


Denbury Carbon Solutions, LLC

## Application Narrative

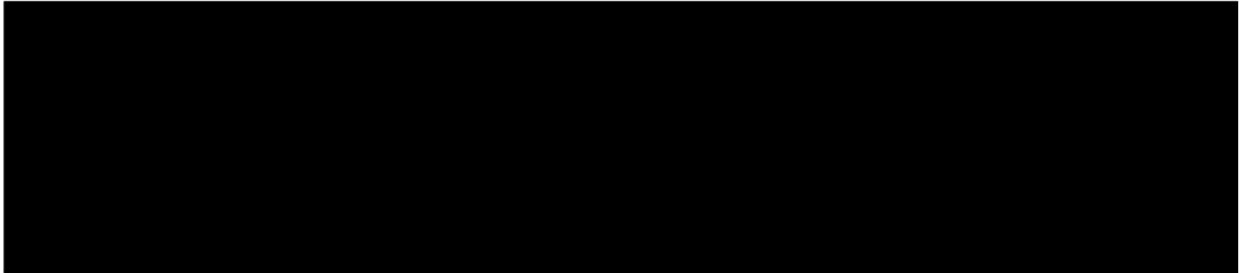
Draco Storage Facility, Allen, Beauregard, and Vernon Parishes, Louisiana



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## 1.0 GENERAL APPLICATION INFORMATION

Facility Name: Draco Storage Facility

Mailing Address: 5851 Legacy Circle, Suite 1200  
Plano, Texas 75024

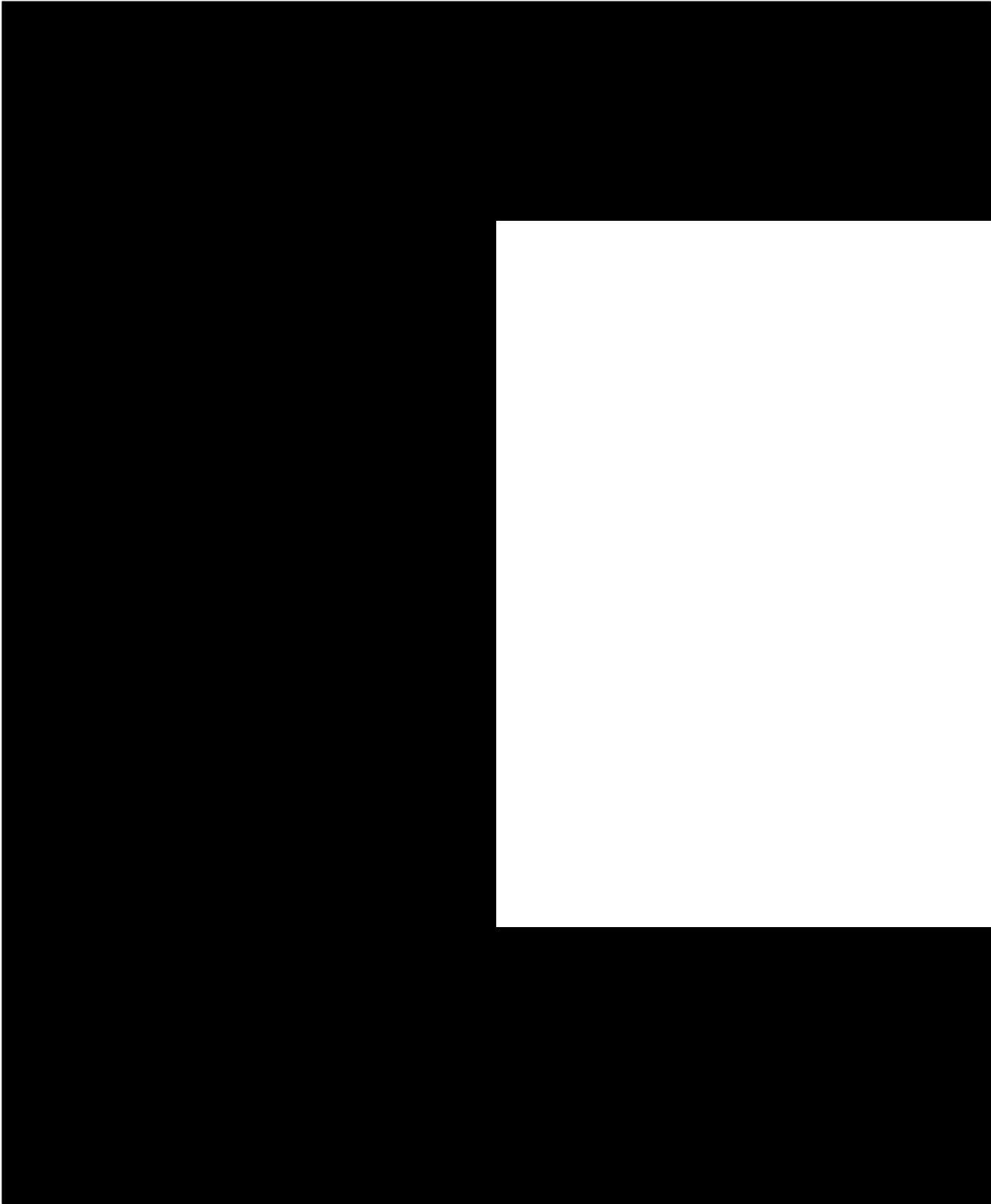
Facility contacts: Name: Cody Todd  
Email: Cody.Todd@denbury.com  
Phone #: 972-673-2238

