

APPENDIX B

Construction Equipment List and Construction Air Quality Calculations

GUADALUPE RIVER BRIDGE REPLACMENT

CONSTRUCTION EQUIPMENT BY PHASES
 OPTION 2 - CONSTRUCTION OF MT1 BRIDGE FOLLOWED BY CONSTRUCTION OF MT2 BRIDGE EXTENSION

PHASE #	DESCRIPTION OF WORK IN PHASE	HEAVY EQUIPMENT TO BE USED	NUMBER OF	DAYTIME USE ONLY	EQUIPMENT TYPE	HORSEPOWER
1a	OUTSIDE CHANNEL WORK WINDOW EQUIPMENT - MORILLATION, STAGING AREAS, CLEAR AND GRUB, REMOVE PCEP CCS WIRES, RELOCATE TPFOC	EXCAVATOR	1	X	CAT 336 TYPE	268
		PILE DRIVER	1	X	CAT D-6	185
		LOADER	1	X	CAT 950	180
		TRANSPORT AND TRAILER	1	X	Semi Tractor	380
		2 TON FLATBED TRUCK	1	X	FORD F350	385
		FOREMAN/SUPT. PICKUP	2	X	FORD F150	160
		SEMI SIDE/END DUMP	2	X	Semi Tractor	380
		TRUCK CRANE	1	X		
1b	IN CHANNEL WORK WINDOW EQUIPMENT - MT1 BRIDGE CONSTRUCTION - STRUCTURE EXCAVATION, TEMPORARY SHORING, DEMOLITION, CIDH INSTALLATION, CONCRETE WORK, ETC.	EXCAVATOR	1		CAT 336 TYPE	268
		LOADER	1		CAT 950	180
		VIBRATORY HAMMER	1		INSTALL/REMOVE PILES & SHEETPILE	NA
		HYDRAULIC CRANE	1		80 TON-SHTPILE SHORING/CONC WORK	275
		TRAC DRILL FOR TIEBACKS	1		COMMACHIO 1200	154
		GROUT PUMP	1		PULZMEISLER TK 50	96.5
		2 TON FLATBED TRUCK	1		FORD F350	385
		FOREMAN/SUPT. PICKUP	2		FORD F150	160
		SEMI SIDE/END DUMP	3		SEMI TRACTOR	360
		DRILL RIG FOR CIDH	1		DELMAGR H24	345
		TRAC MOUNTED CRANE	1		HOLD REBAR/CASING	
		CONCRETE PUMP	1		TRUCK TYPE	505
		GENERATOR SET FOR DEWATERING OR 6" DIESEL PUMPS	2		100 KW ? GUNFROS TYPE	70
		EXCAVATOR W/HYDRAULIC RAM	2		CAT 336 TYPE	268
		EXCAVATOR W/SHEAR	1		CAT 336 TYPE	268
		TRUCK CRANE	2		SET GIRDERS (250 TON?)	250
		SKID STEER	1		-	73
		FORKLIFT	1		-	120
		4000 GAL WATER TRUCK	1		-	250
		LIGHT PLANT	2		-	10.25
		TRACK TAMPER	1	X	-	
		BALLAST REGULATOR	1	X	-	
		TRACK STABILIZER	1	X	-	
SPEED SWING	1	X	-			
2a	IN CHANNEL WORK WINDOW EQUIPMENT - MT2 BRIDGE CONSTRUCTION STRUCTURE EXCAVATION, TEMPORARY SHORING, DEMOLITION, CIDH INSTALLATION, ETC. CONCRETE WORK, ETC.	EXCAVATOR	1		CAT 336 TYPE	268
		LOADER	1		CAT 950	180
		HYD CRANE	1		RT890E FOR SHTPILE SHORING	275
		VIBRATORY HAMMER	1		REMOVE SHEETPILE	NA
		TRAC DRILL FOR TIEBACKS	1		COMMACHIO 1200	154
		GROUT PUMP	1		PULZMEISLER TK 50	96.5
		2 TON FLATBED TRUCK	1		FORD F350	385
		FOREMAN/SUPT. PICKUP	2		FORD F150	160
		SEMI SIDE/END DUMP	3		SEMI TRACTOR	360
		CIDH DRILL RIG	1		DELMAG RH24	345
		TRAC MOUNTED CRANE	1		HOLD REBAR/CASING	
		CONCRETE PUMP	1		TRUCK TYPE	505
		GENERATOR SET FOR DEWATER/MISC WORK OR 6" DIESEL PUMPS	2		100 KW GUNFROS TYPE	70
		EXCAVATOR W/HYDRAULIC RAM	2		CAT 336 TYPE	268
		EXCAVATOR W/SHEAR	1		CAT 336 TYPE	268
		TRUCK CRANE	2		REMOVE GIRDERS (250 TON?)	250
		COMPACTOR	1		SINGLE DRUM	95
		LIGHT PLANT	2		-	10.25
SKID STEER	2		-	73		
FORKLIFT	1		-	120		
4000 GALLON WATER TRUCK	1		-	250		
2b	OUTSIDE CHANNEL WORK WINDOW EQUIPMENT - DEMORILLATION, FINAL SITE CLEANUP, REINSTALL PCEP CCS WIRES, RELOCATE TPFOC	TRUCK CRANE	2	X	SET GIRDERS (250 TON?)	250
		LOADER	1	X	CAT 950	180
		TRANSPORT AND TRAILER	1	X	Semi Tractor	380
		2 TON FLATBED TRUCK	1	X	FORD F350	385
		FOREMAN/SUPT. PICKUP	2	X	FORD F150	160
		SEMI SIDE/END DUMP	2	X	Semi Tractor	380
		TRACK TAMPER	1	X	-	
		RAILFAST REGULATOR	1	X	-	
TRACK STABILIZER	1	X	-			
SPEED SWING	1	X	-			

