APPENDIX 13
AIR QUALITY

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A13-1.1 MEMPHIS DISTRICT

A13-1.1 Attachment 1: Emission Calculations for Work Items in Crittenden County, Arkansas

Table 1. Emission Calculations for Work Item 754-R, St. Thomas, AR Berm Re-Evaluation, Crittenden County, Arkansas.

Work Item 754-R, St. Thomas, AR Berm Re-Evaluation

Combustible Emissions

Type of Construction Equipment	Horsepower	Hours	**Total hp-hrs**
Diesel Highway Truck, 4X4	385	4260	**1640100**
Diesel Drill Rig	380	4260	**1618800**
Diesel Crane	350	710	**248500**
Diesel Hwy Truck, 6X4	230	4260	**979800**
Diesel Excavator	176	710	**124960**
Diesel Dozer	138	710	**97980**
Diesel Skid Steer	74	4260	**315240**
Diesel Welding Machine	25	4260	**106500**
Diesel Trencher	16	178	**2848**
Diesel Air Compressor	15	4260	**63900**

Emission Factors

Type of Construction Equipment	Horsepower	VOC (g/hp-hr)	NOx (g/hp-hr)	**VOC (lbs/hp-hr)**	**NOx (lbs/hp-hr)**
Diesel Highway Truck, 4X4	385	0.167	4.335	**0.0004**	**0.0095**
Diesel Drill Rig	380	0.167	4.335	**0.0004**	**0.0095**
Diesel Crane	350	0.167	4.335	**0.0004**	**0.0095**
Diesel Hwy Truck, 6X4	230	0.309	4	**0.0007**	**0.0088**
Diesel Excavator	176	0.309	4	**0.0007**	**0.0088**
Diesel Dozer	138	0.338	4.1	**0.0007**	**0.0090**
Diesel Skid Steer	74	0.367	4.7	**0.0008**	**0.0103**
Diesel Welding Machine	25	0.438	4.4399	**0.0010**	**0.0098**
Diesel Trencher	16	0.438	4.4399	**0.0010**	**0.0098**
Diesel Air Compressor	15	0.438	4.4399	**0.0010**	**0.0098**

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model; assumed Tier 2 Technology Type values.

Total Calculated Emissions

Type of Construction Equipment	Horsepower	VOC (tons)	NOx (tons)
Diesel Highway Truck, 4X4	385	0.30	7.82
Diesel Drill Rig	380	0.30	7.72
Diesel Crane	350	0.05	1.18
Diesel Hwy Truck, 6X4	230	0.33	4.31
Diesel Excavator	176	0.04	0.55
Diesel Dozer	138	0.04	0.44
Diesel Skid Steer	74	0.13	1.63
Diesel Welding Machine	25	0.05	0.52
Diesel Trencher	16	0.001	0.01
Diesel Air Compressor	15	0.03	0.31
	TOTALS	**1.27**	**24.50**

Emissions Formula: (lbs/hp-hr) x (total hp-hr)/2000 = Tons

Table 2. Emission Calculations for Work Item 726-R, West Memphis, AR Re-Evaluation, Crittenden County, Arkansas.

Work Item 726-R, West Memphis, AR Re-Evaluation

Combustible Emissions

Type of Construction Equipment	Horsepower	Hours	Total hp-hrs
Diesel Highway Truck, 4X4	385	1620	623700
Diesel Drill Rig	380	1620	615600
Diesel Crane	350	270	94500
Diesel Hwy Truck, 6X4	230	1620	372600
Diesel Excavator	176	270	47520
Diesel Dozer	138	270	37260
Diesel Skid Steer	74	1620	119880
Diesel Welding Machine	25	1620	40500
Diesel Trencher	16	68	1088
Diesel Air Compressor	15	1620	24300

Emission Factors

Type of Construction Equipment	Horsepower	VOC (g/hp-hr)	NOx (g/hp-hr)	VOC (lbs/hp-hr)	NOx (lbs/hp-hr)
Diesel Highway Truck, 4X4	385	0.167	4.335	0.0004	0.0095
Diesel Drill Rig	380	0.167	4.335	0.0004	0.0095
Diesel Crane	350	0.167	4.335	0.0004	0.0095
Diesel Hwy Truck, 6X4	230	0.309	4	0.0007	0.0088
Diesel Excavator	176	0.309	4	0.0007	0.0088
Diesel Dozer	138	0.338	4.1	0.0007	0.0090
Diesel Skid Steer	74	0.367	4.7	0.0008	0.0103
Diesel Welding Machine	25	0.438	4.4399	0.0010	0.0098
Diesel Trencher	16	0.438	4.4399	0.0010	0.0098
Diesel Air Compressor	15	0.438	4.4399	0.0010	0.0098

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model; assumed Tier 2 Technology Type values.

Total Calculated Emissions

Type of Construction Equipment	Horsepower	VOC (tons/yr)	NOx (tons/yr)
Diesel Highway Truck, 4X4	385	0.11	2.97
Diesel Drill Rig	380	0.11	2.94
Diesel Crane	350	0.02	0.45
Diesel Hwy Truck, 6X4	230	0.13	1.64
Diesel Excavator	176	0.02	0.21
Diesel Dozer	138	0.01	0.17
Diesel Skid Steer	74	0.05	0.62
Diesel Welding Machine	25	0.02	0.20
Diesel Trencher	16	0.001	0.01
Diesel Air Compressor	15	0.01	0.12
	TOTALS	**0.48**	**9.32**

Emissions Formula: (lbs/hp-hr) x (total hp-hr)/2000 = Tons

Table 3. Emission Calculations for Work Item 705-R, Horseshoe Lake, AR, Crittenden County, Arkansas.

Work Item 705-R, Horseshoe Lake, AR

Combustible Emissions

Type of Construction Equipment	Horsepower	Hours	Total hp-hrs
Diesel Highway Truck, 4X4	385	1410	542850
Diesel Drill Rig	380	1410	535800
Diesel Crane	350	235	82250
Diesel Hwy Truck, 6X4	230	1410	324300
Diesel Excavator	176	235	41360
Diesel Dozer	138	235	32430
Diesel Skid Steer	74	1410	104340
Diesel Welding Machine	25	1410	35250
Diesel Trencher	16	59	944
Diesel Air Compressor	15	1410	21150

Emission Factors

Type of Construction Equipment	Horsepower	VOC (g/hp-hr)	NOx (g/hp-hr)	VOC (lbs/hp-hr)	NOx (lbs/hp-hr)
Diesel Highway Truck, 4X4	385	0.167	4.335	0.0004	0.0095
Diesel Drill Rig	380	0.167	4.335	0.0004	0.0095
Diesel Crane	350	0.167	4.335	0.0004	0.0095
Diesel Hwy Truck, 6X4	230	0.309	4	0.0007	0.0088
Diesel Excavator	176	0.309	4	0.0007	0.0088
Diesel Dozer	138	0.338	4.1	0.0007	0.0090
Diesel Skid Steer	74	0.367	4.7	0.0008	0.0103
Diesel Welding Machine	25	0.438	4.4399	0.0010	0.0098
Diesel Trencher	16	0.438	4.4399	0.0010	0.0098
Diesel Air Compressor	15	0.438	4.4399	0.0010	0.0098

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model; assumed Tier 2 Technology Type values.

Total Calculated Emissions

Type of Construction Equipment	Horsepower	VOC (tons/yr)	NOx (tons/yr)
Diesel Highway Truck, 4X4	385	0.10	2.59
Diesel Drill Rig	380	0.10	2.55
Diesel Crane	350	0.02	0.39
Diesel Hwy Truck, 6X4	230	0.11	1.43
Diesel Excavator	176	0.01	0.18
Diesel Dozer	138	0.01	0.15
Diesel Skid Steer	74	0.01	0.54
Diesel Welding Machine	25	0.02	0.17
Diesel Trencher	16	0.0005	0.005
Diesel Air Compressor	15	0.01	0.10
	TOTALS	**0.42**	**8.11**

Emissions Formula: (lbs/hp-hr) x (total hp-hr)/2000 = Tons

Table 4. Emission Calculations for Work Item 723-R, West Memphis, AR Seepage Remediation, Crittenden County, Arkansas.

Work Item 723-R, West Memphis, AR Seepage Remediation

Combustible Emissions

Type of Construction Equipment	Horsepower	Hours	Total hp-hrs
Diesel Highway Truck, 4X4	385	2310	889350
Diesel Drill Rig	380	2310	877800
Diesel Crane	350	385	134750
Diesel Hwy Truck, 6X4	230	2310	531300
Diesel Excavator	176	385	67760
Diesel Dozer	138	385	53130
Diesel Skid Steer	74	2310	170940
Diesel Welding Machine	25	2310	57750
Diesel Trencher	16	96	1536
Diesel Air Compressor	15	2310	34650

Emission Factors

Type of Construction Equipment	Horsepower	VOC (g/hp-hr)	NOx (g/hp-hr)	VOC (lbs/hp-hr)	NOx (lbs/hp-hr)
Diesel Highway Truck, 4X4	385	0.167	4.335	0.0004	0.0095
Diesel Drill Rig	380	0.167	4.335	0.0004	0.0095
Diesel Crane	350	0.167	4.335	0.0004	0.0095
Diesel Hwy Truck, 6X4	230	0.309	4	0.0007	0.0088
Diesel Excavator	176	0.309	4	0.0007	0.0088
Diesel Dozer	138	0.338	4.1	0.0007	0.0090
Diesel Skid Steer	74	0.367	4.7	0.0008	0.0103
Diesel Welding Machine	25	0.438	4.4399	0.0010	0.0098
Diesel Trencher	16	0.438	4.4399	0.0010	0.0098
Diesel Air Compressor	15	0.438	4.4399	0.0010	0.0098

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model; assumed Tier 2 Technology Type values.

Total Calculated Emissions

Type of Construction Equipment	Horsepower	VOC (tons/yr)	NOx (tons/yr)
Diesel Highway Truck, 4X4	385	0.16	4.24
Diesel Drill Rig	380	0.16	4.19
Diesel Crane	350	0.02	0.64
Diesel Hwy Truck, 6X4	230	0.18	2.34
Diesel Excavator	176	0.02	0.30
Diesel Dozer	138	0.02	0.24
Diesel Skid Steer	74	0.07	0.88
Diesel Welding Machine	25	0.03	0.28
Diesel Trencher	16	0.001	0.01
Diesel Air Compressor	15	0.02	0.17
	TOTALS	**0.69**	**13.29**

Emissions Formula: (lbs/hp-hr) x (total hp-hr)/2000 = Tons

Table 5. Emission Calculations for Work Item 697-R, MO-AR State Line to St. Francis River Levee Part 3 (183/0+00 to 190/0+00), Crittenden County, Arkansas.