Ownership Status Limited Liability Company

Entity Status Public

SIC Codes: 1389 – Oil and Gas Field Services

This facility is not located on Federal, Indian or State Lands.



## 2.0 ADDITIONAL PERMITS





### 3.0 PROJECT BACKGROUND

[REDACTED]

The goal of the Draco Storage Facility is to permanently store anthropogenic CO<sub>2</sub> captured from industrial sources, thereby facilitating the United States' effort to reduce greenhouse gas emissions. The Draco Storage Facility will be a commercial-scale carbon capture system that will be designed, constructed, and operated with the capability of storing CO<sub>2</sub> into deep geologic formations. The site was chosen based on the favorable geology, ideal for storage, and proximity to emitting sources of CO<sub>2</sub>. [REDACTED]

The application that follows will thoroughly describe and characterize the geology of the planned well locations, evaluate the formation for the qualities required to permanently contain the sequestered CO<sub>2</sub>, and outline the engineering design and safety requirements of the constructed wells. The application will also discuss the planned monitoring system, which will be used to analyze the movement of the actual injectate plume with that predicted by reservoir modeling and simulation.

This application has been developed to meet all the requirements of US Code 40 CFR §146.82 through 146.95 and LAC43: XVII §3601 through 3633. Should Louisiana receive primacy, Denbury will meet the requirements for LAC43: XVII §3601 through 3633. Once the permit has been issued, per the requirements of 40 CFR §144.36(a) and LAC43: XVII §3609.M.1, the permit will be updated every five years thereafter for the active injection life of the well(s).

