

# DRAFT Lithium Valley Health Impact Assessment



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# Acronyms and Abbreviations

| Abbreviation      | Definition                                                                 |
|-------------------|----------------------------------------------------------------------------|
| AHA               | American Heart Association                                                 |
| ALA               | American Lung Association                                                  |
| BHE               | Berkshire Hathaway Energy                                                  |
| Cal/OSHA          | California Division of Occupational Safety and Health                      |
| CalEnviroScreen   | California Communities Environmental Health Screening Tool                 |
| CalEPA            | California Environmental Protection Agency                                 |
| CARB              | California Air Resources Board                                             |
| CCD               | Census County Division                                                     |
| CDC               | Centers for Disease Control and Prevention                                 |
| CDPH              | California Department of Public Health                                     |
| CHIS              | California Health Interview Survey                                         |
| COPD              | Constructive obstructive pulmonary disease                                 |
| DLE               | Direct lithium extraction                                                  |
| Draft PEIR        | Draft Programmatic Environmental Impact Report                             |
| DTSC              | California Department of Toxic Substances Control                          |
| e.g.              | <i>Exempli gratia</i> (for example)                                        |
| Etc.              | Etcetera                                                                   |
| FEV <sub>1</sub>  | Forced expiratory volume in one second                                     |
| FVC               | Forced vital capacity                                                      |
| GED               | General educational development                                            |
| HIA               | Health Impact Assessment                                                   |
| ICAPCD            | Imperial County Air Pollution Control District                             |
| i.e.              | <i>Id est</i> (in other words)                                             |
| IID               | Imperial Irrigation District                                               |
| IVHD              | Imperial Valley Health District                                            |
| KGRA              | Known geothermal resource area                                             |
| M                 | Magnitude                                                                  |
| MCL               | Maximum containment level                                                  |
| n.d.              | Not dated                                                                  |
| NO                | Nitric oxide                                                               |
| OSHA              | Occupational Safety and Health Administration                              |
| pH                | Potential of hydrogen (measure of acidity or alkalinity)                   |
| PM                | Particulate matter                                                         |
| PM <sub>1</sub>   | Particulate matter with an aerodynamic diameter of 1 micrometer or less    |
| PM <sub>10</sub>  | Particulate matter with an aerodynamic diameter of 10 micrometers or less  |
| PM <sub>2.5</sub> | Particulate matter with an aerodynamic diameter of 2.5 micrometers or less |
| PRC               | Professional Research Consultants                                          |
| SDSU              | San Diego State University                                                 |
| Specific Plan     | December 2025 Draft Lithium Valley Specific Plan                           |

| Abbreviation              | Definition                                    |
|---------------------------|-----------------------------------------------|
| U.S.                      | United States                                 |
| U.S. EPA                  | United States Environmental Protection Agency |
| UCLA                      | University of California, Los Angeles         |
| $\mu\text{g}/\text{ft}^2$ | Micrograms per square foot                    |
| $\mu\text{g}/\text{g}$    | Micrograms per gram                           |
| $\mu\text{g}/\text{m}^3$  | Micrograms per cubic meter                    |

# Key Findings and Recommendations

## Introduction and Purpose

The County of Imperial commissioned a Health Impact Assessment (**HIA**) to examine the potential health impacts of lithium extraction from geothermal brine and related development in northern Imperial County. Conducted by the San Diego State University (**SDSU**) Research Foundation from July 2023 through September 2026, the HIA provides community-informed, data-driven information to support decision-making, policy development, and health-focused planning. The assessment sought to improve understanding of potential health impacts, identify opportunities to promote and protect community health, and recommend strategies to minimize potential risks while maximizing potential benefits.

The *Draft Lithium Valley Specific Plan* (**Specific Plan**) (County of Imperial, 2025c) and accompanying *Draft Programmatic Environmental Impact Report* (**Draft PEIR**) (Dudek, 2025b) establish a framework for geothermal energy and lithium development that balances economic growth, environmental protection, community well-being, and long-term regional sustainability. The Specific Plan guides future development, while the Draft PEIR evaluates potential environmental impacts and identifies measures to avoid, minimize, or mitigate adverse effects. This HIA complements these planning documents by determining potential health impacts, examining the pathways through which they may occur, identifying populations that may be disproportionately affected, and highlighting opportunities to enhance positive health outcomes while reducing potential risks.

## Background

The Salton Sea Known Geothermal Resource Area (**KGRA**) is a United States Geological Survey–designated area on the southeastern side of the Salton Sea lake identified as having viable geothermal resources (California Energy Commission, 2026b; Paz et al., 2022). Beneath this area lies a naturally occurring geothermal reservoir approximately 1–3 kilometers below ground, containing high-temperature, highly saline brine<sup>1</sup> enriched with dissolved lithium and other minerals (Dobson, Araya, Brounce, et al., 2023; Neupane & Wendt, 2017). **This geothermal system is not hydrologically connected to the Salton Sea itself, and geothermal energy production does not use water from or discharge water into the Salton Sea lake** (Kaspereit et al., 2016; Paz et al., 2022).

The U.S. Department of Energy estimates that geothermal brine within the Salton Sea KGRA contains up to 18 million metric tons of lithium, making the region a potentially significant domestic source of lithium (Dobson, Araya, & Brounce, 2023). Unlike conventional lithium mining or evaporation-pond methods, direct lithium extraction (**DLE**) recovers lithium from geothermal brine after it has been used to generate electricity and before the brine is reinjected into the geothermal reservoir (Razmjou, 2024).

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<sup>1</sup> **Brine** is highly saline water containing elevated concentrations of dissolved salts. **Geothermal brine** refers to high-temperature, high-salinity fluid within deep hydrothermal reservoirs that contains dissolved salts, metals, and other minerals derived from prolonged water–rock interaction under elevated temperature and pressure conditions (Neupane & Wendt, 2017).

## Proposed Development

The Specific Plan guides the long-term development of approximately 51,622 acres near the Salton Sea over the next 40 years. Planned activities include expanding geothermal energy production, implementing DLE technologies, and gradually converting land to industrial uses consistent with the Specific Plan's vision (County of Imperial, 2025c). As of early 2026, Controlled Thermal Resources and EnergySource Minerals both have fully permitted DLE projects that have not yet begun construction (Controlled Thermal Resources, n.d.; EnergySource Minerals, 2025b; Reuters, 2026). Berkshire Hathaway Energy Renewables is operating a DLE pilot project that is approximately one-tenth the scale of commercial operations (BHE Renewables, 2026). Additionally, the Controlled Thermal Resources permit includes the construction of a new geothermal power facility (Controlled Thermal Resources, n.d.).