Work Item 697-R, MO-AR State Line to St. Francis River Levee Part 3 (183/0+00 to 190/0+00) Remediation

Combustible Emissions

Type of Construction Equipment	Horsepower	Hours	Total hp-hrs
Diesel Excavator	417	344	143448
Diesel Water Truck	407	64	26048
Diesel Highway Truck, 6X4	385	172	66220
Diesel Dozer	333	1054	350982
Diesel Excavator	270	6	1620
Diesel Dump Truck	265	1720	455800
Diesel Agricultural Tractor, 4X4	235	334	78490
Diesel Highway Tuck, 4X2	220	114	25080
Diesel Grader	145	255	36975
Diesel Mulcher	115	51	5865
Diesel Roller, Vibratory	114	1	114
Diesel Backhoe	87	4	348
Diesel Agricultural Tractor, 4X2	83	114	9462
Diesel Roller, Static	74	75	5550
Diesel Water Pump	66	80	5280
Diesel Agricultural Tractor, 4X2	45	156	7020
Diesel Air Compressor	21	6	126

Emission Factors

Type of Construction Equipment	Horsepower	VOC (g/hp-hr)	NOx (g/hp-hr)	VOC (lbs/hp-hr)	NOx (lbs/hp-hr)
Diesel Excavator	417	0.167	4.335	0.0004	0.0095
Diesel Water Truck	407	0.167	4.335	0.0004	0.0095
Diesel Highway Truck, 6X4	385	0.167	4.335	0.0004	0.0095
Diesel Dozer	333	0.167	4.335	0.0004	0.0095
Diesel Excavator	270	0.309	4	0.0007	0.0088
Diesel Dump Truck	265	0.309	4	0.0007	0.0088
Diesel Agricultural Tractor, 4X4	235	0.309	4	0.0007	0.0088
Diesel Highway Tuck, 4X2	220	0.309	4	0.0007	0.0088
Diesel Grader	145	0.338	4.1	0.0007	0.0090
Diesel Mulcher	115	0.338	4.1	0.0007	0.0090
Diesel Roller, Vibratory	114	0.338	4.1	0.0007	0.0090
Diesel Backhoe	87	0.367	4.7	0.0008	0.0103
Diesel Agricultural Tractor, 4X2	83	0.367	4.7	0.0008	0.0103
Diesel Roller, Static	74	0.367	4.7	0.0008	0.0103
Diesel Water Pump	66	0.367	4.7	0.0008	0.0103
Diesel Agricultural Tractor, 4X2	45	0.2789	4.7279	0.0006	0.0104
Diesel Air Compressor	21	0.438	4.4399	0.0010	0.0098

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model; assumed Tier 2 Technology Type values.

Total Calculated Emissions

Type of Construction Equipment	Horsepower	VOC (tons/yr)	NOx (tons/yr)
Diesel Excavator	417	0.03	0.68
Diesel Water Truck	407	0.005	0.12
Diesel Highway Truck, 6X4	385	0.01	0.32
Diesel Dozer	333	0.06	1.67
Diesel Excavator	270	0.0006	0.01
Diesel Dump Truck	265	0.15	2.01
Diesel Agricultural Tractor, 4X4	235	0.03	0.35
Diesel Highway Tuck, 4X2	220	0.01	0.11
Diesel Grader	145	0.01	0.14
Diesel Mulcher	115	0.002	0.03
Diesel Roller, Vibratory	114	0.00004	0.005
Diesel Backhoe	87	0.0001	0.002
Diesel Agricultural Tractor, 4X2	83	0.004	0.05
Diesel Roller, Static	74	0.002	0.03
Diesel Water Pump	66	0.002	0.03
Diesel Agricultural Tractor, 4X2	45	0.002	0.01
Diesel Air Compressor	21	0.00006	0.0006
	TOTALS	**0.32**	**5.60**

Emissions Formula: (lbs/hp-hr) x (total hp-hr)/2000 = Tons

Table 6. Emission Calculations for Work Item 741-R, MO-AR State Line to St. Francis River Levee Part 2 (145/0+00 to 147/0+00), Crittenden County, Arkansas.

Work Item 741-R, MO-AR State Line to St. Francis River Levee Part 2 (145/0+00 to 147/0+00)

Combustible Emissions

Type of Construction Equipment	Horsepower	Hours	Total hp-hrs
Diesel Excavator	417	222	92574
Diesel Water Truck	407	42	17094
Diesel Highway Truck, 6X4	385	111	42735
Diesel Dozer	333	675	224775
Diesel Excavator	270	3	810
Diesel Dump Truck	265	1110	294150
Diesel Agricultural Tractor, 4X4	235	212	49820
Diesel Highway Tuck, 4X2	220	72	15840
Diesel Grader	145	162	23490
Diesel Mulcher	115	33	3795
Diesel Roller, Vibratory	114	1	114
Diesel Backhoe	87	2	174
Diesel Agricultural Tractor, 4X2	83	72	5976
Diesel Roller, Static	74	46	3404
Diesel Water Pump	66	52	3432
Diesel Agricultural Tractor, 4X2	45	98	4410
Diesel Air Compressor	21	3	63

Emission Factors

Type of Construction Equipment	Horsepower	VOC (g/hp-hr)	NOx (g/hp-hr)	VOC (lbs/hp-hr)	NOx (lbs/hp-hr)
Diesel Excavator	417	0.167	4.335	0.0004	0.0095
Diesel Water Truck	407	0.167	4.335	0.0004	0.0095
Diesel Highway Truck, 6X4	385	0.167	4.335	0.0004	0.0095
Diesel Dozer	333	0.167	4.335	0.0004	0.0095
Diesel Excavator	270	0.309	4	0.0007	0.0088
Diesel Dump Truck	265	0.309	4	0.0007	0.0088
Diesel Agricultural Tractor, 4X4	235	0.309	4	0.0007	0.0088
Diesel Highway Tuck, 4X2	220	0.309	4	0.0007	0.0088
Diesel Grader	145	0.338	4.1	0.0007	0.0090
Diesel Mulcher	115	0.338	4.1	0.0007	0.0090
Diesel Roller, Vibratory	114	0.338	4.1	0.0007	0.0090
Diesel Backhoe	87	0.367	4.7	0.0008	0.0103
Diesel Agricultural Tractor, 4X2	83	0.367	4.7	0.0008	0.0103
Diesel Roller, Static	74	0.367	4.7	0.0008	0.0103
Diesel Water Pump	66	0.367	4.7	0.0008	0.0103
Diesel Agricultural Tractor, 4X2	45	0.2789	4.7279	0.0006	0.0104
Diesel Air Compressor	21	0.438	4.4399	0.0010	0.0098

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model; assumed Tier 2 Technology Type values.

Total Calculated Emissions

Type of Construction Equipment	Horsepower	VOC (tons)	NOx (tons)
Diesel Excavator	417	0.02	0.44
Diesel Water Truck	407	0.003	0.08
Diesel Highway Truck, 6X4	385	0.01	0.20
Diesel Dozer	333	0.04	1.07
Diesel Excavator	270	0.003	0.004
Diesel Dump Truck	265	0.10	1.29
Diesel Agricultural Tractor, 4X4	235	0.02	0.22
Diesel Highway Tuck, 4X2	220	0.01	0.07
Diesel Grader	145	0.01	0.11
Diesel Mulcher	115	0.001	0.02
Diesel Roller, Vibratory	114	0.00004	0.0005
Diesel Backhoe	87	0.0001	0.001
Diesel Agricultural Tractor, 4X2	83	0.002	0.03
Diesel Roller, Static	74	0.001	0.02
Diesel Water Pump	66	0.001	0.02
Diesel Agricultural Tractor, 4X2	45	0.001	0.02
Diesel Air Compressor	21	0.00003	0.0003
	TOTALS	**0.21**	**3.60**

Emissions Formula: (lbs/hp-hr) x (total hp-hr)/2000 = Tons

Table 7. Emission Calculations for Work Item 747-R, MO-AR State Line to St. Francis River Levee Part 1 (134/0+00 to 138/0+00), Crittenden County, Arkansas.

Work Item 747-R, MO-AR State Line to St. Francis River Levee Part 1 (134/0+00 to 138/0+00)

Combustible Emissions

Type of Construction Equipment	Horsepower	Hours	Total hp-hrs
Diesel Excavator	417	130	54210
Diesel Water Truck	407	24	9768
Diesel Highway Truck, 6X4	385	65	25025
Diesel Dozer	333	420	139860
Diesel Excavator	270	2	540
Diesel Dump Truck	265	1042	276130
Diesel Agricultural Tractor, 4X4	235	127	29845
Diesel Highway Tuck, 4X2	220	48	10560
Diesel Grader	145	97	14065
Diesel Mulcher	115	22	2530
Diesel Roller, Vibratory	114	1	114
Diesel Backhoe	87	1	87
Diesel Agricultural Tractor, 4X2	83	48	3984
Diesel Roller, Static	74	29	2146
Diesel Water Pump	66	30	1980
Diesel Agricultural Tractor, 4X2	45	65	2925
Diesel Air Compressor	21	2	42

Emission Factors

Type of Construction Equipment	Horsepower	VOC (g/hp-hr)	NOx (g/hp-hr)	VOC (lbs/hp-hr)	NOx (lbs/hp-hr)
Diesel Excavator	417	0.167	4.335	0.0004	0.0095
Diesel Water Truck	407	0.167	4.335	0.0004	0.0095
Diesel Highway Truck, 6X4	385	0.167	4.335	0.0004	0.0095
Diesel Dozer	333	0.167	4.335	0.0004	0.0095
Diesel Excavator	270	0.309	4	0.0007	0.0088
Diesel Dump Truck	265	0.309	4	0.0007	0.0088
Diesel Agricultural Tractor, 4X4	235	0.309	4	0.0007	0.0088
Diesel Highway Tuck, 4X2	220	0.309	4	0.0007	0.0088
Diesel Grader	145	0.338	4.1	0.0007	0.0090
Diesel Mulcher	115	0.338	4.1	0.0007	0.0090
Diesel Roller, Vibratory	114	0.338	4.1	0.0007	0.0090
Diesel Backhoe	87	0.367	4.7	0.0008	0.0103
Diesel Agricultural Tractor, 4X2	83	0.367	4.7	0.0008	0.0103
Diesel Roller, Static	74	0.367	4.7	0.0008	0.0103
Diesel Water Pump	66	0.367	4.7	0.0008	0.0103
Diesel Agricultural Tractor, 4X2	45	0.2789	4.7279	0.0006	0.0104
Diesel Air Compressor	21	0.438	4.4399	0.0010	0.0098