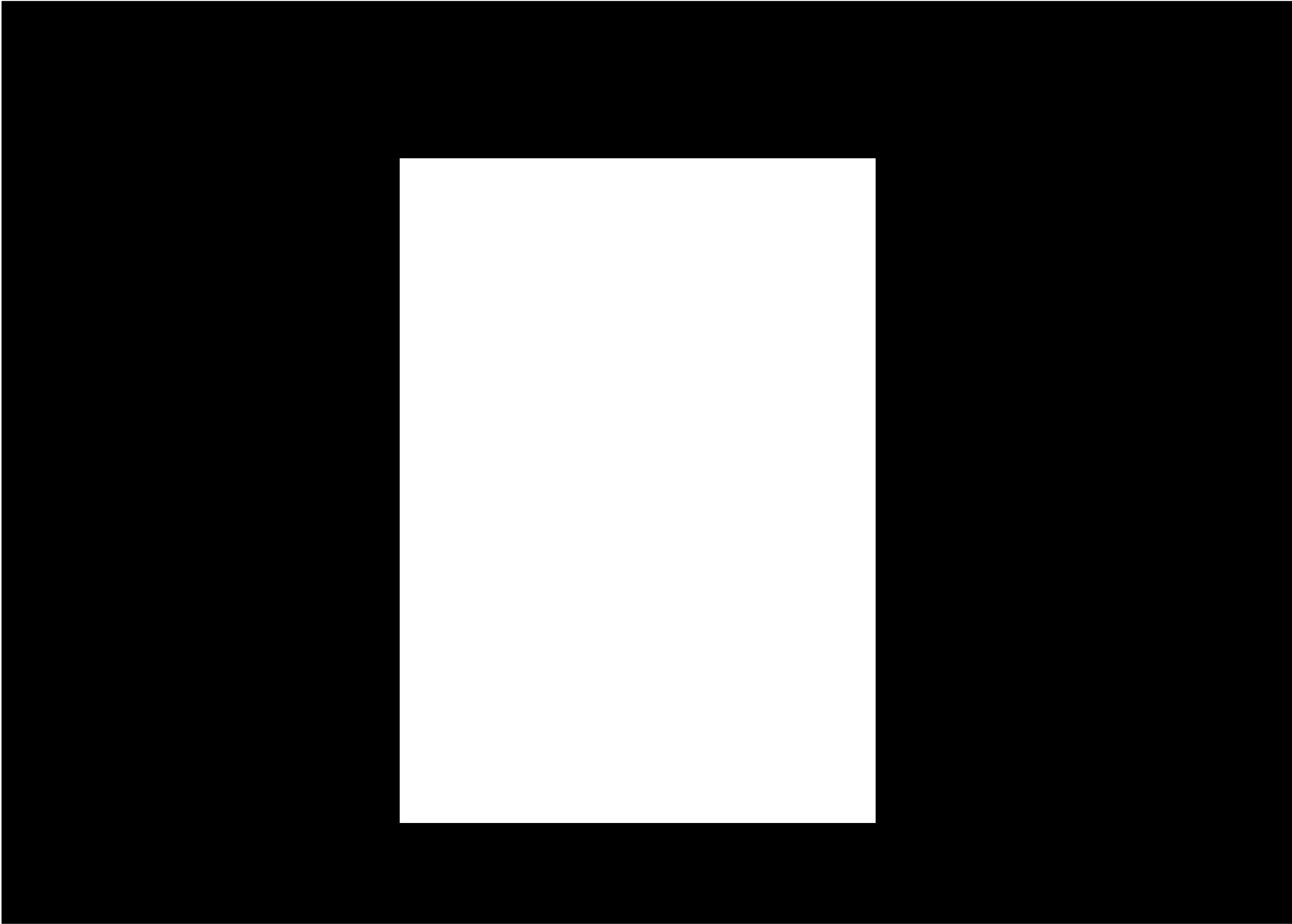
#### **GSDT Submission - Project Background and Contact Information**

**GSDT Module:** Project Information Tracking

**Tab(s):** General Information tab; Facility Information and Owner/Operator Information tab

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☐ Required project and facility details **[40 CFR §146.82(a)(1) and LAC43: XVII §3607.C]**



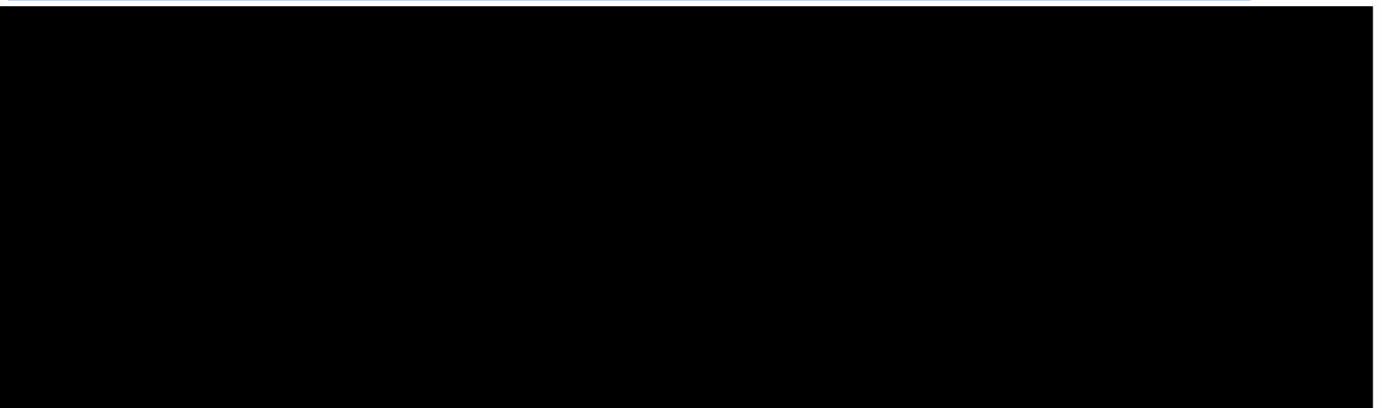


## 4.0 SITE CHARACTERIZATION

A regional and local geologic evaluation was conducted for the Draco Storage Facility site using geologic, geophysical, petrophysical, hydrogeological, and well log analysis data obtained from published literature, commercial sources, proximal core data, and publicly available datasets.

