

APPENDIX A.2
ENERGY DATA SHEETS

TVMWD Production Well

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

HP: 0 to 100

0.059

HP: Greater than 100

0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Graders	1	6	187	0.410	Site Prep	24.34
Other Material Handling Eq.	1	8	168	0.400	Site Prep	28.44
Rubber Tired Dozer	1	4	247	0.400	Site Prep	20.91
Tractors/Loaders/Backhoes	1	6	97	0.370	Site Prep	12.66
Concrete/Industrial Saws	1	8	81	0.730	Grading	55.63
Graders	1	4	187	0.410	Grading	32.45
Other Material Handling Eq.	1	4	168	0.400	Grading	28.44
Rubber Tired Dozer	1	4	247	0.400	Grading	41.81
Tractors/Loaders/Backhoes	1	4	97	0.370	Grading	16.88
Bore/Drill Rig	1	24	221	0.500	Building Con.	8698.0296
Cranes	1	4	231	0.290	Building Con.	878.86
Forklifts	2	6	89	0.200	Building Con.	389.35
Generator Sets	1	24	84	0.740	Building Con.	5438.65
Other Construction Eq.	1	8	172	0.420	Building Con.	1895.46
Rubber Tired Dozer	1	4	247	0.400	Building Con.	1296.18
Tractors/Loaders/Backhoes	2	8	97	0.370	Building Con.	1046.72
Welders	1	4	46	0.450	Building Con.	301.86
Cement and Motor Mixers	1	6	9	0.560	Paving	8.89
Concrete/Industrial Saws	1	8	81	0.730	Paving	139.07
Dumpers/Tenders	1	4	16	0.380	Paving	7.15
Graders	1	8	187	0.410	Paving	162.23
Pavers	1	7	130	0.420	Paving	101.09
Paving Equipment	1	8	172	0.420	Paving	152.86
Rollers	1	7	80	0.380	Paving	62.56
Tractors/Loaders/Backhoes	1	7	97	0.370	Paving	73.86
Air Compressors	1	6	78	0.480	Architectual Coat.	66.04
Total Fuel Used						20980.43 (Gallons)

Construction Phase	Days of Operation
Site Preparation	1
Grading	2
Building Construction	62
Paving	5
Architectual Coating	5

WORKER TRIPS

Construction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Site Preparation Phase	24.0	10	15.0	6.25
Grading	24.0	10	15.0	12.50
Building Construction Phase	24.0	7	15.0	253.75
Paving Phase	24.0	15	15.0	46.88
Architectural Coating	24.0	1	15.0	3.13
Total				322.50

VENDOR TRIPS

Construction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Site Preparation Phase	7.4	0	7.0	0.00
Grading	7.4	0	7.0	0.00
Building Construction Phase	7.4	3	7.0	164.59
Paving Phase	7.4	0	7.0	0.00
Total				164.59

Total Gasoline Consumption (gallons)	487.09
Total Diesel Consumption (gallons)	20980.43

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonrod Compression-Ignition Engines in MOVES2014b*. July 2018. Available at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf>.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018*. Available at: <https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntentire2018q4.pdf>.

TVMWD Pipeline

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

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529
--------------	--------	----------------------	--------

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Tractors/Loaders/Backhoes	1	6	97	0.370	Building Con.	949.65
Cranes	1	6	231	0.290	Building Con.	1594.70
Forklifts	1	6	89	0.200	Building Con.	470.99
Generator Sets	1	8	84	0.740	Building Con.	2193.00
Other Construction Eqp.	2	6	89	0.420	Building Con.	889.83
Concrete/Industrial Saws	1	6	84	0.730	Building Con.	1459.72
Dumpers/Tenders	1	6	46	0.380	Building Con.	462.52
Welders	3	8	46	0.450	Building Con.	730.30
Cement and Motor Mixers	1	6	9	0.560	Paving	8.89
Pavers	1	6	130	0.420	Paving	86.65
Paving Equipment	1	8	132	0.420	Paving	117.31
Rollers	1	7	80	0.380	Paving	62.56
Tractors/Loaders/Backhoes	1	8	97	0.370	Paving	84.41
Total Fuel Used						9110.54 (Gallons)

Construction Phase	Days of Operation
Site Preparation	0
Grading	0
Building Construction	75
Paving	5
Architectural Coating	0

WORKER TRIPS

Construction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Building Construction Phase	24.0	11	15.0	550.00
Paving Phase	24.0	13	15.0	162.50
Total				712.50

Total Gasoline Consumption (gallons)	712.50
Total Diesel Consumption (gallons)	9110.54

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonrod Compression-Ignition Engines in MOVES2014b*. July 2018. Available at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf>.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018*. Available at: <https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntentire2018q4.pdf>.