waste. Therefore, even if an oil contains more than 1000 ppm total halogen, it may not have to be regulated and disposed of as a hazardous waste. Even if the total halogen level is above 4000 ppm, it may at worst be an off-specification used oil fuel. This latter classification is much preferable to the hazardous waste fuel classification.

MEETING THE SPECIFICATION FOR "SPECIFICATION USED OIL FUEL"

In order to determine if a used oil meets the criteria for specification used oil fuel, it is necessary for the person first making the claim to document by analyses or other information that the oil meets the specification. The regulated parameters are listed in the definitions under "specification used oil fuel".

While testing is not required, EPA states that "...testing will be used to demonstrate compliance. If a person's determination that used oil meets the specification is found to be erroneous, he is in violation of the regulations, regardless of intent."

IV The Proposed Regulations

EPA has proposed two other rulemakings that will regulate the blending and burning of used oil and hazardous waste for energy recovery. These proposed rules list used oil has hazardous waste and establish special management standards for recycled oil, including oil burned for energy recovery. These rules go beyond the final rule by providing standards for used oil generators and collectors, and by regulating the transportation and storage of used oil.

A. THE PROPOSED LISTING OF USED OIL

EPA has proposed to list used oil has a hazardous waste, since used oil frequently contains significant quantities of lead; arsenic; cadmium; chromium; 1,1,1 trichloroethane; trichloroethylene; tetrachloroethylene; toluene and naphthalene.

The proposal defines used oil (see definitions) and proposes two modifications to the mixture rule to exempt certain mixtures of used oil from regulation. Specifically, EPA proposes to exempt some mixtures of wastewater and used oil (ie. "oil and grease" in wastewater), as well as oily rags. No "de minimis" concentrations of oil have been proposed for these exemptions.

B. PROPOSED MANAGEMENT STANDARDS

EPA is proposing that any mixture of used oil and hazardous waste be fully regulated as hazardous waste. This is the central principle of the proposed recyled oil rules. EPA has proposed standards for generators and transporters of recycled oil and owners and operators of used oil recycling facilities. In a manner consistent with the final regulations, recycled oil used as a fuel would be subject to certian regulations: Specification fuel would be exempt from regulation; off-specification used oil fuel would be subject to some regulation and hazardous waste fuel would be fully regulated as a hazardous waste.

VII Summary

In order to be able to determine where a given mixture fits within the new and proposed regulatory protocol, it would be desireable to analyze the material and compare the values obtained with the values listed in the new regulations.

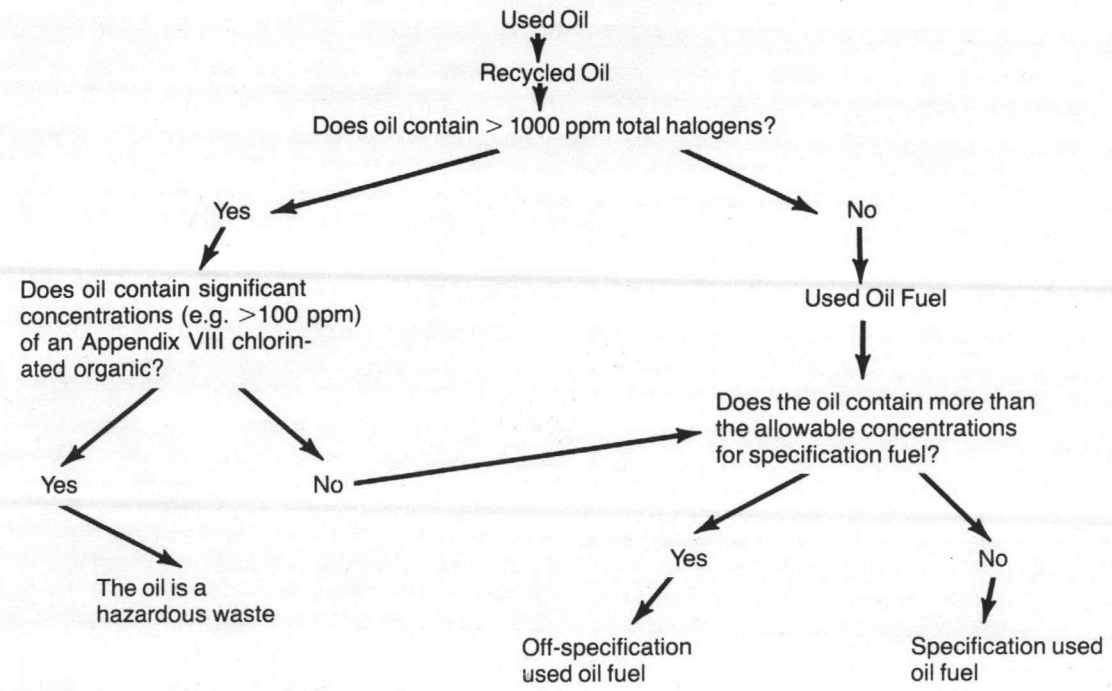
A flow chart of the regulatory process is shown in figure 1 on page 4.

TCLP (Continued from page 1)

The TCLP will define a new "Organic Toxicity Characteristic" under which wastes will be determined to be hazardous if the concentration of hazardous organic constituents in an extract from the waste exceeds specified levels.

EPA is also proposing to use the TCLP to determine if a waste meets standards for the proposed new land disposal regulations as published 1/14/86.

FIGURE 1



LabNotes

TWO ENVIRONMENTAL PLAZA
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JOB
SHEET NO. OF
CALCULATED BY DATE
CHECKED BY DATE
SCALE

USED OIL SPECIFICATION = analysis REQUIRED

I FUEL OIL SPECIFICATIONS		UNITS
WATER (ASTM D396)		Vol%
SEDIMENT (ASTM D396)	See ASTM D396	Vol%
BOTTOMS (ASTM D396)		
SPECIFIC gravity API (ASTM D396)		degrees API
VISCOSITY (ASTM D396) SSU		Say Bolt
BTU VALUE		

II RCRA USED OIL SPECIFICATIONS		
ARSENIC	(Methods per Federal Register November Regulations)	5 ppm MAX
CADMIUM		2 ppm MAX
CHROMIUM		10 ppm MAX
LEAD		100 ppm MAX
FLASH POINT		100°F
HALOGENS		4000 ppm MAX

Analyses required for FUEL Dealer (USED OIL Blenders) to BID on CAMP Lejeune WASTE & conform to RCRA

DO NOT RUN extraneous analyses unless there is a reason (suspected contamination such as PCBs & herbicides).

Standard Specification for FUEL OILS[1]

This standard is issued under the fixed designation D 396; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

This method has been approved for use by agencies of the Department of Defense and for listing in the DoD Index of Specifications and Standards.

1. Scope

1.1 This specification (Note 1) covers grades of fuel oil intended for use in various types of fuel-burning equipment under various climatic and operating conditions.

NOTE 1—For information on the significance of the terminology and test methods used in this specification, see the Appendix.

1.2 This specification is for the use of purchasing agencies in formulating specifications to be included in contracts for purchases of fuel oils and for the guidance of consumers of fuel oils in the selection of the grades most suitable for their needs.

NOTE 2—Nothing in this specification, shall preclude observance of federal, state, or local regulations which may be more restrictive.

1.3 The values stated in SI units are to be regarded as standard. The values stated in inch-pound units are for information only.

2. Applicable Documents

2.1 *ASTM Standards:*

D 56 Test Method for Flash Point by Tag Closed Tester[2]

D 86 Method for Distillation of Petroleum Products[2]

D 93 Test Methods for Flash Point by Pensky-Martens Closed Tester[2]

D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation[2]

D 97 Test Methods for Pour Point of Petroleum Oils[2]

D 129 Test Method for Sulfur in Petroleum Products (General Bomb Method)[2]

D 130 Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test[2]

D 287 Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)[2]

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)[2]

D 473 Test Method for Sediment in Crude Oils and Fuel Oils by Extraction[2]

D 482 Test Method for Ash from Petroleum Products[2]

D 524 Test Method for Ramsbottom Carbon Residue of Petroleum Products[2]

D 1266 Test Method for Sulfur in Petroleum Products (Lamp Method)[2]

D 1552 Test Method for Sulfur in Petroleum Products (High-Temperature Method)[2]

D 1659 Test Method for Maximum Fluidity Temperature of Residual Fuel Oil[2]

D 1796 Test Method for Water and Sediment in Fuel Oils by Centrifuge Method (Laboratory Procedure)[3]

D 2622 Test Method for Sulfur in Petroleum Products (X-Ray Spectrographic Method)[3]

D 3245 Test Method for Pumpability of Industrial Fuel Oils[4]

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[1] This specification is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants.

Current edition approved Aug. 29, 1980. Published October 1980. Originally published as D 396 – 34 T. Last previous edition D 396 – 79.

[2] *Annual Book of ASTM Standards*, Vol 05.01.

[2a] Discontinued, see *1983 Annual Book of ASTM Standards*, Vol 05.01.

[3] *Annual Book of ASTM Standards*, Vol 05.02.

[4] *Annual Book of ASTM Standards*, Vol 05.03.

ANNEX

A1. PRECAUTIONARY STATEMENTS

A1.1 Gasoline (Including Leaded Gasoline)

Danger—Extremely flammable. Vapors harmful if inhaled. Vapors may cause flash fire. Contains toxic lead anti-knock compounds. Harmful if absorbed through skin.

Keep away from heat, sparks, and open flame.

Keep container closed.

Use with adequate ventilation.

Avoid build-up of vapors and eliminate all sources of ignition, especially nonexplosion-proof electrical apparatus and heaters.

Avoid prolonged breathing of vapor or spray mist.

Avoid prolonged or repeated skin contact.

A1.2 Aviation Fuel

Caution—Combustible. Vapor harmful.

Keep away from heat, sparks, and open flame.

Keep container closed.

Use with adequate ventilation.

Avoid breathing vapor or spray mist.

Avoid prolonged or repeated contact with skin.

A1.3 Gum Solvent

Danger—Extremely flammable. Vapors harmful. Vapors may cause flash fire.

Keep away from heat, sparks, and open flame.

Keep container closed.

Use with adequate ventilation.

Vapors may spread long distances and ignite explosively.

Avoid build-up of vapors and eliminate all sources of ignition, especially nonexplosion-proof electrical apparatus and heaters.

Avoid prolonged breathing of vapor or spray mist.

Avoid contact with eyes and skin.

A1.4 *n*-Heptane

Warning—Flammable. Harmful if inhaled.

Keep away from heat, sparks, and open flame.

Keep container closed.

Use with adequate ventilation.

Avoid prolonged breathing of vapor or spray mist.

Avoid prolonged or repeated skin contact.

A1.5 Superheated Steam

Danger—Thermal hazard.

Do not allow superheated steam to come into contact with skin or eyes.

Do not inhale.

A1.6 Detergent

Caution—Harmful if taken internally.

Continued use may cause skin drying and chapping.

Use rubber gloves and skin cream as needed.

A1.7 Chromic Acid (Cleaning Solution)

Danger—Causes severe burns.

A recognized carcinogen.

Strong oxidizer; contact with organic material may cause fire. Hygroscopic.

Do not get in eyes, on skin, on clothing.

Avoid breathing vapor or mist.

Keep container closed.

Use with adequate ventilation.

Do not take internally.

Wash thoroughly after handling.

3. General Requirements

3.1 The grades of fuel oil specified herein shall be homogeneous hydrocarbon oils, free from inorganic acid, and free from excessive amounts of solid or fibrous foreign matter likely to make frequent cleaning of suitable strainers necessary.

3.2 All grades containing residual components shall remain uniform in normal storage and not separate by gravity into light and heavy oil components outside the viscosity limits for the grade.

4. Detailed Requirements

4.1 The various grades of fuel oil shall conform to the limiting requirements shown in Table 1.

4.2 Modifications of limiting requirements to meet special operating conditions agreed upon between the purchaser, the seller, and the supplier shall fall within limits specified for each grade, except as stated in supplementary footnotes for Table 1.

5. Test Methods

5.1 The requirements enumerated in this specification shall be determined in accordance with the following ASTM methods,[5] except as may be required under 5.1.1.