Detailed discussions of the geologic features, seismic history, injection and confining zone details, and the site suitability are provided in the Geologic Site Characterization and Area of Review and Corrective Action Plan documents of the permit; some highlights from those discussions are below.

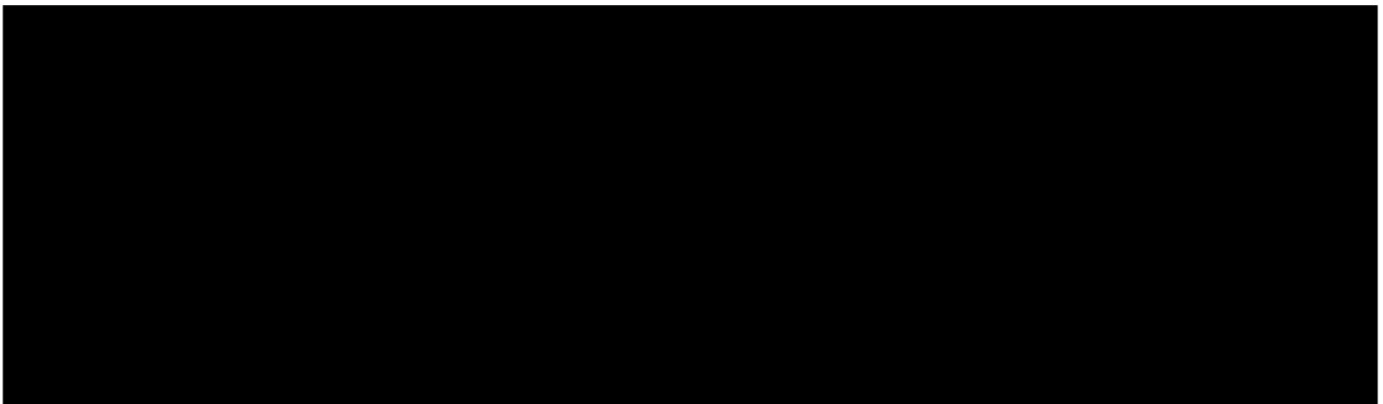
### 4.1 REGIONAL GEOLOGY, HYDROGEOLOGY, AND LOCAL STRUCTURAL GEOLOGY [40 CFR §146.82(A)(3)(VI) AND LAC43: XVII §3607.C.1.B.I.]



### 4.2 FAULTS AND FRACTURES [40 CFR §146.82(A)(3)(II) AND LAC43: XVII §3607.C.1.B.III.]



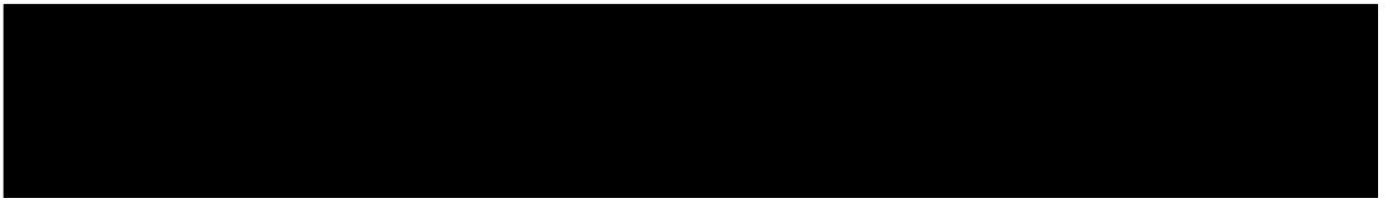
### 4.3 INJECTION AND CONFINING ZONE DETAILS [40 CFR §146.82(A)(3)(III) AND LAC43: XVII §3607.C.2.A.]



