SECTION 10 – FINANCIAL ASSURANCE

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10.1 Introduction

This financial assurance section for WC IW No. 001-A was prepared to meet the requirements of Statewide Order (SWO) 29-N-6 **§3607.C.2.m** and **§3609.C.1** [Title 40, U.S. Code of Federal Regulations (40 CFR) **§146.82(a)(14)** and **§146.85(a)**].

10.2 Financial Assurance

Harvest Bend CCS LLC (Harvest Bend CCS) will secure a combination of insurance policies and surety bonds, which will be used to provide sufficient coverage and funding for any corrective action, injection and monitor well plugging, post-injection site care and site closure, and emergency and remedial response. The total amount of financial assurance will be [redacted] in the form of insurance policies, and [redacted] in the form of surety bonds—and will reflect the minimum amount of funding to cover the costs for which financial responsibility must be maintained. The following section breaks down the estimated costs associated with the subject injection well as prepared by a third party.

Table 10-1 – Summary of Costs Associated with Financial Assurance

Financial Assurance Cost Breakdown		
Corrective Action (0 wells)		[redacted]
[redacted]	[redacted]	
Injection Well Plugging		[redacted]
[redacted]	[redacted]	
Deep, Above-Zone Monitoring Wells (x1 Well)		[redacted]
[redacted]	[redacted]	

[redacted]	[redacted]	
Shallow, USDW Monitor Wells (x1 Wells)		[redacted]
[redacted]	[redacted]	
[redacted]	[redacted]	
Post-Injection Site Care and Site Closure		[redacted]
[redacted]	[redacted]	
[redacted]	[redacted]	
[redacted]	[redacted]	
[redacted]	[redacted]	
Emergency and Remedial Response		[redacted]
[redacted]	[redacted]	
[redacted]	[redacted]	
[redacted]	[redacted]	
[redacted]	[redacted]	
[redacted]	[redacted]	
[redacted]	[redacted]	
[redacted]	[redacted]	
TOTAL		[redacted]

10.3 Corrective Action Plan

The Corrective Action Plan was discussed in detail in *Section 3 – Area of Review and Corrective Action Plan*. If applicable, the plan specifically outlines not only revised plugging plans for wells found within the currently predicted carbon and critical pressure fronts, but also the recompletion schedule whereby the wellbore modifications will have been completed.

With regard to WC IW-A No. 001, there exist no wells requiring plugging modifications to be completed within the currently predicted area of review (AOR). As such, there is no financial risk for existing wells requiring corrective action.

The AOR will be reevaluated every five years to determine if any new wellbore penetrations have occurred, or if changes to the AOR require changes to the Corrective Action Plan and associated financial assurance.

10.4 Injection Well Plug and Abandonment

Plug and abandonment (P&A) of WC IW-A No. 001 will meet the requirements of SWO 29-N-6 **§631** [40 CFR **§146.92**]. The P&A of the injection well must be designed so that no movement of fluids will occur from the injection interval. A more detailed P&A plan was discussed in *Section 6 – Injection Well Plugging Plan*. Funds will be guaranteed, via a surety bond, to ensure that P&A operations are properly managed. These funds include costs for logs/wireline to be run in the wellbore before cementing occurs. CO_2-resistant cement will be used in the initial plug of the well, to ensure the cement does not react with the injected fluid—so a higher cement expense than that

for a typical well of this depth is to be expected. All expenses relating to personnel and equipment have been accounted for in Table 10-1. Pressure-test costs are also included to account for proving the integrity of the well.

10.5 Monitoring Wells Plug and Abandonment

The P&A of the monitoring wells associated with WC IW-A No. 001 will also meet the requirements of SWO 29-N-6 **§631** [40 CFR **§146.92**]. The P&A of these shallow monitoring wells will be designed so that no movement of fluids will occur from the injection interval, nor will fresh, treatable water found within the Underground Source of Drinking Water (USDW) be threatened. A more detailed P&A plan is discussed in *Section 6*. Funds will be guaranteed via a surety bond to ensure that P&A operations are properly managed. Because these wells will be completed above the uppermost confining geologic interval, conventional plugging procedures will be utilized. These funds include costs for logs/wireline to be run in the wellbore before cementing occurs. All expenses relating to personnel and equipment have also been accounted for in Table 10-1. Pressure test costs are also included to account for proving the integrity of the well.

10.6 Post-Injection Site Care and Site Closure

The PISC and Site Closure Plan will be designed to meet the requirements of SWO 29-N-6 **§633** [40 CFR **§146.93**]. The costs associated with the plan have been highlighted as well in Table 10-1**.** The plan is discussed in *Section 7 – Post-Injection Site Care and Site Closure Plan*.

10.6.1 Post-Injection Monitoring

As discussed in *Section 5 – Testing and Monitoring Plan*, time-lapse seismic monitoring will be conducted every five years to ensure the integrity of the well and to track the migration of the plume. The costs estimated in Table 10-1 cover post-injection monitoring activities to occur periodically until the owner is released from post-injection site duties, including time-lapse seismic surveying as well as groundwater and above-zone monitoring activities.