5.1.1 *Flash Point*—Method D 93, except where other methods are prescribed by law for the determination of minimum flash point. For grades No. 1 and No. 2, Method D 56, may be used as an alternative with the same limits, provided the flash point is below 79.4°C (175°F) and the viscosity is below 5.8 cSt (45 SUS) at 38°C (100°F). This method will give slightly lower values. In cases of dispute, Method D 93 shall be used as the referee method.

5.1.2 *Pour Point*—Method D 97. Alternative test methods that indicate flow point properties may be used for low sulfur residual fuels by agreement between purchaser and supplier.

5.1.3 *Water and Sediment*—The water and sediment in Grades Nos. 1, 2, 4, and 5 shall be determined in accordance with Method D 1796 and Grade No. 6 by Method D 95, and Method D 473.

5.1.4 *Carbon Residue*—Method D 524.

5.1.5 *Ash*—Method D 482.

5.1.6 *Distillation*—Distillation of Grade No. 1 and No. 2 oils shall be determined in accordance with Method D 86.

5.1.7 *Viscosity*—Viscosity shall be determined in accordance with Method D 445.

5.1.8 *Gravity*—Method D 287.

5.1.9 *Corrosion*—Method D 130, 3 h test at 50°C (122°F).

5.1.10 *Sulfur*—The sulfur content of any grade may be determined by any of the following methods: Method D 129, Method D 1552, or Method D 2622. In addition, the sulfur of Grade No. 1 may be determined by Method D 1266.

[5] For information on the precision of the ASTM methods of test for fuel oils refer to "An Evaluation of Methods for Determination of Sulfur in Fuel Oils" by A. R. Crawford, Esso Mathematics & Systems Inc. and G. V. Dyroff, Esso Research and Engineering Co., 1969. This document is available from the Publications Section, American Petroleum Institute, 2101 L. St., N.W., Washington, D.C. 20037.

TABLE 1 Detailed Requirements for Fuel Oils[A]

Grade of Fuel Oil	Flash Point, °C (°F)	Pour Point, °C (°F)	Water and Sediment, vol %	Carbon Residue on 10% Bottoms, %	Ash, weight %	Distillation Temperatures, °C (°F)		Saybolt Viscosity, s[D]		Furol at 50°C (122°F)		Kinematic Viscosity, cSt[D]						Specific Gravity 60/60°F (deg API)	Copper Strip Corrosion	Sulfur, %
						10% Point	90% Point	Universal at 38°C (100°F)				At 38°C (100°F)		At 40°C (104°F)		At 50°C (122°F)				
	Min	Max	Max	Max	Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Max	Max	Max
No. 1 A distillate oil intended for vaporizing pot-type burners and other burners requiring this grade of fuel	38 (100)	−18[C] (0)	0.05	0.15	...	215 (420)	...	...	...	...	...	1.4	2.2	1.3	2.1	...	...	0.8499 (35 min)	No. 3	0.5
No. 2 A distillate oil for general purpose heating for use in burners not requiring No. 1 fuel oil	38 (100)	−6[C] (20)	0.05	0.35	...	...	282[C] (540)	(32.6)	338 (640)	(37.9)	...	2.0[C]	3.6	1.9[C]	3.4	...	...	0.8762 (30 min)	No. 3	0.5[B]
No. 4 (Light) Preheating not usually required for handling or burning	38 (100)	−6[C] (20)	0.50	...	0.05	...	...	(32.6)	(45)	...	...	2.0	5.8	...	...	...	...	0.8762[G] (30 max)	...	...
No. 4 Preheating not usually required for handling or burning	55 (130)	−6[C] (20)	0.50	...	0.10	...	...	(45)	(125)	...	...	5.8	26.4[F]	5.5	24.0[F]	...	...	...	...	...
No. 5 (Light) Preheating may be required depending on climate and equipment	55 (130)	...	1.00	...	0.10	...	...	(>125)	(300)	...	...	>26.4	65[F]	>24.0	58[F]	...	...	...	...	...

X1.4.1.3 *Water and Sediment*—[illegible] amounts of water and sediment in a fuel oil tend to cause fouling of facilities for handling it, and to give trouble in burner mechanisms. Sediment may accumulate in storage tanks and on filter screens or burner parts, resulting in obstruction to flow of oil from the tank to the burner. Water in distillate fuels may cause corrosion of tanks and equipment and it may cause emulsions in residual fuels.

X1.4.1.4 *Carbon Residue*—The carbon residue of a fuel is a measure of the carbonaceous material left after all the volatile components are varporized in the absence of air. It is a rough approximation of the tendency of a fuel to form deposits in vaporizing burners, such as pot-type and sleeve-type burners, where the fuel is vaporized in an air-deficient atmosphere.

To obtain measurable values of carbon residue in the lighter distillate fuel oils, it is necessary to distill the oil to remove 90 % of it in accordance with ASTM Method D 86, Test for Distillation of Petroleum Products,[2] and then determine the carbon residue concentrated in the remaining 10 % bottoms.

X1.4.1.5 *Ash*—The amount of ash is the quantity of noncombustible material in an oil. Excessive amounts may indicate the presence of materials that cause high wear of burner pumps and valves, and contribute to deposits on boiler heating surfaces.

X1.4.1.6 *Distillation*—The distillation test shows the volatility of a fuel and the ease with which it can be vaporized. The test is of greater significance for oils that are to be burned in vaporizing type burners than for the atomizing type. For example, the maximum 10 % and 90 % distilled temperatures are specified for grade No. 1 fuel. The limiting 10 % value assures easy starting in vaporizing type burners and the 90 % limit excludes heavier fractions that would be difficult to vaporize.

[illegible] atomizing type in household heating installations. Distillation limits are not specified for fuel oils of grades Nos. 4, 5, and 6.

X1.4.1.7 *Viscosity Limits for Grades Nos. 1 and 2*—The viscosity of an oil is a measure of its resistance to flow. In fuel oil it is highly significant since it indicates both the relative ease with which the oil will flow or may be pumped, and the ease of atomization.

Viscosity limits for No. 1 and No. 2 grades are specified to help maintain uniform fuel flow in appliances with gravity flow, and to provide satisfactory atomization and constant flow rate through the small nozzles of household burners. For the heavier grades of industrial and bunker fuel oils, viscosity is of major importance, so that adequate preheating facilities can be provided to permit them to be pumped to the burner and to provide good atomization. However, it is equally important that the maximum viscosity under the existing conditions be such that the oil can be pumped satisfactorily from the storage tank to the preheater.

X1.4.1.8 *Gravity*—Gravity alone is of little significance as an indication of the burning characteristics of fuel oil. However, when used in conjunction with other properties, it is of value in weight-volume relationships and in calculating the heating value of an oil.

X1.4.1.9 *Corrosion*—The corrosion test serves to indicate the presence or absence of materials that might corrode copper, brass, and bronze components of the fuel system. This property is specified only for No. 1 distillate fuel.

X1.4.1.10 Limited sulfur content of fuel oil may be required for special uses in connection with heat treatment, nonferrous metal, glass, and ceramic furnaces or to meet federal, state or local legislation or regulations.

Standard Specification for AUTOMOTIVE GASOLINE[1]

This standard is issued under the fixed designation D 439; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This specification has been approved for use by agencies of the Department of Defense and for listing in the DoD Index of Specifications and Standards.

1. Scope

1.1 This specification is for guidance in establishing the required properties of automotive gasolines for ground vehicles.

1.2 This specification is not a complete definition of gasoline. It describes various characteristics of gasolines used in a wide range of operating conditions. It does not necessarily include all types of gasolines satisfactory for automotive vehicles, nor necessarily exclude gasolines that may give unsatisfactory performance in certain equipment or under certain operating conditions.

2. Applicable Documents

2.1 *ASTM Standards:*

D 86 Method for Distillation of Petroleum Products[2]

D 130 Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test[2]

D 323 Test Method for Vapor Pressure of Petroleum Products (Reid Method)[2]

D 381 Test Method for Existent Gum in Fuels by Jet Evaporation[2]

D 525 Test Method for Oxidation Stability of Gasoline (Induction Period Method)[2]

D 1266 Test Method for Sulfur in Petroleum Products (Lamp Method)[2]

D 2533 Test Method for Vapor-Liquid Ratio of Gasoline[3]

D 2547 Test Method for Lead in Gasoline Volumetric Chromate Method[3]

D 2551 Test Method for Vapor Pressure of Petroleum Products (Micromethod)[3]

D 2599 Test Method for Lead in Gasoline by X-Ray Spectrometry[3]

D 2622 Test Method for Sulfur in Petroleum Products (X-Ray Spectrographic Method)[3]

D 2699 Test Method for Knock Characteristics of Motor Fuels by the Research Method[4]

D 2700 Test Method for Knock Characteristics of Motor and Aviation Fuels by the Motor Method[4]

D 2885 Test Method for Research and Motor Method Octane Ratings Using On-Line Analyzers[4]

D 3116 Test Method for Trace Amounts of Lead in Gasoline[5]

D 3229 Test Method for Low Levels of Lead in Gasoline by X-Ray Spectrometry[5]

D 3231 Test Method for Phosphorous in Gasoline[5]

D 3237 Test Method for Lead in Gasoline by Atomic Absorption Spectrometry[5]

D 3341 Test Method for Lead in Gasoline—Iodine Monochloride Method[5]

3. General

3.1 This specification provides for an automatic variation by the seller to meet the requirements of seasonal changes in temperature, depending upon the season and the locality in which the product is to be used. This is done by providing five volatility classes and differ-

[1] This specification is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.0A on Gasoline.

Current edition approved Oct. 28, 1983. Published January 1984. Originally published as D 439 – 37 T. Last previous edition D 439 – 82a.

[2] *Annual Book of ASTM Standards*, Vol 05.01.

[3] *Annual Book of ASTM Standards*, Vol 05.02.

[4] *Annual Book of ASTM Standards*, Vol 05.04.

[5] *Annual Book of ASTM Standards*, Vol 05.03.

TABLE 1 *Continued*

Grade of Fuel Oil	Flash Point, °C (°F)	Pour Point, °C (°F)	Water and Sediment, vol %	Carbon Residue on 10% Bottoms, %	Ash, weight %	Distillation Temperatures, °C (°F)		Saybolt Viscosity, s[D]				Kinematic Viscosity, cSt[D]						Specific Gravity 60/60°F (deg API)	Copper Strip Corrosion	Sulfur, %
						10% Point	90% Point	Universal at 38°C (100°F)		Furol at 50°C (122°F)		At 38°C (100°F)		At 40°C (104°F)		At 50°C (122°F)				
	Min	Max	Max	Max	Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Max	Max	Max
No. 5 (Heavy) Preheating may be required for burning and, in cold climates, may be required for handling	55 (130)	...	1.00	...	0.10	...	...	(>300)	(900)	(23)	(40)	>65	194[F]	>58	168[F]	(42)	(81)	...	...	...
No. 6 Preheating required for burning and handling	60 (140)	[G]	2.00[E]	...	...	...	...	(>900)	(9000)	(>45)	(300)	...	...	...	...	>92	638[F]	...	...	...

[A] It is the intent of these classifications that failure to meet any requirement of a given grade does not automatically place an oil in the next lower grade unless in fact it meets all requirements of the lower grade.

[B] In countries outside the United States other sulfur limits may apply.

[C] Lower or higher pour points may be specified whenever required by conditions of storage or use. When pour point less than −18°C (0°F) is specified, the minimum viscosity for grade No. 2 shall be 1.7 cSt (31.5 SUS) and the minimum 90 % point shall be waived.

[D] Viscosity values in parentheses are for information only and not necessarily limiting.

[E] The amount of water by distillation plus the sediment by extraction shall not exceed 2.00 %. The amount of sediment by extraction shall not exceed 0.50 %. A deduction in quantity shall be made for all water and sediment in excess of 1.0 %.

[F] Where low sulfur fuel oil is required, fuel oil falling in the viscosity range of a lower numbered grade down to and including No. 4 may be supplied by agreement between purchaser and supplier. The viscosity range of the initial shipment shall be identified and advance notice shall be required when changing from one viscosity range to another. This notice shall be in sufficient time to permit the user to make the necessary adjustments.

[G] This limit guarantees a minimum heating value and also prevents misrepresentation and misapplication of this product as Grade No. 2.