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**4.4 GEOMECHANICAL AND PETROPHYSICAL INFORMATION [40 CFR §146.82(A)(3)(IV) AND LAC43: XVII §3607.C.2.B.]**

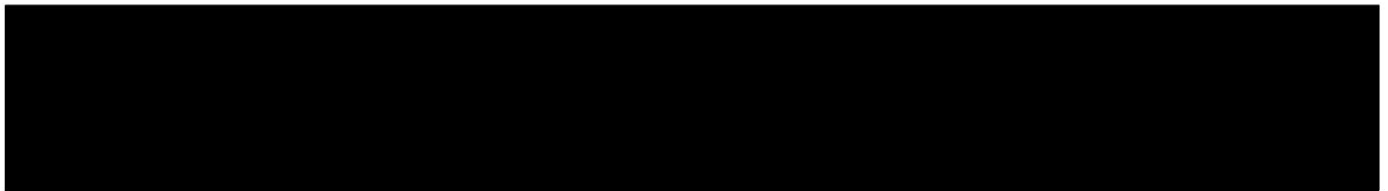
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**4.5 SEISMIC HISTORY [40 CFR §146.82(A)(3)(V) AND LAC43: XVII §3607.C.2.C.]**

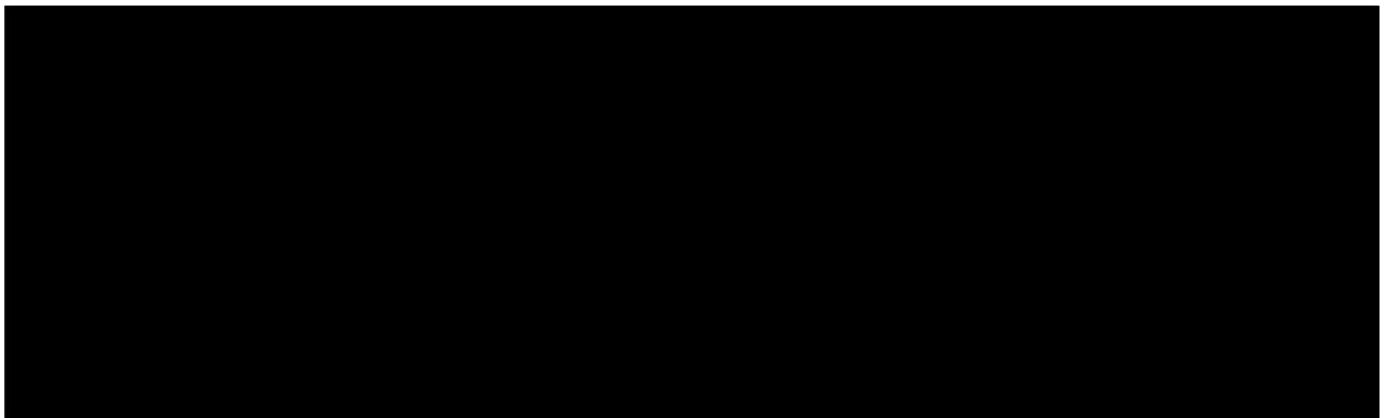
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**4.6 HYDROLOGIC AND HYDROGEOLOGIC INFORMATION [40 CFR §146.82(A)(3)(VI), 146.82(A)(5) AND LAC43: XVII §3607.C.1.B.I, LAC43: XVII §3607.C.1.B.IV.]**

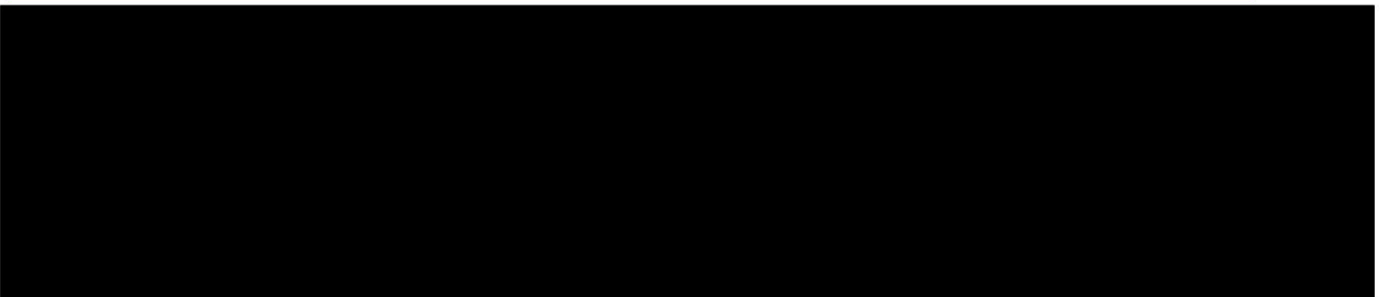
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**4.8 OTHER INFORMATION (INCLUDING SURFACE AIR AND/OR SOIL GAS DATA, IF APPLICABLE)**