Total Calculated Emissions

Type of Construction Equipment	Horsepower	VOC (tons)	NOx (tons)
Diesel Excavator	417	0.01	0.26
Diesel Water Truck	407	0.002	0.05
Diesel Highway Truck, 6X4	385	0.005	0.12
Diesel Dozer	333	0.03	0.67
Diesel Excavator	270	0.0002	0.002
Diesel Dump Truck	265	0.09	1.21
Diesel Agricultural Tractor, 4X4	235	0.01	0.13
Diesel Highway Tuck, 4X2	220	0.004	0.05
Diesel Grader	145	0.01	0.06
Diesel Mulcher	115	0.001	0.01
Diesel Roller, Vibratory	114	0.00004	0.001
Diesel Backhoe	87	0.00004	0.0004
Diesel Agricultural Tractor, 4X2	83	0.002	0.02
Diesel Roller, Static	74	0.001	0.01
Diesel Water Pump	66	0.001	0.01
Diesel Agricultural Tractor, 4X2	45	0.001	0.02
Diesel Air Compressor	21	0.00002	0.0002
	TOTALS	**0.16**	**2.62**

Emissions Formula: (lbs/hp-hr) x (total hp-hr)/2000 = Tons

A13-2 VICKSBURG DISTRICT

A13-2.1 All work items within the MVK are within areas classified as in attainment for air quality standards. Since all equipment used is classified as a mobile source and exempt from permitting requirements, no emission calculations were required.

A13-3 NEW ORLEANS DISTRICT

A13-3.1 Attachment 2: Emission Calculations for Work Items in Ascension Parish, Louisiana.

Marchand Levee Item 181-L
Ascension Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	8	10	13	1040
Diesel Heavy Roller	1	85	10	1	850
Diesel Bulldozer Levee	2	104	10	13	27040
Diesel Bulldozer Clearing	1	104	10	1	1040
Diesel Bulldozer Surfacing	1	104	10	1	1040
Diesel Tractor	1	110	10	13	14300
Diesel Excavator	1	153	10	1	1530
Diesel Grader	1	200	10	13	26000
Diesel Water Truck	1	270	10	13	35100
Diesel Dump Truck Levee	8	400	10	13	416000
Diesel Dump Truck Clearing	4	400	10	1	16000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.551	4.300	0.0012	0.0095
Diesel Heavy Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.309	4.000	0.0007	0.0088
Diesel Excavator	0.309	4.000	0.0007	0.0088
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.005
Diesel Heavy Roller		0.000	0.004
Diesel Bulldozer Levee		0.010	0.122
Diesel Bulldozer Clearing		0.000	0.005
Diesel Bulldozer Surfacing		0.000	0.005
Diesel Tractor		0.005	0.063
Diesel Excavator		0.001	0.007
Diesel Grader		0.009	0.114
Diesel Water Truck		0.012	0.154
Diesel Dump Truck Levee		0.076	1.984
Diesel Dump Truck Clearing		0.003	0.076
	TOTALS	0.117	2.539

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Marchand Levee Borrow Site
Ascension Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	2	138	10	13	35880
Diesel Bulldozer Clearing	1	138	10	17	23460
Diesel Excavator	12	153	10	13	238680
Diesel Dump Truck	2	400	10	20	160000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.013	0.162
Diesel Bulldozer Clearing		0.009	0.106
Diesel Excavator		0.089	1.076
Diesel Dump Truck Clearing		0.029	0.763
	TOTALS	0.142	2.125

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

ABLD-1 Item 180-R
Ascension Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	2	8	10	29	4640
Diesel Bulldozer Levee	4	104	10	29	120640
Diesel Bulldozer Clearing	1	104	10	10	10400
Diesel Tractor	2	110	10	29	63800
Diesel Excavator	1	153	10	10	15300
Diesel Grader	2	200	10	29	116000
Diesel Water Truck	2	270	10	29	156600
Diesel Dump Truck Levee	16	400	10	29	1856000
Diesel Dump Truck Clearing	4	400	10	10	160000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.003	0.022
Diesel Bulldozer Levee		0.045	0.544
Diesel Bulldozer Clearing		0.004	0.047
Diesel Tractor		0.024	0.288
Diesel Excavator		0.006	0.069
Diesel Grader		0.039	0.510
Diesel Water Truck		0.053	0.689
Diesel Dump Truck Levee		0.341	8.850
Diesel Dump Truck Clearing		0.029	0.763
	TOTALS	0.544	11.782

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

ABLD-1 180 Levee Item 180-R
Road Construction Portion
Ascension Parish, Louisiana

Table 1
Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	15	12750
Diesel Compactor/Roller	1	85	10	1	850
Diesel Static Roller	1	101	10	5	5050
Diesel Bulldozer Aggregate	1	104	10	15	15600
Diesel Bulldozer Sand	1	104	10	7	7280
Diesel Bulldozer Surfacing	1	104	10	1	1040
Diesel Vibratory Roller	1	131	10	5	6550
Diesel Excavator	2	153	10	58	177480
Diesel Asphalt Paver	1	225	10	5	11250
Diesel Dump Truck	2	400	10	58	464000

Table 2
Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.005	0.066
Diesel Compactor/Roller		0.000	0.004
Diesel Static Roller		0.002	0.023
Diesel Bulldozer Aggregate		0.006	0.070
Diesel Bulldozer Sand		0.003	0.033
Diesel Bulldozer Surfacing		0.000	0.005
Diesel Vibratory Roller		0.002	0.030
Diesel Excavator		0.066	0.800
Diesel Asphalt Paver		0.004	0.050
Diesel Dump Truck		0.085	2.213
	TOTALS	0.174	3.293

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Smoke Bend Levee Item 178-R
Ascension Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	1	8	10	111	8880
Diesel Bulldozer Levee	2	104	10	111	230880
Diesel Bulldozer Clearing	1	104	10	50	52000
Diesel Tractor	1	110	10	111	122100
Diesel Excavator	1	153	10	50	76500
Diesel Grader	1	200	10	111	222000
Diesel Water Truck	1	270	10	111	299700
Diesel Dump Truck Levee	8	400	10	111	3552000
Diesel Dump Truck Clearing	1	400	10	50	200000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.005	0.042
Diesel Bulldozer Levee		0.086	1.041
Diesel Bulldozer Clearing		0.019	0.235
Diesel Tractor		0.045	0.551
Diesel Excavator		0.028	0.345
Diesel Grader		0.075	0.977
Diesel Water Truck		0.102	1.319
Diesel Dump Truck Levee		0.653	16.938
Diesel Dump Truck Clearing		0.037	0.954
	TOTALS	1.051	22.400

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Smoke Bend Levee 178-R
Road Construction Portion
Ascension Parish, Louisiana

Table 1
Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	67	56950
Diesel Compactor/Roller	1	85	10	6	5100
Diesel Static Roller	1	101	10	21	21210
Diesel Bulldozer Aggregate	1	104	10	67	69680
Diesel Bulldozer Sand	1	104	10	30	31200
Diesel Bulldozer Surfacing	1	104	10	6	6240
Diesel Vibratory Roller	1	131	10	21	27510
Diesel Excavator	1	153	10	135	206550
Diesel Asphalt Paver	1	225	10	21	47250
Diesel Dump Truck	2	400	10	135	1080000

Table 2
Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.023	0.294
Diesel Compactor/Roller		0.002	0.026
Diesel Static Roller		0.008	0.096
Diesel Bulldozer Aggregate		0.026	0.314
Diesel Bulldozer Sand		0.012	0.141
Diesel Bulldozer Surfacing		0.002	0.028
Diesel Vibratory Roller		0.010	0.124
Diesel Excavator		0.077	0.932
Diesel Asphalt Paver		0.016	0.208
Diesel Dump Truck		0.198	5.150
	TOTALS	0.374	7.313

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Smoke Bend Levee Borrow Site Item 178-R
Ascension Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	53	73140
Diesel Bulldozer Clearing	1	138	10	111	153180
Diesel Excavator	1	153	10	49	74970
Diesel Excavator	2	153	10	111	339660
Diesel Dump Truck	2	400	10	20	160000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.027	0.330
Diesel Bulldozer Clearing		0.057	0.691
Diesel Excavator		0.028	0.338
Diesel Excavator		0.126	1.532
Diesel Dump Truck Clearing		0.029	0.763
	TOTALS	0.269	3.671

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Stella Landing Levee 173.9-R
Ascension Parish, Louisiana

Table 1
Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	8	10	9	720
Diesel Heavy Roller	1	85	10	1	850
Diesel Bulldozer Levee	2	104	10	9	18720
Diesel Bulldozer Clearing	2	104	10	1	2080
Diesel Tractor	1	110	10	9	9900
Diesel Excavator	1	153	10	1	1530
Diesel Grader	1	200	10	9	18000
Diesel Water Truck	1	270	10	9	24300
Diesel Dump Truck Levee	8	400	10	9	288000
Diesel Dump Truck Clearing	4	400	10	1	16000

Table 2
Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.551	4.300	0.0012	0.0095
Diesel Heavy Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.000	0.003
Diesel Heavy Roller		0.000	0.004
Diesel Bulldozer Levee		0.007	0.084
Diesel Bulldozer Clearing		0.001	0.009
Diesel Tractor		0.004	0.045
Diesel Excavator		0.001	0.007
Diesel Grader		0.006	0.079
Diesel Water Truck		0.008	0.107
Diesel Dump Truck Levee		0.053	1.373
Diesel Dump Truck Clearing		0.003	0.076
	TOTALS	0.083	1.789