## Assessment of Potential Health Impacts: Overview

Because DLE has not yet been widely implemented on a commercial scale, little published evidence exists regarding its potential health impacts. . This HIA therefore draws on evidence from analogous processes, established exposure pathways, and known environmental health relationships, while also considering potential health benefits associated with economic development in the Salton Sea region.

Key limitations include the lack of information related to the health impacts of DLE, the use of estimates of potential health effects rather than known health effects, and an inability to quantify the health benefits or adverse impacts attributable to the proposed development. Additionally, isolating the health effects of this program from other sources of environmental pollution may not be possible.

## Sensitive Populations and Locations

The California Air Resources Board (**CARB**) identifies several populations as more sensitive to air pollution and related health impacts, including infants and children, older adults, individuals who engage in vigorous outdoor activities/work, pregnant individuals, and those with pre-existing respiratory or cardiovascular conditions (e.g., asthma, chronic obstructive pulmonary disease, or heart disease) (CARB, 2025, 2026aa, 2026h, 2026s, 2026v, 2026p). Additional groups of concern include workers with potential occupational exposures (Fang et al., 2010; MacMurdo et al., 2025) and economically vulnerable communities, who may experience disproportionate risks due to financial, environmental, or social stressors (Huang & London, 2012; Jbaily et al., 2022; U.S. EPA, 2019).

Sensitive receptor locations, defined as places where individuals who are more vulnerable to air pollution live or spend substantial time, include residential areas, schools and schoolyards, parks and playgrounds, childcare facilities, nursing homes, hospitals, and other community-serving facilities (CARB, 2026y).

The California Environmental Protection Agency (**CalEPA**), further conducts a cumulative risk assessment, the California Communities Environmental Health Screening Tool (**CalEnviroScreen**), that incorporates both pollution burden and population characteristics, including sensitive

populations and socioeconomic factors (CalEPA, 2026e). Based on CalEnviroScreen 4.0, much of Imperial County is identified as an economically vulnerable community, classified as either low-income, disadvantaged, or both, highlighting the potential for disproportionate health impacts (CARB, n.d.-a).

## Potential Health Impacts Summary

### *Potential Health Benefits*

The development proposed under the Specific Plan is projected to generate lithium-related revenues, a portion of which is anticipated to be allocated to community benefits and Salton Sea restoration. These investments, along with project-driven economic growth, could support infrastructure improvements, expanded public services, and increased employment and household incomes. These factors are closely linked to health outcomes (CDC, 2024a; Hacker et al., 2022; Taylor et al., 2016; World Health Organization, 2026b) and could contribute to improved community health. Additional benefits may include improvements in air quality through measures such as road paving, or improvements in both air and water quality from reductions in agricultural emissions due to land-use changes within the Specific Plan area (Dudek, 2025b).

### *Potential Adverse Health Effects*

Potential health effects considered in this assessment include the onset and exacerbation of respiratory diseases, neurodevelopmental impacts, cancer risk, premature mortality, cardiovascular disease exacerbation, heat-related illness, injury, and adverse psychological effects.

### *Net Health Effects*

While certain aspects of the development proposed under the Specific Plan have the potential to improve public health, project implementation is also expected to generate additional pollutant emissions that could adversely affect air quality and increase potential exposures to hazardous materials (Dobson, Araya, Brounce, et al., 2023; Dudek, 2025b). As a result, the overall net health effect remains uncertain.

### *Equity Considerations*

Equity considerations are critical for understanding how impacts are distributed and for ensuring that potential health benefits reach all segments of the population. Population growth may strain access to health care if services and infrastructure do not expand in a proportionate and equitable manner. Economic benefits may also be unevenly distributed, with some residents, including retirees and those not directly connected to new employment opportunities, experiencing limited gains. In addition, individuals facing potential job displacement in the agricultural sector may experience income loss and related adverse health effects if comparable employment opportunities are not available. Residents located closest to industrial development may also face a higher likelihood of adverse impacts due to increased exposure to stressors such as air pollution, traffic, noise, and other changes associated with growth and development.

# Assessment of Potential Health Impacts: Detail

## Air- and Dust-Related

### *Background*

In 2023, the Salton Sea Air Basin was designated as nonattainment for California's ambient air quality standards for ozone and particulate matter 10 microns or less in diameter, consistent with other air basins in Southern California (CARB, 2026r). As of 2026, the southern part of Imperial County was designated as nonattainment for the federal standard related to particulate matter 10 microns or less in diameter (U.S. EPA, 2026a). Countywide, however, Imperial County attained the federal air quality standard for particulate matter 10 microns or less (U.S. EPA, 2026a). Hydrogen sulfide, which produces a characteristic rotten egg odor, remains unclassified due to limited data (CARB, n.d.-c), and monitoring networks may be insufficient to characterize concentrations in the area (Centeno et al., 2025). The largest source of hydrogen sulfide emissions in the region is the Salton Sea (Dobson, Araya, Brounce, et al., 2023).

Air quality in Imperial County is influenced by a combination of geographic-, climatic-, and human-driven factors (ICAPCD, 2009, 2017), as well as both local emissions and pollutants transported from outside the region. Prevailing wind patterns carry pollutants and their precursor compounds from areas west of the County through the San Geronio Pass and Coachella Valley (Griffiths et al., 2009), contributing to ambient concentrations of ozone and fine particulate matter (Durkee et al., 2013). In Imperial County, windblown desert dust is the primary contributor to particulate matter in the air, with additional emissions from unpaved roads, agricultural operations, and construction activities (ICAPCD, 2018b; IID, 2026f). Local air quality is also influenced by vehicular traffic, diesel equipment, agricultural activities (including field burning), and industrial operations such as geothermal power generation, food processing, plaster manufacturing, and other light industrial uses (Imperial County, 2016). Emissions of nitrogen oxides from agricultural soils may also contribute to regional air quality conditions (Lieb et al., 2024).

### *Potential Health Impacts*

Development proposed under the Specific Plan is expected to generate additional air pollutant emissions; however, the magnitude of these increases and the associated health impacts remain uncertain. This uncertainty reflects the difficulty of linking emission levels to specific health outcomes, as well as the challenges in quantifying the effects of planned mitigation measures (Dudek, 2025b) and potential health benefits. Because the proposed activities may exceed established air quality thresholds, they may contribute to adverse health outcomes, including respiratory symptoms, lung irritation and tissue damage, exacerbation of existing lung disease, increased hospitalizations, and premature mortality (Dudek, 2025b).

Desert-source dust is not expected to change as a result of the development proposed under the Specific Plan, nor is playa dust due to applicable mitigation measures. Similarly, odors related to the proposed development are not expected to pose health concerns due to required mitigation and abatement activities (County of Imperial, 2025c; Dudek, 2025b).

