

**SECTION C. FINANCIAL RESPONSIBILITY DEMONSTRATION
40 CFR 146.85**

MONTEZUMA NORCAL CARBON SEQUESTRATION HUB

Facility Information

Facility name: Montezuma NorCal Carbon Sequestration Hub
IW-A1

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Sec 28 T 3 N R 1 E

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List of Abbreviations and Acronyms

AoR = area of review	PISC = Post-Injection Site Care
BBL = barrels	UIC = Underground Injection Control
CA = corrective action	USDW = Underground Source of Drinking
CO ₂ = carbon dioxide	Water
cyds = cubic yards	US EPA = United States Environmental Protection
MC = Montezuma Carbon, LLC	Agency
P&A = plugging and abandonment	

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C.1. SUMMARY

Montezuma Carbon, LLC, (MC) plans to provide financial responsibility pursuant to 40 CFR 146.82(a)(14) and 146.85 using a combination of an escrow/surety bond, trust fund, and commercial insurance to cover the estimated costs of corrective actions, well plugging and abandonment, post-injection site care (PISC) and site closure, and emergency and remedial response including endangerment to Underground Sources of Drinking Water (USDWs), respectively.

The estimated costs of each of these activities, as provided by MC and their team of consultants, are presented in Table C-1.

**TABLE C-1. SUMMARY OF COST ESTIMATES FOR ACTIVITIES TO BE COVERED BY
FINANCIAL RESPONSIBILITY**

Activity	Estimated Costs	Financial Instrument		See cited tables for additional detail
		Coverage ^{Note 1}	Type	
Corrective Action	\$7,072,267		Escrow/ Surety Bond	Table C-2
Well Plugging and Abandonment (IW-A1 & IZMW-A1)	\$2,568,000		Escrow/ Surety Bond	Table C-3
PISC (50 years) and Site Closure	\$14,268,000		Trust	Table C-4
Emergency and Remedial Response Plan	\$23,282,040		Insurance	Table C-5
Endangerment of USDWs	\$4,404,000		Insurance	Table C-6

Note 1: The amount of coverage column will be updated once the financial instruments are established

C.2. CORRECTIVE ACTION

The Area of Review and Corrective Action Plan identifies all artificial penetrations located within the area of review (AoR) that penetrate the confining zone, evaluates the potential for each artificial penetration to serve as a conduit for fluid movement, and defines corrective actions (as needed) for each artificial penetration. MC anticipates using some manner of escrow/surety bond as the financial instrument for corrective action to satisfy the requirement of 40 CFR 146.85(a)(2)(i). From the research and review of the deep gas wells in the vicinity of the project site and within the preliminary, structurally bound AoR, one idle gas well warrants a detailed evaluation, along with an additional six gas wells that were previously plugged MC plans to complete a detailed evaluation of these 7 gas wells, and also screen an addition 37 gas wells to ensure that they've been properly plugged and will not allow the potential carbon dioxide (CO₂) release from the injection interval..

The estimated costs for implementation of these potential corrective actions are presented in Table C-2.

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TABLE C-2. COST ESTIMATES FOR POTENTIAL CORRECTIVE ACTIONS

Corrective Action on Wells in AoR				
Activity		Unit Rates	Units	Cost
Potential Well Plugging/Other CA	API	per cyds ^{Note1}	cyds	
Roaring River	09521296	\$11,470	81	\$ 929,070
Plugged Wells - Rework/Other Action	API	per cyds ^{Note2}	cyds	
Browns Island Unit	01300275	\$5,735	226	\$ 1,298,624
McDougal Livestock	09520965	\$5,735	71	\$ 405,313
Swepi-Hershey State	09520674	\$5,735	175	\$ 1,001,336
McDougal	09520724	\$5,735	228	\$ 1,308,283
Dow Chemical Co.-Ward	09500420	\$5,735	89	\$ 510,899
Standard - King	09520206	\$5,735	77	\$ 440,030
Subtotal				\$ 5,893,556
Contingency			20%	\$ 1,178,711
Total Cost				\$ 7,072,267

Note 1: Baseline per cyds cost estimate developed based on IW-A1 plugging cost estimate (See Table C-3)