Worst- Case Equipment in Simultaneous Use During Phase 1B	Model year	HP	Load Factor	No. of Active Equip	Operating Hours per day	Nox Emission Factor (grams/hp-hr)	VOC (ROG) Emission Factor (grams/hp-hr)	PM (grams/hp-hr)	Nox Emissions (grams/day)	ROG Emissions (grams/day)	PM (grams/day)	
Excavator	2010	268	0.59	1	8	2.631	0.221	0.272	3327.967	280.008	343.459	
Trac mounted crane	2010	250	0.43	1	8	2.520	0.210	0.169	2167.205	180.348	145.318	
Hydraulic crane	2010	275	0.43	1	8	2.520	0.210	0.169	2383.925	198.383	159.849	
Truck crane	2010	250	0.43	1	8	2.520	0.210	0.169	2167.205	180.348	145.318	
Concrete pump	2010	505	0.43	1	8	2.625	0.197	0.242	4560.044	341.489	420.175	
Generator set for dewatering	2010	160	0.43	1	8	2.631	0.221	0.419	1448.037	121.835	230.518	
Loader	2010	180	0.59	1	8	2.631	0.221	0.272	2235.191	188.065	230.681	
Skid steer	2010	73	0.21	1	8	3.047	0.201	0.183	373.724	24.608	22.412	
Forklift	2010	120	0.59	1	8	2.631	0.221	0.419	1490.126	125.377	237.218	
Drill rig for CIDH	2010	345	0.43	1	8	2.508	0.195	0.126	2976.509	231.350	150.081	
Grout pump	2010	96.5	0.43	1	8	3.155	0.221	0.637	1047.347	73.482	211.346	
Heavy Trucks on-site (water truck, haul truck, flatbed etc.)	2010	385		2	16				84.299	5.142	0.703	
									Total Grams/day	24261.577	1950.433	2297.077
									Total lbs/day	53.5	4.3	5.1

Emission factors for Heavy Trucks @ 5 mph			
	NOx	VOC	PM10
grams/hr	5.2687	0.321364	0.0439306

5% reduction for Construction Air Quality BMPs (idling restriction etc.)	2.7
Adjusted Total Nox (lbs/day) incorporating 5% reduction for BMPs	50.8