

# **Appendix E**

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Construction Fuel Consumption Calculations

# Dillard Groundwater Recharge & Solar Project - Construction

7/3/2025

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors [1]:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529
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*Values above are expressed in gallons per horsepower-hour/BSFC.*

## CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per		Load		Construction Phase	Fuel Used (gallons)
		Day	Horsepower	Factor			
Tractors/Loaders/Back hoes	1	8	84	0.37	Phase A	2,236	
Plate Compactors	1	8	8	0.43	Phase A	247	
Crawler Tractors	1	8	87	0.43	Phase A	2,691	
Rubber Tired Dozers	1	8	367	0.4	Phase A	9,498	
Graders	1	8	148	0.41	Phase A	3,926	
Pumps	1	8	11	0.74	Phase A	585	
Scrapers	1	8	423	0.48	Phase A	13,137	
Tractors/Loaders/Back hoes	1	8	84	0.37	Phase B	2,236	
Plate Compactors	1	8	8	0.43	Phase B	247	
Cranes	1	8	367	0.29	Phase B	6,886	
Excavators	1	8	36	0.38	Phase B	984	
Forklifts	1	8	82	0.2	Phase B	1,180	
Pumps	1	8	11	0.74	Phase B	585	
Tractors/Loaders/Back hoes	1	8	84	0.37	Phase C	2,236	
Bore/Drill Rigs	1	8	83	0.5	Phase C	2,985	
Air Compressors	1	8	37	0.48	Phase C	1,277	
Cranes	1	8	367	0.29	Phase C	6,886	
Forklifts	1	8	82	0.2	Phase C	1,180	
Pumps	1	8	11	0.74	Phase C	585	
Welders	1	8	46	0.45	Phase C	1,489	
Tractors/Loaders/Back hoes	1	8	84	0.37	Phase D	2,236	
Plate Compactors	1	8	8	0.43	Phase D	247	
Cranes	1	8	367	0.29	Phase D	6,886	
Excavators	1	8	36	0.38	Phase D	984	
Forklifts	1	8	82	0.2	Phase D	1,180	
Pumps	1	8	11	0.74	Phase D	585	
Aerial Lifts	1	8	46	0.31	Phase E	1,026	
Tractors/Loaders/Back hoes	1	8	84	0.37	Phase E	2,236	
Bore/Drill Rigs	1	8	83	0.5	Phase E	2,985	
Cranes	1	8	367	0.29	Phase E	6,886	
Forklifts	1	8	82	0.2	Phase E	1,180	
<b>Total Fuel Used</b>							<b>87,505</b>
							(Gallons)

Construction Phase	Days of Operation
Phase A	153
Phase B	86
Phase C	152
Phase D	87
Phase E	262
<b>Total Days</b>	<b>740</b>

## WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Phase A	24.1	18	17.3	1,922
Phase B	24.1	15	17.3	926
Phase C	24.1	18	17.3	1,909
Phase D	24.1	0	17.3	-
Phase E	24.1	13	17.3	2,351
<b>Total</b>				<b>7,108</b>

**HAULING AND VENDOR TRIPS**

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
<b>HAULING TRIPS</b>				
Phase A	7.5	0	0.0	0.00
Phase B	7.5	0	0.0	0.00
Phase C	7.5	0	0.0	0.00
Phase D	7.5	0	0.0	0.00
Phase E	7.5	0	0.0	0.00
<b>Total</b>				<b>-</b>

<b>Total Gasoline Consumption (gallons)</b>	<b>7,108</b>
<b>Total Diesel Consumption (gallons)</b>	<b>89,341</b>

**Sources:**

[1] United States Environmental Protection Agency. 2021. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2*. September. Available at: <https://www.epa.gov/system/files/documents/2021-08/420r21021.pdf>.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2021. *National Transportation Statistics*. Available at: <https://www.bts.gov/topics/national-transportation-statistics>.