[H] Where low sulfur fuel oil is required, Grade 6 fuel oil will be classified as low pour +15°C (60°F) max or high pour (no max). Low pour fuel oil should be used unless all tanks and lines are heated.

APPENDIX

X1. SIGNIFICANCE OF ASTM SPECIFICATION FOR FUEL OILS

X1.1 Scope

X1.1.1 ASTM Specification D 396 divides fuel oils into grades based upon the types of burners for which they are suitable. It places limiting values on several of the properties of the oils in each grade. The properties selected for limitation are those that are believed to be of the greatest significance in determining the performance characteristics of the oils in the types of burners in which they are most commonly used.

X1.2 Classes

X1.2.1 Because of the methods employed in their production, fuel oils fall into two broad classifications: distillates and residuals. The distillates consist of overhead or distilled fractions. The residual are bottoms remaining from the distillation, or blends of these bottoms with distillates. In Specification D 396, Grades No. 1 and No. 2 are distillates and the grades from No. 4 to No. 6 are usually residual, although some heavy distillates may be sold as Grade No. 4.

X1.3 Grades

X1.3.1 *Grade No. 1* is a light distillate intended for use in burners of the vaporizing type in which the oil is converted to a vapor by contact with a heated surface or by radiation. High volatility is necessary to ensure that evaporation proceeds with a minimum of residue.

X1.3.2 *Grade No. 2* is a heavier distillate than grade No. 1. It is intended for use in atomizing type burners which spray the oil into a combustion chamber where the tiny droplets burn while in suspension. This grade of oil is used in most domestic burners and in many medium capacity commercial-industrial burners where its ease of handling and ready availability sometimes justify its higher cost over the residual fuels.

X1.3.3 *Grade No. 4 (Light)* is usually a light residual but it sometimes is a heavy distillate. It is intended for use both in pressure-atomizing commercial-industrial burners not requiring higher cost distillates and in burners equipped to atomize oils of higher viscosity. Its permissible viscosity range allows it to be pumped and atomized at relatively low storage temperatures.

X1.3.4 *Grade No. 4* is usually a light residual, but it sometimes is a heavy distillate. It is intended for use in burners equipped with devices that atomize oils of higher viscosity than domestic burners can handle. Its permissible viscosity range allows it to be pumped and atomized at relatively low storage temperatures. Thus, in all but extremely cold weather it requires no preheating for handling.

X1.3.5 *Grade No. 5 (Light)* is residual fuel of intermediate viscosity for burners capable of handling fuel more viscous than grade No. 4 without preheating. Preheating may be necessary in some types of equipment for burning and in colder climates for handling.

X1.3.6 *Grade No. 5 (Heavy)* is a residual fuel more viscous than Grade No. 5 (light) and is intended for use in similar service. Preheating may be necessary in some types of equipment for burning and in colder climates for handling.

X1.3.7 *Grade No. 6,* sometimes referred to as "Bunker C," is a high-viscosity oil used mostly in commercial and industrial heating. It requires preheating in the storage tank to permit pumping, and additional preheating at the burner to permit atomizing. The extra equipment and maintenance required to handle this fuel usually preclude its use in small installations.

X1.3.8 Residual fuel oil supplied to meet regulations requiring low sulfur content may differ from the grade previously supplied. It may be lower in viscosity (and fall into a different grade number). If it must be fluid at a given temperature, Method D 97 may not accurately reflect the pour point which can be expected after a period of storage. It is suggested that the purchaser and supplier discuss the proper handling and operating techniques for a given low-sulfur residual fuel oil in the installation where it is to be used.

X.1.4 Significance of Test Methods

X.1.4.1 The significance of the properties of fuel oil on which limitations are placed by the specification is as follows:

X1.4.1.1 *Flash Point*—The flash point of a fuel oil is an indication of the maximum temperature at which it can be stored and handled without serious fire hazard. The minimum permissible flash point is usually regulated by federal, state, or municipal laws and is based on accepted practice in handling and use.

X1.4.1.2 *Pour Point*—The pour point is an indication of the lowest temperature at which a fuel oil can be stored and still be capable of flowing under very low forces. The pour point is prescribed in accordance with the conditions of storage and use. Higher pour point fuels are permissible where heated storage and adequate piping facilities are provided. An increase in pour point may occur when residual fuel oils are subjected to cyclic temperature variations that may occur in the course of storage or when the fuel is preheated and returned to storage tanks. To predict these properties, test methods such as British Admiralty Method VII, Method D 3245-IP 230/69

Danny -
This was in our box
T

Waste oil tank Bldg. 1700

1. Dry cleaning solvent. FSN [illegible]-9038
2. Hydralic fluid. Dextron II
3. #6 Fuel oil.
4. Almasol 605, 606, 607
   Uni-Purpose Gear lubricant. Purchased from Lubrication Engineers, Inc.
5. Monolec 6405
   Turbine oil. Purchased from Lubrication Engineers.
6. Mineral spirits 7001-85-M-6239
7. Kerosene

Will:
This material is in the waste oil tank. Bldg. 1700.
Please forward to Environmental.
Danny Sharpe -
Shep -

Waste oil tank Bldg. 1700

1. Dry cleaning solvent. FSN 6850-00-264-9038
2. Hydralic fluid. Dextron II
3. #6 Fuel oil.
4. Almasol 605, 606, 607
   Uni-Purpose Gear lubricant. Purchased from Lubrication Engineers, Inc.
5. Monolec 6405
   Turbine oil. Purchased from Lubrication Engineers.
6. Mineral spirits 7001-85-M-6239
7. Kerosene

ORIGINAL FILED 11337

ROUTINE REPLY, ENDORSEMENT, TRANSMITTAL OR INFORMATION SHEET

OPNAV 5216/158 (Rev. 7-78)
SN 0107-LF-052-1691

A WINDOW ENVELOPE MAY BE USED
Formerly NAVEXOS 3789

CLASSIFICATION (*UNCLASSIFIED when detached from enclosures, unless otherwise indicated*)

FROM (*Show telephone number in addition to address*)
LANTNAVFACENGCOM Code 114

DATE 8 July 85

SUBJECT
Lab Results on Waste Oil Samples

SERIAL OR FILE NO.

TO:
Mr. Danny Sharpe
Natural Resources & Environmental Affairs
Marine Corps Base
Camp Lejeune, NC 28542-5001

REFERENCE

ENCLOSURE
JTC Lab Report #54 date 28 Jan 1985

VIA:

ENDORSEMENT ON

☐ FORWARDED ☐ RETURNED ☐ FOLLOW-UP, OR TRACER ☒ REQUEST ☐ SUBMIT ☐ CERTIFY ☐ MAIL ☐ FILE

GENERAL ADMINISTRATION	CONTRACT ADMINISTRATION	PERSONNEL
FOR APPROPRIATE ACTION	NAME & LOCATION OF SUPPLIER OF SUBJECT ITEMS	REPORTED TO THIS COMMAND:
UNDER YOUR COGNIZANCE	SUBCONTRACT NO. OF SUBJECT ITEM	
INFORMATION	APPROPRIATION SYMBOL, SUBHEAD, AND CHARGEABLE ACTIVITY	DETACHED FROM THIS COMMAND
APPROVAL RECOMMENDED ☐ YES ☐ NO	SHIPPING AT GOVERNMENT EXPENSE ☐ YES ☐ NO	OTHER
☐ APPROVED ☐ DISAPPROVED	A CERTIFICATE, VICE BILL OF LADING	
COMMENT AND/OR CONCURRENCE	COPIES OF CHANGE ORDERS, AMENDMENT OR MODIFICATION	
CONCUR	CHANGE NOTICE TO SUPPLIER	
LOANED, RETURN BY:	STATUS OF MATERIAL ON PURCHASE DOCUMENT	
SIGN RECEIPT & RETURN		
REPLY TO THE ABOVE BY:		
REFERENCE NOT RECEIVED		
SUBJECT DOCUMENT FORWARDED TO:		
SUBJECT DOCUMENT RETURNED FOR:		
SUBJECT DOCUMENT HAS BEEN REQUESTED, AND WILL BE FORWARDED WHEN RECEIVED		
COPY OF THIS CORRESPONDENCE WITH YOUR REPLY		
ENCLOSURE NOT RECEIVED		
ENCLOSURE FORWARDED AS REQUESTED		
ENCLOSURE RETURNED FOR CORRECTION AS INDICATED		
CORRECTED ENCLOSURE AS REQUESTED		
REMOVE FROM DISTRIBUTION LIST		
REDUCE DISTRIBUTION AMOUNT TO:		

REMARKS (*Continue on reverse*)

Enclosed is the lab report on the waste oil samples that you collected, I also sent a copy of this to Jim Speakman at EnSafe for the study.

SIGNATURE & TITLE Paul Parker

COPY TO:
EnSafe, Memphis TN
(901) 372-7962

CLASSIFICATION (*UNCLASSIFIED when detached from enclosures, unless otherwise indicated*)

☆ U.S. Government Printing Office: 1983—605-010/8603 2-1

REPORT # 54

LABORATORY ANALYSIS ON

NAVAL SAMPLES

(A/E CONTRACT N62470-84-B-6932)

JTC REPORT # 85-254

PREPARED FOR:

DEPARTMENT OF THE NAVY

ATLANTIC DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

NORFOLK, VA 23511

PREPARED BY:

JTC ENVIRONMENTAL CONSULTANTS, INC.

4 RESEARCH PLACE, SUITE L-10

ROCKVILLE, MARYLAND 20850

JUNE 28, 1985

Ann E. Rosecrance

Ann E. Rosecrance
Laboratory Director

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 2 Date of Sample Receipt 3/28/85 + 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID	ANALYSIS PARAMETER						
		% water / % sediment	% sulfur	Flashpoint °F	BTU per lb.	Reactivity: Cyanide ppm	Reactivity: Sulfide ppm	Corrosivity pH
#4 Bldg 515 hanger	12-0763	25	0.11	164	13,600	<1.0	<1	7.72
#5 Bldg 518 hanger	12-0764							
#6 Bldg 504	12-0765							
#7 [redacted] 504	12-0766							
#8 Bldg 4147	12-0767							
#9 Bldg 4100	12-0768							
#10 Bldg 4108 comp	12-0769							
#11 Bldg 4108	12-0770							
#12 Bldg 4106	12-0771							
#13 Bldg 1601	12-0772	14	0.48	165	14,800	1.3	5	8.80
#14 Bldg 1607	12-0773							
#15 Bldg 909	12-0774							
#16 Bldg 901	12-0775							
#17 Bldg 902	12-0776							
#18 [redacted] 1205-1206	12-0911	24	0.74	171	14,700	2.4	20	9.00
#19 Bldg 1505-1506	12-0912							
#20 Bldg 1450	12-0913							
#21 Bldg 1854	12-0914							
#22 Bldg A2	12-0915							
#25A Bldg 1775	12-0916							
#25B Bldg 1775	12-0917							
#24A Bldg H20	12-0918	60	0.54	130	8,000	2.8	<1	7.86
#24B Bldg H20	12-0919	x	x	x	x	x	x	7.39

Composite

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 3 Date of Sample Receipt 3/28/85 + 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID		ANALYSIS PARAMETER							
			Phenol ppm	PCB mg/g	VOA					
#4 Bldg 515 hanger		12-0763								
#5 Bldg 518 hanger		12-0764			+					
#6 Bldg 504		12-0765								
#7 Bldg 504		12-0766			See					
#8 Bldg 4147	composite	12-0767	20	<1	attached					
#9 Bldg 4100		12-0768			sheet					
#10 Bldg 4108 comp		12-0769								
#11 Bldg 4108		12-0770								
#12 Bldg 4106		12-0771								
#13 Bldg 1601		12-0772								
#14 Bldg 1607	composite	12-0773			See					
#15 Bldg 909		12-0774	30	<1	attached					
#16 Bldg 901		12-0775			sheet					
#17 Bldg 902		12-0776								
#18 Bldg 1205-1206		12-0911								
#19 Bldg 1505-1506		12-0912			+					
#20 Bldg 1450	composite	12-0913			See					
#21 Bldg 1854		12-0914	15	<1	attached					
#22 Bldg A2		12-0915			sheet					
#25A Bldg 1775		12-0916								
#25B Bldg 1775		12-0917								
#24A Bldg H20		12-0918	510	<1	" +					
#24B Bldg H20		12-0919	x	<1	" +					

