Orchard Storage Company LLC

Underground Injection Control – Class VI Permit Application for

Orchard No. 1 to No. 7

Section 10 – Environmental Justice Assessment

Gaines County, Texas

Prepared for *Orchard Storage Company LLC*
Houston, Texas

By
Lonquist Sequestration, LLC
Austin, TX

Revised August 2024

LONQUIST SEQUESTRATION LLC

SECTION 10 – ENVIRONMENTAL JUSTICE ANALYSIS

TABLE OF CONTENTS

Figure

Tables

10.1 Introduction

The purpose of this environmental justice (EJ) evaluation is to determine if the proposed Orchard Class VI injection wells (Orchard Project)—to sequester CO_2 in the Permian Basin—could have a significant and adverse disproportionate environmental impact on defined communities or populations.

Environmental justice is defined as the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (Environmental Protection Agency (EPA) 1998). Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was published in the Federal Register (59 FR 7629) on February 11, 1994. Executive Order 12898 requires federal agencies to identify and address the potential for disproportionately high and adverse human health or environmental effects, resulting from the implementation of their programs, policies, and activities on minority and low-income populations.

The assessment of potential EJ impacts is guided by the Council on Environmental Quality's (CEQ) *Environmental Justice Guidance Under the National Environmental Policy Act* [NEPA] (CEQ 1997) and the *U.S. Environmental Protection Agency's Promising Practices for EJ Methodologies in NEPA Reviews* (EPA, 2016). Determination of EJ impacts requires three steps: (1) determining the geographic distribution of minority and low-income populations in the affected area; (2) assessing whether the action under consideration would produce impacts that are high and adverse; and (3), if impacts *are* high and adverse, determining whether these impacts would disproportionately affect minority and low-income populations. This analysis is based on the EPA definition, which considers an EJ area or community to be a location with a "meaningfully greater" percentage of minority population than the general population, or locations in which minority populations comprise more than 50% of the affected area's population.

Consistent with *Promising Practices*, EJ areas have been identified according to the following criteria, based on block group-level data from the U.S. Census Bureau's American Community Survey (ACS)[1]:

- For minority populations, use the **50%** and **meaningfully greater analysis methods**. This means, if the minority-population percentage of the block groups in the affected area exceeds 50% *OR* the minority population in the block group affected is 20% higher than the minority-population percentage in the county or state, then an EJ community is present.

[1]ACS is an ongoing survey program that provides updated demographic, social, housing, and economic data. ACS surveys 3.5 million households annually, covering more than 40 topics.

- For low-income populations, use the **low-income threshold criteria** method. This means, if the low-income population in the identified block group is 20% higher than the low-income population percentage of the county or state, then an EJ community is present.

For this evaluation, populations were reviewed relative to both the federal poverty level and the EPA's own "low-income" measure of twice the federal poverty level—using their "EJScreen" tool (described in *Section 10.3.1*).

The Orchard Project Class VI injection wells will not generate air emissions or have other significant environmental impacts during operation or construction. Therefore, Orchard Storage Company LLC (Orchard Storage) has defined the "Impact Study Area" for EJ considerations to consist of a 1-mile radius around each of the project well locations.

10.2 Existing Conditions

10.2.1 Demographics in the Vicinity of the Site

The Orchard Project injection wells and their respective 1-mile buffers are wholly located within Census Tract [redacted], in Gaines County, Texas. The site is [redacted] Figures 10-1 to 10-7 show the injection well sites, one mile buffer and the host block group.