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Aben Levee 172.6-R
Ascension Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	2	8	10	37	5920
Diesel Bulldozer Levee	4	104	10	37	153920
Diesel Bulldozer Clearing	1	104	10	20	20800
Diesel Tractor	2	110	10	37	81400
Diesel Excavator	1	153	10	20	30600
Diesel Grader	2	200	10	37	148000
Diesel Water Truck	2	270	10	37	199800
Diesel Dump Truck Levee	16	400	10	37	2368000
Diesel Dump Truck Clearing	1	400	10	20	80000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.004	0.028
Diesel Bulldozer Levee		0.057	0.694
Diesel Bulldozer Clearing		0.008	0.094
Diesel Tractor		0.030	0.367
Diesel Excavator		0.011	0.138
Diesel Grader		0.050	0.651
Diesel Water Truck		0.068	0.879
Diesel Dump Truck Levee		0.435	11.292
Diesel Dump Truck Clearing		0.015	0.381
	TOTALS	0.678	14.525

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Aben Levee 172.6-R
Road Construction Portion
Ascension Parish, Louisiana

Table 1
Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	33	28050
Diesel Compactor/Roller	1	85	10	6	5100
Diesel Static Roller	1	101	10	10	10100
Diesel Bulldozer Aggregate	1	104	10	33	34320
Diesel Bulldozer Sand	1	104	10	15	15600
Diesel Bulldozer Surfacing	1	104	10	6	6240
Diesel Vibratory Roller	1	131	10	10	13100
Diesel Excavator	2	153	10	65	198900
Diesel Asphalt Paver	1	225	10	10	22500
Diesel Dump Truck	2	400	10	65	520000

Table 2
Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.011	0.145
Diesel Compactor/Roller		0.002	0.026
Diesel Static Roller		0.004	0.046
Diesel Bulldozer Aggregate		0.013	0.155
Diesel Bulldozer Sand		0.006	0.070
Diesel Bulldozer Surfacing		0.002	0.028
Diesel Vibratory Roller		0.005	0.059
Diesel Excavator		0.074	0.897
Diesel Asphalt Paver		0.008	0.099
Diesel Dump Truck		0.096	2.480
	TOTALS	0.220	4.005

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

A13-3.2 Attachment 3: Emission Calculations for Work Items in East Baton Rouge Parish, Louisiana

Ben Hur Road Levee Item 217.6-L
East Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	1	8	10	9	720
Diesel Compactor Roller	1	85	10	1	850
Diesel Bulldozer Levee	2	104	10	9	18720
Diesel Bulldozer Clearing	1	104	10	1	1040
Diesel Bulldozer Surfacing	1	104	10	1	1040
Diesel Tractor	1	110	10	9	9900
Diesel Excavator	1	153	10	1	1530
Diesel Grader	1	200	10	9	18000
Diesel Water Truck	1	270	10	9	24300
Diesel Dump Truck Levee	8	400	10	9	288000
Diesel Dump Truck Clearing	1	400	10	1	4000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Compactor Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095
Convert grams to pounds: (g)x(.0022) = lbs				
Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010				

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment	VOC tons/yr	NOx tons/yr	
Diesel Compactor Roller	0.000	0.003	
Diesel Compactor Roller	0.000	0.004	
Diesel Bulldozer Levee	0.007	0.084	
Diesel Bulldozer Clearing	0.000	0.005	
Diesel Bulldozer Surfacing	0.000	0.005	
Diesel Tractor	0.004	0.045	
Diesel Excavator	0.001	0.007	
Diesel Grader	0.006	0.079	
Diesel Water Truck	0.008	0.107	
Diesel Dump Truck Levee	0.053	1.373	
Diesel Dump Truck Clearing	0.001	0.019	
TOTALS	0.081	1.732	

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Ben Hur Road Levee Item 217.6-L Borrow Site
East Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	16	22080
Diesel Bulldozer Clearing	2	138	10	9	24840
Diesel Excavator	1	153	10	12	18360
Diesel Excavator	1	153	10	9	13770
Diesel Dump Truck	2	400	10	1	8000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.008	0.100
Diesel Bulldozer Clearing		0.009	0.112
Diesel Excavator		0.007	0.083
Diesel Excavator		0.005	0.062
Diesel Dump Truck Clearing		0.001	0.038
	TOTALS	0.032	0.412

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

A13-3.3 Attachment 4: Emission Calculations for Work Items in West Baton Rouge Parish, Louisiana

Arbroth Levee Enlargement Item 253-R
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	1	8	10	20	1600
Diesel Compactor Roller	1	85	10	1	850
Diesel Bulldozer Levee	2	104	10	20	41600
Diesel Bulldozer Clearing	1	104	10	1	1040
Diesel Bulldozer Surfacing	1	104	10	1	1040
Diesel Tractor	1	110	10	20	22000
Diesel Excavator	1	153	10	1	1530
Diesel Grader	1	200	10	20	40000
Diesel Water Truck	1	270	10	20	54000
Diesel Dump Truck Levee	8	400	10	20	640000
Diesel Dump Truck Clearing	4	400	10	1	16000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Compactor Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions		
Type of Construction Equipment	VOC tons/yr	NOx tons/yr
Diesel Compactor Roller	0.001	0.008
Diesel Compactor Roller	0.000	0.004
Diesel Bulldozer Levee	0.015	0.188
Diesel Bulldozer Clearing	0.000	0.005
Diesel Bulldozer Surfacing	0.000	0.005
Diesel Tractor	0.008	0.099
Diesel Excavator	0.001	0.007
Diesel Grader	0.014	0.176
Diesel Water Truck	0.018	0.238
Diesel Dump Truck Levee	0.118	3.052
Diesel Dump Truck Clearing	0.003	0.076
TOTALS	0.179	3.857

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Smithfield Levee Enlargement Item 246-R
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	1	8	10	20	1600
Diesel Bulldozer Levee	2	104	10	20	41600
Diesel Bulldozer Clearing	1	104	10	9	9360
Diesel Tractor	1	110	10	20	22000
Diesel Excavator	1	153	10	9	13770
Diesel Grader	1	200	10	20	40000
Diesel Water Truck	1	270	10	20	54000
Diesel Dump Truck Levee	8	400	10	20	640000
Diesel Dump Truck Clearing	4	400	10	9	144000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.001	0.008
Diesel Bulldozer Levee		0.015	0.188
Diesel Bulldozer Clearing		0.003	0.042
Diesel Tractor		0.008	0.099
Diesel Excavator		0.005	0.062
Diesel Grader		0.014	0.176
Diesel Water Truck		0.018	0.238
Diesel Dump Truck Levee		0.118	3.052
Diesel Dump Truck Clearing		0.026	0.687
	TOTALS	0.209	4.551

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Smithfield Levee Enlargement Item 246-R
Road Construction Portion
West Baton Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	11	9350
Diesel Compactor/Roller	1	85	10	2	1700
Diesel Static Roller	1	101	10	4	4040
Diesel Bulldozer Aggregate	1	104	10	11	11440
Diesel Bulldozer Sand	1	104	10	5	5200
Diesel Bulldozer Surfacing	1	104	10	2	2080
Diesel Vibratory Roller	1	131	10	4	5240
Diesel Excavator	2	153	10	22	67320
Diesel Asphalt Paver	1	225	10	4	9000
Diesel Dump Truck	2	400	10	22	176000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.004	0.048
Diesel Compactor/Roller		0.001	0.009
Diesel Static Roller		0.002	0.018
Diesel Bulldozer Aggregate		0.004	0.052
Diesel Bulldozer Sand		0.002	0.023
Diesel Bulldozer Surfacing		0.001	0.009
Diesel Vibratory Roller		0.002	0.024
Diesel Excavator		0.025	0.304
Diesel Asphalt Paver		0.003	0.040
Diesel Dump Truck		0.032	0.839
	TOTALS	0.075	1.366

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Fancy Point Levee Item 242.5-R
West Baton Rouge Parish, Louisiana

Table 1
Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	2	8	10	119	19040
Diesel Bulldozer Levee	4	104	10	119	495040
Diesel Bulldozer Clearing	1	104	10	57	59280
Diesel Tractor	2	110	10	119	261800
Diesel Excavator	1	153	10	57	87210
Diesel Grader	2	200	10	119	476000
Diesel Water Truck	2	270	10	119	642600
Diesel Dump Truck Levee	16	400	10	119	7616000
Diesel Dump Truck Clearing	1	400	10	57	228000

Table 2
Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.012	0.090
Diesel Bulldozer Levee		0.184	2.233
Diesel Bulldozer Clearing		0.022	0.267
Diesel Tractor		0.097	1.181
Diesel Excavator		0.032	0.393
Diesel Grader		0.162	2.094
Diesel Water Truck		0.218	2.827
Diesel Dump Truck Levee		1.399	36.317
Diesel Dump Truck Clearing		0.042	1.087
	TOTALS	2.169	46.490

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Fancy Point Levee Item 242.5-R
Road Construction Portion
West Baton Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	59	50150
Diesel Compactor/Roller	1	85	10	6	5100
Diesel Static Roller	1	101	10	19	19190
Diesel Bulldozer Aggregate	1	104	10	59	61360
Diesel Bulldozer Sand	1	104	10	26	27040
Diesel Bulldozer Surfacing	1	104	10	6	6240
Diesel Vibratory Roller	1	131	10	19	24890
Diesel Excavator	2	153	10	38	116280
Diesel Asphalt Paver	1	225	10	19	42750
Diesel Dump Truck	2	400	10	38	304000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.020	0.259
Diesel Compactor/Roller		0.002	0.026
Diesel Static Roller		0.007	0.087
Diesel Bulldozer Aggregate		0.023	0.277
Diesel Bulldozer Sand		0.010	0.122
Diesel Bulldozer Surfacing		0.002	0.028
Diesel Vibratory Roller		0.009	0.112
Diesel Excavator		0.043	0.524
Diesel Asphalt Paver		0.015	0.188
Diesel Dump Truck		0.056	1.450
	TOTALS	0.187	3.073

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Thomas Point Levee Item 240.3-R
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	1	8	10	32	2560
Diesel Bulldozer Levee	2	104	10	32	66560
Diesel Bulldozer Clearing	1	104	10	14	14560
Diesel Tractor	1	110	10	32	35200
Diesel Excavator	1	153	10	14	21420
Diesel Grader	1	200	10	32	64000
Diesel Water Truck	1	270	10	32	86400
Diesel Dump Truck Levee	8	400	10	32	1024000
Diesel Dump Truck Clearing	1	400	10	14	56000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.002	0.012
Diesel Bulldozer Levee		0.025	0.300
Diesel Bulldozer Clearing		0.005	0.066
Diesel Tractor		0.013	0.159
Diesel Excavator		0.008	0.097
Diesel Grader		0.022	0.282
Diesel Water Truck		0.029	0.380
Diesel Dump Truck Levee		0.188	4.883
Diesel Dump Truck Clearing		0.010	0.267
	TOTALS	0.302	6.445

