Appendix J – GHG Calculations

Backgroung Information:

29.2%			diesel wells/generators		
70.8%			electric wells		
1.02	kWh	per	1 AF by 1 foot	(UC Tulare County)	http://cetulare.ucanr.e
3412.14	BTU	per	kWh		
139,000	BTU	per	gallon of diesel	(Corr et. Al. 2011)	https://www.ksre.ksu.
23%	percent		efficiency for diesel	(Corr et. Al. 2011)	https://www.ksre.ksu.
70%	percent		efficiency for electric	(UC Tulare County)	http://cetulare.ucanr.e
22.38	lbs CO2	per	gallon of diesel	(US EIA)	http://www.eia.gov/to
610.82	lbs CO2	per	MWh in California	(US EPA)	http://www.epa.gov/c
1,000	kWh	per	MWh		
2205	lbs	per	metric ton		

No Action Alt 1a:

18,000	AFY	total	pumping
30	feet		average depth
5,262	AFY		Water pumped with diesel
161,003	kWh		Power needed at 100% efficiency
700,013	kWh		Power needed at 23% efficiency
2,388,543,647	BTU		Power needed at 23% efficiency
17,184	gallons		Diesel Fuel needed
384,573	lbs		CO2 from diesel
174	metric tons		CO2 from diesel
12,738	AFY		Water pumped with electric
389,797	kWh		Power needed at 100% efficiency
556,853	kWh		Power needed at 70% efficiency
557	MWh		Power needed at 70% efficiency
340,137	lbs		CO2 from electricity
154	metric tons		CO2 from electricity
329	metric tons		CO2 Total

No Aciton Alt 1b:

25,000	AFY	total	pumping in Westlands
400	feet		average depth
10,200,000	kWh		Power needed at 100% efficiency
14,571,429	kWh		Power needed at 70% efficiency
14,571	MWh		Power needed at 70% efficiency
8,900,520	lbs		CO2 from electricity
4,037	metric tons		CO2 from electricity

3,708	metric tons		CO2 Total	3,684

Proposed Action:

26,316	AFY	total	pumping in Westlands
30	feet		average depth
7,692	AFY		Water pumped with diesel
235,386	kWh		Power needed at 100% efficiency
1,023,420	kWh		Power needed at 23% efficiency
3,492,050,812	BTU		Power needed at 23% efficiency
25,123	gallons		Diesel Fuel needed
562,245	lbs		CO2 from diesel
255	metric tons		CO2 from diesel
18,624	AFY		Water pumped with electric
569,883	kWh		Power needed at 100% efficiency
814,119	kWh		Power needed at 70% efficiency
814	MWh		Power needed at 70% efficiency
497,280	lbs		CO2 from electricity
226	metric tons		CO2 from electricity
481	metric tons		CO2 Total

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