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 4 Date of Sample Receipt 3/28/85 + 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID		ANALYSIS PARAMETER							
			As mg/kg	Ba mg/kg	Cd mg/kg	Cr mg/kg	Pb mg/kg	Hg mg/kg	Se mg/kg	Ag mg/kg
#4 Bldg 515 hanger	12-0763	composite	<1.0	<20	<0.5	1.0	37.2	<0.10	<0.40	<1.0
#5 Bldg 518 hanger	12-0764									
#6 Bldg 504	12-0765									
#7 Bldg 504	12-0766									
#8 Bldg 4147	12-0767									
#9 Bldg 4100	12-0768									
#10 Bldg 4108 comp	12-0769									
#11 Bldg 4108	12-0770									
#12 Bldg 4106	12-0771									
#13 Bldg 1601	12-0772	composite	<1.0	<20	6.0	1.4	48.9	<0.10	1.1	1.1
#14 Bldg 1607	12-0773									
#15 Bldg 909	12-0774									
#16 Bldg 901	12-0775									
#17 Bldg 902	12-0776									
#18 Bldg 1205-1206	12-0911	composite	<1.0	<20	4.7	4.3	336	<0.10	1.6	<1.0
#19 Bldg 1505-1506	12-0912									
#20 Bldg 1450	12-0913									
#21 Bldg 1854	12-0914									
#22 Bldg A2	12-0915									
#25A Bldg 1775	12-0916									
#25B Bldg 1775	12-0917									
#24A Bldg H20	12-0918		<1.0	<20	2.5	24.4	42.6	<0.10	1.7	<1.0
#24B Bldg H20	12-0919		<1.0	<20	0.5	42.2	32.4	<0.10	2.0	1.0

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 5 Date of Sample Receipt 3/28/85 & 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID	ANALYSIS PARAMETER							
		As	Ba	Cd	Cr	Pb	Hg	Se	Ag
#23A Bldg HP100	12-0920	<1.0 mg/kg	<20 mg/kg	22.6 mg/kg	1.6 mg/kg	148 mg/kg	0.18 mg/kg	1.5 mg/kg	<1.0 mg/kg
#23B Bldg HP100	12-0921	<1.0 mg/kg	<20 mg/kg	4.8 mg/kg	1.4 mg/kg	0.8 mg/kg	<0.10 mg/kg	2.2 mg/kg	<1.0 mg/kg
#27H Bldg 251	12-0922	<50 ug/L	1170 ug/L	2440 ug/L	65 ug/L	9850 ug/L	<1.0 ug/L	141 ug/L	<50 ug/L
#27[illegible] Bldg 251	12-0923	290 ug/L	<1000 ug/L	680 ug/L	13,100 ug/L	3,120 ug/L	<1.0 ug/L	1960 ug/L	<50 ug/L
#28J Landfill (composite)	12-0924	2.3 mg/kg	<20 mg/kg	<0.50 mg/kg	2.3 mg/kg	4.5 mg/kg	<0.10 mg/kg	<0.40 mg/kg	<1.0 mg/kg
#28K Landfill (composite)	12-0925								
#28L Landfill (composite)	12-0926								
#29 Bldg TP457	12-0927	*	*	*	*	*	*	*	*
#30 Bldg TP457	12-0928	<50 ug/L	7800 ug/L	<25 ug/L	<50 ug/L	62.5 ug/L	22 ug/L	<20 ug/L	<50 ug/L
#31 Bldg TP457	12-0929	<50 ug/L	3130 ug/L	<25 ug/L	185 ug/L	21 ug/L	<1.0 ug/L	<20 ug/L	<50 ug/L
#32O Bldg TP451	12-0930	+	+	+	+	+	1925	+	+
#32P Bldg TP451	12-0931	<50 ug/L	1295 ug/L	<25 ug/L	63,600 ug/L	6250 ug/L	3.7 ug/L	<20 ug/L	<50 ug/L
#32Q Bldg TP451	12-0932	<50 ug/L	1535 ug/L	130 ug/L	93,900 ug/L	40,200 ug/L	7.9 ug/L	<20 ug/L	<50 ug/L

* Sample depleted

\+ Sample requires redigestion prior to completion of analysis

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0763 to 12-0771 composite PROJECT NO. NF-12

CLIENT SAMPLE ID 4-12 1:5000 Dilution DATE RECEIVED 3/28/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit	PARAMETER	RESULT ug/lit
2V acrolein	N.D.	32V 1,2-dichloropropane	N.D.
3V acrylonitrile	N.D.	33V 1,3-dichloropropylene	N.D.
4V benzene	15,700 * ~~N.D.~~	38V ethylbenzene	63,400 ~~N.D.~~
6V carbon tetrachloride	N.D.	44V methylene chloride	N.D.
7V chlorobenzene	N.D.	45V methyl chloride	N.D.
10V 1,2-dichloroethane	N.D.	46V methyl bromide	N.D.
11V 1,1,1-trichloroethane	N.D.	47V bromoform	N.D.
13V 1,1-dichloroethane	N.D.	48V dichlorobromomethane	N.D.
14V 1,1,2-trichloroethane	N.D.	49V trichlorofluoromethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.	50V dichlorodifluoromethane	N.D.
16V chloroethane	N.D.	51V chlorodibromomethane	N.D.
19V 2-chloroethylvinyl ether	N.D.	85V tetrachloroethylene	N.D.
23V chloroform	N.D.	86V toluene	134,000 ~~N.D.~~
29V 1,1-dichloroethylene	N.D.	87V trichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.	88V vinyl chloride	N.D.
		total xylenes	274,000

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0763 to 12-0771 (composite) Client Sample ID 4-12 (1:5000 Dilution)

COMPOUND	ESTIMATED CONCENTRATION
1,1,2-trichloro-1,2,2-trifluoroethane	17,400,000 ug/l
3-methylpentane	47,100
2-methylpentane	96,200
hexane	100,000
3-methylhexane	47,200
C_7H_{16}	39,800
Trimethylcyclohexane	108,000
C_9H_{16}	129,000
Ethyl-methyl-cyclohexane	606,000
Methyl-propyl-benzene	267,000

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0772 to 12-0776 composite PROJECT NO. NF-12

CLIENT SAMPLE ID 13-17 1:5000 Dilution DATE RECEIVED 3/28/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit	PARAMETER	RESULT ug/lit
2V acrolein	N.D.	32V 1,2-dichloropropane	N.D.
3V acrylonitrile	N.D.	33V 1,3-dichloropropylene	N.D.
4V benzene	N.D.	38V ethylbenzene	N.D.
6V carbon tetrachloride	N.D.	44V methylene chloride	N.D.
7V chlorobenzene	N.D.	45V methyl chloride	N.D.
10V 1,2-dichloroethane	N.D.	46V methyl bromide	N.D.
11V 1,1,1-trichloroethane	N.D.	47V bromoform	N.D.
13V 1,1-dichloroethane	N.D.	48V dichlorobromomethane	N.D.
14V 1,1,2-trichloroethane	N.D.	49V trichlorofluoromethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.	50V dichlorodifluoromethane	N.D.
16V chloroethane	N.D.	51V chlorodibromomethane	N.D.
19V 2-chloroethylvinyl ether	N.D.	85V tetrachloroethylene	N.D.
23V chloroform	N.D.	86V toluene 77,900	~~N.D.~~
29V 1,1-dichloroethylene	N.D.	87V trichloroethylene	ND
30V 1,2-trans-dichloroethylene	N.D.	88V vinyl chloride	N.D.
		total xylenes	83,600

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0911 to 12-0917 Composite PROJECT NO. NF-12

CLIENT SAMPLE ID 18-22, 25A, 25B 1:5000 Dilution DATE RECEIVED 5/23/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit
2V acrolein	N.D.
3V acrylonitrile	N.D.
4V benzene 111,000	~~N.D.~~
6V carbon tetrachloride	N.D.
7V chlorobenzene	N.D.
10V 1,2-dichloroethane	N.D.
11V 1,1,1-trichloroethane	N.D.
13V 1,1-dichloroethane	N.D.
14V 1,1,2-trichloroethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.
16V chloroethane	N.D.
19V 2-chloroethylvinyl ether	N.D.
23V chloroform	N.D.
29V 1,1-dichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.

PARAMETER	RESULT ug/lit
32V 1,2-dichloropropane	N.D.
33V 1,3-dichloropropylene	N.D.
38V ethylbenzene 93,600	~~N.D.~~
44V methylene chloride	N.D.
45V methyl chloride	N.D.
46V methyl bromide	N.D.
47V bromoform	N.D.
48V dichlorobromomethane	N.D.
49V trichlorofluoromethane	N.D.
50V dichlorodifluoromethane	N.D.
51V chlorodibromomethane	N.D.
85V tetrachloroethylene	N.D.
86V toluene 456,000	~~N.D.~~
87V trichloroethylene	N.D.
88V vinyl chloride	N.D.
total xylenes	437,000

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0911 to 12-0917 (composite) Client Sample ID 18-22, 25A, 25B (1:5000 Dilution)

COMPOUND	ESTIMATED CONCENTRATION
2-methylbutane	237,000
pentane	165,000
methylcyclopentane	133,000
2,3-dimethylbutane	58,300
3-methylpentane	232,000
2-methylpentane	609,000
hexane	272,000
2,3-dimethylpentane	53,000
3-methylhexane	228,000
2-methylhexane	199,000
2,5-dimethylheptane	226,000
Trimethyl-cyclohexane	29,000
Ethyl-methyl-cyclohexane	27,700

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0918 PROJECT NO. NF-12

CLIENT SAMPLE ID 24A 1:5000 Dilution DATE RECEIVED 5/23/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit
2V acrolein	N.D.
3V acrylonitrile	N.D.
4V benzene	60,800 ~~N.D.~~
6V carbon tetrachloride	N.D.
7V chlorobenzene	N.D.
10V 1,2-dichloroethane	N.D.
11V 1,1,1-trichloroethane	N.D.
13V 1,1-dichloroethane	N.D.
14V 1,1,2-trichloroethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.
16V chloroethane	N.D.
19V 2-chloroethylvinyl ether	N.D.
23V chloroform	N.D.
29V 1,1-dichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.

PARAMETER	RESULT ug/lit
32V 1,2-dichloropropane	N.D.
33V 1,3-dichloropropylene	N.D.
38V ethylbenzene	61,100 ~~N.D.~~
44V methylene chloride	2,930,000 ~~N.D.~~
45V methyl chloride	N.D.
46V methyl bromide	N.D.
47V bromoform	N.D.
48V dichlorobromomethane	N.D.
49V trichlorofluoromethane	N.D.
50V dichlorodifluoromethane	N.D.
51V chlorodibromomethane	N.D.
85V tetrachloroethylene	N.D.
86V toluene	295,000 ~~N.D.~~
87V trichloroethylene	N.D.
88V vinyl chloride	N.D.
total xylenes	261,000

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0918 Client Sample ID 24A (1:5000 Dilut

COMPOUND	ESTIMATED CONCENTRATION
2-methylbutane	74,700 ug/l
1,1,2-trichloro 1,2,2-trifluoroethane	600,000
pentane	99,900
methylcyclopentane	85,600
2,3-dimethylbutane	46,000
3-methylpentane	141,000
2-methylpentane	363,000
hexane	148,000
3-methylhexane	136,000
2,4-dimethylpentane	110,000
2,2,3-trimethylpentane	234,000
2-methyl heptane	26,00
Trimethyl hexane	26,000

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0919 PROJECT NO. NF-12

CLIENT SAMPLE ID 24B 1:5000 Dilution DATE RECEIVED 5/23/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit
2V acrolein	N.D.
3V acrylonitrile	N.D.
4V benzene	86,400 ~~N.D.~~
6V carbon tetrachloride	N.D.
7V chlorobenzene	N.D.
10V 1,2-dichloroethane	N.D.
11V 1,1,1-trichloroethane	N.D.
13V 1,1-dichloroethane	N.D.
14V 1,1,2-trichloroethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.
16V chloroethane	N.D.
19V 2-chloroethylvinyl ether	N.D.
23V chloroform	N.D.
29V 1,1-dichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.