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Thomas Point Levee Item 240.3-R
Road Construction Portion
West Baton Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	16	13600
Diesel Compactor/Roller	1	85	10	2	1700
Diesel Static Roller	1	101	10	5	5050
Diesel Bulldozer Aggregate	1	104	10	16	16640
Diesel Bulldozer Sand	1	104	10	7	7280
Diesel Bulldozer Surfacing	1	104	10	2	2080
Diesel Vibratory Roller	1	131	10	5	6550
Diesel Excavator	2	153	10	32	97920
Diesel Asphalt Paver	1	225	10	5	11250
Diesel Dump Truck	2	400	10	32	256000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions		
Type of Construction Equipment	VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller	0.005	0.070
Diesel Compactor/Roller	0.001	0.009
Diesel Static Roller	0.002	0.023
Diesel Bulldozer Aggregate	0.006	0.075
Diesel Bulldozer Sand	0.003	0.033
Diesel Bulldozer Surfacing	0.001	0.009
Diesel Vibratory Roller	0.002	0.030
Diesel Excavator	0.036	0.442
Diesel Asphalt Paver	0.004	0.050
Diesel Dump Truck	0.047	1.221
TOTALS	0.107	1.961

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Thomas Point Levee Item 240.3-R Borrow Site
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	19	26220
Diesel Bulldozer Clearing	2	138	10	32	88320
Diesel Excavator	1	153	10	15	22950
Diesel Excavator	1	153	10	32	48960
Diesel Dump Truck	2	400	10	2	16000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.010	0.118
Diesel Bulldozer Clearing		0.033	0.398
Diesel Excavator		0.009	0.104
Diesel Excavator		0.018	0.221
Diesel Dump Truck Clearing		0.003	0.076
	TOTALS	0.074	0.935

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Port Allen Levee Item 231-R
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	2	8	10	90	14400
Diesel Bulldozer Levee	4	104	10	90	374400
Diesel Bulldozer Clearing	1	104	10	39	40560
Diesel Tractor	2	110	10	90	198000
Diesel Excavator	1	153	10	39	59670
Diesel Grader	2	200	10	90	360000
Diesel Water Truck	2	270	10	90	486000
Diesel Dump Truck Levee	16	400	10	90	5760000
Diesel Dump Truck Clearing	1	400	10	39	156000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.009	0.068
Diesel Bulldozer Levee		0.139	1.689
Diesel Bulldozer Clearing		0.015	0.183
Diesel Tractor		0.074	0.893
Diesel Excavator		0.022	0.269
Diesel Grader		0.122	1.584
Diesel Water Truck		0.165	2.138
Diesel Dump Truck Levee		1.058	27.467
Diesel Dump Truck Clearing		0.029	0.744
	TOTALS	1.633	35.035

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Port Allen Levee Item 231-R
Road Construction Portion
West Baton Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	51	43350
Diesel Compactor/Roller	1	85	10	5	4250
Diesel Static Roller	1	101	10	16	16160
Diesel Bulldozer Aggregate	1	104	10	51	53040
Diesel Bulldozer Sand	1	104	10	23	23920
Diesel Bulldozer Surfacing	1	104	10	5	5200
Diesel Vibratory Roller	1	131	10	16	20960
Diesel Excavator	2	153	10	48	146880
Diesel Asphalt Paver	1	225	10	16	36000
Diesel Dump Truck	2	400	10	48	384000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.018	0.224
Diesel Compactor/Roller		0.002	0.022
Diesel Static Roller		0.006	0.073
Diesel Bulldozer Aggregate		0.020	0.239
Diesel Bulldozer Sand		0.009	0.108
Diesel Bulldozer Surfacing		0.002	0.023
Diesel Vibratory Roller		0.008	0.095
Diesel Excavator		0.055	0.662
Diesel Asphalt Paver		0.012	0.158
Diesel Dump Truck		0.071	1.831
	TOTALS	0.201	3.436

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Port Allen Levee Item 231-R Borrow Site
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	47	64860
Diesel Bulldozer Clearing	4	138	10	90	496800
Diesel Excavator	1	153	10	43	65790
Diesel Excavator	2	153	10	90	275400
Diesel Dump Truck	2	400	10	13	104000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.024	0.293
Diesel Bulldozer Clearing		0.185	2.241
Diesel Excavator		0.024	0.297
Diesel Excavator		0.102	1.242
Diesel Dump Truck Clearing		0.019	0.496
	TOTALS	0.356	4.585

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Port Allen Lock Levee Item 228-R
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	1	8	10	3	240
Diesel Bulldozer Levee	2	104	10	3	6240
Diesel Bulldozer Clearing	1	104	10	1	1040
Diesel Tractor	1	110	10	3	3300
Diesel Excavator	1	153	10	1	1530
Diesel Grader	1	200	10	3	6000
Diesel Water Truck	1	270	10	3	8100
Diesel Dump Truck Levee	8	400	10	3	96000
Diesel Dump Truck Clearing	4	400	10	1	16000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.000	0.001
Diesel Bulldozer Levee		0.002	0.028
Diesel Bulldozer Clearing		0.000	0.005
Diesel Tractor		0.001	0.015
Diesel Excavator		0.001	0.007
Diesel Grader		0.002	0.026
Diesel Water Truck		0.003	0.036
Diesel Dump Truck Levee		0.018	0.458
Diesel Dump Truck Clearing		0.003	0.076
	TOTALS	0.030	0.652

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Addis Levee Item 223-R
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	1	8	10	20	1600
Diesel Compactor Roller	1	85	10	1	850
Diesel Bulldozer Levee	2	104	10	20	41600
Diesel Bulldozer Clearing	1	104	10	6	6240
Diesel Bulldozer Surfacing	1	104	10	1	1040
Diesel Tractor	1	110	10	20	22000
Diesel Excavator	1	153	10	6	9180
Diesel Grader	1	200	10	20	40000
Diesel Water Truck	1	270	10	20	54000
Diesel Dump Truck Levee	8	400	10	20	640000
Diesel Dump Truck Clearing	4	400	10	6	96000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Compactor Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.001	0.008
Diesel Compactor Roller		0.000	0.004
Diesel Bulldozer Levee		0.015	0.188
Diesel Bulldozer Clearing		0.002	0.028
Diesel Bulldozer Surfacing		0.000	0.005
Diesel Tractor		0.008	0.099
Diesel Excavator		0.003	0.041
Diesel Grader		0.014	0.176
Diesel Water Truck		0.018	0.238
Diesel Dump Truck Levee		0.118	3.052
Diesel Dump Truck Clearing		0.018	0.458
	TOTALS	0.198	4.296

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Morrisonville Levee 216-R
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	2	8	10	95	15200
Diesel Bulldozer Levee	4	104	10	95	395200
Diesel Bulldozer Clearing	1	104	10	37	38480
Diesel Tractor	2	110	10	95	209000
Diesel Excavator	1	153	10	37	56610
Diesel Grader	2	200	10	95	380000
Diesel Water Truck	2	270	10	95	513000
Diesel Dump Truck Levee	16	400	10	95	6080000
Diesel Dump Truck Clearing	1	400	10	37	148000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.009	0.072
Diesel Bulldozer Levee		0.147	1.782
Diesel Bulldozer Clearing		0.014	0.174
Diesel Tractor		0.078	0.943
Diesel Excavator		0.021	0.255
Diesel Grader		0.129	1.672
Diesel Water Truck		0.174	2.257
Diesel Dump Truck Levee		1.117	28.992
Diesel Dump Truck Clearing		0.027	0.706
	TOTALS	1.717	36.853

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Morrisonville Levee Item 216-R
Road Construction Portion
West Baton Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	58	49300
Diesel Compactor/Roller	1	85	10	6	5100
Diesel Static Roller	1	101	10	17	17170
Diesel Bulldozer Aggregate	1	104	10	58	60320
Diesel Bulldozer Sand	1	104	10	26	27040
Diesel Bulldozer Surfacing	1	104	10	6	6240
Diesel Vibratory Roller	1	131	10	17	22270
Diesel Excavator	2	153	10	115	351900
Diesel Asphalt Paver	1	225	10	17	38250
Diesel Dump Truck	2	400	10	115	920000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.020	0.255
Diesel Compactor/Roller		0.002	0.026
Diesel Static Roller		0.006	0.077
Diesel Bulldozer Aggregate		0.022	0.272
Diesel Bulldozer Sand		0.010	0.122
Diesel Bulldozer Surfacing		0.002	0.028
Diesel Vibratory Roller		0.008	0.100
Diesel Excavator		0.131	1.587
Diesel Asphalt Paver		0.013	0.168
Diesel Dump Truck		0.169	4.387
	TOTALS	0.384	7.024

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr
NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Morrisonville Levee Item 216-R Borrow Site
West Baton Rouge Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	49	67620
Diesel Bulldozer Clearing	4	138	10	95	524400
Diesel Excavator	1	153	10	45	68850
Diesel Excavator	2	153	10	95	290700
Diesel Dump Truck	2	400	10	14	112000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.025	0.305
Diesel Bulldozer Clearing		0.195	2.365
Diesel Excavator		0.026	0.311
Diesel Excavator		0.108	1.311
Diesel Dump Truck Clearing		0.021	0.534
	TOTALS	0.376	4.843

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

A13-3.4 Attachment 5: Emission Calculations for Work Items in Iberville Parish, Louisiana

Plaquemines Point Berm & Wells, Item 208-L
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	2	8	10	52	8320
Diesel Bulldozer Levee	4	104	10	52	216320
Diesel Bulldozer Clearing	1	104	10	24	24960
Diesel Tractor	2	110	10	52	114400
Diesel Excavator	1	153	10	24	36720
Diesel Grader	2	200	10	52	208000
Diesel Water Truck	2	270	10	52	280800
Diesel Dump Truck Levee	16	400	10	52	3328000
Diesel Dump Truck Clearing	4	400	10	24	384000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.005	0.039
Diesel Bulldozer Levee		0.080	0.976
Diesel Bulldozer Clearing		0.009	0.113
Diesel Tractor		0.043	0.516
Diesel Excavator		0.014	0.166
Diesel Grader		0.071	0.915
Diesel Water Truck		0.095	1.236
Diesel Dump Truck Levee		0.611	15.870
Diesel Dump Truck Clearing		0.071	1.831
	TOTALS	0.999	21.660