## Water-Related

### *Background*

#### **Municipal Water**

Municipal water refers to potable (safe for human consumption) water supplied to homes, businesses, and other community users. In Imperial County, most local municipalities and water districts obtain Colorado River water from the Imperial Irrigation District (**IID**). They then treat the water to meet drinking water standards before delivering it to customers (IID, 2026i). However, some smaller water providers operate independently and rely on groundwater as their primary water source (IID, 2026b, 2026i).

#### **Surface Water**

Surface water in the region includes the Salton Sea, local rivers, and irrigation canals. The Salton Sea is a terminal lake sustained primarily by agricultural runoff, with additional inputs from rivers and wastewater discharges, contributing to increased salinity, elevated nutrient levels, algal blooms, and low oxygen conditions (Dudek, 2025b; Frie et al., 2017; Ma et al., 2020; Rick Engineering Company, 2024). The New River and Alamo River, which flow into the Salton Sea, also experience poor water quality (Rick Engineering Company, 2024). In addition, the IID operates irrigation canals that convey Colorado River water for agricultural use. Water from the irrigation canals is not considered potable (Imperial County Public Health Department, 2025a).

#### **Groundwater**

“Groundwater is water located beneath the Earth’s surface...forming underground reservoirs called aquifers” (California State Water Resources Control Board, 2026a). The Imperial Valley Groundwater Basin is made up of two major aquifers that are separate from the much deeper geothermal reservoirs (Busse et al., 2024; California’s Groundwater Bulletin 118, 2024; Thompson et al., 2008). Water quality across much of the Imperial Valley Groundwater Basin is generally unsuitable for potable water use without treatment due to elevated total dissolved solids, as well as localized concentrations of fluoride and boron (Busse et al., 2024; California’s Groundwater Bulletin 118, 2024; IID, 2026i; Loeltz et al., 1975). Nevertheless, in select areas, groundwater supplies some community drinking water systems for potable use; water is treated as needed (State Water Resources Control Board, 2025b; U.S. EPA, 2026b).

### *Potential Health Impacts*

#### **Municipal Water**

Development proposed under the Specific Plan will obtain water from the IID, and is expected to maximize water recycling (Dudek, 2025b). The IID prioritizes municipal and domestic water uses, providing these users with the highest level of supply assurance (IID, 2026b). New industrial development will receive water from IID that is not allocated for municipal or domestic use (IID, 2026b). Accordingly, water demands associated with development under the Specific Plan are not expected to substantially affect the availability of municipal drinking water supplies.

#### **Surface Water and Groundwater**

Development proposed under the Specific Plan would not utilize water from the Salton Sea and is not currently anticipated to rely on groundwater for operations (Dudek, 2025b; Lawrence Berkeley National Laboratory, n.d.). The development will likely necessitate updates to the IID distribution

systems, wastewater treatment facilities, and stormwater and drainage systems (Rick Engineering Company, 2024). Any new wastewater treatment plants will meet National Pollutant Discharge Elimination System standards, with treated water to be discharged into the Alamo River, feeding the Salton Sea (Dudek, 2025b). Similarly, developments would need to follow the wastewater management guidelines and drainage standards set by Imperial County (County of Imperial, 2025c).

Construction or operational activities, as well as unexpected leaks, spills, or accidents, could directly affect surface water and groundwater quality (e.g., spills into water bodies) or affect it via stormwater runoff. However, because construction and operations must comply with numerous federal, state, and local laws, regulations, and ordinances, the project's environmental impacts are considered less than significant<sup>2</sup> (Dudek, 2025b).

## Hazardous Materials and Waste Management

### *Background*

The California Department of Toxic Substances Control (**DTSC**) defines hazardous waste as any material that poses a potential risk to human health or the environment due to its chemical or physical properties (DTSC, 2026). Hazardous waste may occur in liquid, solid, or gaseous forms and is commonly generated through industrial processes, the disposal of used materials, or the discarding of unused commercial products such as solvents (e.g., cleaning supplies) and pesticides (DTSC, 2026).

Current operations at geothermal plants, which will continue with the addition of DLE:

- Hazardous waste, either solid or liquid, generated by geothermal energy production, is transported to an appropriate landfill facility (Dobson, Araya, Brounce, et al., 2023).
- “Permitting, inspection, compliance, and corrective action programs ensure that people who manage hazardous waste follow state and federal requirements and other laws that affect hazardous waste specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning” (Dudek, 2025b).
- Non-hazardous waste is transported to appropriate disposal facilities, depending on the material classification (Dudek, 2025b; Stringfellow & Camarillo, 2025a).

### *Potential Health Impacts*

The implementation of the mitigation measures identified in the Draft PEIR, together with compliance with applicable existing rules and regulations, would reduce the impacts of hazards

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<sup>2</sup> Under the California Environmental Quality Act, thresholds of significance are standards or criteria used to evaluate whether a project's environmental effects could be significant. Please see the draft PEIR for a list of significance thresholds for each environmental impact examined (Dudek, 2025b). In this case, a significant impact would occur if the proposed project violated any water quality standard or waste discharge requirements or otherwise substantially degraded surface or ground water quality (this is the first of the five thresholds evaluated) (Dudek, 2025b).

and hazardous materials on the public and the environment to less than significant<sup>3</sup> (Dudek, 2025b). Additionally, excavation and removal of existing contaminated soils during construction “could also result in an overall reduction of contaminated sites” (Dudek, 2025b).

While regulations, operational standards, and mitigation measures are in place to protect community health and minimize potential harm, ongoing monitoring and effective enforcement will remain important. As DLE technologies continue to evolve, ongoing evaluation of operational practices, waste streams, and environmental impacts can help ensure that project activities remain aligned with community health protection goals.

## Seismic Effects

### *Background*

The Salton Sea KGRA lies within an active seismic zone near several major faults in Imperial County, including the San Andreas, San Jacinto, and Elsinore faults, as well as the Brawley Seismic Zone (Rockwell et al., 2014). In the Final Baseline Report (Rick Engineering Company, 2024), authors note that, “Currently, portions of the County are affected by minor earthquakes with magnitudes of 4.5 or less every few months. The County may experience an earthquake with a magnitude of 5.5 or greater every five years and dozens of micro-seismic events, with magnitudes of 2.0 or less, on a daily basis” (California Department of Conservation, 2024; McCrink, Timothy et al., 2011; Minnick, 2022).