10.6.2 Site Closure

Site closure will occur when the Underground Injection Control (UIC) Program Director (UIC Director) has released the owner from all post-injection site duties. The costs above reflect the amount expected to close the site and restore the facility to its natural state. Dismantling of surface facilities includes removing storage vessels, piping, pumps, and surface equipment, etc. Concrete and debris removal are also included in surface facilities costs. Funds will be allocated for site restoration to leave minimal environmental impact.

10.7 Emergency and Remedial Response Plan

The Emergency and Remedial Response Plan, referenced eponymously in *Section 8*, is designed to be in compliance with SWO 29-N-6 **§623.A.1** [40 CFR **§146.94**]. The total cost for all scenarios

determines the final levels of insurance required, which ensures the operator will have the ability to remediate any given scenario. For the purposes of assigning value to the categories listed on the Risk Assessment Matrix, the following modifiers shown in Table 10-2 have been applied to account for the levels of likelihood and severity (i.e., Total Score) determined from the matrix:

Table 10-2 – Risk Assessment Matrix Cost Modifiers

Risk Level	Threat Scores	Cost Modifier
High	[redacted]	[redacted]
Moderate	[redacted]	[redacted]
Low	[redacted]	[redacted]

The resultant costs for the Emergency and Remedial Response Plan were shown in Table 10-1.

The following is a discussion regarding the costs associated with various scenarios that may occur at any phase during CO_2 sequestration as identified in the Risk Assessment Matrix.

10.7.1 Scenario 1: CO_2 Release to or at the Surface

CO_2 released at the surface can create a potential risk to human health as well as the local environment and ecosystems. The release could result from a variety of events such as major mechanical and integrity failures or damage to the CO_2 distribution and storage facilities, unidentified orphan wells, well integrity issues, operating equipment over designed pressures, and geological complications. The costs in Table 10-1 consider the amount needed to correct the source of the release, such as system repair and plugging or remediation costs of the problem well, as well as potential litigation fees and regulatory fines. Table 10-1 also includes costs for closure of WC IW-A No. 001 in the event the release cannot be repaired.

10.7.2 Scenario 2: Water Quality Contamination

If, during the drilling of the injection well, the USDW is contaminated with drilling fluids—or during the operation of the injection well, the injectate leaks into the USDW—the costs in Table 10-1 demonstrate the amount needed to remediate the impact of contamination of potable water. This expense amount also accounts for returning the USDW to conditions before the intrusion of CO_2; the potential local, state, and federal regulatory fines; litigation; damages; and closure of the geologic storage project.

10.7.3 Scenario 3: Storage Rights Infringement

In the event that the carbon front migrates out of the controlled or leased pore space into adjacent pore space, the costs in Table 10-1 demonstrate the amount needed to resolve any potential storage rights issues. This estimate considers the cost of addressing potential litigation and damages, as well as acquiring additional pore space.

10.7.4 Scenario 4: Mineral Rights Infringement (Trespass)

In the event that the carbon front migrates out of the controlled or leased pore space into adjacent oil and gas mineral resources, the costs in Table 10-1 demonstrate the amount needed to remediate the impact to current or future mineral resource production. As the Carbon Dioxide Sequestration agreement discussed in *Section 0 – Introduction* is in place with not only the pore space owner, but also the mineral owner, this risk has been fully mitigated.

10.7.5 Scenario 5: Entrained Contaminant (Non-CO_2) In Injection Stream

During injection operations, the composition and properties of the injectate can deviate from chemically desired conditions. The change in composition can have metallurgical effects and induce corrosion. Additionally, the contaminant-containing injectate stream can initiate microbial activity, such as H_2S gas production, thus impacting dissolution, leading to unexpected geochemical reactions and impacting wellbore and reservoir integrity. The estimate in Table 10-1 covers repair and cleanup costs.

10.7.6 Scenario 6: Accidents/Unplanned Events

Unforeseen events, such as accidental surface-infrastructure damage, pipeline leak, and weather-related events (e.g., hurricanes), may occur while operating the CO_2 storage facility. The costs identified in Table 10-1 are tied to repair and cleanup costs due to such events or accidents and supported by insurance.

10.8 Updates to Financial Assurance

During the active life of this project, Harvest Bend CCS will adjust the cost estimate for inflation within 60 days, prior to the anniversary date of the establishment of the surety bond and provide this adjustment to the UIC Director. Harvest Bend CCS will also provide written updates of adjustments to the cost estimate within 60 days of any amendments to the Area of Review and Corrective Action Plan, the Injection Well Plugging Plan, the PISC and Site Closure Plan, and the Emergency and Remedial Response Plan. If the updated cost estimate increases to an amount greater than the face value of the surety bond in use, Harvest Bend CCS will either obtain an increase in the surety bond at an amount at least equal to the current cost estimate or obtain other financial responsibility instruments to cover the increase—and supply evidence of such to the UIC Director. If the estimated value is reduced due to changes in the operational cycle of the project, the bond will be reduced in value accordingly if approved by the UIC Director.