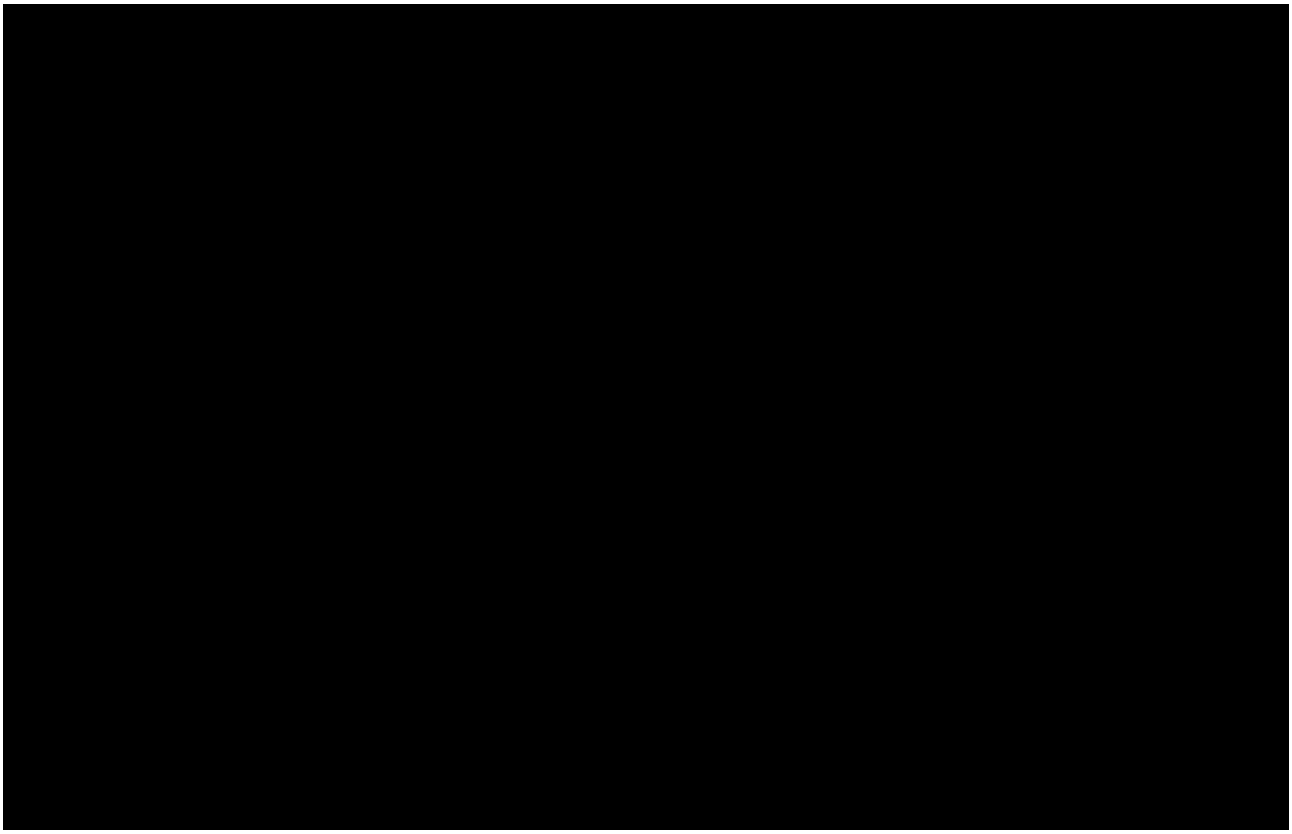

Figure 10-1 – Location of Orchard No. 1

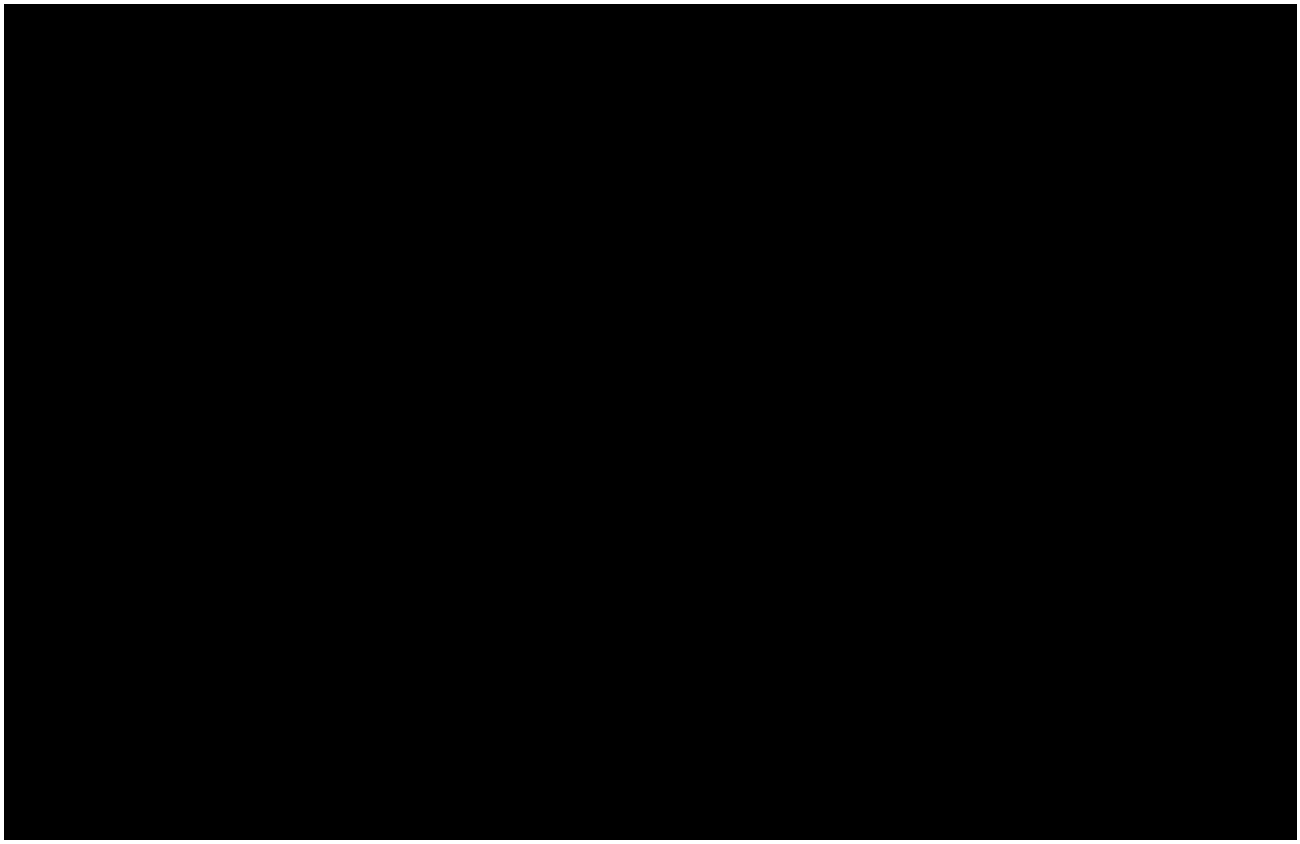

Figure 10-2 – Location of Orchard No. 2

Figure 10-3 – Location of Orchard No. 3

Figure 10-4 – Location of Orchard No. 4

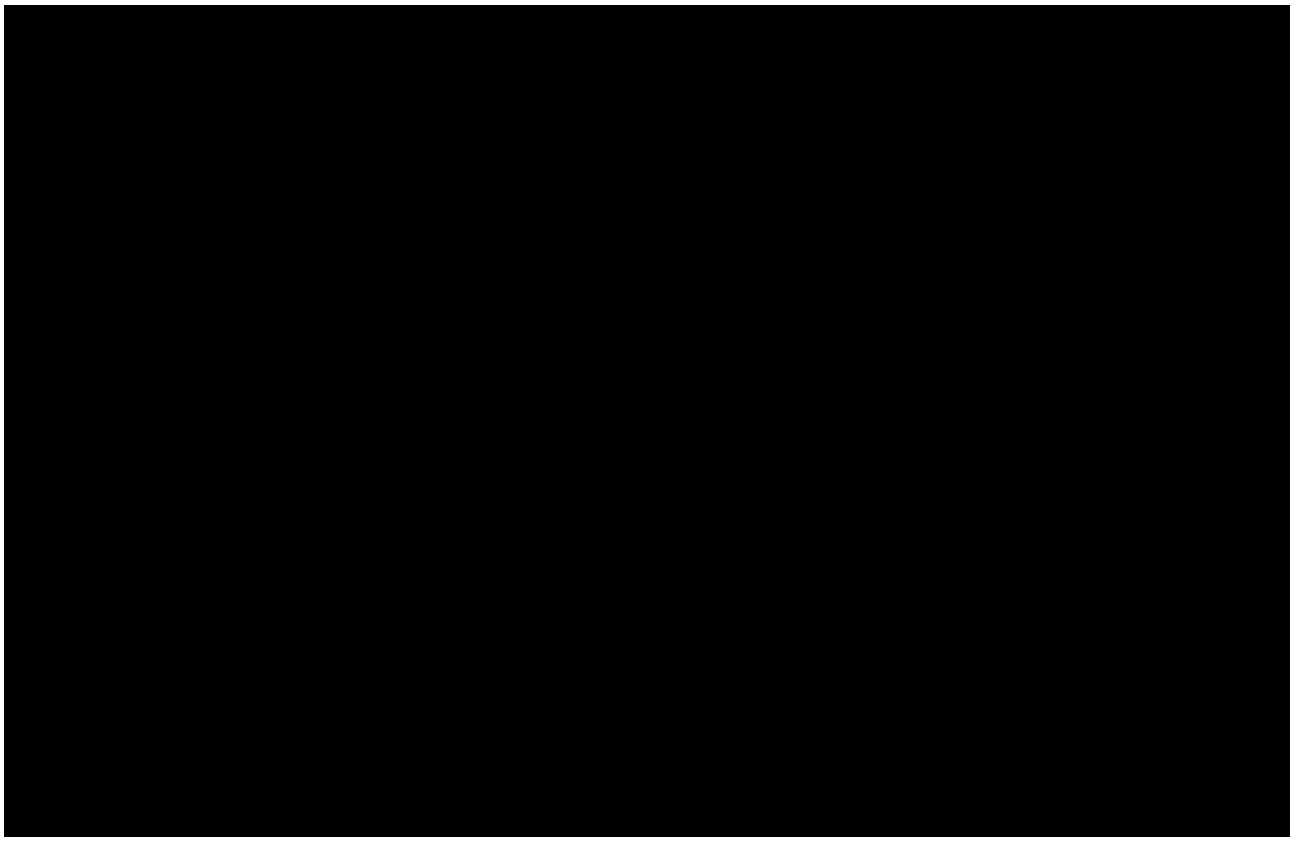

Figure 10-5 – Location of Orchard No. 5

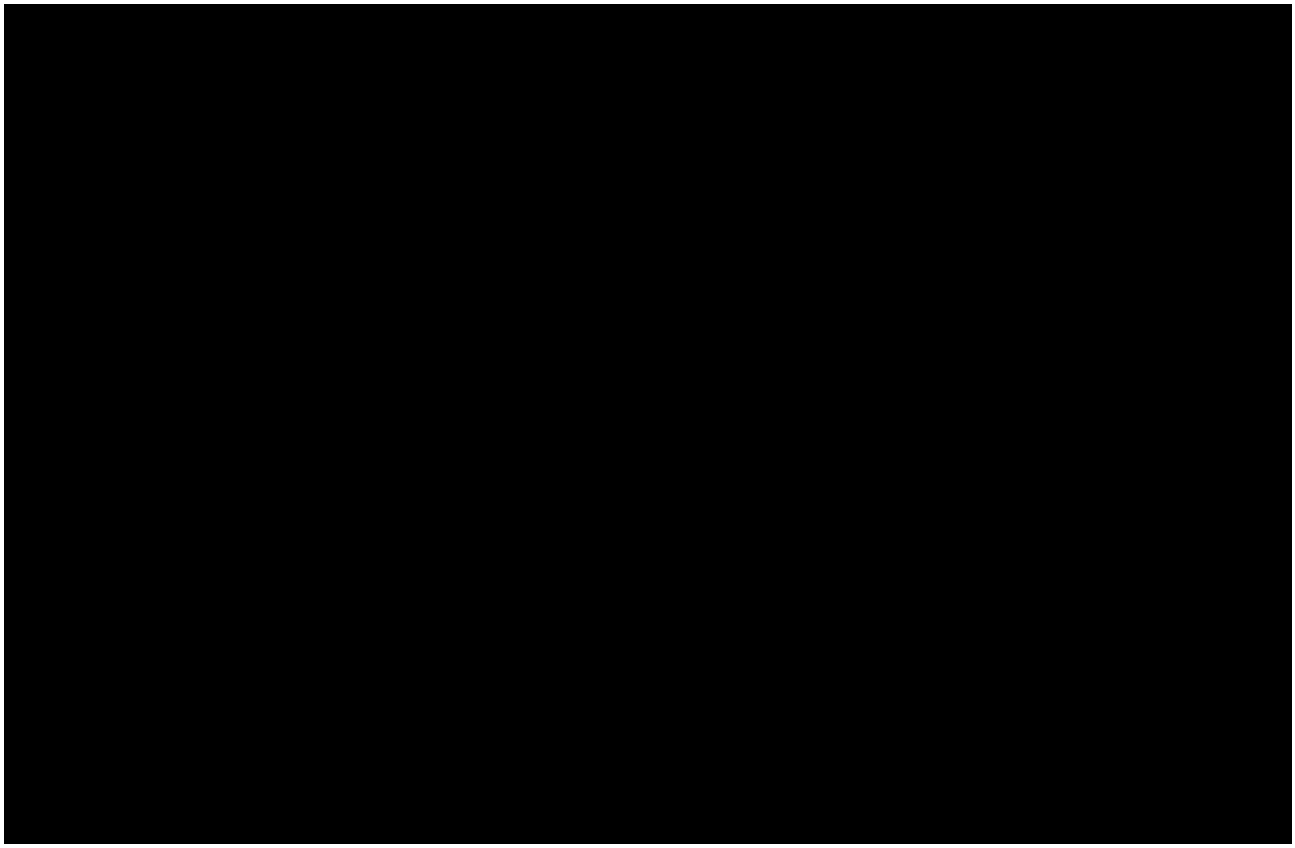

Figure 10-6 – Location of Orchard No. 6

Figure 10-7 – Location of Orchard No. 7

Orchard Storage reviewed the most current ACS data from the U.S. Census Bureau, from 2016 to 2020 (2020 vintage), to determine the presence of minority and/or low-income communities (i.e., areas with EJ concerns). Table 10-1 summarizes the demographics of the Impact Study Area.

Table 10-1 – Minority and Low-Income Populations in Orchard Project Impact Study Area

Area	Population Below Poverty Level	Low-Income Population (2x Below Poverty Level)	Minority Population (Non-White and/or Hispanic)	Potential EJ Area
State of Texas	14.2%	33.2%	58.6%	No
Gaines County	14.8%	42.1%	44.8%	No
[redacted]				

*Block Group

Source: U.S. Census Bureau, 2022