Existing geothermal power plants in the Salton Sea KGRA generate electricity by producing naturally circulating geothermal brine that are used for electricity generation, before reinjecting the fluids into the geothermal reservoir to maintain reservoir pressure (U.S. Department of Energy, n.d.-c). Although brine production and reinjection can induce seismic activity, studies of hydrothermal geothermal systems, including those similar to the Salton Sea KGRA, indicate that most induced events are microearthquakes that are too small to be felt at the surface (Buijze et al., 2019; Gaucher et al., 2015; Li et al., 2022; Majer et al., 2007; Zang et al., 2014). Additionally, most induced seismic activity occurs within or immediately adjacent to active production and/or injection zones (Brodsky & Lajoie, 2013; Cardiff et al., 2018; Koirala et al., 2024; Tung et al., 2024). Some researchers have proposed that long-term geothermal production can modify subsurface stress conditions, which may either promote or inhibit fault slip depending on reservoir conditions (Cardiff et al., 2018; Im et al., 2021; Im & Avouac, 2021; Tung et al., 2024; Zang et al., 2014).

The geothermal and lithium development proposed under the Specific Plan includes two mitigation measures focused on monitoring and managing potential geologic impacts: one addressing induced seismicity and the other addressing ground subsidence (Dudek, 2025b). Before drilling new geothermal wells, operators must develop and obtain approval of a seismic monitoring plan that includes microseismic monitoring, procedures for responding to increased seismic activity (including suspension or termination of operations, if warranted), evaluation of whether seismic

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<sup>3</sup> Under the California Environmental Quality Act, thresholds of significance are standards or criteria used to evaluate whether a project’s environmental effects could be significant. Please see the draft PEIR for a list of significance thresholds for each environmental impact examined (Dudek, 2025b). In this case, a significant impact would occur if the proposed project created a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (this is the first of the seven thresholds evaluated) (Dudek, 2025b).

events are associated with geothermal activities, and reporting requirements for regulatory review. Operators are also required to monitor injection pressures and production rates. In addition, prior to initiating operations, operators must establish a ground subsidence monitoring program that includes annual land surveys to detect surface subsidence and implement operational adjustments as needed (Dudek, 2025b).

### *Potential Health Impacts*

DLE at the Salton Sea KGRA is not expected to substantially change seismicity, as lithium recovery occurs after geothermal brine is produced during normal geothermal operations (Lawrence Berkeley National Laboratory, n.d.). Project descriptions indicate that DLE would operate within the existing closed-loop production and reinjection system and is not anticipated to require additional drilling or reinjection beyond that associated with geothermal power generation (Lawrence Berkeley National Laboratory, n.d.).

However, if additional geothermal wells are drilled or production and reinjection rates change substantially, seismic activity could increase, although the extent to which geothermal operations influence seismicity in the Salton Sea region remains uncertain. Most seismic events associated with geothermal activity are expected to be of small magnitude; however, earthquakes up to or in the range of magnitude 4.0 to 5.5 could be induced (Dudek, 2025b) or occur independently of project activities. Earthquakes of this magnitude could damage structures not built to current seismic standards and result in injuries from falling or unsecured objects (Dudek, 2025b). Structural damage could also affect industrial facilities, including chemical storage tanks, pipelines, and brine-handling equipment, potentially causing releases that could affect air, soil, or water quality and result in secondary environmental or health impacts (Dudek, 2025b).

Despite the potential risk, the likelihood of fault rupture associated with the development proposed under the Specific Plan is considered less than significant<sup>4</sup> (Dudek, 2025b). All new construction and modifications to existing facilities would be required to comply with current building code requirements, including applicable seismic design standards, thereby reducing the potential for structural damage (Dudek, 2025b). Infrastructure, including underground pipelines, must be resilient to ground deformation in accordance with current building codes. The analysis also notes that geothermal development involves managing reservoir pressure and monitoring operations that could influence seismicity (Dudek, 2025b). With the implementation of the proposed mitigation measures, seismic impacts are expected to be less than significant<sup>3</sup> (Dudek, 2025b).

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<sup>4</sup> Under the California Environmental Quality Act, thresholds of significance are standards or criteria used to evaluate whether a project's environmental effects could be significant. Please see the draft PEIR for a list of significance thresholds for each environmental impact examined (Dudek, 2025b). In this case, a significant impact would occur if the proposed project would directly or indirectly expose people or property to substantial geologic or seismic hazards as well as other geologic hazards identified under the applicable significance thresholds (Dudek, 2025b).

# Stress, Psychological Well-Being, and Employment

## Background

Health and well-being encompass physical, mental, and social dimensions (Bai et al., 2012). According to Bai et al. (2012), physical health includes disease, injury, and disability. Mental health includes illness, trauma, cognitive functioning, and emotional well-being. Social well-being relates to relationships, community belonging, social isolation, family changes, and empowerment. Stress can be defined as the process by which individuals respond to “expectations and pressure from the environment” that may be perceived as “threatening or overwhelming” (Lazarus and Folkman, 1986, as cited in (Slimmen et al., 2022)):

*“Stress can be brief, situational, and a positive force motivating performance, but if experienced over an extended period of time it can become chronic stress, which negatively impacts health and well-being”* (American Psychological Association, 2026).

Data on stress and psychological well-being are limited; however, available indicators suggest elevated levels of social and economic stress in Imperial County. Adverse childhood experiences, which have been linked to long-term negative health outcomes, (CDC, 2026c) are more prevalent in Imperial County than in California overall. Based on pooled 2023–2024 data, 71.7% of adults in Imperial County reported at least one adverse childhood experience and 38.3% reported three or more, compared with 67.4% and 33.4%, respectively, statewide) (UCLA Center for Policy Research, 2026).

Additional indicators point to ongoing stressors, including high unemployment (18.6% in 2025) (Employment Development Department, 2026), as well as residents reporting financial stress related to housing costs (47.2%), food insecurity (44.8%), and fair or poor mental health (28.8%) (PRC, 2022). Additionally, an estimated 19.5% of Imperial County residents were at or below the federal poverty level, compared to 12.0% for California (*Census Reporter*, n.d.).

## Potential Health Impacts

Community development may influence social determinants of health and support overall community well-being (Public Health Institute, 2026). However, it may also introduce stressors, particularly when changes affect housing affordability, employment stability, social networks, or neighborhood cohesion through redevelopment, population shifts, or a perceived loss of community identity (CDC, 2024c; Luke et al., 2026). In addition, the construction and operation of industrial facilities may affect nearby residents by altering environmental conditions, including noise, air pollution, dust, and odors, which can contribute to both physical and psychological stress (M. Lima & Marques, 2017).

The overall effect on stress and psychological well-being among Imperial County residents remains uncertain, but potential impacts are likely to be greater for those living closest to development areas or along transportation corridors.