PARAMETER	RESULT ug/lit
32V 1,2-dichloropropane	N.D.
33V 1,3-dichloropropylene	N.D.
38V ethylbenzene	146,000 ~~N.D.~~
44V methylene chloride	5,500,000 ~~N.D.~~
45V methyl chloride	N.D.
46V methyl bromide	N.D.
47V bromoform	N.D.
48V dichlorobromomethane	N.D.
49V trichlorofluoromethane	N.D.
50V dichlorodifluoromethane	N.D.
51V chlorodibromomethane	N.D.
85V tetrachloroethylene	N.D.
86V toluene	523,000 ~~N.D.~~
87V trichloroethylene	N.D.
88V vinyl chloride	N.D.
total xylenes	743,000

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0919 Client Sample ID 24B (1:5000 Dilution)

COMPOUND	ESTIMATED CONCENTRATION
1,1,2-trichloro-1,2,2-trifluoroethane	1,320,000 ug/l
pentane	149,000
3-hexene	16,900
C_6H_{12}	133,000
C_6H_{14}	75,400
3-methylpentane	200,000
2-methylpentane	538,000
hexane	207,000
methylcyclohexane	249,000
2,3-dimethylpentane	52,200
3-methylhexane	221,000
2-methylhexane	193,000
2,5-dimethylheptane	592,000
2-methylheptane	111,000
Trimethylcyclohexane	128,000
Ethyl-methyl-cyclohexane	38,600

6241/2
NREAD
6 August 1985

From: Supervisory Chemist, Water Quality Control Lab, Environmental Branch
To: Director, Natural Resources and Environmental Affairs Division
Via: Supervisory Ecologist, Environmental Branch

Subj: WASTE OIL HANDLING AND DISPOSAL; RELATED LABORATORY ANALYSIS

Ref: (a) AC/S FAC MCB ltr 6280/2 FAC of 20 Feb 1982

Encl: (1) Excerpts from JTC Environmental Consultants, Inc. Report No. 54 Dated 6-28-85

1. The enclosure is submitted as requested by the reference.

ELIZABETH A. BETZ

Blind copy to:
Supv Ecologist

Writer: E. Betz, NREAD, 5977
Typist: A. Blackstock, 6 August 1985

EXCERPTS FROM JTC ENVIRONMENTAL CONSULTANTS, INC.
REPORT NO. 54 DATED 6-28-85

COMPILED BY ELIZABETH A. BETZ
6 AUGUST 1985

Please note the following:

a. Navy sample ID #4-12 are from oil tanks at Aircraft Maintenance Shops at Marine Corps Air Station, New River.

b. Navy sample ID #13-17 are from oil tanks at 2nd Maintenance Battalion, 2nd FSSG.

c. Navy sample ID #18-21 and 25A & B are from oil tanks at Maintenance Shops of 2nd Marine Division.

d. Navy sample ID #24A & B are from Base Maintenance operated waste oil storage tanks at the old hospital, near Bldg H-20, used for storage of waste oil collected from throughout the BAS.

(ENCLOSURE 1)

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 2 Date of Sample Receipt 3/28/85 + 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID		ANALYSIS PARAMETER						
			% water / % sediment	% sulfur	Flashpoint °F	BTU per lb.	Reactivity Cyanide ppm	Reactivity Sulfide ppm	Corrosivity pH
#4 Bldg 515 hanger	12-0763	composite	25	0.11	164	13,600	<1.0	<1	7.72
#5 Bldg 518 hanger	12-0764								
#6 Bldg 504	12-0765								
#7 [illegible]g 504	12-0766								
#8 Bldg 4147	12-0767								
#9 Bldg 4100	12-0768								
#10 Bldg 4108 comp	12-0769								
#11 Bldg 4108	12-0770								
#12 Bldg 4106	12-0771								
#13 Bldg 1601	12-0772	composite	14	0.48	165	14,800	1.3	5	8.80
#14 Bldg 1607	12-0773								
#15 Bldg 909	12-0774								
#16 Bldg 901	12-0775								
#17 Bldg 902	12-0776								
#18 [illegible]g 1205-1206	12-0911	composite	24	0.74	171	14,700	2.4	20	9.00
#19 Bldg 1505-1506	12-0912								
#20 Bldg 1450	12-0913								
#21 Bldg 1854	12-0914								
#22 Bldg A2	12-0915								
#25A Bldg 1775	12-0916								
#25B Bldg 1775	12-0917								
#24A Bldg H20	12-0918		60	0.54	130	8,000	2.8	<1	7.86
#24B Bldg H20	12-0919		x	x	x	x	x	x	7.39

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 3 Date of Sample Receipt 3/28/85 + 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID	ANALYSIS PARAMETER							
		Phenol ppm	PCB mg/g	VOA					
#4 Bldg 515 hanger	12-0763	20	<1	+ See attached sheet					
#5 Bldg 518 hanger	12-0764								
#6 Bldg 504	12-0765								
#7 Bldg 504	12-0766								
#8 Bldg 4147	12-0767								
#9 Bldg 4100	12-0768								
#10 Bldg 4108 comp	12-0769								
#11 Bldg 4108	12-0770								
#12 Bldg 4106	12-0771								
#13 Bldg 1601	12-0772	30	<1	See attached sheet					
#14 Bldg 1607	12-0773								
#15 Bldg 909	12-0774								
#16 Bldg 901	12-0775								
#17 Bldg 902	12-0776								
#18 Bldg 1205-1206	12-0911	15	<1	+ See attached sheet					
#19 Bldg 1505-1506	12-0912								
#20 Bldg 1450	12-0913								
#21 Bldg 1854	12-0914								
#22 Bldg A2	12-0915								
#25A Bldg 1775	12-0916								
#25B Bldg 1775	12-0917								
#24A Bldg 420	12-0918	510	<1	" +					
#24B Bldg 420	12-0919	x	<1	" +					

composite

+ Tentatively identified compounds report also attached x sample fraction lost

JTC Environmental Consultants, Inc.

Date 6-28-85 Report No. 54 to Naval Facilities Engineering Command, Norfolk, Virginia

JTC Data Report No. 85-254 Table 4 Date of Sample Receipt 3/28/85 + 5/23/85

NAVY SAMPLE ID	JTC SAMPLE ID	ANALYSIS PARAMETER							
		As mg/kg	Ba mg/kg	Cd mg/kg	Cr mg/kg	Pb mg/kg	Hg mg/kg	Se mg/kg	Ag mg/kg
#4 Bldg 515 hanger	12-0763								
#5 Bldg 518 hanger	12-0764								
#6 Bldg 504	12-0765								
#7 Bldg 504	12-0766								
#8 Bldg 4147	12-0767	<1.0	<20	<0.5	1.0	37.2	<0.10	<0.40	<1.0
#9 Bldg 4100	12-0768								
#10 Bldg 4108 comp	12-0769								
#11 Bldg 4108	12-0770								
#12 Bldg 4106	12-0771								
#13 Bldg 1601	12-0772								
#14 Bldg 1607	12-0773								
#15 Bldg 909	12-0774	<1.0	<20	6.0	1.4	48.9	<0.10	1.1	1.1
#16 Bldg 901	12-0775								
#17 Bldg 902	12-0776								
#18 Bldg 1205-1206	12-0911								
#19 Bldg 1505-1506	12-0912								
#20 Bldg 1450	12-0913								
#21 Bldg 1854	12-0914	<1.0	<20	4.7	4.3	336	<0.10	1.6	<1.0
#22 Bldg A2	12-0915								
#25A Bldg 1775	12-0916								
#25B Bldg 1775	12-0917								
#24A Bldg H20	12-0918	<1.0	<20	2.5	24.4	42.6	<0.10	1.7	<1.0
#24B Bldg H20	12-0919	<1.0	<20	0.5	42.2	32.4	<0.10	2.0	1.0

Composite

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0763 to 12-0771 Composite PROJECT NO. NF-12

CLIENT SAMPLE ID 4-12 1:5000 Dilution DATE RECEIVED 3/28/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit
2V acrolein	N.D.
3V acrylonitrile	N.D.
4V benzene 15,700 *	~~N.D.~~
6V carbon tetrachloride	N.D.
7V chlorobenzene	N.D.
10V 1,2-dichloroethane	N.D.
11V 1,1,1-trichloroethane	N.D.
13V 1,1-dichloroethane	N.D.
14V 1,1,2-trichloroethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.
16V chloroethane	N.D.
19V 2-chloroethylvinyl ether	N.D.
23V chloroform	N.D.
29V 1,1-dichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.

PARAMETER	RESULT ug/lit
32V 1,2-dichloropropane	N.D.
33V 1,3-dichloropropylene	N.D.
38V ethylbenzene 63,400	~~N.D.~~
44V methylene chloride	N.D.
45V methyl chloride	N.D.
46V methyl bromide	N.D.
47V bromoform	N.D.
48V dichlorobromomethane	N.D.
49V trichlorofluoromethane	N.D.
50V dichlorodifluoromethane	N.D.
51V chlorodibromomethane	N.D.
85V tetrachloroethylene	N.D.
86V toluene 134,000	~~N.D.~~
87V trichloroethylene	N.D.
88V vinyl chloride	N.D.
total xylenes 274,000	

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0763 to 12-0771 composite Client Sample ID 4-12 (1:5000 Dilution)

COMPOUND	ESTIMATED CONCENTRATION
1,1,2-trichloro-1,2,2-trifluoroethane	17,400,000 ug/l
3-methylpentane	47,100
2-methylpentane	96,200
hexane	100,000
3-methylhexane	47,200
C_7H_{16}	39,800
Trimethylcyclohexane	108,000
C_9H_{16}	129,000
Ethyl-methyl-cyclohexane	606,000
Methyl-propyl-benzene	267,000

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0772 to 12-0776 composite PROJECT NO. NF-12

CLIENT SAMPLE ID 13-17 1:5000 Dilution DATE RECEIVED 3/28/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit	PARAMETER	RESULT ug/lit
2V acrolein	N.D.	32V 1,2-dichloropropane	N.D.
3V acrylonitrile	N.D.	33V 1,3-dichloropropylene	N.D.
4V benzene	N.D.	38V ethylbenzene	N.D.
6V carbon tetrachloride	N.D.	44V methylene chloride	N.D.
7V chlorobenzene	N.D.	45V methyl chloride	N.D.
10V 1,2-dichloroethane	N.D.	46V methyl bromide	N.D.
11V 1,1,1-trichloroethane	N.D.	47V bromoform	N.D.
13V 1,1-dichloroethane	N.D.	48V dichlorobromomethane	N.D.
14V 1,1,2-trichloroethane	N.D.	49V trichlorofluoromethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.	50V dichlorodifluoromethane	N.D.
16V chloroethane	N.D.	51V chlorodibromomethane	N.D.
19V 2-chloroethylvinyl ether	N.D.	85V tetrachloroethylene	N.D.
23V chloroform	N.D.	86V toluene 77,900	~~N.D.~~
29V 1,1-dichloroethylene	N.D.	87V trichloroethylene	ND
30V 1,2-trans-dichloroethylene	N.D.	88V vinyl chloride	N.D.
		total xylenes	83,600

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

JTC ENVIRONMENTAL CONSULTANTS, INC.
PRIORITY POLLUTANT ANALYSIS DATA SHEET

VOLATILE FRACTION

JTC SAMPLE # 12-0911 to 12-0917 Composite PROJECT NO. NF-12

CLIENT SAMPLE ID 18-22, 25A, 25B 1:5000 Dilution DATE RECEIVED 5/23/85

METHOD NO. 624 DETECTION LIMIT 50,000 ug/lit

PARAMETER	RESULT ug/lit
2V acrolein	N.D.
3V acrylonitrile	N.D.
4V benzene 111,000	~~N.D.~~
6V carbon tetrachloride	N.D.
7V chlorobenzene	N.D.
10V 1,2-dichloroethane	N.D.
11V 1,1,1-trichloroethane	N.D.
13V 1,1-dichloroethane	N.D.
14V 1,1,2-trichloroethane	N.D.
15V 1,1,2,2-tetrachloroethane	N.D.
16V chloroethane	N.D.
19V 2-chloroethylvinyl ether	N.D.
23V chloroform	N.D.
29V 1,1-dichloroethylene	N.D.
30V 1,2-trans-dichloroethylene	N.D.

