

CLASS VI FINANCIAL RESPONSIBILITY DEMONSTRATION

COST ESTIMATE

CTV VI

Carbon TerraVault LLC (CTV) had the following cost estimate prepared by third party contractor, Daniel B. Stephens & Associates, Inc., completed on 7/25/2024 (revised October 22, 2025)

Table 1. Financial Responsibility Cost Summary

Activity	Estimated Cost	Reference
Corrective Action	\$ 665,574	Table 2
Injection Well Abandonment	\$ 1,996,115	Table 3
Post-Injection Site Care	\$ 2,300,000	Table 4
Site Closure	\$ 652,050	Table 5
Emergency and Remedial Response	\$ 18,631,500	Table 6
Total	\$ 24,245,239	

All values in 2024 dollars

Table 2. Costs, Corrective Action Total

Activity	Unit		Unit Cost	Total	Reference
Revise Numerical Model	400	hrs	\$ 229	\$ 91,600	-
Review CalGEM Well Database	40	hrs	\$ 229	\$ 9,160	-
Plug Deficient Wells	2	wells	\$ 239,000	\$ 478,000	A
Project Management	1	each		\$ 86,814	B
Total				\$ 665,574	

Notes

A: Driltek, 2021 (inflation adjusted)

B: 15% of project costs

Table 3. Costs, Injection Well Abandonment

Location	Unit Cost		Depth (ft)	Cost	Reference
CTVW-I-DO1	31	\$/ft	5,982	\$ 185,442	A
CTVW-I-DO2	31	\$/ft	5,707	\$ 176,917	A
CTVW-I-DO3	31	\$/ft	5,754	\$ 178,374	A
CTVW-I-B1	31	\$/ft	9,641	\$ 298,871	A
CTVW-I-B2	31	\$/ft	9,641	\$ 298,871	A
CTVW-I-B3	31	\$/ft	9,663	\$ 299,553	A
CTVW-I-T1	31	\$/ft	9,604	\$ 297,724	A
Documentation, project management	1	each	-	\$ 260,363	B
TOTAL				\$ 1,996,115	

Notes

A: Abandonment costs from Driltek, 2021 (inflation adjusted); plug depths from Attachment G documents Table 5

B: 15% of project costs

Table 4. Post-Injection Site Care Costs

Activity	Unit	Events, 20 years	Unit Cost	Total	Reference
USDW geochemical monitoring/fluid sampling	2 well	20	\$ 6,100	\$ 244,000	A
Injection zone pressure monitoring	2 well	20	\$ 1,000	\$ 40,000	A
Injection zone monitoring well O&M	2 well	4	\$ 87,000	\$ 696,000	-
Indirect Plume Monitoring (Pulsed neutron)	1 survey	4	\$ 39,000	\$ 156,000	C
Seismic Monitoring, Plume Tracking	1 survey	4	\$ 100,000	\$ 400,000	E
Mechanical Integrity Test, Injection zone	2 well	4	\$ 58,000	\$ 464,000	B
Reporting/Project Management	1 each	-	\$ 300,000	\$ 300,000	D
Total				\$ 2,300,000	

A: Assumes 1 geochemical monitoring event per year per well and continuous pressure monitoring with automated gage

B: Patrick Engineering, 2013; assumes \$2,000 base cost + \$4.25/ft (+36%)

C: Zaluski et al., 2016; assumes 8 well survey (inflation adjusted); technology and frequency from PISC plan Table E-4

D: 15% of project costs

E: SensorEra, 2024

Assumes (from Attachment C, Attachment E):

2 Injection Zone Monitoring Wells (CTVW-M-IZ1, CTVW-M-IZ2)

2 USDW Monitoring Wells (CTVW-M-USDW-1, CTVW-M-USDW2)

Table 5. Costs, Site Closure

Activity	Unit	Unit Cost	Total	Reference
Non-endangerment report	1 each	\$ 47,000	\$ 47,000	-
Injection zone monitoring well plugging	2 wells	\$ 208,000	\$ 416,000	A
USDW Monitoring well plugging	2 well	\$ 52,000	\$ 104,000	-
Plugging documentation, project management	1 each		\$ 85,050	B
Total			\$ 652,050	

Notes

A: Abandonment costs from Driltek, 2021 (inflation adjusted)

B: 15% of project costs

Assumes (from Attachment C, Attachment E):

2 Injection Zone Monitoring Wells (CTVW-M-IZ1, CTVW-M-IZ2)

2 USDW Monitoring Wells (CTVW-M-USDW-1, CTVW-M-USDW2)

Table 6. Emergency Response**Groundwater Contamination Causal Investigation**

Activity	Unit		Unit Cost	Total	Reference
Planning/permitting	1	each	\$ 987,570	\$ 987,570	B
Monitoring wells, depth 1,000 ft	5	well	\$ 401,000	\$ 2,005,000	A
Monitoring wells, depth 3,600 ft	3	well	\$ 1,443,600	\$ 4,330,800	A
Abandoned well investigation	1	well	\$ 31,000	\$ 31,000	-
Former Injection Well Investigation	7	well	\$ 31,000	\$ 217,000	-
Reporting/Project Management	1	each	\$ 658,380	\$ 658,380	C
Total				\$ 8,229,750	

Groundwater Contamination Remediation

Activity	Unit		Unit Cost	Total	Reference
Planning/permitting	1	each	\$ 1,248,210	\$ 1,248,210	B
Pumping well, depth 1,000 ft	4	well	\$ 401,000	\$ 1,604,000	A
Pumping well, depth 3,600 ft	4	well	\$ 1,443,600	\$ 5,774,400	A
Groundwater extraction	1	year	\$ 312,000	\$ 312,000	-
Above-ground CO ₂ removal (aeration)	1	unit	\$ 157,000	\$ 157,000	-
Former injection well repair	2	well	\$ 237,000	\$ 474,000	-
Reporting/Project Management	1	each	\$ 832,140	\$ 832,140	C
Total				\$ 10,401,750	

Total, Causal Investigation and Remediation	\$ 18,631,500
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Notes

A: Assumes \$401/ft for permitting, installation, field oversight, logging drilling, and waste

B: 15% of project costs

C: 10% of project costs separate from Planning/permitting

References

Driltek, 2021: Personal communication with Driltek regarding well abandonment costs, California

Patrick Engineering, 2013: Third Party Cost Estimate for FutureGen Alliance UIC Class VI Permit Application

Zaluski et al., 2016. Monitoring technology ranking methodology for CO₂-EOR sites using the Weyburn-Midale Field as a case study, IJGGC v.54, p.466 - 478

SensorEra, 2024. Personal communication, cost estimate for real CO₂ plume tracking using permanent sources and receivers. Email dated January 19, 2024.