## **Details**

**Changes in Community.** In the Specific Plan area, implementation would result in more densely developed areas, including increased population, taller structures, and the loss of some “expansive horizontal views” (Dudek, 2025b). These changes, including alterations to the landscape, may alter the region's visual character and influence individuals’ or communities’ sense of place and belonging. Potential impacts to tribal cultural resources could affect culturally significant landscapes and land uses associated with features such as Obsidian Butte, Rock Hill, Red Island, Mullet Island, mud pots, trails, and archaeological sites containing prehistoric materials (Dudek, 2025b). In addition, population growth and development are expected to increase traffic and noise levels, which would not be fully eliminated (Dudek, 2025b).

**Social Equity.** The Imperial County Good Neighbor Community Benefit Agreement Program, Specific Plan goals and policies, and lithium excise tax revenues are intended to support nearby communities and maximize the benefits of the development. Improvements in neighborhood amenities, such as parks, transportation, and access to grocery stores, may attract new investment and residents, potentially increasing housing costs and contributing to the displacement of existing residents if not carefully managed (Aboelata et al., 2017). Similarly, a rapid influx of workers from outside the region could place additional pressure on the housing market, further increasing the risk of displacement (Brasier et al., 2011).

**Mitigations.** The Draft PEIR (Dudek, 2025b), identifies mitigation measures intended to reduce potential impacts associated with development. These include noise and visual controls, compensation for farmland conversion, the use of Cultural Resource Specialists and cultural sensitivity training, regional planning to address housing and population growth, and transportation strategies such as trip reduction programs, improved pedestrian and bicycle connectivity, and transit enhancements. Additional measures are also included to protect cultural resources.

**Employment.** The proportion of future lithium and geothermal jobs that will be filled by local residents remains uncertain. Workforce shortages exist in engineering, technical, and business fields (Alhajjar et al., 2025) although local post-secondary institutions are developing industry-focused certificate and degree programs, some with the aid of industry partners.

## **Occupational Concerns: Heat Stress, Injury, Etc.**

### *Background*

The Occupational Safety and Health Administration identifies a range of workplace hazards associated with geothermal energy operations, including electrical hazards, falls, exposure to airborne silica, trenching and excavation risks, and welding and cutting activities (OSHA, n.d.-e). Additional concerns include exposure to hydrogen sulfide and other hazardous gases in confined spaces, the need for appropriate personal protective equipment, and potential contact with hot geothermal brine, which can cause burns (OSHA, n.d.-e). More broadly, power generation activities may involve additional risks such as electrocution, fires and explosions, heat stress, and physical injuries (OSHA, n.d.-b). Associated health outcomes can include sprains, strains, fractures, burns, silicosis, and, in severe cases, death.

Hazardous materials and chemicals may also be used or generated during geothermal operations and DLE processes, as well as during construction activities (Lawrence Berkeley National Laboratory, n.d.; OSHA, n.d.-i, n.d.-j, n.d.-a; Saleem et al., 2025).

In addition, construction workers may be exposed to risks related to heavy equipment operation, falling or being struck by objects, vehicle and mobile equipment movement, noise and vibration, and ergonomic stressors associated with repetitive motion or lifting/carrying heavy materials (OSHA, n.d.-a, n.d.-b, n.d.-d, n.d.-h).

Between April 2021 and April 2026, five accidents and one complaint prompted OSHA inspections at the 11 geothermal plants within the Salton Sea KGRA (OSHA, n.d.-c). In total, OSHA issued nine citations for violations at some of these geothermal facilities, all of which were later marked as abated (i.e., successfully corrected) (OSHA, n.d.-c). The citations involved failures to adequately establish, implement, and maintain an effective injury and illness prevention program; protect workers from indoor and outdoor heat illness through prevention measures and training; immediately report any serious injury, illness, or death; and maintain pipelines containing hot, poisonous, corrosive, or flammable substances in a manner that prevents dangerous vibrations (California Department of Industrial Relations, 2026). Four of the citations specifically mentioned heat hazards (OSHA, n.d.-c).

### *Potential Health Impacts*

The development proposed under the Specific Plan is expected to increase the number of workers exposed to occupational hazards. Although injury rates per worker are not expected to change if safety practices are maintained, a larger workforce could lead to more occupational injuries and illnesses, including heat-related illnesses, physical injuries, noise exposure, and exposure to hazardous materials.

Compared with conventional geothermal operations, DLE facilities may introduce additional occupational hazards, including chemical handling, pressurized processing systems, corrosive materials, additional lithium product dust, increased maintenance activities, and startup or process-upset conditions. The specific occupational hazards may vary depending on the type of DLE technology employed.

All construction and operational activities would be required to comply with applicable federal and state worker safety standards (Dudek, 2025b). In addition, applicable dust-suppression and hazardous-materials mitigations would be implemented to reduce occupational risks.

## **Healthcare Services Availability**

### *Background*

Health care infrastructure influences both access to health care services and the quality of care provided, making it an important social determinant of health. Factors that can influence health outcomes related to health care infrastructure include the availability of health promotion and prevention services; access to clinical care, including adequate provider supply; provider linguistic and cultural competency; and the overall quality of care delivered (Artiga & Hinton, 2018; University of Wisconsin Population Health Institute, 2026a).

As of 2023, Imperial County had a lower-than-average supply of physicians treating community-acquired pneumonia, diabetes, and urinary tract infections, while hospitalization rates for these potentially preventable conditions remained higher than statewide levels (California Department of Health Care Access and Information, 2026). Access to care is further constrained in rural northern communities, where the availability of services is limited (County of Imperial, 2025c).

Survey data further explain the barriers to health care. In 2022, 53.0% of adults reported difficulty or delays in accessing health services, most commonly due to challenges obtaining appointments, inconvenient hours, difficulty finding providers, and cost (PRC, 2022). Cost-related barriers also affected medication adherence: 16.0% of adults reported skipping or delaying prescriptions, and 10.1% of parents reported that their child was unable to obtain needed care at least once in the past year (PRC, 2022).

### *Potential Health Impacts*

The potential effects of the development proposed under the Specific Plan on health care access remain uncertain. As population increases with buildout, demand for health services is expected to grow, and existing gaps could be exacerbated if not adequately addressed. The County of Imperial has identified strategies to address these challenges, including potential investments in mobile and telehealth services and updates to planning documents to align service delivery with projected population growth (County of Imperial, 2025c). The County of Imperial also intends to ensure that emergency medical services are in place prior to accommodating employees in workforce housing (County of Imperial, 2025c).

Funding generated by the Lithium Extraction Tax Law could provide one source to expand health services. Information about the funding plan is available online (County of Imperial, 2025a). The County of Imperial has identified the California Health Facilities Financial Authority as another potential funding source for healthcare services (County of Imperial, 2025c).