PARAMETER	RESULT ug/lit
32V 1,2-dichloropropane	N.D.
33V 1,3-dichloropropylene	N.D.
38V ethylbenzene 93,600	~~N.D.~~
44V methylene chloride	N.D.
45V methyl chloride	N.D.
46V methyl bromide	N.D.
47V bromoform	N.D.
48V dichlorobromomethane	N.D.
49V trichlorofluoromethane	N.D.
50V dichlorodifluoromethane	N.D.
51V chlorodibromomethane	N.D.
85V tetrachloroethylene	N.D.
86V toluene 456,000	~~N.D.~~
87V trichloroethylene	N.D.
88V vinyl chloride	N.D.
total xylenes	437,000

N.D. = NOT DETECTED
N.A. = NOT APPLICABLE/ANALYZED

*Below method detection limit

Client Report No. 54

JTC Report No. 85-254

TENTATIVELY IDENTIFIED COMPOUNDS

Laboratory Sample ID 12-0911 to 12-0917 (composite) Client Sample ID 18-22, 25A, 25B (1:5000 Dilution)

COMPOUND	ESTIMATED CONCENTRATION
2-methylbutane	237,000
pentane	165,000
methylcyclopentane	133,000
2,3-dimethylbutane	58,300
3-methylpentane	232,000
2-methylpentane	609,000
hexane	272,000
2,3-dimethylpentane	53,000
3-methylhexane	228,000
2-methylhexane	199,000
2,5-dimethylheptane	226,000
Trimethyl-cyclohexane	29,000
Ethyl-methyl-cyclohexane	27,700

Compositing Information

Waste Oil Samples: Samples # 4-22, 24, 25

1. Aircraft Maintenance and Support - @ MCAS(H)
   Composite # 4-12 (9 samples) into one

2. 2nd Maintenance Bn - @ MCB
   Composite # 13-17 (5 samples) into one

3. Tracked Vehicles and Motor T. Maintenance - @ MCB
   Composite # 18-22, 25 A&B (7 samples) into one

4. Old Hospital Tanks
   Do not composite samples 24 A&B. Analyze both.

Total Waste Oil samples for analysis: 5 samples

Hazardous Waste Samples: Samples # 23 A&B, 27 H&I, 29-31, 32 O,P,Q.

Total Hazardous Waste samples for analysis: 13 Samples (No Compositing)

Soil Samples: Samples # 28 J,K,L
Composite J,K,L for one sample, analyze like a hazardous waste sample (GENERAL)

Analysis Information

Waste Oil Parameters

EP Toxicity Metals	Methylene Chloride
Ignitibility (Flash Point)	Xylene
Reactivity	Tetrachloroethylene
Corrosivity	Trichloroethylene
PCB	1,1,1-Trichloroethane
% Water	Acetone
BTU/GAL	Toluene
% Sediment	Methyl Ethyl Ketone
% Sulfur	1,1-Dichloroethane
	Total Phenols

Hazardous Waste Parameters - General

pH
EP Toxicity
Ignitibility
Reactivity
Corrosivity
PCB

Hazardous Waste Parameters - Specific (If possible)

Sample #	Possible Identity
23 A&B	Mogas, Paint Thinner, Xylene or Mineral Spirits
27 H&I	Cleaning Solvent or Battery Acid
29	Battery Acid (H_2SO_4)
30&31	POL
32 O,P,Q	Varnish, Lacquer

Please save the hazardous waste samples, if there is anything left after analysis, until further notice. Our DPDO may require further analysis.

AMS — Aircraft Maint. + Support (MCA)
2nd MBN — 2nd Maintence BN

Sample #	Bld #	Date	Command
4	515	3/5/85	AMS
5	518		AMS
6	504		AMS
7	504		AMS
8	4147 + 4146		AMS
9	4100		AMS
10	4108		AMS
11	4108		AMS
12	4106		AMS
13	1601	3/5/85	2nd MBN
14	1607		2nd MBN
15	909		2nd MBN
16	901		2nd MBN
17	902		2nd MBN
18	1205-1206	3/26/85	2nd BN + HQ BN - 6th MAR
19	1505-1506		1st BN + 3rd BN - 6th MAR
20	1450		5th BN, 10th MAR
21	1854		2nd Tank BN
22	A-2		2nd Amp Ass BN
25A	1775	3/27/85	1, 2, 3rd BN, 10th MAR
25B	1775		1, 2, 3rd BN, 10th MAR

Used Oil Samples

Sample	Bld #	Date	Type Sample
23-A	HP-100	3/26/85	Drum (unknown)
23-B	HP-100	3/26/85	" "
24-A	H-20	3/27/85	used oil
24-B	H-20	3/27/85	used oil
26-E	Bld 1605	3/27/85	Drum (unknown)
26-F	Bld 1605	3/27/85	" "
26-G	1605	3/27/85	" "
27-H	251	3/28/85	" "
27-I	251	3/28/85	" "
28-J	Landfill	3/29/85	soil
28-K	"	3/29/85	"
28-L	"	3/29/85	"
29	TP457	3/29/85 (composite)	7-5gal unknown
30	TP457	3/29/85	Drum unknown
31	TP457	3/29/85	" "
32-O	TP451	4/2/85	" "
32-P	TP451	4/2/85	" "
32-Q	TP451	4/2/85	" "

NOT SENT

SHEET # _____

1. SAMPLE # #1 DATE COLLECTED 3/5/85 TIME COLLECTED 0920

NAME OF COLLECTOR Hunegnett, Martin. LOCATION AND DESCRIPTION OF ITEM SAMPLED AS-554 (Lg. Waste oil Tank) #1

COMMENTS: 2 quarts (Composite Top + Bottom)

2. SAMPLE # #2 DATE COLLECTED 3/5/85 TIME COLLECTED 0940

NAME OF COLLECTOR Hunegnett, Martin. LOCATION AND DESCRIPTION OF ITEM SAMPLED AS-554 (Lg. Waste oil Tank) #2

COMMENTS 2 quarts (Composite Top + Bottom)

3. SAMPLE # #3 DATE COLLECTED 3/5/85 TIME COLLECTED 0950

NAME OF COLLECTOR Hunegnett, Martin. LOCATION AND DESCRIPTION OF ITEM SAMPLED AS-554 (Lg. Waste oil Tank) #3 NEAREST TO FIRE HOUSE

COMMENTS 2 quarts (Composite top + Bottom)

4. SAMPLE # 4 DATE COLLECTED 3/5/85 TIME COLLECTED 1030

NAME OF COLLECTOR Hunegnett, Martin. LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 515 Hangar

COMMENTS 1 waste oil tank beside the building
1 quart i Seemed to be all full

SHEET # _____

1. SAMPLE # 5 DATE COLLECTED 3/5/85 TIME COLLECTED 1100

NAME OF COLLECTOR Hunegnett, Martin. LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 518

COMMENTS: 1 waste oil tank underground beside hangar. Seemed to be 1/4 hydro fluid + 3/4 water Red Color

2. SAMPLE # 6 DATE COLLECTED 3/5/85 TIME COLLECTED 1110

NAME OF COLLECTOR Hunegnett, Martin. LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld. 504

COMMENTS Waste oil tank / seemed to be all waste oil Dark Brown

3. SAMPLE # 7 DATE COLLECTED 3/5/85 TIME COLLECTED 1115

NAME OF COLLECTOR Hunegnett, Martin. LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 504

COMMENTS Waste Fuel tank / seemed to be all fuel. Red color

4. SAMPLE # 8 DATE COLLECTED 3/5/84 TIME COLLECTED 1130

NAME OF COLLECTOR Hunegnett Martin. LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 4141

COMMENTS No waste oil facility, they take it over to Hangar and dump it in

SHEET # _____

1. SAMPLE # 8 DATE COLLECTED 3/5/85 TIME COLLECTED 1140

NAME OF COLLECTOR Hunequett, Martin . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 4147 or 4146

COMMENTS: Underground waste oil tank Beside building
Seemed to be black waste oil

2. SAMPLE # 9 DATE COLLECTED 3/5/85 TIME COLLECTED 1200

NAME OF COLLECTOR Hunequett, Martin . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 4108

COMMENTS Waste oil tanks above ground
Seemed to be all fuel (red)

3. SAMPLE # 10 DATE COLLECTED 3/5/85 TIME COLLECTED 1210

NAME OF COLLECTOR Hunequett, Martin . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 4108

COMMENTS 3 above ground waste oil tanks 1 on each side of build. Composite sample of 3 tanks

4. SAMPLE # 11 DATE COLLECTED 3/5/85 TIME COLLECTED 1230

NAME OF COLLECTOR Hunequett, Martin . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 4108

COMMENTS Below ground tank w/ gage.
Full w/ lg. amt of H_2O
Sign on tank said no not use.

SHEET # 12

1. SAMPLE # 12 DATE COLLECTED 3/5/85 TIME COLLECTED 1245

NAME OF COLLECTOR Hunegnell, Martin . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 4106

COMMENTS: Above ground. Seems to be waste oil (Black)

2. SAMPLE # 13 DATE COLLECTED 3/5/85 TIME COLLECTED 1400

NAME OF COLLECTOR Hunegnell, Martin . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld. 1601

COMMENTS Underground waste oil Tank w/ gage wind (Black)

3. SAMPLE # 14 DATE COLLECTED 3/5/85 TIME COLLECTED 1405

NAME OF COLLECTOR H & M . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 1607

COMMENTS Underground in front (Black)

4. SAMPLE # 15 DATE COLLECTED 3/5/85 TIME COLLECTED 1445

NAME OF COLLECTOR H & M . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 909

COMMENTS Above ground. (Black)

SHEET # _____

1. SAMPLE # 16 DATE COLLECTED 3/5/85 TIME COLLECTED 1515

NAME OF COLLECTOR Henequett, Martin . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 901

COMMENTS: Above ground tank (Black)

2. SAMPLE # 17 DATE COLLECTED 3/5/85 TIME COLLECTED 1525

NAME OF COLLECTOR H & M . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 902

COMMENTS Underground full tank (Black) Heavy

3. SAMPLE # 18 DATE COLLECTED 3/26/85 TIME COLLECTED 0900

NAME OF COLLECTOR Barber & Henequett . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 1205-1206

COMMENTS Underground w/ gage (Full) (Black) Heavy
Dumped Anti-Freeze into grit chamber
~~Full~~

4. SAMPLE # 19 DATE COLLECTED 3 TIME COLLECTED 0925

NAME OF COLLECTOR H + B . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 1505-1506

COMMENTS Underground w/ gage (Black) Heavy

SHEET # _____

1. SAMPLE # 20 DATE COLLECTED 3/26/85 TIME COLLECTED _____

NAME OF COLLECTOR H & B . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 1450

COMMENTS: Underground w/s gage on W side of building Black & Cept

2. SAMPLE # _____ DATE COLLECTED _____ TIME ~~COLLECTED~~ 1000

NAME OF COLLECTOR _____ . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 1775

COMMENTS Could not get into tank because of stuck seal cap. Will try tomorrow

3. SAMPLE # 21 DATE COLLECTED 3/26/85 TIME COLLECTED 1005

NAME OF COLLECTOR H & B . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 1854

COMMENTS Underground Tank on front of building (Black)

4. SAMPLE # 22 DATE COLLECTED 3/26/85 TIME COLLECTED 1047

NAME OF COLLECTOR H & B . LOCATION AND DESCRIPTION OF ITEM SAMPLED A-2

COMMENTS Underground behind building (Black) Heavy

SHEET # _____

1. SAMPLE # 23-A DATE COLLECTED 3/26/85 TIME COLLECTED 1208

NAME OF COLLECTOR H:B . LOCATION AND DESCRIPTION OF ITEM SAMPLED HP-100

COMMENTS: 55 gal drum of unknown
Drum marked (A) Light Burn (Light)
Capt. promised to secure w/pallet + band
3/27/85 Both drums were secured this A.M.