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Plaquemines Pt. Berm&Wells Item 208-L
Road Construction Portion
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	20	17000
Diesel Static Roller	1	101	10	7	7070
Diesel Bulldozer Aggregate	1	104	10	20	20800
Diesel Bulldozer Sand	1	104	10	9	9360
Diesel Vibratory Roller	1	131	10	7	9170
Diesel Excavator	2	153	10	39	119340
Diesel Asphalt Paver	1	225	10	7	15750
Diesel Dump Truck	2	400	10	39	312000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.007	0.088
Diesel Static Roller		0.003	0.032
Diesel Bulldozer Aggregate		0.008	0.094
Diesel Bulldozer Sand		0.003	0.042
Diesel Vibratory Roller		0.003	0.041
Diesel Excavator		0.044	0.538
Diesel Asphalt Paver		0.005	0.069
Diesel Dump Truck		0.057	1.488
	TOTALS	0.131	2.392

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Plaquemines Point Berm and/or Wells Item 208-L Borrow Site
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	47	64860
Diesel Bulldozer Clearing	4	138	10	52	287040
Diesel Excavator	1	153	10	45	68850
Diesel Excavator	2	153	10	52	159120
Diesel Dump Truck	2	400	10	7	56000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.024	0.293
Diesel Bulldozer Clearing		0.107	1.295
Diesel Excavator		0.026	0.311
Diesel Excavator		0.059	0.718
Diesel Dump Truck Clearing		0.010	0.267
	TOTALS	0.227	2.900

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Plaquemine/Reveille, Item 206.7-R
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	2	8	10	37	5920
Diesel Bulldozer Levee	4	104	10	37	153920
Diesel Bulldozer Clearing	1	104	10	33	34320
Diesel Tractor	2	110	10	37	81400
Diesel Excavator	1	153	10	33	50490
Diesel Grader	2	200	10	37	148000
Diesel Water Truck	2	270	10	37	199800
Diesel Dump Truck Levee	16	400	10	37	2368000
Diesel Dump Truck Clearing	1	400	10	33	132000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.004	0.028
Diesel Bulldozer Levee		0.057	0.694
Diesel Bulldozer Clearing		0.013	0.155
Diesel Tractor		0.030	0.367
Diesel Excavator		0.019	0.228
Diesel Grader		0.050	0.651
Diesel Water Truck		0.068	0.879
Diesel Dump Truck Levee		0.435	11.292
Diesel Dump Truck Clearing		0.024	0.629
	TOTALS	0.700	14.923

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Plaquemine Reveille Levee 206.7-R
Road Construction Portion
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	56	47600
Diesel Compactor/Roller	1	85	10	6	5100
Diesel Static Roller	1	101	10	17	17170
Diesel Bulldozer Aggregate	1	104	10	56	58240
Diesel Bulldozer Sand	1	104	10	25	26000
Diesel Bulldozer Surfacing	1	104	10	6	6240
Diesel Vibratory Roller	1	131	10	17	22270
Diesel Excavator	2	153	10	110	336600
Diesel Asphalt Paver	1	225	10	17	38250
Diesel Dump Truck	2	400	10	110	880000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.019	0.246
Diesel Compactor/Roller		0.002	0.026
Diesel Static Roller		0.006	0.077
Diesel Bulldozer Aggregate		0.022	0.263
Diesel Bulldozer Sand		0.010	0.117
Diesel Bulldozer Surfacing		0.002	0.028
Diesel Vibratory Roller		0.008	0.100
Diesel Excavator		0.125	1.518
Diesel Asphalt Paver		0.013	0.168
Diesel Dump Truck		0.162	4.196
	TOTALS	0.369	6.741

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Plaquemine/Reveille Borrow Site Item 206.7-R
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	27	37260
Diesel Bulldozer Clearing	4	138	10	37	204240
Diesel Excavator	1	153	10	23	35190
Diesel Excavator	2	153	10	37	113220
Diesel Dump Truck	2	400	10	5	40000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.014	0.168
Diesel Bulldozer Clearing		0.076	0.921
Diesel Excavator		0.013	0.159
Diesel Excavator		0.042	0.511
Diesel Dump Truck Clearing		0.007	0.191
	TOTALS	0.154	1.967

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Lower Plaquemines Point, Item 199-L
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	2	8	10	148	23680
Diesel Bulldozer Levee	4	104	10	148	615680
Diesel Bulldozer Clearing	1	104	10	93	96720
Diesel Tractor	2	110	10	148	325600
Diesel Excavator	1	153	10	93	142290
Diesel Grader	2	200	10	148	592000
Diesel Water Truck	2	270	10	148	799200
Diesel Dump Truck Levee	16	400	10	148	9472000
Diesel Dump Truck Clearing	1	400	10	93	372000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.014	0.112
Diesel Bulldozer Levee		0.229	2.777
Diesel Bulldozer Clearing		0.036	0.436
Diesel Tractor		0.121	1.468
Diesel Excavator		0.053	0.642
Diesel Grader		0.201	2.605
Diesel Water Truck		0.272	3.516
Diesel Dump Truck Levee		1.740	45.167
Diesel Dump Truck Clearing		0.068	1.774
	TOTALS	2.734	58.498

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Lower Plaquemine Point Levee Item 199-L
Road Construction Portion
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	113	96050
Diesel Compactor/Roller	1	85	10	11	9350
Diesel Static Roller	1	101	10	35	35350
Diesel Bulldozer Aggregate	1	104	10	113	117520
Diesel Bulldozer Sand	1	104	10	50	52000
Diesel Bulldozer Surfacing	1	104	10	11	11440
Diesel Vibratory Roller	1	131	10	35	45850
Diesel Excavator	2	153	10	21	64260
Diesel Asphalt Paver	1	225	10	35	78750
Diesel Dump Truck	2	400	10	113	904000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.039	0.497
Diesel Compactor/Roller		0.004	0.048
Diesel Static Roller		0.013	0.159
Diesel Bulldozer Aggregate		0.044	0.530
Diesel Bulldozer Sand		0.019	0.235
Diesel Bulldozer Surfacing		0.004	0.052
Diesel Vibratory Roller		0.017	0.207
Diesel Excavator		0.024	0.290
Diesel Asphalt Paver		0.027	0.347
Diesel Dump Truck		0.166	4.311
	TOTALS	0.357	6.674

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Lower Plaquemines Point Item 199-L Borrow Site
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	65	89700
Diesel Bulldozer Clearing	4	138	10	148	816960
Diesel Excavator	1	153	10	61	93330
Diesel Excavator	2	153	10	148	452880
Diesel Dump Truck	2	400	10	21	168000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.033	0.405
Diesel Bulldozer Clearing		0.304	3.684
Diesel Excavator		0.035	0.421
Diesel Excavator		0.168	2.042
Diesel Dump Truck Clearing		0.031	0.801
	TOTALS	0.572	7.371

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Bayou Goula to Alhambra Levee Item 194.5-R
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	2	8	10	18	2880
Diesel Bulldozer Levee	4	104	10	18	74880
Diesel Bulldozer Clearing	1	104	10	8	8320
Diesel Tractor	2	110	10	18	39600
Diesel Excavator	1	153	10	8	12240
Diesel Grader	2	200	10	18	72000
Diesel Water Truck	2	270	10	18	97200
Diesel Dump Truck Levee	16	400	10	18	1152000
Diesel Dump Truck Clearing	1	400	10	8	32000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.002	0.014
Diesel Bulldozer Levee		0.028	0.338
Diesel Bulldozer Clearing		0.003	0.038
Diesel Tractor		0.015	0.179
Diesel Excavator		0.005	0.055
Diesel Grader		0.024	0.317
Diesel Water Truck		0.033	0.428
Diesel Dump Truck Levee		0.212	5.493
Diesel Dump Truck Clearing		0.006	0.153
	TOTALS	0.327	7.013

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Bayou Goula to Alhambra Road Construction Item 194.5-R
Road Construction Portion
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	14	11900
Diesel Compactor/Roller	1	85	10	2	1700
Diesel Static Roller	1	101	10	5	5050
Diesel Bulldozer Aggregate	1	104	10	14	14560
Diesel Bulldozer Sand	1	104	10	6	6240
Diesel Bulldozer Surfacing	1	104	10	2	2080
Diesel Vibratory Roller	1	131	10	5	6550
Diesel Excavator	2	153	10	28	85680
Diesel Asphalt Paver	1	225	10	5	11250
Diesel Dump Truck	2	400	10	28	224000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.005	0.062
Diesel Compactor/Roller		0.001	0.009
Diesel Static Roller		0.002	0.023
Diesel Bulldozer Aggregate		0.005	0.066
Diesel Bulldozer Sand		0.002	0.028
Diesel Bulldozer Surfacing		0.001	0.009
Diesel Vibratory Roller		0.002	0.030
Diesel Excavator		0.032	0.386
Diesel Asphalt Paver		0.004	0.050
Diesel Dump Truck		0.041	1.068
	TOTALS	0.095	1.730

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Bayou Goula to Alhambra Borrow Site Item 194.5-R
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	22	30360
Diesel Bulldozer Clearing	1	138	10	18	24840
Diesel Excavator	3	153	10	18	82620
Diesel Dump Truck	2	400	10	3	24000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.011	0.137
Diesel Bulldozer Clearing		0.009	0.112
Diesel Excavator		0.031	0.373
Diesel Dump Truck Clearing		0.004	0.114
	TOTALS	0.057	0.754

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Carville Levee Item 189-L
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	1	8	10	23	1840
Diesel Compactor Roller	1	85	10	2	1700
Diesel Bulldozer Levee	2	104	10	23	47840
Diesel Bulldozer Clearing	1	104	10	11	11440
Diesel Bulldozer Surfacing	1	104	10	2	2080
Diesel Tractor	1	110	10	23	25300
Diesel Excavator	1	153	10	11	16830
Diesel Grader	1	200	10	23	46000
Diesel Water Truck	1	270	10	23	62100
Diesel Dump Truck Levee	8	400	10	23	736000
Diesel Dump Truck Clearing	4	400	10	11	176000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Compactor Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Surfacing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.001	0.009
Diesel Compactor Roller		0.001	0.009
Diesel Bulldozer Levee		0.018	0.216
Diesel Bulldozer Clearing		0.004	0.052
Diesel Bulldozer Surfacing		0.001	0.009
Diesel Tractor		0.009	0.114
Diesel Excavator		0.006	0.076
Diesel Grader		0.016	0.202
Diesel Water Truck		0.021	0.273
Diesel Dump Truck Levee		0.135	3.510
Diesel Dump Truck Clearing		0.032	0.839
	TOTALS	0.245	5.309