Well	API	cyds	Plugging Cost
IW-A1	TBD	112	\$ 1,284,000
		Per cyds Cost	\$ 11,470

Note 2: Conservative 50% of baseline per cyds cost estimate maybe required for additional corrective actions

CA = corrective action
cyds = cubic yards
TBD = to be determine

C.3. WELL PLUGGING AND ABANDONMENT

The cost for plugging and abandonment of IW-A1 and IZMW-A1 are estimated by a third-party industry expert using the scope of work defined in the Injection Well Plugging Plan and Post-Injection Site Care and Site Closure Plan, combined with their knowledge of current costs for comparable goods and services, and guided by the methodology and checklist provided in Appendix C and Appendix D of the United States Environmental Protection Agency (US EPA) Underground Injection Control (UIC) Program Class VI Financial Responsibility Guidance document (US EPA 2011). The cost estimate basis is an independent third-party is contracted to perform the work, where per 40 CFR 146.85(c)(1) the independent third-party is neither a parent nor a subsidiary of the owner or operator.

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MC will establish a surety bond and standby trust guaranteeing performance of well plugging and abandonment. Table C-1 summarizes the coverage for the instrument, which meets/exceeds the estimated cost for performing the work, thus satisfying the requirement of 40 CFR 146.85(a)(2)(ii).

Neither the surety bond nor the standby trust have been established as of the time of this writing. Discussion on conformance of the instrument to the required and recommended specifications will be provided in a future revision of the plan. At a minimum, MC will comply with the following required specifications given in Section 5. Conditions of Coverage and Specifications for Financial Responsibility Demonstrations C. Surety bond guaranteeing performance of injection well plugging and abandonment of the US EPA UIC Program Class VI Financial Responsibility Guidance document (US EPA 2011):

1. Under 40 CFR 146.85(a)(6)(ii), MC will provide proof that the surety either:
 - a. Has passed financial strength requirements based on credit ratings, or
 - b. Has met a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.
2. Under 40 CFR 146.85(a)(6)(iii), MC will establish a standby trust to enable the US EPA to be party to the financial responsibility agreement without the US EPA being the beneficiary of any funds.
3. As specified at 40 CFR 146.85(a)(2), the penal sum of the bond will be in an amount at least equal to the current cost estimate, except as provided in Section H. "Use of multiple financial instruments" of the US EPA UIC Program Class VI Financial Responsibility Guidance document (US EPA 2011).

An overview discussion on conformance of the instrument with the additional recommended specifications given in Section 5. Conditions of Coverage and Specifications for Financial Responsibility Demonstrations C. Surety bond guaranteeing performance of injection well plugging and abandonment of the US EPA UIC Program Class VI Financial Responsibility Guidance document (US EPA 2011) will be provided in a future revision of the plan.

The estimated costs for plugging of injection well IW-A1 and injection zone monitoring well IZMW-A1 are presented in Table C-3.

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TABLE C-3. COST ESTIMATES FOR PLUGGING OF IW-A1 AND IZMW-A1

Plugging Injection Wells <small>Note 1</small>			
Activity	Unit Rates	Units	Cost
Mobilization/Demobilization - Rig & Crew	1	250,000	\$ 250,000
Pre P&A work: Permitting, road and location prep/repair	1	25,000	\$ 25,000
Completion rig and rental cost (<i>provided by rig provider</i>) @ 10 days	10	15,000	\$ 150,000
Mud: roughly 250 BBL at \$20/BBL	250	20	\$ 5,000
Set Tubing plug via wireline	1	10,000	\$ 10,000
Logging Services (including segmented bond log and casing map)	1	275,000	\$ 275,000
Cement (Class G) and cement truck - estimated 67 cyds	67	2,000	\$ 134,000
Cement (CO ₂ Resistant) and cement truck - 45 cyds	45	800	\$ 36,000
Hauling/Disposal	1	50,000	\$ 50,000
Casing Crew/Welder	1	50,000	\$ 50,000
Wellhead Services	1	75,000	\$ 75,000
Miscellaneous	1	10,000	\$ 10,000
Subtotal			\$ 1,070,000
Contingency 20%			\$ 214,000
Total Cost - per well			\$ 1,284,000

IW-A1	\$	1,284,000
IZMW- A1	\$	1,284,000
Well Plugging Total Cost Estimate		
IW A1 & IZMW-A1	\$	2,568,000