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## 4.9 SITE SUITABILITY [40 CFR §146.83 AND LAC43: XVII §3615]

## 5.0 AOR AND CORRECTIVE ACTION

All the requirements of the Environmental Protection Agency (EPA) 40 CFR §146.84 and LAC43: XVII §3615 are met by the Area of Review & Corrective Action Plan document submitted along with the application. The document describes the subsurface characterization, computational modeling, current area of review delineation, corrective action plan and schedule, wells requiring corrective action, and future area of review re-evaluation plan and schedule. At a fixed frequency, or more frequently when monitoring and operational conditions warrant, the area of review will be reevaluated and any required corrective action in the manner specified in 40 CFR §146.84 and LAC43: XVII §3615 will be performed. Following each Area of Review and Corrective Action Plan reevaluation or demonstration showing that no new evaluation is needed, Denbury will submit the results to the UIC Program Director and LDNR Commissioner for review and approval.

### AoR and Corrective Action GSDT Submissions

GSDT Module: AoR and Corrective Action

Tab(s): All applicable tabs

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☐ Tabulation of all wells within AoR that penetrate confining zone [40 CFR §146.82(a)(4) and LAC43: XVII §3607.C.2.d.]

☐ AoR and Corrective Action Plan [40 CFR §146.82(a)(13) and 146.84(b); LAC43: XVII §3607.C.2.l. and LAC43: XVII §3615.B.2.]

☐ Computational modeling details [40 CFR §146.84(c) and LAC43: XVII §3615.B.3.]

## 6.0 FINANCIAL RESPONSIBILITY

As required by 40 CFR §146.85 and LAC43: XVII §3609.C., Denbury will maintain financial responsibility, throughout all phases of the Draco Storage Facility project. The financial responsibility instruments can be found in the Financial Assurance Demonstration document submitted with this application. The instruments will be sufficient to cover the costs of corrective action, injection well plugging, post-injection site care, site closure, and emergency and remedial response (ERR). Adjustments to the cost estimate, to include adjustment for inflation, cost estimate increases, or an event that may adversely affect financial conditions, will be provided to the UIC Program Director and LDNR Commissioner in writing within 60 days.

**Financial Responsibility GSDT Submissions**

GSDT Module: Financial Responsibility Demonstration

Tab(s): Cost Estimate tab and all applicable financial instrument tabs

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☐ Demonstration of financial responsibility [40 CFR §146.82(a)(14); 146.85 and LAC43: XVII §3607.C.2.m.; §3609.C.]**7.0 INJECTION WELL CONSTRUCTION**

[REDACTED] The wells are to be constructed in compliance with Class VI UIC injection well construction requirements. The goal of the operating parameters and material selection is to guarantee the system's mechanical integrity, ensuring protection of the USDW, and to maximize performance during the life of the project. A more in-depth discussion of the injection well construction, along with wellbore schematics, can be found in the Well Construction Details section included in the submission of this application.

**7.1 PROPOSED STIMULATION PROGRAM [40 CFR §146.82(A)(9) AND LAC43: XVII §3607.C.2.H.]****7.2 CONSTRUCTION PROCEDURES [40 CFR §146.82(A)(12) AND LAC43: XVII §3607.C.2.K.]**