2. SAMPLE # 23-B DATE COLLECTED 3/26/85 TIME COLLECTED 1212

NAME OF COLLECTOR H:B . LOCATION AND DESCRIPTION OF ITEM SAMPLED HP-100

COMMENTS 55 gal drum of unknown
Drum marked (B) Light Burn (Light)
Capt. promised to secure w/ pallet + band

3. SAMPLE # 24-A DATE COLLECTED 3/27/85 TIME COLLECTED 0845

NAME OF COLLECTOR H+B . LOCATION AND DESCRIPTION OF ITEM SAMPLED Old Hospital Steam Plant underground (H-20)

COMMENTS Storage tank, Facing building tank on left w/ orange (A) under lid (Dark Black thick w/ alot of water)

4. SAMPLE # 24-B DATE COLLECTED 3/27-85 TIME COLLECTED 0900

NAME OF COLLECTOR H+B . LOCATION AND DESCRIPTION OF ITEM SAMPLED Old Hospital Steam Plant underground (H-20)

COMMENTS Storage tank Facing building tank on left w/ orange (B) under lid. Dark Black thick w/ alot of water

SHEET # _____

1. SAMPLE # ~~24~~ 25A DATE COLLECTED 3/27/85 TIME COLLECTED 0940

NAME OF COLLECTOR H JB . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 1775 Underground tank at front of building at W side of building 1 quart

COMMENTS:

2. SAMPLE # 25B DATE COLLECTED 3/27/85 TIME COLLECTED 1000

NAME OF COLLECTOR H JB . LOCATION AND DESCRIPTION OF ITEM SAMPLED Bld 1775 Underground tank at front of building at E side of building 1 quart

COMMENTS

21 FEB 1985

FROM: SUPERVISORY CHEMIST

TO: SUPERVISORY ECOLOGIST

SUBJ: WASTE OIL ANALYSIS

1. THE DEADLINE OF 1 MARCH 1985 ~~FOR REQU~~ STATED IN AC/S FAC LTR 6280/2 FAC 20 FEB 85 FOR NEW SAMPLING AND ANALYSIS CAN NOT BE MET. PREVIOUS WASTE OIL ANALYSIS COULD BE PROVIDED.

New deadline april 1 DDS

2. YOUR NOTE STATES THE CONTRACT LAB MAKE THE COMPOSITES. ~~W~~ HOWEVER IN YOUR RECOMMENDATION OF SITES, NOTE 1, I GATHER YOU WANT US TO COMPOSITE TANKS IN ONE SITE. AND LEAVE THE COMPOSITING OF THE SITES TO ~~THE~~ JTC.

yes DDS

3. DAVE GOODWIN RECOMMENDS 1 QUART MASON JARS AS SAMPLE CONTAINERS. I ONLY HAVE 9 MASON JARS ON HAND. NONE ARE STOCKED ON BASE. TO DO ALL 19 SITES WE WILL NEED A REQUISITION FOR MORE MASON JARS.

Elizabeth A Betz

NATURAL RESOURCES AND ENVIRONMENTAL AFFAIRS DIV
Marine Corps Base
Camp Lejeune, North Carolina 28542

20 Feb. 8
(Date)

From: Supervisory Ecologist

To: Supervisory Chemist

Subj: WASTE Oil ANALYSIS

Encl.(1). AC/S FAC Ltr 6280/2 FAC 20 Feb 85

Encl(2) Proposed Sampling Locations

1. Please review and let's discuss ASAP please take action on enclosure (1). Enclosure (2) contains my recommendations ON sample sites and groupings. Please prepare paper work to transfer $5,000.00 to LANT DIV (POC DAVE Goodwin) from Please advise of any problems NLT 22 Feb 85.

2. Please have samples shipped by 28 February I recommend that Composites be made by Contract Lab and scanned based on the three broad groupings shown in ~~the~~ Enclosure (2). Mr. Goodwin advised that approx. 1 quart per sample site was required if we wanted Lab to do any follow up on initial scans.

D Sharpe

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

6280/2
FAC
20 FEB 1985

From: Assistant Chief of Staff, Facilities, Marine Corps Base, Camp Lejeune
To: Base Maintenance Officer
Director, Natural Resources and Environmental Affairs

Subj: WASTE OIL HANDLING AND DISPOSAL

Ref: (a) Meeting w/NC Solid and Hazardous Waste Mgmt Branch and MCB Staff, 24 Jan 85

Encl: (1) CG, MCB ltr MAIN/WAS/cmm 6280 dtd 29 Mar 82 w/encl

1. During the reference, the improved marketability of waste oil due to collection at the motor pool was discussed. Request that BMAIN provide an updated copy of the enclosure to NREAD and to this office. Further request that NREAD provide laboratory analyses which reflect the contents of their waste oil tanks on a representative basis.

2. In order to pursue the option of the "term contract" with DPDS as well as provide a timely response to the State of North Carolina, request the laboratory results be provided by 1 March 1985. For further info on this matter call Mr. Alexander, ext 3034.

M. G. LILLEY

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO
MAIN/WAS/cmm
6280
MAR 2 9 1982

From: Commanding General
To: Distribution List

Subj: Operation of Area Pollution Control Devices

Encl: (1) Listing of Pollution Control Devices

1. The enclosure is submitted for identification of pollution control devices available for use by commanders within their respective command areas. It is requested that a listing of points of contact of units responsible for these facilities within their area be provided to the Base Maintenance Division.

2. Upon identification of responsible units, the Base Maintenance Division will coordinate meetings to cover use, maintenance and servicing of the pollution devices. Proper washdown techniques of petroleum vehicles to prevent pollution problems will also be discussed.

3. Point of contact is Mr. Carl Loop, Staff Engineer, Operations Branch, Base Maintenance Division, telephone number 451-1580.

F. H. MOUNT
By direction

Distribution:
CG, 2dMarDiv (G-4)
CG, 2dFSSG (G-4)
CO, MCAS(H), NR (S-4)
CO, MCSSS
CO, MCES
CO, RRDet

Rec'd
RR

NREA

	O/W sep/SBC/UG waste oil tank 6/8	M-101	SM-117
	O/W sep/SBC 6 ;oil drum storage pad	S-177	SM-177
	O/W sep/SBC 6 ;pump station	SM-173	SM-162
-B&C	O/W sep/UG waste oil tank 5/8	45	SLCH-785
-D	O/W sep/UG waste oil tank 5/8	1916 600	S-1914
-H	O/W sep/SBC 6 O/W Sep.	GP-816	S-736
-G	O/W sep/SBC/UG , pump station waste oil tank 6/8	739	SGP-16
-N	O/W sep/SBC/UG waste oil tank 6/8	S-1753	S-1748
-R	O/W sep 6	1502	S-1514
-T	O/W sep/SBC/UG waste oil tank 6/8	1604	S-1617
-Y	O/W sep/SBC/UG waste oil tank 6/8	1505	S-1512
-E-2	O/W sep/2 SBC 6	S-1128 S-1132	S-1112
-H-2(7)	O/W sep/SBC 6		S-1712
-D	UG waste oil tank 8	TC-942	STC-939
-I	O/W sep/UG waste oil tank 5/8	TC-774	STC-772
-G	O/W sep/SBC/UG waste oil tank 6/8	S-868	STC-868

XI-C	O/W sep/UG waste oil tank 5/8	A-11	SA-16
1-G	Fuel tank cont basin 1	USO CLUB	S-USO-3
1-B	Fuel unloading pad 2 fuel containment basin	M-230	SM-269
1-A	Fuel unloading pad/fuel containment basin UG waste oil tank/	M-625	SM-631
1-C	UG waste oil tank 8	M-171	SM-174
VII-H-2(2)	Wash apron/grit chamber 3	739	SGP-30
VII-5	Backwash waste surge tank 5	540	S-563
XII-G	Fuel cont. basin 1	BB-34	SBB-35
XII-B	UG waste oil tank 8	BB-177	SBB-199
X-2	Grinder pump station 7	RR-37	S-RR-60
IX-A	Cont basin/UG waste oil tank/Fuel unloading pad 2/8	G-650	SG-649
VII-Z	O/W sep/SBC/UG waste oil tank 5/8	1607	S-1619
VII-H-2(6)	Wash apron/O/W sep/ SBC 3/6	S1050	S-1050-(U)
VII-H-2(8)	Wash apron/O/W sep/ SBC 3/6	1722	S-1744
VII-D-2	O/W sep/SBC/UG waste oil tank 6/8	1107 1108	S-1133
VII-C	Fuel cont area/UG 1/8 waste oil tank	728	S-731

-A(2)	Fillport curbing for/UG waste oil tank 6/8	1612	S-1217
-H-2(1)	Wash apron/~~O/W~~ sep 6/3	S-894	S-876
	Backwash waste surge tank 5	M-139	SM-145
D	UG waste oil tank 8.	A-14	SA-42
-A	Fuel unload pad/ cont basin/UG waste oil tank 2/8	B-16 BB-9	SBB-29
S-B	Fuel unload pad/ cont basin 2	143	SAS-158
	Wash apron/~~O/W~~ sep/ SBC/UG waste oil tank 3/8/5	RR-80	S-RR-73
&B	Fuel unload pad/fuel containment basin /UG waste oil tank 2/5/8	RR-15	S-RR-55
S	Waste oil tank 8	1601	S-1620
4	Backwash waste surge tank 5	236	S-256
E	fuel unload pad/ cont basin 2	4015	SLCH-4035
D	Fuel unload pad/ cont basin 2	BB-70	S-BB-74
E	~~O/W~~ sep 6	BB-169	S-BB-171
A	Drum storage pad 1	LCH-4025	SLCH-4019
A-2	~~O/W~~ sep/SBC 6	1205	S-1218
VII-W	~~O/W~~ sep/SBC/UG waste oil tank 6/8	1310	S-1322
VII-U	Drum storage pad 1	1504	S-1513
VII-O	~~O/W~~ sep/SBC 6	1780	S-1783
VII-B-2	~~O/W~~ sep/SBC 6	1203	S-1219
VII-V	~~O/W~~ sep/SBC 6	1407	S-1420
VII-X	~~O/W~~ sep/SBC/UG waste oil tank 6/8	1405	S-1421
VIII-1	Bathroom bldg/water storage tank	SH-7	SH-16 SH-17
IX-E	Fuel unload pad/cont basin 2	364	STC-369
XII-1	Backwash waste surge tank 5	BB-190	SBB-188
XII-H	Drum storage pad/ UG waste oil tank 1/8	SBB-161	SBB-162
XIII-B	Wash apron 3	BA-130	SBA-131
XII-C	Grease rack/waste oil tank 4/8	BA-130	SBA-132
XII-D	~~O/W~~ sep/SBC 6	BA-130	SBA-133
XII-E	Fuel tank cont basin 1	BA-130	SBA-134
900 Area	Grease rack 4	913	S-917
MCAS-2	~~O/W~~ sep/SBC/UG waste oil tank 3	AS-109	S-918
MCAS-J	~~O/W~~ sep/SBC/UG waste oil tank 6	AS-110	SAS-99

II-B-1	O/W sep/SBC/2 UG waste oil tanks 6/8	FC-201	SFC-15	VII-D
I-1	Recycle pump station 7	670	S-669	VII-H-2(9)
I-G-2	Fuel unload pad/containment basin & cooling tank	1736	S-1721	
1	Backwash waste surge tank 5	RR-85	SRR-102	
	Fuel unload pad/ O/W sep/UG waste oil tank 2/6/8	2615	S-2637	
-1&3	O/W sep/Cont basin 5	2615	S-2637	
-2	Waste oil tank 8	2615	S-2637	
II-B(2)	O/W sep/UG waste oil tank 6/8	FC-102	SFC-107	
	O/W sep/UG waste oil tank 6/8	FC-101	SFC-108	
-7	Drum Storage Pad 1	S-802	5-809	
1	Backwash waste surge tanks	TT-38	TT-38	
AS-I	Fuel containment pad 1	AS-2800	SAS-2810	
AS-K	Wash Apron 3	AS-4108	SAS-4144	
F	Fuel unloading Pad and fuel containment basin 2	SA-21	SA-22	

See Note 1

1 Aircraft Maintenance and Support. (see attached map)

A	Bldg ~~504~~	MCAS(H), NR	e	Bld. 4106	MCAS(H), NR
B	Bldg ~~515~~	"	f	Bld. 4108	"
C	Bldg ~~518~~	"	g	Bld. ~~4141~~	
D	Bldg 4100	"	h	~~Bld 4146~~	

8 "Sites"

2. 2d Maintenance Bn:

a.	Bldg ~~1101~~	GSM + MTM Companies
b	Bldg ~~1107~~	MTM Co.
c.	Bldg ~~402~~	Eng. Maint. Co
d	Bldg. ~~901~~	Ord. maint Co
e.	Bldg ~~901~~	GSM Co, H+S Co.