Note 1: These cost estimates were developed jointly by Production Optimization Engineering and Trihydro Corporation
BBL = barrels
P&A = plugging and abandonment

C.4. PISC AND SITE CLOSURE

The costs for PISC and Site Closure were estimated by a third-party industry expert using the scope of work defined in the Post-Injection Site Care and Site Closure Plan, combined with their knowledge of current costs for comparable goods and services, and guided by the methodology provided in Appendix C of the US EPA UIC Program Class VI Financial Responsibility Guidance document (US EPA 2011). The basis for the cost estimates is an independent third-party is contracted to perform the work, whereas per 40 CFR 146.85(c)(1) the independent third party is neither a parent nor a subsidiary of the owner or operator.

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MC will establish a trust fund guaranteeing performance of PISC and Site Closure. Table C-1 summarizes the coverage for the trust, which meets/exceeds the estimated costs thus satisfying the requirement of 40 CFR 146.85(a)(2)(iii).

The trust has not been established as of the time of this writing. Discussion for conformance of this instrument to the required and recommended specifications will be provided in a future revision of the plan. At a minimum, MC will comply with the following required specifications given in Section 5. Conditions of Coverage and Specifications for Financial Responsibility Demonstrations A. Trust fund of the USEPA UIC Program Class VI Financial Responsibility Guidance document (USEPA 2011):

1. Under 40 CFR 146.85(a)(6)(ii), MC will provide proof that the trustee either:
 - a. Has passed financial strength requirements based on credit ratings, or
 - b. Has met a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.
2. Under 40 CFR 146.85(f), the US EPA Program Director must approve the use and length of pay-in-periods for trust funds.

An overview discussion on conformance of this instrument with the additional recommended specifications given in Section 5. Conditions of Coverage and Specifications for Financial Responsibility Demonstrations A. Trust fund of the US EPA UIC Program Class VI Financial Responsibility Guidance document (US EPA 2011) will be provided in a future revision of the plan.

The cost estimates and suitable proposal for financial instrument are ongoing and will be provided when they become available.

The estimated costs for post injection site care and site closure are presented in Table C-4.

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TABLE C-4. COST ESTIMATES FOR PISC AND SITE CLOSURE

Post-Injection Site Care and Site Closure			
Activity	Unit Rates	Units	Cost Breakdown
Monitoring and AoR Revisions		per year	
Project Management / Data Management / Telemetry	\$ 50,000	1	\$ 50,000
Atmosphere / Soil Gas Monitoring	\$ 17,500	8	\$ 140,000
Groundwater Monitoring	\$ 30,000	15	\$ 450,000
Seismic Surveys (including GNSS/InSAR)	\$ 5,000,000	1	\$ 5,000,000
Annual Pressure Test (Initial 2 years, then 5 year interval)	\$ 100,000	1	\$ 100,000
AoR Assessment	\$ 75,000	1	\$ 75,000
Geophysical Well Logging	\$ 500,000	1	\$ 500,000
Visual Inspection	\$ 75,000	1	\$ 75,000
		Subtotal	\$ 6,390,000
Monitoring and AoR Revisions			
Overhead and Support	\$ 1,500,000	1	\$ 1,500,000
Facilities Maintenance and Power	\$ 1,750,000	1	\$ 1,750,000
Site Closure			
Monitoring P&A	\$ 750,000	1	\$ 750,000
Facilities Closure	\$ 1,500,000	1	\$ 1,500,000
		Subtotal	\$ 2,250,000
		Subtotal	\$ 11,890,000
	Contingency	20%	\$ 2,378,000
		Total Cost	\$ 14,268,000

C.5. EMERGENCY AND REMEDIAL RESPONSE

The cost for emergency and remedial response (including endangerment to USDWs) was estimated by Trihydro Corporation (a third-party environmental/engineering consultant) using the scope of work defined in the Emergency and Remedial Response Plan, combined with their knowledge of current costs for comparable goods and services, and guided by the methodology provided in Appendix C of the US EPA UIC Program Class VI Financial Responsibility Guidance document (US EPA 2011). The basis for the cost estimate is an independent third-party is contracted to perform the work, where per 40 CFR 146.85(c)(1) the independent third-party is neither a parent nor a subsidiary of the owner or operator.