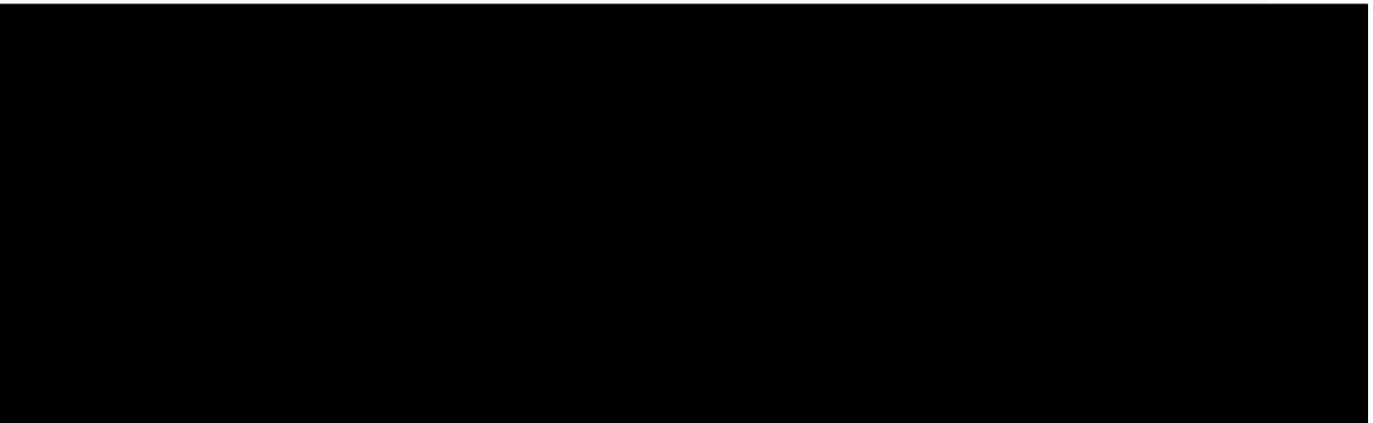




### 7.3 CASING AND CEMENTING



### 8.0 PRE-OPERATIONAL LOGGING AND TESTING

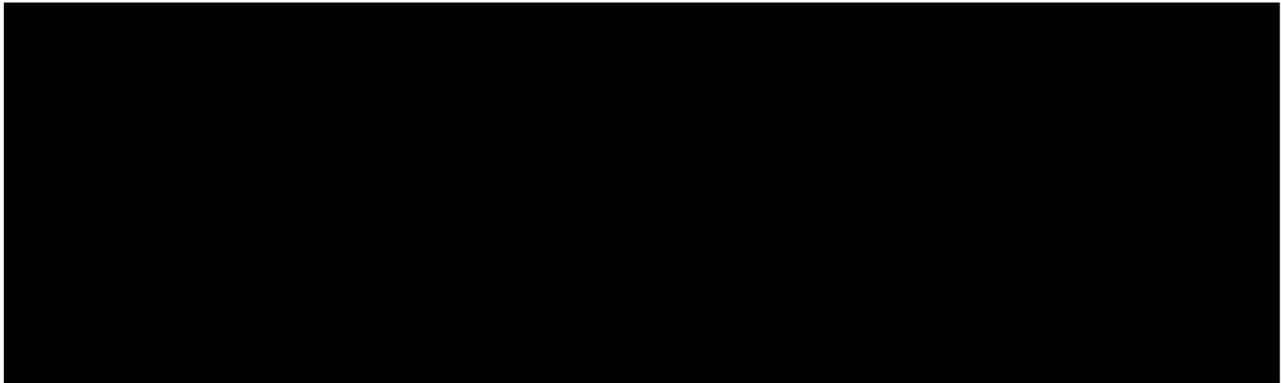


Pre-Operational Logging and Testing GSDT Submissions
GSDT Module: Pre-Operational Testing
Tab(s): Welcome tab
Please use the checkbox(es) to verify the following information was submitted to the GSDT:
<input type="checkbox"/> Proposed pre-operational testing program [40 CFR §146.82(a)(8), 146.87 and LAC43:XVII §3607.C.2.g., §3617.B.]

## 9.0 WELL OPERATION



### 9.1 OPERATIONAL PROCEDURES [40 CFR §146.82(A)(10) AND LAC43: XVII §3607.C.2.i.]



### 9.2 PROPOSED CARBON DIOXIDE STREAM [40 CFR §146.82(A)(7)(III), (IV) AND LAC43: XVII §3607.C.2.f.iii, iv]



## 10.0 TESTING AND MONITORING

The Testing and Monitoring Plan document describes how Denbury will monitor the Draco Storage Facility pursuant to 40 CFR §146.90 and LAC43: XVII §3625. In addition to demonstrating that the well is operating as planned, the carbon dioxide plume and pressure front are moving as predicted, and that there is no endangerment to USDWs, the monitoring data will be used to validate and adjust the geological models used to predict the distribution of the carbon dioxide within the storage zone to support AoR reevaluations and a non-endangerment demonstration.