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Carville Levee Item 189-L Borrow Site
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	18	24840
Diesel Bulldozer Clearing	4	138	10	23	126960
Diesel Excavator	1	153	10	14	21420
Diesel Excavator	2	153	10	23	70380
Diesel Dump Truck	2	400	10	2	16000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.009	0.112
Diesel Bulldozer Clearing		0.047	0.573
Diesel Excavator		0.008	0.097
Diesel Excavator		0.026	0.317
Diesel Dump Truck Clearing		0.003	0.076
	TOTALS	0.095	1.193

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Claiborne Island Berm, Item 189-R
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor Roller	1	8	10	56	4480
Diesel Bulldozer Levee	2	104	10	56	116480
Diesel Bulldozer Clearing	1	104	10	13	13520
Diesel Tractor	1	110	10	56	61600
Diesel Excavator	1	153	10	13	19890
Diesel Grader	1	200	10	56	112000
Diesel Water Truck	1	270	10	56	151200
Diesel Dump Truck Levee	8	400	10	56	1792000
Diesel Dump Truck Clearing	1	400	10	13	52000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor Roller	0.551	4.300	0.0012	0.0095
Diesel Bulldozer Levee	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Tractor	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Grader	0.309	4.000	0.0007	0.0088
Diesel Water Truck	0.309	4.000	0.0007	0.0088
Diesel Dump Truck Levee	0.167	4.335	0.0004	0.0095
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor Roller		0.003	0.021
Diesel Bulldozer Levee		0.043	0.525
Diesel Bulldozer Clearing		0.005	0.061
Diesel Tractor		0.023	0.278
Diesel Excavator		0.007	0.090
Diesel Grader		0.038	0.493
Diesel Water Truck		0.051	0.665
Diesel Dump Truck Levee		0.329	8.545
Diesel Dump Truck Clearing		0.010	0.248
	TOTALS	0.510	10.926

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

Claiborne Island Berm Item 189-R
Road Construction Portion
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compactor/Roller	1	85	10	11	9350
Diesel Static Roller	1	101	10	4	4040
Diesel Bulldozer Aggregate	1	104	10	11	11440
Diesel Bulldozer Sand	1	104	10	5	5200
Diesel Vibratory Roller	1	131	10	4	5240
Diesel Excavator	2	153	10	11	33660
Diesel Asphalt Paver	1	225	10	4	9000
Diesel Dump Truck	2	400	10	11	88000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compactor/Roller	0.367	4.700	0.0008	0.0103
Diesel Static Roller	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Aggregate	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Sand	0.338	4.100	0.0007	0.0090
Diesel Vibratory Roller	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Asphalt Paver	0.309	4.000	0.0007	0.0088
Diesel Dump Truck	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compactor/Roller		0.004	0.048
Diesel Static Roller		0.002	0.018
Diesel Bulldozer Aggregate		0.004	0.052
Diesel Bulldozer Sand		0.002	0.023
Diesel Vibratory Roller		0.002	0.024
Diesel Excavator		0.013	0.152
Diesel Asphalt Paver		0.003	0.040
Diesel Dump Truck		0.016	0.420
	TOTALS	0.045	0.776

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee road construction project.

Claiborne Island Berm Borrow Site Item 189-R
Iberville Parish, Louisiana

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Compact Roller	1	85	10	4	3400
Diesel Bulldozer Surfacing	1	138	10	24	33120
Diesel Bulldozer Clearing	1	138	10	56	77280
Diesel Excavator	1	153	10	20	30600
Diesel Excavator	2	153	10	56	171360
Diesel Dump Truck	2	400	10	4	32000

Table 2

Emission Factors

Type of Construction Equipment	VOC g/hp-hr	NOx g/hp-hr	VOC lbs/hp-hr	NOx lbs/hp-hr
Diesel Compact Roller	0.367	4.700	0.0008	0.0103
Diesel Bulldozer Sufacing	0.338	4.100	0.0007	0.0090
Diesel Bulldozer Clearing	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Excavator	0.338	4.100	0.0007	0.0090
Diesel Dump Truck Clearing	0.167	4.335	0.0004	0.0095

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, July 2010

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions			
Type of Construction Equipment		VOC tons/yr	NOx tons/yr
Diesel Compact Roller		0.001	0.018
Diesel Bulldozer Surfacing		0.012	0.149
Diesel Bulldozer Clearing		0.029	0.349
Diesel Excavator		0.011	0.138
Diesel Excavator		0.064	0.773
Diesel Dump Truck Clearing		0.006	0.153
	TOTALS	0.123	1.579

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a levee improvement project.

A13-3.5 Attachment 6: Emission Calculations for Work Items in St. Bernard Parish, Louisiana

Arabi Levee & Floodwall Item 91.2-L
Arabi, St. Bernard Parish, LA

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Crane 150-ton	2	284	10	285	1618800
Diesel Welding Machine	2	25	10	285	142500
Diesel Concrete Truck	2	210	10	285	1197000
Diesel Crane 30-ton	1	160	10	43	68800
Diesel Crane 150-ton	1	284	10	43	122120
Diesel Crane 30-ton	1	160	10	56	89600
Diesel Crane 150-ton	1	284	10	56	159040
Diesel Dump Truck	2	400	10	48	384000
Diesel Excavator	1	153	10	48	73440
Diesel Crane 30-ton	1	160	10	6	9600
Diesel Dump Truck	2	400	10	37	296000
Diesel Excavator	1	153	10	37	56610
Diesel Crane 30-ton	1	160	10	4	6400

Table 2

Emission Factors

Type of Construction Equipment	SO2 g/hp-hr	SO2 lbs/hp-hr
Diesel Crane 150-ton	1.072	0.0023584
Diesel Welding Machine	1.191	0.0026202
Diesel Concrete Truck	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584
Diesel Crane 150-ton	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584
Diesel Crane 150-ton	1.072	0.0023584
Diesel Dump Truck	1.073	0.0023606
Diesel Excavator	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584
Diesel Dump Truck	1.073	0.0023606
Diesel Excavator	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's NONROAD2010 model

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions	
Type of Construction Equipment	SO2 lbs/hp-hr
Diesel Crane 150-ton	1.9088890
Diesel Welding Machine	0.18668925
Diesel Concrete Truck	1.4115024
Diesel Crane 30-ton	0.08112896
Diesel Crane 150-ton	0.1440039
Diesel Crane 30-ton	0.10565632
Diesel Crane 150-ton	0.18753997
Diesel Dump Truck	0.4532352
Diesel Excavator	0.08660045
Diesel Crane 30-ton	0.01132032
Diesel Dump Truck	0.3493688
Diesel Excavator	0.06675451
Diesel Crane 30-ton	0.00754688
TOTALS	5.00023592

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a concrete levee wall demolition/construction project.

Domino Sugar Relief Wells, Item 91-L
Arabi, St. Bernard Parish, LA

Table 1
Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Concrete Vibrator	1	3	10	120	3600
Diesel Generator	1	8	10	120	9600
Diesel Rotary Drill Blasthole	1	380	10	120	456000
Diesel Drilling Truck	1	385	10	120	462000
Diesel Skid Steer	1	74	10	120	88800
Diesel Truck 45KGV	1	230	10	120	276000
Diesel Welding Machine	1	25	10	120	30000
Diesel Concrete Mixers	1	12	10	120	14400
Diesel Air Compressor	1	15	10	120	18000
Diesel Trencher	1	16	10	5	800
Diesel Bulldozer	1	138	10	20	27600
Diesel Excavator	1	176	10	20	35200
Diesel Crane	1	350	10	2	7000

Table 2

Emission Factors

Type of Construction Equipment	SO2 g/hp-hr	SO2 lbs/hp-hr
Diesel Concrete Vibrator	1.190	0.0026180
Diesel Generator	1.190	0.0026180
Diesel Rotary Drill Blasthole	1.073	0.0023606
Diesel Drilling Truck	1.073	0.0023606
Diesel Skid Steer	1.192	0.0026224
Diesel Truck 45KGV	1.072	0.0023584
Diesel Welding Machine	1.191	0.0026202
Diesel Concrete Mixers	1.191	0.0026202
Diesel Air Compressor	1.191	0.0026202
Diesel Trencher	1.191	0.0026202
Diesel Bulldozer	1.072	0.0023584
Diesel Excavator	1.072	0.0023584
Diesel Crane	1.073	0.0023606

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions	
Type of Construction Equipment	SO2 lbs/hp-hr
Diesel Concrete Vibrator	0.0047124
Diesel Generator	0.0125664
Diesel Rotary Drill Blasthole	0.5382168
Diesel Drilling Truck	0.5452986
Diesel Skid Steer	0.11643456
Diesel Truck 45KGV	0.3254592
Diesel Welding Machine	0.039303
Diesel Concrete Mixers	0.01886544
Diesel Air Compressor	0.0235818
Diesel Trencher	0.00104808
Diesel Bulldozer	0.03254592
Diesel Excavator	0.04150784
Diesel Crane	0.0082621
TOTALS	1.7078021

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a concrete levee wall demolition/construction project.

Amstar Levee & Floodwall Item 90.8-L
Arabi, St. Bernard Parish, LA

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Crane 150-ton	2	284	10	95	539600
Diesel Welding Machine	2	25	10	95	47500
Diesel Concrete Truck	2	210	10	95	399000
Diesel Crane 30-ton	2	160	10	8	25600
Diesel Crane 150-ton	2	284	10	8	45440
Diesel Crane 30-ton	2	160	10	10	32000
Diesel Crane 150-ton	2	284	10	10	56800
Diesel Dump Truck	2	400	10	18	144000
Diesel Excavator	1	153	10	18	27540
Diesel Crane 30-ton	1	160	10	21	33600
Diesel Dump Truck	2	400	10	20	160000
Diesel Excavator	1	153	10	20	30600
Diesel Crane 30-ton	1	160	10	3	4800

Table 2

Emission Factors

Type of Construction Equipment	SO2 g/hp-hr	SO2 lbs/hp-hr
Diesel Crane 150-ton	1.072	0.0023584
Diesel Welding Machine	1.191	0.0026202
Diesel Concrete Truck	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584
Diesel Crane 150-ton	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584
Diesel Crane 150-ton	1.072	0.0023584
Diesel Dump Truck	1.073	0.0023606
Diesel Excavator	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584
Diesel Dump Truck	1.073	0.0023606
Diesel Excavator	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's NONROAD2010 model

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions	
Type of Construction Equipment	SO2 lbs/hp-hr
Diesel Crane 150-ton	0.6362963
Diesel Welding Machine	0.0622298
Diesel Concrete Truck	0.4705008
Diesel Crane 30-ton	0.0301875
Diesel Crane 150-ton	0.0535828
Diesel Crane 30-ton	0.0377344
Diesel Crane 150-ton	0.0669786
Diesel Dump Truck	0.1699632
Diesel Excavator	0.0324752
Diesel Crane 30-ton	0.0396211
Diesel Dump Truck	0.188848
Diesel Excavator	0.0360835
Diesel Crane 30-ton	0.0056602
TOTALS	1.8301614

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a concrete levee wall demolition/construction project.