## **Recommendations**

While the Specific Plan provides a program-level framework for future lithium and related industrial development, the precise magnitude, location, duration, and timing of potential environmental and health effects are not yet fully known. The fully proposed development, as allowed within the framework, could provide direct or indirect public health benefits (depending on the type and amount of development), although the overall net effects on health care access, community health, and air and water quality remain uncertain given the available information. Because DLE technologies are not yet widely practiced at a commercial scale, there is limited evidence regarding their potential health impacts.

Although the proposed development may pose health risks, there are numerous existing rules, laws, regulations, ordinances, policies, and proposed mitigation measures intended to protect public health and safety (Dudek, 2025b). Collectively, these requirements are intended to reduce potential health risks by establishing operational standards, requiring pollution controls and environmental monitoring, protecting water and air quality, and providing mechanisms for oversight, compliance, and corrective action. However, it is possible that regulatory frameworks are insufficient, inconsistently implemented, or limited in their monitoring and enforcement.

Additionally, in Imperial County, there are existing air quality challenges, including nonattainment designations for ozone and PM<sub>10</sub>, as well as concerns about hydrogen sulfide emissions primarily from the Salton Sea and other sources. The maximum development proposed under the Specific Plan would produce emissions of these and other air pollutants, potentially affecting air quality and, in turn, potentially impacting the public's health (Dudek, 2025b). The potential for or magnitude of these potential environmental effects is not yet known, particularly because mitigation measures could not be incorporated into the health impact modeling (Dudek, 2025b). Additionally, much of Imperial County is economically vulnerable, and community members experience higher-than-average rates of certain health conditions as well as limited access to healthcare for some residents, especially in rural areas.

In response to these uncertainties and existing environmental and health concerns, the following recommendations were developed based on the available evidence. They are intended to support ongoing monitoring and adaptive management and to promote safeguards that protect public health and well-being. Implementation will require prioritization and operationalization through collaboration among the County of Imperial, industry partners, and community stakeholders. In doing so, it will be important to consider practical constraints, identify potential funding sources, and align actions with community priorities and available resources.

While these recommendations are broad, the implementation plans translate them into specific, measurable, achievable, relevant, and time-bound (i.e., SMART) actions, including defined monitoring and reporting mechanisms (see Appendix C).

## Recommendation 1: Evaluate and Strengthen Environmental Monitoring and Oversight Systems

The ability to identify, prevent, and respond to potential health impacts associated with development under the Specific Plan framework depends on the effectiveness of environmental monitoring and regulatory oversight systems. These systems should be periodically evaluated and strengthened to ensure they remain capable of detecting environmental changes, identifying non-compliance, and supporting timely corrective actions.

Two priorities should guide these efforts:

- Ensuring that monitoring systems can detect emissions, releases, contamination, or other environmental conditions that could affect public health.
- Ensuring that industry operators, developers, and other entities comply with applicable regulations, permit conditions, and mitigation measures throughout all phases of development and operation.

Key questions include:

1. Are existing monitoring systems sufficient to detect emissions, releases, or contamination and non-compliance in air, water, and soil?
2. Are existing oversight and compliance mechanisms adequate to verify that operators consistently comply with applicable regulations, permit requirements, and mitigation measures?

### *Assess the Adequacy of Environmental Monitoring Systems and Strengthen Systems as Applicable*

Evaluate whether existing environmental monitoring and regulatory oversight systems are sufficient to identify, track, and respond to environmental conditions that may adversely affect public health during the buildout and operation proposed under the Specific Plan. This evaluation should assess whether monitoring systems provide adequate spatial and temporal coverage, measure relevant environmental indicators, generate reliable and timely data, and detect localized and cumulative impacts. Particular attention should be given to whether monitoring locations adequately represent potentially affected communities, whether data are collected frequently enough to detect changing conditions, and whether monitoring networks can detect both anticipated and unanticipated impacts associated with development activities. It should also assess the roles and expectations of parties responsible for the environmental impacts.

Any gaps in monitoring locations, monitoring frequency, measured parameters, data quality, or reporting processes should be identified and addressed through a strategic implementation plan. In developing this plan, the County of Imperial may need to prioritize actions based on potential public health significance, consider technical and financial constraints, identify funding opportunities, align efforts with community priorities, and leverage partnerships with regional, state, federal, academic, and other external resources.

### *Assess the Adequacy of Compliance Monitoring and Strengthen Oversight as Needed*

Compliance with applicable environmental regulations, permit conditions, and mitigation measures is evaluated through multiple oversight and monitoring mechanisms, including permit review and renewal processes, operator self-monitoring and reporting, regulatory inspections, compliance audits, environmental monitoring programs, sampling and laboratory analysis, spill and incident reporting requirements, and third-party verification activities.

#### **Assess Adequacy**

Evaluate whether existing compliance monitoring and oversight systems are sufficient to identify non-compliance, verify adherence to permit conditions and mitigation measures, and support timely corrective actions when concerns are identified. This assessment should consider the frequency and scope of inspections, adequacy of monitoring and reporting requirements, data quality and verification procedures, transparency of reporting, and the ability of oversight systems to identify both routine and unexpected compliance issues.

#### **Plan to Address Gaps**

Any gaps identified in compliance monitoring or oversight should be addressed through a strategic implementation plan. In developing this plan, the County of Imperial may need to prioritize actions based on potential public health significance, consider technical and financial constraints, identify funding opportunities, align efforts with community priorities, and leverage partnerships with regional, state, federal, academic, and other external resources.

Where feasible, the county should strengthen existing oversight systems by incorporating independent verification measures to improve accountability, transparency, and public confidence. Independent monitoring and data validation can help identify issues that may not be detected through routine compliance activities alone. Potential approaches include third-party

environmental monitoring, independent review of environmental data and waste characterization, periodic compliance audits, and public reporting of monitoring results.

### *Implement Enhanced Environmental Monitoring and Protection Measures as Warranted*

Identify and document existing health and environmental monitoring programs, monitoring results, and protective measures to establish baseline conditions. As development under the Specific Plan framework progresses, periodically review environmental and health monitoring data, particularly following major development milestones, environmental incidents, permit exceedances, or other indicators of potential health concern. In conjunction with current scientific literature and evolving operating standards, use these reviews to determine whether enhanced monitoring, additional operational measures, or other protective actions are warranted and feasible to further protect public health. Develop and implement procedures to address noncompliance in ways that strengthen impact mitigation and support improved public health outcomes.

Potential measures may include enhanced ambient and fence-line air monitoring, expanded groundwater and surface water monitoring, predefined health-based action levels that trigger additional monitoring, mitigation measures, or operational changes when environmental conditions indicate a potential health concern, enhanced dust suppression practices, real-time leak detection systems, improved containment measures, and the use of low- or zero-emission equipment. For example, elevated PM<sub>2.5</sub> concentrations could trigger additional dust control measures, reductions in dust-generating activities, or temporary restrictions on diesel-powered equipment until conditions improve.