Results of the testing and monitoring activities described below may trigger action according to the Emergency and Remedial Response Plan (ERRP).

Testing and Monitoring GSDT Submissions
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GSDT Module: Project Plan Submissions
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Tab(s): Testing and Monitoring tab
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Please use the checkbox(es) to verify the following information was submitted to the GSDT:
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☐ Testing and Monitoring Plan [40 CFR §146.82(a)(15), 146.90 and LAC43:XVII §3607.C.2.n., §3625]

## 11.0 INJECTION WELL PLUGGING

After cessation of injection, Denbury plans to plug and abandoned the injection wells in compliance with 40 CFR §146.92(c) and LAC43: XVII §3631.A.4., Denbury will notify the USEPA at least 60 days and submit the Form UIC-17, or successor form, to LDNR before plugging the well and provide updated Injection Well Plugging Plan, if applicable. Denbury will submit a plugging report to the regulatory agency within 30 days after plugging. Denbury will retain the plugging report for 10 years following site closure pursuant to 40 CFR §146.91(e) and LAC43: XVII §3629.A.4.

### Injection Well Plugging GSDT Submissions

GSDT Module: Project Plan Submissions

Tab(s): Injection Well Plugging tab

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☐ Injection Well Plugging Plan [40 CFR §146.82(a)(16), 146.92(b) and LAC43: XVII §3607.C.2.o., §3631.A.3.]

## 12.0 POST-INJECTION SITE CARE (PISC) AND SITE CLOSURE

This Post-Injection Site Care and Site Closure (PISC) plan describes the activities that Denbury will perform to meet the requirements of 40 CFR §146.93 and LAC43: XVII §3633. Denbury will monitor ground water quality and track the position of the carbon dioxide plume and pressure for [REDACTED] if plume stabilization is demonstrated to be reached sooner. Denbury may not cease post-injection monitoring until a demonstration of non-endangerment of underground source of drinking water USDWs has been approved by the UIC Program Director and LDNR Commissioner pursuant to 40 CFR §146.93(b)(3) and LAC43: XVII §3633.A.2.c. Following approval for site closure, Denbury will plug all monitoring wells, restore the site to its original condition, and submit a site closure report and associated documentation.

### PISC and Site Closure GSDT Submissions

GSDT Module: Project Plan Submissions

Tab(s): PISC and Site Closure tab

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☐ PISC and Site Closure Plan [40 CFR §146.82(a)(17), 146.93(a) and LAC43: XVII §3607.C.2.p., §3633.A.1.]

GSDT Module: Alternative PISC Timeframe Demonstration

Tab(s): All tabs (only if an alternative PISC timeframe is requested)

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☐ Alternative PISC timeframe demonstration [40 CFR §146.82(a)(18), 146.93(c) and LAC43: XVII §3607.C.2.q., §3633.A.3.]



### 13.0 EMERGENCY AND REMEDIAL RESPONSE

In the event of an emergency that could endanger public health and safety or any underground source of drinking water (USDW) during the construction, operation, or post-injection site care periods, the Emergency and Remedial Response Plan document of this permit describes the actions that Denbury will perform at the Draco Storage Facility.

#### Emergency and Remedial Response GSDT Submissions

GSDT Module: Project Plan Submissions

Tab(s): Emergency and Remedial Response tab

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☐ Emergency and Remedial Response Plan [40 CFR §146.82(a)(19), 146.94(a) and LAC43: XVII §3607.C.2.r., §3623.A.1.]

### 14.0 INJECTION DEPTH WAIVER AND AQUIFER EXEMPTION EXPANSION

#### Injection Depth Waiver and Aquifer Exemption Expansion GSDT Submissions

GSDT Module: Injection Depth Waivers and Aquifer Exemption Expansions

Tab(s): All applicable tabs

Please use the checkbox(es) to verify the following information was submitted to the GSDT:

☐ Injection Depth Waiver supplemental report [40 CFR §146.82(d) and 146.95(a)]  
☐ Aquifer exemption expansion request and data [40 CFR §146.4(d), 144.7(d) and LAC43: XVII §3603.F.2.d., §3603.F.4.]

### 15.0 OPTIONAL ADDITIONAL PROJECT INFORMATION [40 CFR §144.4]