5 Sites

3. Waste Oil Tanks at Tracked vehicle and Motor T maintenance

A	Bldg. A-2	2d Amp. Ass. Bn
~~B~~	~~Bldg 1854~~	~~2d Tank Bn.~~
~~C.~~	~~Bldg 1450~~	5th Bn, 10th Marines

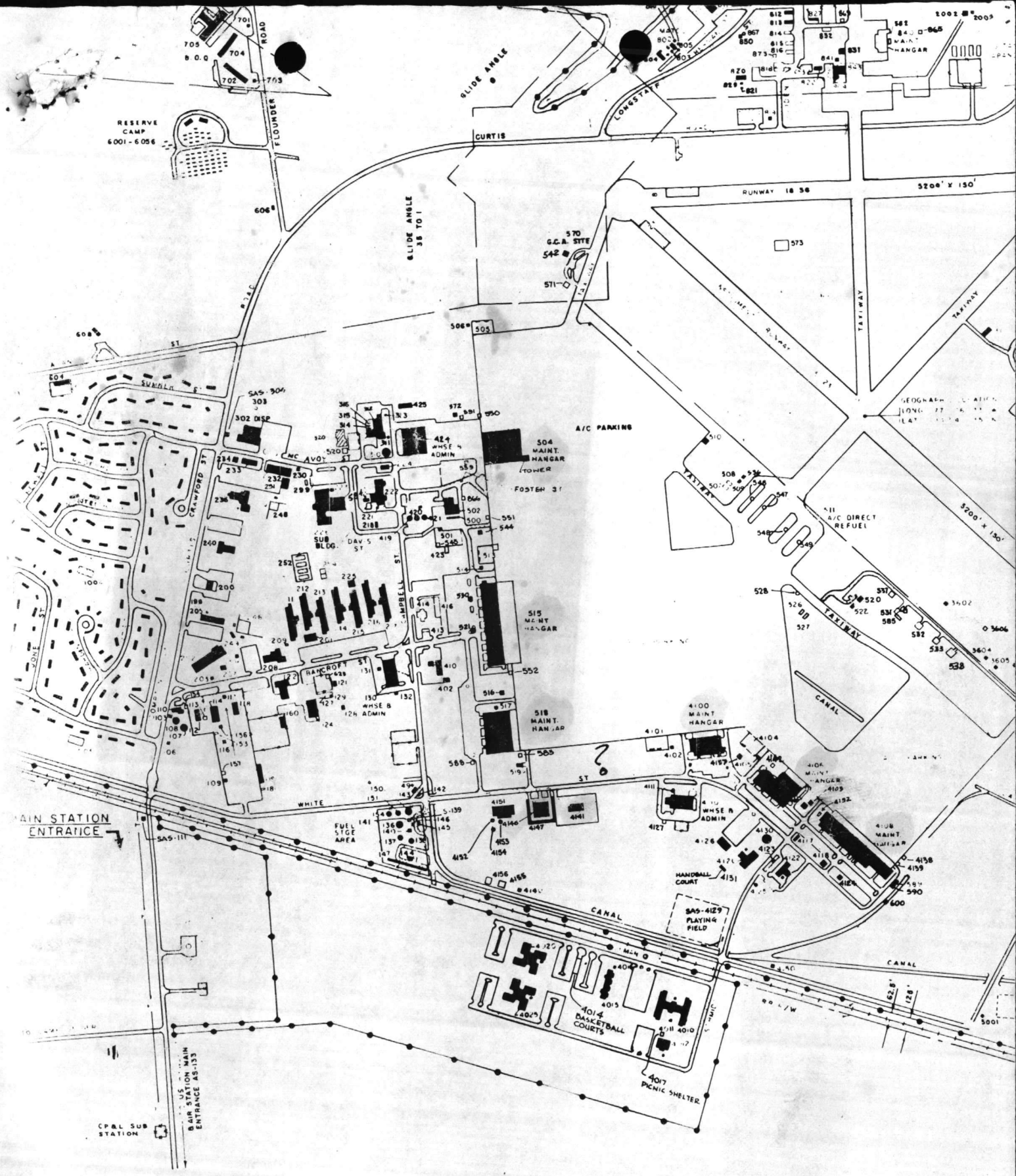
6 Sites

4

~~d.~~	~~Bldgs 1205 + 1206~~	2d Bn and HQ Bn 6th marines
~~e.~~	~~Bldgs 1505 and 1506~~	1st Bn and 3rd Bn., 6th marines
~~f.~~	~~Bld 1775~~	1, 2, and 3rd Bns. 10th marines

NOTE 1. If a building has more than one Tank, make a composite and ~~so~~ note on your records. Treat 1205 and 1206 as one site. Treat 1505 and 1506 as one site.

Proposed Sampling Location
Encl (2)



ATTachment(A)
Enclosure (2)

To track gear wear patterns yearly, a color photo is taken during annual gear inspection.

CABOT'S KOKOMO mills in Indiana produce millions of pounds of nickel-iron-and cobalt-base alloys, stainless steels, titanium and titanium alloys each year. Both hot and cold rolling is used to produce bar and sheet. And, as in any high output operation, good maintenance techniques are the key to high productivity.

To improve its maintenance program, Cabot's Wrought Products Division in Kokomo established a separate department with sole responsibility for preventive maintenance (PM) a few years ago. Headed by Superintendent Mark Dye, the crew pays special attention to lubrication of vital production equipment.

Lubricators in the PM department inspect all equipment according to a schedule developed with the assistance of the mill's lubricant supplier. A chart was designed for each machine, listing lubrication points, the lubricants to be used and service intervals. This information was then entered into the computer and lube routes were established.

The maintenance lubricators receive a weekly computer printout which lists the equipment that requires servicing, the day service is to be performed, and what other service (monthly, quarterly, or annual) is scheduled for that particular week.

These technicians check off jobs as they are completed and return the schedule to the PM department. They also note any problems they might have encountered.

If the problem is simple, such as a leak from a fitting, repairs are made on the spot. Other repairs may require a system shutdown. These are tagged with a yellow label and scheduled for repair during a shutdown period. The date is put on the tag so that repair is not delayed too long.

The company has also begun switches automatically shut a system down when the oil level is too low. Heat sensors, which change color when the reservoir temperature exceeds a certain level have also been added.

Because the success of the program relies on the integrity of the lubricators, special care is taken when these workers are trained. All lubricators, regardless of their experience, attend a weekly classroom training seminar. This repetitive training keeps personnel up-to-date on equipment and lubricants. The sessions also provide valuable feedback.

Vendor training sessions

Specialized training from suppliers also plays an important role in keeping the lubricators informed. Mobil Oil Corporation, the company's current supplier, has conducted several clinics dealing with the fundamentals of lubrication and waste disposal.

The supplier's technical services, particularly oil analysis and gear inspections, are also employed. These services provide valuable data on how equipment is operating and also help detect problems early.

Hydraulic oil analysis is done twice a year on 53 systems. While samples are taken reservoir temperatures and filters are also checked.

The samples are sent to the oil supplier's lab where oil condition is determined. The amounts of contaminants, such as dirt, water, or wear metal particles, are measured. The lab then classifies the oil as satisfactory, borderline or unsatisfactory.

Systems with oil that is unsatisfactory are scheduled for immediate change. Flushing is scheduled, too, if needed. The system is also checked out to determine the cause of the problem. Correcting a dirt service. Changing oil only when the analysis indicates it, rather than on a regular calendar basis, reduces their oil waste considerably. According to the plant superintendent, a recent hydraulic oil analysis showed that only eight systems needed changing. By not changing all the systems, the company saved more than 6,000 gallons of hydraulic oil.

Gear oil analysis

Gear oil analysis is provided as part of the annual gear inspections conducted by Mobil engineers. Together, the oil analysis and visual inspection are invaluable in determining equipment condition and scheduling gear replacements.

During the inspection, the engineer examines each gear and notes its wear pattern. Color photographs of the gear teeth are taken to provide a history of tooth wear and more accurate detection of changes in wear patterns. By comparing current tooth conditions with photos taken during previous inspections it is possible to accurately chart changes and, in many cases, predict when failure might occur. The color photos and a written report become part of the maintenance history of each gear.

The gear oil analysis, also done in a Mobil lab, tells when to change oil. Measurement of wear metal particles also provides information on gear wear rates.

Misalignment, if undetected, can seriously shorten gear life. Through the annual inspection, however, such potential problems can be circumvented.

Circle the number below for free literature on lubricants and services from Mobil Oil Corporation, Fairfax, VA 22037.

Circle **9** On Reply Card

Loss By Oil Leaks

LEAKAGE (Drop approx. 11/64-in dia.)	LOSS IN 1 DAY (Gallons)	LOSS IN 1 MONTH (Gallons)	LOSS IN 1 YEAR (Gallons)
One drop in 10 sec.	0.112	3	40
One drop in 5 sec.	0.225	7	80
One drop per sec.	1.125	34	410
Three drops per sec.	3.75	113	1353
Stream breaks into drops	24.00	721	8646

In a 20-gallon reservoir: one drop in 10 sec. = 200% make-up/year
one drop in 5 sec. = 400% make-up/year
one drop in 100 sec. = 20% make-up/year

DUB

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

6280/2
FAC
31 JAN 1985

MEMORANDUM FOR THE COMMANDING GENERAL
CHIEF OF STAFF

Subj: WASTE OIL HANDLING AND DISPOSAL; RESULTS OF MEETING WITH STATE OF NORTH CAROLINA

1. On 29 January 1985 a meeting was held between personnel from the N.C. Solid and Hazardous Waste Management Branch; the Defense Property Disposal Region - Memphis; Defense Property Disposal - Camp Lejeune; Atlantic Division, NAVFACENGCOM; and MCB Facilities Department. Topics discussed included:

a. Environmental Protection Agency (EPA) rules defining which materials are hazardous wastes when they are recycled; published 6 January 1985.

b. Characteristics of the mixture of waste oils, solvents, contaminated fuel, and oil/water separator skimmings.

c. Facilities and procedures for collection and storing wastes pending recycling through DPDS contracts.

d. Planned energy recovery project at boiler BB-9, Courthouse Bay.

e. DPDS service contracting and recycling contracting procedures.

f. Ongoing studies of hazardous materials and waste oil via Engineering Service Requests forwarded to LANTDIV.

2. A site visit was completed to view waste oil handling and storage at 2d Tank Battalion, 2d Ordnance Maintenance Battalion, and the storage tanks at Bldg 45 and at the Holcomb Boulevard LP gas storage site.

3. The DPDS service contract for removal of oils and sludges in the Bldg 45 tank should be completed by 15 February. The recycling (sales) contracts for the storage tanks at Holcomb Blvd and Camp Geiger should empty those tanks by mid-March.

4. Due to the mixing of lube oils with other "listed substances," per the EPA and State rules, requires the mixture to be defined as a hazardous waste. Examples of the "listed substances" are trichloroethylene (TCE) and PCBs. The nature of these substances and the waste oil analyses determines the ultimate method of disposal; i.e, for solvents such as TCE, burning

Drafter: B.Alexander/Typist: H Foster

for heat recovery is permissible if air quality permits are met. If PCBs are mixed with waste oil, disposal by incineration is required. The oils being handled by the DPDS contracts are correctly being managed as hazardous waste according to the State personnel.

5. A letter from the State will be forthcoming to address rquirements for permitting the storage facilities for future handling of waste oil. Compliance with the 6 January EPA rules and Resources Conservation Recovery Act permit requirements will be addressed.

Very respectfully,

B. W. ELSTON
Dep AC/S, Facilities

Copy to:
MAIN
NREA
EnvEngr

GENERAL ~~6245~~ 6246 ~~6244/2~~