

**Underground Injection Control
Carbon Sequestration
Class VI Permit Application**

**FINANCIAL ASSURANCE DEMONSTRATION
40 CFR 146.85
Section 4.0**

**NexGen Carbon Oklahoma, LLC
Vanguard CCS Hub**

June 2025

4.0 FINANCIAL ASSURANCE DEMONSTRATION

VANGUARD CCS HUB

Facility Information

Facility name: Vanguard CCS Hub

Vanguard I-1
Vanguard I-2
Vanguard I-3
Vanguard I-4
Vanguard I-5
Vanguard I-6
Vanguard I-8
Vanguard I-9
Vanguard I-10
Vanguard I-12

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Well locations: Osage County, Oklahoma

Vanguard I-1: Lat 36.633288°N, Long -96.571029°W NAD 83
Vanguard I-2: Lat 36.660083°N, Long -96.534652°W NAD 83
Vanguard I-3: Lat 36.664329°N, Long -96.586951°W NAD 83
Vanguard I-4: Lat 36.710244°N, Long -96.542370°W NAD 83
Vanguard I-5: Lat 36.744047°N, Long -96.533843°W NAD 83
Vanguard I-6: Lat 36.724157°N, Long -96.489526°W NAD 83
Vanguard I-8: Lat 36.823356°N, Long -96.620496°W NAD 83
Vanguard I-9: Lat 36.849167°N, Long -96.592912°W NAD 83
Vanguard I-10: Lat 36.893849°N, Long -96.578026°W NAD 83
Vanguard I-12: Lat 36.785641°N, Long -96.594085°W NAD 83

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ACRONYMS AND ABBREVIATIONS

2D	two dimensional
A	
AoR	area of review
C	
CCUS	carbon capture, utilization, and storage
CFR	code of federal regulations
CO ₂	carbon dioxide
E	
EPA	U.S. Environmental Protection Agency
ERRP	Emergency and Remedial Response Plan
P	
PISC	post-injection site care and closure
Project	NexGen Carbon Oklahoma, LLC - Vanguard CCS Hub
Q	
QASP	quality assurance and surveillance plan
U	
UIC	underground injection control
USDW	underground source of drinking water

4.0 FINANCIAL RESPONSIBILITY

4.1 Financial Responsibility Summary and Cost Estimates

NexGen Carbon Oklahoma, LLC (NexGen) proposes drilling and completing ten (10) carbon sequestration injection wells, ten (10) above-zone monitoring wells, and seven (7) in-zone monitoring wells to ensure the safe sequestration of CO₂ (the “Project”) into the upper Arbuckle Group in Osage County, Oklahoma. NexGen is providing financial responsibility cost estimates pursuant to 40 CFR 146.85. NexGen is purchasing a combination of financial instruments to cover the costs of corrective action, emergency and remedial response, injection well plugging, post-injection site care, and site closure. The instruments being purchased include a surety bond to cover the costs of corrective action **Claimed as PBI**, injection well plugging **Claimed as PBI**, post-injection site care **Claimed as PBI**, and site closure **Claimed as PBI** with cost estimates totaling **Claimed as PBI** with up to **Claimed as PBI** of coverage (**Attachment 1**). A Pollution legal Liability policy will cover emergency and remedial response costs, estimated at **Claimed as PBI** with up to **Claimed as PBI** of coverage (**Attachment 2**). The total cost is **Claimed as PBI**.

The estimated costs of each of these activities, have been estimated by NexGen staff with the input from relevant local vendors and likely response actions in the case of major emergency event scenarios.

Table 4.1—Cost estimates for activities to be covered by financial responsibility.

Activity	Claimed as PBI
Corrective Action	Claimed as PBI
Plugging Injection Wells	Claimed as PBI
Post-Injection Site Care	Claimed as PBI
Site Closure	Claimed as PBI
Emergency and Remedial Response	Claimed as PBI
Total	Claimed as PBI

A financial assurance cost estimate, based on 2025 dollars, is provided for:

- Corrective actions for all wells in the area of review (AoR) that require corrective action (as identified in the Area of Review and Corrective Action Plan, *Section 3* to meet the requirements of 40 CFR 146.84);
- Plugging and abandoning the injection wells (as identified in the Injection Well Plugging Plan, *Section 9* to meet the requirements of 40 CFR 146.92);
- Post-injection site care and site closure (as described in the Testing and Monitoring Plan in *Section 8* includes monitoring, measurement, verification, and other actions needed to ensure that underground sources of drinking water (USDW) are not endangered from the

well-plugging activities until the site is closed to meet the requirements of 40 CFR 146.93); and

- Emergency and Remedial Response (as described in the Emergency and Remedial Response Plan (ERRP), *Section 11.0* to meet the requirements of 40 CFR 146.94)

These costs will be updated annually to account for inflation and Project-related cost changes.

