

Appendix K:
Burden and Cost for Injection and Geologic
Sequestration of Carbon Dioxide
(Subparts RR and UU)

Appendix K-1: Detailed Burden and Cost
Appendix K-2: Summary of Burden and Cost by Activity and Year
Appendix K-3: Change in Burden and Cost

Appendix K1
Detailed Unit Burden and Cost for Injection and Geologic Sequestration of Carbon Dioxide (Subpart RR)
(Does Not Include Burden Cost for Exemption Requests)

ICR Activity	Sub Categories/Notes	Annual Burden & Cost Per Facility, Subpart RR						
		Responses/ Respondent	Total Responses	Total Burden (hrs)	Total Labor Cost (\$)	Capital Cost (\$)	O&M Cost (\$)	Total Cost (\$)
Estimation of Fugitive Emission from Surface Facilities	Planning and initial inventory	1	1	40	\$ 5,957	\$ -	\$ -	\$ 5,957
	Annual calculations	1	1	24	\$ 3,574	\$ -	\$ -	\$ 3,574
Periodic Digital Color Infrared Orthoimagery (CIR) or Hyperspectral Imaging to detect changes to vegetation.	Planning and QA	0.5	0.5	0	\$ -	\$ -	\$ 48,000	\$ 48,000
	Mobilization	0.5	0.5	0	\$ -	\$ -	\$ 3,000	\$ 3,000
	Airborne Survey	0.5	0.5	0	\$ -	\$ -	\$ 30,000	\$ 30,000
Periodic mobile survey to detect surface leaks. May be good option where vegetation is sparse.	Planning and QA	0.5	0.5	0	\$ -	\$ -	\$ 48,000	\$ 48,000
	Mobilization	0.5	0.5	0	\$ -	\$ -	\$ 3,000	\$ 3,000
	Airborne Survey	0.5	0.5	0	\$ -	\$ -	\$ 11,520	\$ 11,520
Soil zone monitoring (sampling gas from accumulation chambers)	Monitoring plan	1	1	40	\$ 5,957	\$ 4,321	\$ -	\$ 10,277
	Sampling and Analysis	1	1	0	\$ -	\$ -	\$ 2,880	\$ 2,880
Vadose zone monitoring wells to sample gas above water table.	Monitoring plan	1	1	40	\$ 5,957	\$ 5,761	\$ -	\$ 11,718
	Sampling and Analysis	1	1	0	\$ -	\$ -	\$ 2,880	\$ 2,880
Monitoring wells for samples from water table.	Monitoring plan	1	1	40	\$ 5,957	\$ 57,607	\$ -	\$ 63,564
	Sampling and Analysis	1	1	0	\$ -	\$ -	\$ 11,520	\$ 11,520
Cost of Episodic Surveys to Quantify Leaks	Surface leak detected by air, soil or water table monitoring or subsurface leak detected by pressure anomaly etc. (material balance).	0.01	0.01	2	\$ 189	\$ -	\$ -	\$ 189
	Surface leak detected by MIT survey or by air, soil or water table monitoring (well logs).	0.01	0.01	2	\$ 189	\$ -	\$ 473	\$ 662
	pressure anomaly in containment zone (pressure readings).	0.01	0.01	3	\$ 378	\$ -	\$ -	\$ 378
	soil or water table monitoring (seismic).	0.01	0.01	2	\$ 189	\$ -	\$ 1,248	\$ 1,437
	soil or water table monitoring (tenting).	0.01	0.01	1	\$ 414	\$ -	\$ 840	\$ 1,254
MRV	Evaluate Leakage Pathways	1	1	16	\$ 1,253	\$ -	\$ -	\$ 1,253
	Delineate Areas of Monitoring	1	1	32	\$ 2,505	\$ -	\$ -	\$ 2,505
	Develop strategy for leak detection, verification and	1	1	160	\$ 12,526	\$ -	\$ -	\$ 12,526
	Establish baseline conditions	1	1	16	\$ 1,253	\$ -	\$ -	\$ 1,253
	Tailor mass balance equation	1	1	8	\$ 626	\$ -	\$ -	\$ 626
	Write MRV plan	1	1	400	\$ 31,316	\$ -	\$ -	\$ 31,316
	Discuss MRV plan with EPA and edits	1	1	100	\$ 7,829	\$ -	\$ -	\$ 7,829
	Annual Report	1	1	100	\$ 7,829	\$ -	\$ -	\$ 7,829
Monitoring	CO2 Flow Meter Data Collection	1	1	4	\$ 332	\$ -	\$ -	\$ 332
Reporting and Recodkeeping	Reporting	1	1	23	\$ 1,700	\$ -	\$ -	\$ 1,700
	Recordkeeping	1	1	7	\$ 500	\$ -	\$ -	\$ 500
Totals		22	22	1,059	\$ 96,429	\$ 67,688	\$ 163,361	\$ 327,478

Appendix K1

Detailed Unit Burden and Cost for Injection and Geologic Sequestration of Carbon Dioxide (Subpart UU)

ICR Activity	Sub Categories/Notes	Annual Burden & Cost Per Facility, Subpart UU						
		Responses/ Respondent	Total Responses	Total Burden (hrs)	Total Labor Cost (\$)	Capital Cost (\$)	O&M Cost (\$)	Total Cost (\$)
Monitoring	Injectate Sampling and Analysis	4	4	10	\$ 630	\$ -	\$ 2,256	\$ 2,886
Reporting and Recodkeeping	Reporting	1	1	24	\$ 1,700	\$ -	\$ -	\$ 1,700
	Recordkeeping	1	1	7	\$ 500	\$ -	\$ -	\$ 500
	Totals	6	6	41	\$ 2,830	\$ -	\$ 2,256	\$ 5,086