Chalmette Slip Levee or Floodwall, Item 90-L
Chalmette, St. Bernard Parish, LA

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Bulldozer - Levee	2	104	10	15	31200
Diesel Grader	1	200	10	15	30000
Diesel Compactor Roller	1	8	10	15	1200
Diesel Tractor	1	110	10	15	16500
Diesel Dump Truck - Levee	11	400	10	15	660000
Diesel Water Truck	1	270	10	15	40500
Diesel Bulldozer - Clearing	1	104	10	3	3120
Diesel Excavator	1	153	10	3	4590
Diesel Dump Truck - Clearing	4	400	10	3	48000
Diesel Bulldozer - Surfacing	1	104	10	1	1040
Diesel Heavy Roller	1	85	10	1	850

Table 2

Emission Factors

Type of Construction Equipment	SO2 g/hp-hr	SO2 lbs/hp-hr
Diesel Bulldozer - Levee	1.072	0.0023584
Diesel Grader	1.072	0.0023584
Diesel Compactor Roller	1.190	0.0026180
Diesel Tractor	1.072	0.0023584
Diesel Dump Truck - Levee	1.073	0.0023606
Diesel Water Truck	1.072	0.0023584
Diesel Bulldozer - Clearing	1.072	0.0023584
Diesel Excavator	1.072	0.0023584
Diesel Dump Truck - Clearing	1.073	0.0023606
Diesel Bulldozer - Surfacing	1.072	0.0023584
Diesel Heavy Roller	1.192	0.0026224

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions	
Type of Construction Equipment	SO2 lbs/hp-hr
Diesel Bulldozer - Levee	0.0367910
Diesel Grader	0.0353760
Diesel Compactor Roller	0.0015708
Diesel Tractor	0.0194568
Diesel Dump Truck - Levee	0.7789980
Diesel Water Truck	0.0477576
Diesel Bulldozer - Clearing	0.0036791
Diesel Excavator	0.0054125
Diesel Dump Truck - Clearing	0.0566544
Diesel Bulldozer - Surfacing	0.0012264
Diesel Heavy Roller	0.0011145
TOTALS	0.9880372

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a concrete levee wall demolition/construction project.

Chalmette Slip Levee or Floodwall, Item 90-L
Borrow Site
Chalmette, St. Bernard Parish, LA

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Excavator	1	153	10	14	21420
Diesel Bulldozer - Surfacing	1	138	10	18	24840
Diesel Dump Truck	2	400	10	1	8000
Diesel Roller	1	85	10	4	3400
Diesel Excavator	1	153	10	15	22950
Diesel Bulldozer - Clearing	2	138	10	15	41400

Table 2

Emission Factors

Type of Construction Equipment	SO2 g/hp-hr	SO2 lbs/hp-hr
Diesel Excavator	1.072	0.0023584
Diesel Bulldozer - Surfacing	1.072	0.0023584
Diesel Dump Truck	1.073	0.0023606
Diesel Roller	1.192	0.0026224
Diesel Excavator	1.072	0.0023584
Diesel Bulldozer - Clearing	1.072	0.0023584

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions		
Type of Construction Equipment		SO2 lbs/hp-hr
Diesel Excavator		0.0252585
Diesel Bulldozer - Surfacing		0.0292913
Diesel Dump Truck		0.0094424
Diesel Roller		0.0044581
Diesel Excavator		0.0270626
Diesel Bulldozer - Clearing		0.0488189
	TOTALS	0.1443318

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a concrete levee wall demolition/construction project.

Chalmette Battle Field (1) Levee or Floodwall, Item 88.5
Chalmette, St. Bernard Parish, LA

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Crane 150-ton	2	284	10	159	903120
Diesel Welding Machine	2	25	10	159	79500
Diesel Concrete Truck	2	210	10	159	667800
Diesel Crane 30-ton	1	160	10	14	22400
Diesel Crane 150-ton	1	284	10	14	39760
Diesel Crane 30-ton	1	160	10	43	68800
Diesel Crane 150-ton	1	284	10	43	122120
Diesel Dump Truck	2	400	10	20	160000
Diesel Excavator	1	153	10	20	30600
Diesel Excavator	1	153	10	9	13770
Diesel Crane 30-ton	1	160	10	24	38400

Table 2

Emission Factors

Type of Construction Equipment	SO2 g/hp-hr	SO2 lbs/hp-hr
Diesel Crane 150-ton	1.072	0.0023584
Diesel Welding Machine	1.191	0.0026202
Diesel Concrete Truck	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584
Diesel Crane 150-ton	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584
Diesel Crane 150-ton	1.072	0.0023584
Diesel Dump Truck	1.073	0.0023606
Diesel Excavator	1.072	0.0023584
Diesel Excavator	1.072	0.0023584
Diesel Crane 30-ton	1.072	0.0023584

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions	
Type of Construction Equipment	SO2 lbs/hp-hr
Diesel Crane 150-ton	1.0649591
Diesel Welding Machine	0.1041530
Diesel Concrete Truck	0.7874698
Diesel Crane 30-ton	0.0264141
Diesel Crane 150-ton	0.0468850
Diesel Crane 30-ton	0.0811290
Diesel Crane 150-ton	0.1440039
Diesel Dump Truck	0.1888480
Diesel Excavator	0.0360835
Diesel Excavator	0.0162376
Diesel Crane 30-ton	0.0452813
TOTALS	2.5414641

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a concrete levee wall demolition/construction project.

Chalmette Battle Field (2) Levee, Item 86.1-L
Chalmette, St. Bernard Parish, LA

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Bulldozer - Levee	2	104	10	15	31200
Diesel Grader	1	200	10	15	30000
Diesel Compactor Roller	1	8	10	15	1200
Diesel Tractor	1	110	10	15	16500
Diesel Dump Truck - Levee	11	400	10	15	660000
Diesel Water Truck	1	270	10	15	40500
Diesel Bulldozer - Clearing	1	104	10	3	3120
Diesel Excavator	1	153	10	3	4590
Diesel Dump Truck - Clearing	4	400	10	3	48000
Diesel Bulldozer - Surfacing	1	104	10	1	1040
Diesel Heavy Roller	1	85	10	1	850

Table 2

Emission Factors

Type of Construction Equipment	SO2 g/hp-hr	SO2 lbs/hp-hr
Diesel Bulldozer - Levee	1.072	0.0023584
Diesel Grader	1.072	0.0023584
Diesel Compactor Roller	1.190	0.0026180
Diesel Tractor	1.072	0.0023584
Diesel Dump Truck - Levee	1.073	0.0023606
Diesel Water Truck	1.072	0.0023584
Diesel Bulldozer - Clearing	1.072	0.0023584
Diesel Excavator	1.072	0.0023584
Diesel Dump Truck - Clearing	1.073	0.0023606
Diesel Bulldozer - Surfacing	1.072	0.0023584
Diesel Heavy Roller	1.192	0.0026224

Convert grams to pounds: (g)x(.0022) = lbs

Emission Factors derived from the EPA's NONROAD2010 model

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions		
Type of Construction Equipment		SO2 lbs/hp-hr
Diesel Bulldozer - Levee		0.0367910
Diesel Grader		0.0353760
Diesel Compactor Roller		0.0015708
Diesel Tractor		0.0194568
Diesel Dump Truck - Levee		0.7789980
Diesel Water Truck		0.0477576
Diesel Bulldozer - Clearing		0.0036791
Diesel Excavator		0.0054125
Diesel Dump Truck - Clearing		0.0566544
Diesel Bulldozer - Surfacing		0.0012264
Diesel Heavy Roller		0.0011145
	TOTALS	0.9880372

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a concrete levee wall demolition/construction project.

Chalmette Battle Field (2) Levee, Item 86.1-L
Borrow Site
Chalmette, St. Bernard Parish, LA

Table 1

Combustible Emissions

Assumptions for Combustible Emissions					
Type of Construction Equipment	Number of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Diesel Excavator	1	153	10	14	21420
Diesel Bulldozer - Surfacing	1	138	10	18	24840
Diesel Dump Truck	2	400	10	1	8000
Diesel Roller	1	85	10	4	3400
Diesel Excavator	1	153	10	15	22950
Diesel Bulldozer - Clearing	2	138	10	15	41400

Table 2

Emission Factors

Type of Construction Equipment	SO2 g/hp-hr	SO2 lbs/hp-hr
Diesel Excavator	1.072	0.0023584
Diesel Bulldozer - Surfacing	1.072	0.0023584
Diesel Dump Truck	1.073	0.0023606
Diesel Roller	1.192	0.0026224
Diesel Excavator	1.072	0.0023584
Diesel Bulldozer - Clearing	1.072	0.0023584

Convert grams to pounds: (g)x(.0022) = lbs
Emission Factors derived from the EPA's NONROAD2010 model

Table 3

Annual VOC and NOx Emissions Totals

Total Calculated Emissions	
Type of Construction Equipment	SO2 lbs/hp-hr
Diesel Excavator	0.0252585
Diesel Bulldozer - Surfacing	0.0292913
Diesel Dump Truck	0.0094424
Diesel Roller	0.0044581
Diesel Excavator	0.0270626
Diesel Bulldozer - Clearing	0.0488189
TOTALS	0.1443318

Emissions Formula: (lbs/hp-hr)x(hp)x(hr)x(days)x(# of units)/2000 = Tons/yr

NOTE: The listed equipment is the type and number of equipment that may typically be used at a concrete levee wall demolition/construction project.