As shown above, 58.6% of the statewide population identify as minority individuals, with 33.2% of the households considered low income. Gaines County has a lower proportion of residents identifying as minority individuals, with 42.1% of households being low income (i.e., twice below the poverty level). The host community, [redacted] in Gaines County, with a population of [redacted], is estimated to have [redacted] minority residents. Within that block group, [redacted] of

households are considered low income, and [redacted] are considered below the poverty level. Therefore, [redacted]—in which the project site is located—is not considered a likely EJ area.

10.2.2 Limited English Proficiency in Vicinity of the Site

Table 10-2 presents the limited English-speaking households in the census block groups crossed by the Orchard Project. "Limited English-speaking" denotes households in which no member over the age of 13 speaks either (1) English only or (2) a non-English language—and also speaks English "very well." In other words, all members over the age of 13 have at least some difficulty with English. In total, the only block group in the Impact Study Area has [redacted] are estimated to be Spanish speaking, limited English-speaking households.

Table 10-2 – Limited English Proficiency Households in Orchard Project Impact Study Area

Area	Spanish Language, Limited English-Speaking Households	Other Indo-European Languages, Limited English-Speaking Households	Asian and Pacific Island Languages, Limited English-Speaking Households	Other Languages, Limited English-Speaking Households
State of Texas	6.10%	0.28%	0.73%	0.17%
Gaines County	7.43%	25.11%	19.16%	0.63%
[redacted]				

Source: ACS Table ID C16002, U.S. Census Bureau, 2022

10.2.3 Demographics of Region

Economic impacts of the Orchard Project are anticipated to extend throughout the areas within roughly a one-hour drive of the project. The majority of the construction workforce is expected to be drawn from this area, located within a 50-mile radius of the project. This 12-county region includes the population center of Lubbock, Texas, as well as three CDPs within Gaines County. As shown in Table 10-3, the demographics of the county are typical for the region in terms of both minority and low-income populations. Gaines does have a somewhat higher percentage of households with limited English proficiency.

Table 10-3 – Demographics of Region Surrounding the Orchard Project

Area	Population Below Poverty Level	Low-Income Population (2x Below Poverty Level)	Minority Population (Non-White and/or Hispanic)	Limited English Proficiency Households
State of Texas	14.2%	33.2%	58.6%	7.3%
Gaines County*	14.8%	42.1%	44.8%	11.5%
[redacted]				
Andrews County	10.4%	25.5%	40.5%	9.7%
Dawson County	22.8%	48.5%	35.7%	5.9%
Martin County	10.7%	42.1%	53.0%	3.8%
Terry County	15.7%	46.8%	40.2%	9.1%
Yoakum County	9.0%	24.2%	32.2%	17.8%
State of New Mexico	18.6%	39.5%	63.3%	5.1%
Lea County	16.6%	36.0%	36.1%	6.1%

*Host county

Source: U.S. Census Bureau, 2022

10.3 EJScreen Analysis

10.3.1 EJ Index

The EPA developed an EJ mapping and screening tool called EJScreen, based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports. To evaluate a facility, EJScreen approximates site boundaries and, with the appropriate buffer applied, generates what the EPA terms a "Standard Report," which includes socioeconomic and environmental data on the facility site and its buffer.