Appendix K-2

Summary of Burden and Cost for Injection and Geologic Sequestration of Carbon Dioxide (Subparts RR and UU)*

Source Category	Year 1							
	No. Respondents	Responses/ Respondent	Total Responses	Total Burden (hrs)	Total Labor Cost (\$)	Capital Cost (\$)	O&M Cost (\$)	Total Cost (\$)
Subpart RR	1	Varies	22	1,059	\$ 96,429	\$ 67,688	\$ 163,361	\$ 327,478
Subpart UU	91	Varies	546	3,702	\$ 257,565	\$ -	\$ 205,296	\$ 462,861
Exemption requests (Subpart RR)	1	1	1	16	\$ 1,097			\$ 1,097
Total	93	Varies	569	4,777	\$ 355,090	\$ 67,688	\$ 368,657	\$ 791,436

Source Category	Year 2							
	No. Respondents	Responses/ Respondent	Total Responses	Total Burden (hrs)	Total Labor Cost (\$)	Capital Cost (\$)	O&M Cost (\$)	Total Cost (\$)
Subpart RR	2	Varies	44	2,118	\$ 192,858	\$ 135,376	\$ 326,722	\$ 654,956
Subpart UU	92	Varies	552	3,743	\$ 260,395	\$ -	\$ 207,552	\$ 467,947
Exemption requests (Subpart RR)	1	1	1	16	\$ 1,097	\$ -	\$ -	\$ 1,097
Total	95	0	597	5,877	\$ 454,350	\$ 135,376	\$ 534,274	\$ 1,124,000

Source Category	Year 3							
	No. Respondents	Responses/ Respondent	Total Responses	Total Burden (hrs)	Total Labor Cost (\$)	Capital Cost (\$)	O&M Cost (\$)	Total Cost (\$)
Subpart RR	3	Varies	66	3,177	\$ 289,287	\$ 203,065	\$ 490,083	\$ 982,435
Subpart UU	93	0	558	3,783	\$ 263,225	\$ -	\$ 209,808	\$ 473,033
Exemption requests (Subpart RR)	1	1	1	16	\$ 1,097	\$ -	\$ -	\$ 1,097
Total	97	0	625	6,977	\$ 553,609	\$ 203,065	\$ 699,891	\$ 1,456,565

Source Category	Annual Average - 3 year ICR Period							
	No. Respondents	Responses/ Respondent	Total Responses	Total Burden (hrs)	Total Labor Cost (\$)	Capital Cost (\$)	O&M Cost (\$)	Total Cost (\$)
Subpart RR	2	Varies	44	2,118	\$ 192,858	\$ 135,376	\$ 326,722	\$ 654,956
Subpart UU	92	Varies	552	3,743	\$ 260,395	\$ -	\$ 207,552	\$ 467,947
Exemption requests (Subpart RR)	1	1	1	16	\$ 1,097	\$ -	\$ -	\$ 1,097
Total	95	0	597	5,877	\$ 454,350	\$ 135,376	\$ 534,274	\$ 1,124,000

* Does not include the provision of information on parent companies, NAICS codes, and whether emissions are from cogeneration.

Appendix K-3
Subpart RR - Summary of Cost and Burden
Non-Federal Respondents

Source Category	Current Inventory (OMB No. 2060-0649, ICR No. 2372.02, 2372.03)							
	No. Respondents	Responses/ Respondent	Total Responses	Total Burden (hrs)	Total Labor Cost (\$K)	Capital Cost (\$)	O&M Cost (\$)	Total Cost (\$)
Subpart RR	2	16	32	1,234	\$ 133	\$ 88	\$ 244	\$ 465
Subpart UU	87	6	520	3,560	\$ 224	\$ -	\$ 196	\$ 420
Total	89	22	552	4,794	\$ 357	\$ 88	\$ 439	\$ 884

Source Category	Revised Inventory							
	No. Respondents	Responses/ Respondent	Total Responses	Total Burden (hrs)	Total Labor Cost (\$K)	Capital Cost (\$)	O&M Cost (\$)	Total Cost (\$)
Subpart RR	3	Varies	45	2,134	\$ 194	\$ 135	\$ 327	\$ 656
Subpart UU	92	Varies	552	3,743	\$ 260	\$ -	\$ 208	\$ 468
Total	95	0	597	5,877	\$ 454	\$ 135	\$ 534	\$ 1,124

Source Category	Difference							
	No. Respondents	Responses/ Respondent	Total Responses	Total Burden (hrs)	Total Labor Cost (\$)	Capital Cost (\$)	O&M Cost (\$)	Total Cost (\$)
Subpart RR	1	Varies	13	900	\$ 61	\$ 47	\$ 83	\$ 192
Subpart UU	5	Varies	32	183	\$ 36	\$ -	\$ 12	\$ 48
Total	6		45	1,083	\$ 97	\$ 47	\$ 95	\$ 240

Reason for Change in Burden (see Appendix K-3 for more details):

- Shifted the activities associated with Subpart RR two years into the future to reflect the fact that Class VI UIC permits were not issued as quickly as anticipated in the ICR. For example, the activities estimated for Year 1 of the current ICR (2011) have been shifted to Year 1 of the renewal ICR (2013, the first year in which Class VI injection is expected to begin).
- Adjusted the labor hours, labor cost, O&M costs, and capital cost per facility for Subpart UU to recognize the completion of the one-time activities that occurred in the first year of data collection (2011).
- Adjusted the number of respondents for Subpart UU to reflect the slightly higher number of facilities anticipated in the out-years of the previous ICR.