MC will establish an insurance policy with an independent third-party insurer to guarantee performance of emergency and remedial response (including endangerment to USDWs). Table C-1 summarizes coverage for

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the insurance, which meets/exceeds the estimated costs thus satisfying the requirements of 40 CFR 146.85(a)(2)(iv) and 40 CFR 146.85(a)(3).

The insurance has not been established as of the time of this writing. Discussion for conformance of this instrument to the required and recommended specifications will be provided in a future revision of the plan. At a minimum, MC will comply with the following required specifications given in Section 5. Conditions of Coverage and Specifications for Financial Responsibility Demonstrations E. Insurance of the US EPA UIC Program Class VI Financial Responsibility Guidance document (US EPA 2011):

1. Under 40 CFR 146.85(a)(6)(ii) MC will provide proof that the insurer either:
 - a. Has passed financial strength requirements based on credit ratings, or
 - b. Has met a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.
2. Under 40 CFR 146.85(a)(6)(vii) MC will demonstrate that the insurer issuing the policy is a third party.
3. As specified at 40 CFR 146.85(a)(2), the insurance policy must be issued for a face amount at least equal to the current estimate, except as provided in Section H. "Use of multiple financial instruments" of the US EPA UIC Program Class VI Financial Responsibility Guidance document (US EPA 2011). The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

An overview discussion on conformance of this instrument with the additional recommended specifications given in Section 5. Conditions of Coverage and Specifications for Financial Responsibility Demonstrations E. Insurance of the US EPA UIC Program Class VI Financial Responsibility Guidance document (US EPA 2011) will be provided in a future revision of the plan.

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The estimated costs for emergency remedial response actions are presented in Table C-5.

TABLE C-5. COST ESTIMATES FOR EMERGENCY AND REMEDIAL RESPONSE PLAN

Emergency Remedial Response		
Activity		Cost
Pump Trucks (twin pump)		\$ 144,000
Frac Tanks		\$ 24,000
Vacuum Truck		\$ 60,000
Dozer		\$ 36,000
Excavator		\$ 24,000
Dump Truck		\$ 36,000
Brine Disposal (no Class I)		\$ 42,000
Trucking Water		\$ 40,000
Water Transfer Pump and Personnel Package		\$ 7,500
Light towers, trailers, Generator, Heaters, Communications, etc.		\$ 15,000
Heater Packages		\$ 1,600
Fuel Tank Storage		\$ 1,600
Drill and P&A Relief Well		\$ 9,750,000
Special Well Control Team (e.g., Wild Well / Boots & Coots)		\$ 640,000
New Injector Well - Replacement (mobilization, drill, and compensation)		\$ 7,800,000
Original Injector Well Abandonment		\$ 780,000
	Subtotal	\$ 19,401,700
	Contingency 20%	\$ 3,880,340
	Total Cost	\$ 23,282,040

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The estimated costs for investigation, remediation, and monitoring associated with potential endangerment of a USDW are presented in Table C-6.

TABLE C-6. COST ESTIMATES FOR ENDANGERMENT OF USDWS

Endangerment of USDWs			
Description	Unit Rates	Units	Total Estimated Amount
Subsurface Release to USDW			
General Response Actions	\$ 20,000	1	\$ 20,000
Groundwater Delineation	\$ 1,500,000	1	\$ 1,500,000
Irrigation/Domestic Well Sampling and Replacement	\$ 750,000	1	\$ 750,000
Quarterly Groundwater Monitoring (10 years) and Reporting	\$ 1,250,000	1	\$ 1,250,000
P&A of Groundwater - Monitoring Wells	\$ 150,000	1	\$ 150,000
Subtotal			\$ 3,670,000
Contingency		20%	\$ 734,000
Total Cost			\$ 4,404,000

The cost estimates and suitable proposal for financial instrument are ongoing and will be provided when they become available.

C.6. REFERENCES

US EPA 2011, Geologic Sequestration of Carbon Dioxide: Underground Injection Control (UIC) Program Class VI Financial Responsibility Guidance, Office of Water (4606M), EPA 816-R-11-005, July 2011. Available at: https://www.epa.gov/system/files/documents/2022-11/uicfinancialresponsibilityguidancefinal072011v_0.pdf.