4.1.1 Corrective Action

One hundred and sixty five (165) wells in the AoR, as defined by category of age and complexity in *Section 3*, were determined to need corrective action. These wells will require abandonment and re-abandonment efforts to place acid-resistant plugs across the proposed injection and upper confining zones and cement plugs across the overlying hydrocarbon-bearing zones. Therefore, **Claimed as PBI** in corrective action costs were included for corrective action.

4.1.2 Plugging Injection Well

The plugging costs for each of the ten (10) injection wells are estimated to be **Claimed as PBI** the breakdown of costs is provided in **Table 4.2**. A detailed discussion of the plugging procedures is included in *Section 9*.

Table 4.2—Injection well plugging costs.

Activity	Cost (USD)
Workover Rig	Claimed as PBI
Final Mechanical Integrity Test and Casing Logs	Claimed as PBI
Cementing	Claimed as PBI
Location Cleanup	Claimed as PBI
Roustabout	Claimed as PBI
Total	Claimed as PBI

4.1.3 Post-Injection Site Care and Site Closure

The post-injection site care and site closure cost estimates (see **Table 4.3**) include costs for the post-injection period related to two-dimensional (2D) seismic survey monitoring program, groundwater monitoring, and the operation and maintenance activities for the monitoring wells, as described in *Section 8*. The site closure costs include plugging of all monitoring wells and surface facility closure costs.

Table 4.3—Post-injection site care and site closure costs.

Activity	Estimated Total Cost (USD)
Post-Injection Site-Care	
2D Timelapse Seismic Monitoring Surveys	Claimed as PBI
Groundwater Monitoring	Claimed as PBI
Testing and Monitoring Logs	Claimed as PBI
Operations and Maintenance of Monitoring well	Claimed as PBI
Subtotal	Claimed as PBI
Site Closure	
Monitor Wells Plugging	Claimed as PBI
Surface Facilities Closure	Claimed as PBI
Subtotal	Claimed as PBI
TOTAL	Claimed as PBI

4.1.4 Emergency and Remedial Response

Cost estimates for emergency and remedial response activities are complicated by the uncertainty as to whether such events will occur and the nature of the events, and therefore the cost of responding. Emergency events and response actions are described in the Emergency and Remedial Response Plan (ERRP, *Section 11*). Cost estimates are based on the response actions to the major event scenarios. A summary of the emergency events, along with third party cost estimates for a major event, are shown in **Table 4.4**.

Due to the low probabilities of event occurrence, and the statistically improbable likelihood of multiple failures occurring over the course of the project lifetime, the single highest cost scenario was selected as the cost for emergency and remedial responses. This scenario accounts for the emergency and remedial response actions following a major seismic event which causes leakage of CO₂ and/or formation fluids to a USDW. These response actions include incident assessment and testing of wells and pipelines, geophysical surveys to identify subsurface leakage, surface and near-surface monitoring, corrective action of a damaged well, and completion of groundwater remediation.

Table 4.4—Emergency and remedial response plan costs.

Emergency Scenario	Estimated Cost (2025 USD)
Injection and/or Monitoring Well Integrity Failure	Claimed as PBI
Injection Well Monitoring Equipment Failure	
Potential Brine or CO ₂ Leakage to USDW or the Surface	
Natural Disaster	
Seismic Event	

4.1.5 Updates to Financial Assurance [40 CFR 146.85(C)(2)(3)(4)]

As part of the requirements under 40 CFR 146.85(c), cost estimates will be updated during the active life of the project and provided to the UIC Program Director within 60 days prior to the anniversary date of the establishment of the financial instrument(s) and within 60 days of any amendments to the AoR and Corrective Action Plan, Injection Well Plugging Plan, the PISC and Site Closure Plan, and the ERRP. If the cost estimates increase to an amount greater than the face value of the financial instrument(s) in use, NexGen will increase the face amount of the existing instrument(s) or acquire additional financial instruments within 60 days and submit evidence to the UIC Program Director.

4.2 Financial Instruments

Pursuant to 40 CFR 146.85(a), Ascot Surety Inc. will provide a surety bond up to **Claimed as PBI** to cover **Claimed as PBI** of corrective action costs, **Claimed as PBI** of plugging injection well costs and up to **Claimed as PBI** of post-injection site care and site closure costs (see **Attachment 1**).

Pursuant to 40 CFR 146.85(a), Mosaic Americas Insurance Services LLC. will provide Pollution Legal Liability Insurance up to **Claimed as PBI** with all EPA-required endorsements to cover emergency and remedial response costs (see **Attachment 2**).

4.3 References

Claimed as PBI

Claimed as PBI