EJScreen's EJ Index is a series of environmental and demographic data sets that are used to populate 12 EJScreen indicators (indices). An EJ Index combines demographic information with a single environmental indicator—such as proximity to traffic—to help identify communities that may have a high combination of environmental burdens and vulnerable populations. The EJ Index is higher in block groups with large numbers of mainly minority and/or low-income residents with a higher environmental indicator value. For each environmental factor, the EJ Index equals the environmental-indicator percentile multiplied by the demographic index for the host block group. The EPA has identified the 80th percentile filter as an initial starting point for screening an EJ Index.

The EJScreen evaluation of the Orchard Project, using a 1-mile buffer, resulted in the EJ Index presented in Table 10-4.

Table 10-4 – EJ Index Measures in the Impact Study Area, per EJScreen

EJ Index—Selected Variables	Percentile in State	Percentile in U.S.
Particulate Matter 2.5 (microgram per cubic meter (µg/m^3))	[redacted]	
Ozone (parts per billion (ppb))		
2017 Diesel Particulate Matter (µg/m^3)		
2017 Air Toxics Cancer Risk (lifetime risk per million)		
2017 Air Toxics Respiratory Hazards Index		
Traffic Proximity (daily traffic count/distance to road)		
Lead Paint (% pre-1960 housing)		
Superfund Proximity (site count/km distance)		
Risk Management Plan (RMP) Facility Proximity (facility count/km distance)		
Hazardous Waste Proximity (facility count/km distance)		
Underground Storage Tanks (count/km^2)		

Source: U.S. EPA, 2022 (Note: None of the EJ Index measures are at or above the 80th percentile at either the state or national level.)

As Table 10-4 shows for the Impact Study Area, none of the EJ Index measures, which identify communities with a high combination of environmental burdens and vulnerable populations, are at or above the EPA's screening threshold of the 80th percentile for the state and/or the nation. Based on EJScreen results for the project area, a combination of high environmental burdens and vulnerable populations appears to be absent from the Impact Study Area—and thus would not be considered an EJ area of concern to the EPA.

10.3.2 Sensitive Receptors

Sensitive receptors are areas and facilities where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, parks and playgrounds, elderly housing, and convalescent facilities. The review of the area found no sensitive receptors within 1 mile of the Orchard Project.

10.4 Project Impacts and Mitigation

Neither the Orchard Project's construction nor its operation and maintenance will result in significant and adverse disproportionate effects on EJ populations, from impacts to traffic noise, visual resources, or transportation. Resource-specific best-management practices for these resources will be employed, including screening measures for visual resources and the local school districts for transportation-related effects. The Orchard Project will *not* result in any significant and adverse disproportionate environmental impacts on any EJ communities, because

there are no EJ communities within the study area. Therefore, no measures for impact avoidance, mitigation, or offset are required.

To mitigate *potential* impacts, on-site personnel will ensure (1) no leakage from below-ground storage, (2) persistent water-quality monitoring of nearby water sources, (3) regular soil-gas sampling, and (4) ambient-air-quality monitoring for CO_2 leakage at the well site. The Orchard Project's plans anticipate one month of construction with daily well visits and periodic maintenance to ensure quality.

10.5 Summary of Environmental Justice Analysis

A review of the demographics of the block group in which the Impact Study Area is located found that the area does *not* meet the established criteria of an EJ area, based on both minority and low-income populations. Further, EJScreen did not identify any EJ Index measures at or above the 80th percentile for the Orchard Project vicinity. No significant environmental or human health impacts are anticipated in relation to the project. Therefore, no adverse disproportionate effects on populations in EJ areas will arise from the construction and operation and maintenance of the project.

10.6 References

U.S. Census Bureau (2022). 2016-2020 American Community Survey 5-Year Estimates. Retrieved November 2022, from URL https://data.census.gov

U.S. Environmental Protection Agency (2022). EJScreen Tool. Retrieved November 2022, from URL https://www.epa.gov/ejscreen

U.S. Environmental Protection Agency (1998). Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. April 1998.