If needed, monitoring and response programs developed should support adaptive management, facilitate the early identification and mitigation of potential concerns, account for cumulative impacts, and prioritize protecting communities that already experience disproportionate environmental burdens.

### *Evaluate and Strengthen Worker Health and Safety Protections as Needed*

If determined to be warranted and feasible, engage industry partners to implement enhanced worker health and safety protections beyond minimum regulatory requirements. Potential measures may include respiratory protection programs, heat-illness prevention strategies, air-quality alert systems, exposure monitoring, and wearable technologies that detect heat stress and gas exposures. Worker health and safety programs should be periodically reviewed and updated as operations evolve and new risks are identified.

### *Evaluate and Strengthen Emergency Preparedness and Response as Applicable*

Review and update emergency preparedness and response systems as needed to address potential incidents associated with the development proposed under the Specific Plan. Plans should include community notification protocols, coordination with local emergency responders, healthcare providers, and public health agencies, and clear procedures for incident response, risk communication, and public notification.

## Recommendation 2: Establish Accessible and Transparent Information Sharing

### *Establish Centralized System*

Establish a centralized and accessible system for ongoing information sharing and community engagement. While a digital platform may serve as a core component, information should also be disseminated through multiple channels to ensure equitable access, including in-person outreach, printed materials, community-based organizations, schools, local events, and other trusted community venues. Information should be presented in plain language; interpreted objectively; and made available in English, Spanish, and other languages as needed, and in formats accessible to diverse audiences.

In developing this system, the County of Imperial may need to prioritize included information based on potential public health significance, consider technical and financial constraints, engage industry partners and community stakeholders, identify funding opportunities, align implementation with community priorities, and leverage partnerships with regional, state, federal, academic, and other external organizations. A clear timeline of dissemination activities should be made available as dissemination plans are established and updated.

### *Project Impact Information*

Develop clear, publicly accessible information about the project, including potential environmental and health benefits and risks, mitigation measures, monitoring plans, and opportunities for community involvement.

### *Environmental Information*

Include environmental monitoring data collected by both industry operators and regulatory agencies in the information-sharing system. Information should be presented in a clear and accessible format that enables community members to understand monitoring results, trends over time, and, where appropriate, potential health implications. To support transparency, accountability, and informed decision-making, information should be balanced, regularly updated, and made available as soon as practicable following data collection, analysis, or incident reporting.

The County of Imperial may need to establish clear requirements for the collection and sharing of operational data between industry partners, the County of Imperial, and the public. While some information may be proprietary, key data related to emissions, environmental conditions, incidents, and response actions should be shared in a standardized, accessible format. Data shared needs to be usable, transparent, timely, and include summaries that support understanding by non-technical audiences. Even when information itself cannot be shared with the public, it is recommended that a list of all collected information be shared to ensure transparency about the full context of reporting.

### **Public Notification**

Assess whether establishing a public notification system for environmental incidents aligns with County of Imperial priorities and would provide meaningful benefits to affected communities. If

determined to be warranted and feasible, develop and implement a public notification system for incidents such as spills, leaks, fires, releases, permit exceedances, or off-site migration of contaminants that could affect public health. Notifications should be issued as promptly as practicable and provide timely, accurate, and actionable information to affected communities.

Notification procedures should clearly define the types of incidents that warrant public notification, the methods and timelines for communication, the information to be provided, and any recommended actions community members should take to protect their health and safety. Provide transparent means for community members to sign up for public notifications.

### **Health Information**

Determine which health indicators are most appropriate, useful, and feasible to incorporate into the community-shared information system and ongoing monitoring to ensure the community's health is maintained or improved. Prioritize indicators that support the early identification of potential health concerns, recognizing that some health effects associated with environmental exposures may not become apparent for years. Accordingly, monitoring efforts should focus on identifying and reducing harmful exposures before adverse health outcomes occur. In addition, provide clear, accessible, and evidence-based public health information to help community members understand environmental risks and take practical steps to reduce their exposure to pollution.

## **Recommendation 3: Create Enforceable Structures to Maximize Community Benefits**

Where feasible, establish enforceable (if possible) requirements, performance standards, and accountability mechanisms to ensure that communities meaningfully benefit from development and that potential adverse impacts are avoided, minimized, or mitigated. The County of Imperial may need to identify and prioritize strategies that maximize community benefits from proposed development while considering technical, legal, and financial constraints. This process may include engagement with industry partners, community stakeholders, and public agencies; identification of potential funding sources; alignment with community priorities; and coordination with regional, state, federal, academic, and other external partners to support implementation.

In collaboration with community partners, industry or other partners, key actions may include:

- **Community-level mitigation and investment:** Explore options to fund community-based mitigation measures and other emissions-reduction initiatives, such as indoor air filtration or funds to facilitate changes to non-gas appliances that directly benefit surrounding communities.
- **Indoor air quality protections:** Provide methods to enhance indoor air quality for residents near development sites (e.g., high-quality, high-efficiency air filtration systems, weatherization, alternatives to gas appliances or fireplaces, etc.) in schools, community centers, and homes.
- **Increased setbacks and land use protections:** Increase setback distances beyond minimum regulatory requirements between industrial operations and homes or places where community members spend time, as appropriate. While the proposed

geothermal/DLE plants are not located near existing homes, other planned developments may be closer to existing or new residences. If setbacks or other land-use restrictions reduce the amount of developable land, consider strategies to minimize impacts on property owners and affordability, while identifying community-beneficial uses for setback areas, such as parks, trails, habitat restoration, or other public amenities.

- **Health needs assessment and expanded healthcare services:** Identify unmet health care needs, barriers, and health priorities in communities closest to the Specific Plan area. Use this information to provide targeted health services and support programs.
- **Support for respiratory health programs:** Enhance accessibility to specialty care for respiratory conditions, including asthma, along with community-based education.
- **Minimize displacement pressures:** Provide programs or assistance to help nearby residents manage rising housing costs or property taxes.
- **Local hiring goals and workforce development programs:** Establish policies to ensure that employment and economic benefits are accessible to local residents, including local hiring goals, workforce training programs, and support for career transitions.
- **Workforce transition support for agricultural workers:** Provide targeted support for agricultural workers who may be affected by land use changes such as a reduction in agricultural activity. Support could include paid job training, compensated educational opportunities, or clear pathways to acceptable employment.
- **Enhanced community support to promote equity:** Create ongoing opportunities for community members to share concerns, identify needs, and participate in planning. In addition, consider measures to ensure that the benefits of new development are shared broadly, particularly among populations that experience barriers to accessing services and opportunities.
- **Cumulative pollution control:** Investigate ways that existing businesses/industries that contribute to cumulative environmental pollution impacts can become more involved in reducing their emissions, improving regional environmental concerns, or contributing to community-level health investment programs.

## Recommendation 4: Provide Ongoing Engagement with the Community

### *Engagement Plan*

Maintain consistent, meaningful engagement with community members throughout the planning, development, and operation of projects implemented under the Specific Plan framework. Engagement efforts should emphasize education, outreach, transparency, and two-way communication, while supporting the early identification of emerging concerns related to community well-being, stress, environmental conditions, and potential health impacts. Information shared with the public should be evidence-based, accessible, and include practical guidance with resources on potential environmental exposures and actions that can help reduce risk.

In developing an engagement plan, the County of Imperial will need to determine the size and scope of the plan, prioritize actions based on potential public health significance, consider technical and financial constraints, include existing efforts and community partners, identify funding opportunities, align efforts with community priorities, and leverage partnerships with regional, state, federal, academic, and other external resources.

- **Methods:** Direct, two-way engagement, such as answering questions, soliciting community input, and establishing clear mechanisms to address concerns, can help build and maintain trust with the community. Various authors describe best practices related to meaningful community engagement for development and industry (M. L. Lima et al., 2012; Majer et al., 2007).
- **Industry Partners:** Where feasible, encourage industry partners to designate community liaisons or engagement programs that share information, respond to questions and concerns, and facilitate ongoing dialogue. Consider building on industry-partner education and engagement efforts already underway, as well as lessons learned from them.
- **Hearing and Reporting to Community:** Include clear, accessible, and culturally appropriate processes for community members to raise concerns and receive timely responses. Potential approaches include dedicated hotlines, email addresses, online reporting portals, community liaisons, regular public meetings, and community advisory groups. Procedures may include timelines for acknowledging, investigating, and responding to concerns, as well as mechanisms for tracking issues and communicating actions taken to address them.

### *Educational Content*

Develop educational materials that address community concerns and information needs. Use findings from the Community Intercept Survey, along with other community engagement and feedback efforts, to create accessible, relevant educational content for residents throughout Imperial County, with particular attention to communities in the northern region.

### *Stakeholder Identification and Engagement*

Identify and engage additional community stakeholders to ensure broad and inclusive representation. Assess whether establishing a standing community advisory group or ad hoc committee would improve ongoing communication, facilitate community input, and strengthen collaboration throughout implementation of the Specific Plan.

## **Recommendation 5: Strengthen Industry-Community Relationships**

Explore opportunities for the County of Imperial to encourage, facilitate, and promote the "good neighbor" program (County of Imperial, 2024) among industry partners to enhance transparency, responsiveness, and community well-being. The current program requires companies to, at a minimum, support local and priority hiring, address workplace safety and quality standards, support education and skill building, participate in community engagement, advance local infrastructure, and support the local economy (County of Imperial, 2024). Potential additional practices may include a voluntary participation level for companies to begin building their

engagement, proactive environmental monitoring, public reporting of monitoring results, timely responses to community concerns, and other measures that build trust and strengthen relationships between industry operators and nearby communities.

Additional practices could include community benefit programs that directly support residents in affected areas, such as those described in Recommendation 3 (e.g., providing air filtration systems to nearby households), funding community improvement projects, supporting local health and education initiatives, or establishing dedicated community liaison positions and outreach programs to facilitate ongoing communication, education, and engagement.

In considering these opportunities, the County of Imperial will need to determine its appropriate role, identify and prioritize strategies that are most likely to benefit the community, assess technical and financial feasibility, build upon existing programs and partnerships, identify potential funding sources, align efforts with community priorities, and leverage collaborations with regional, state, federal, academic, and other external organizations. The goal should be to foster long-term, mutually beneficial relationships between industry partners and the communities affected by development under the Specific Plan framework.

## Recommendation 6: Enhance Health Monitoring

### *Determine Monitoring Gaps*

Determine whether additional health monitoring is warranted by identifying gaps in existing public health surveillance systems and assessing whether additional primary data collection could provide useful information not currently available. Potential approaches may include periodic surveys, focus groups, key informant interviews, community meetings, or other community-engaged methods. The goal should be to identify information that could support the early detection of emerging health concerns, improve understanding of community well-being, and inform future public health actions. Potential areas of focus may include respiratory health, mental health, stress, well-being, quality of life, perceived health impacts, and community concerns related to development and operations within the Specific Plan area.

The County of Imperial will need to assess its capacity to implement and sustain additional health monitoring activities and identify approaches that are both feasible and likely to provide meaningful public health benefits. This process may include evaluating staffing, technical capabilities, and available resources; prioritizing activities based on their potential public health value; building upon existing programs and partnerships; identifying funding opportunities; aligning efforts with community priorities; and leveraging collaborations with regional, state, federal, academic, and other external organizations.

### *Potential Scope*

In addition to environmental health concerns, consider collecting information on broader community stressors and priorities, such as housing, transportation, employment, healthcare access, and other social determinants of health. Understanding the factors that most influence community well-being may help inform future interventions, resource allocation, policy development, and grant-funded programs and services. These collection efforts should build on the community feedback from the Community Health Assessment from 2024, where community

members participated in coordinated efforts to voice concerns over local systems that impact health (Imperial County Community Health Improvement Partnership, 2024).

### *Community Considerations*

Data collection efforts may be developed in partnership with affected communities, including Tribal communities and other populations that may experience disproportionate environmental, economic, or health impacts. Data collection activities should be culturally appropriate, responsive to community priorities, and designed to address locally identified concerns.

## Recommendation 7: Health Impact Assessment Planning

Because this is the first HIA conducted for the development proposed under the Specific Plan in Imperial County, establishing a long-term partnership to guide future health assessment and monitoring efforts should be considered. This partnership could provide continuity as development under the Specific Plan progresses by helping to review new information, evaluate the implementation and effectiveness of HIA recommendations, identify emerging health issues, and inform future planning and decision-making.

The partnership should include representatives from local and Tribal communities, public health agencies, environmental and regulatory agencies, industry, academic institutions, healthcare organizations, and other relevant stakeholders. Using a participatory approach would help ensure that community priorities and local knowledge continue to inform assessment, monitoring, research, and mitigation efforts over time.

In addition to guiding future HIA activities, the partnership could facilitate long-term public health and environmental health research related to geothermal energy and lithium development. Potential activities may include identifying research priorities, coordinating data collection and monitoring efforts, seeking external funding, supporting independent research, and translating findings into policies and practices that protect and promote community health.

This recommendation recognizes that understanding the health effects of large-scale direct lithium extraction and associated development will require ongoing evaluation as technologies, operations, scientific evidence, and community conditions evolve.

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