

Environmental Justice Analysis

Becton, Dickinson and Company
Proposed Air Quality Permit #6257
September, 2021

Project Description

Pima County Department of Environmental Quality (PDEQ) is proposing to issue a Minor Source Air Quality Permit to Becton, Dickinson and Company (BD) to be located in Century Park Marketplace, 7345 E. Valencia Road, Tucson, AZ 85747 (Parcel ID 141-06-020D).

This proposed air quality permit authorizes the construction and operation of a new ethylene oxide sterilization facility for the purpose of sterilizing various medical products to include surgical kits, intravenous catheters and sets, surgical and vascular preparatory devices, and various types of syringes.

Potential emissions of hazardous air pollutants from the proposed facility will consist primarily of ethylene oxide (EO (C_2H_4O ; Chemical Abstract Service - CAS No. 75-21-8)). The emissions will be controlled by ethylene oxide catalytic oxidation abatement systems. These systems are designed with a catalyst to oxidize EO gas emissions and convert the gas into the byproducts of carbon dioxide and water prior to discharge to the ambient air. The abatement system has proven to be highly efficient at reducing EO process gas emissions and has been used in the global medical sterilization industry for many years and designed to exceed current EPA National Emission Standards for Hazardous Air Pollutants for the industry.

Background for the Environmental Justice Analysis for the Project

The concept and regulatory requirement of environmental justice stems from Executive Order 12898, entitled “Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations.”. E.O. 12898 directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law, develop a strategy for implementing environmental justice, to promote nondiscrimination in federal programs that affect human health and the environment, as well as provide minority and low-income communities access to public information and public participation. Although E.O. 12898 is directed at federal government action, PDEQ is addressing environmental justice by this analysis.

PDEQ is focused on providing the opportunity for meaningful involvement of area communities, especially minority and low-income populations, in the permitting process by encouraging dialogue and promoting opportunities for education and information sharing regarding the proposed facility and its possible environmental impacts.

National Emission Standards for Hazardous Air Pollutants

The air quality permit for the facility is based on the Environmental Protection Agency's (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) for ethylene oxide commercial sterilization and fumigation operations. These standards implement section 112 of the Clean Air Act and are based on the EPA Administrator's determination that commercial sterilization and fumigation operations emit ethylene oxide, a pollutant identified in the Act list of 189 hazardous air pollutants. The intent of the standards is to protect public health by requiring existing and new major sources to control emissions to the level achievable by the maximum achievable control technology and by requiring existing and new area sources to control emissions using generally available control technology.

Local Area and Demographics

Local Area

The proposed Becton, Dickinson and Company facility will be located in Century Park Marketplace on parcel 141-02-0D301, Tucson, Arizona, 85747. Geographic coordinates for the center of the site are latitude 32.14045, longitude - 110.83700. The project area is located in the City of Tucson, north of Interstate 10, east of Kolb Road, and south of Valencia Road (Figure 1-1).

Figure 1-1 Ariel View of the Becton Dickinson and Company Site Location



Tucson has an estimated population of 548,000 (up slightly from 520,000 at the 2010 census). The Tucson metropolitan area is larger with an estimated population of 1,047,000. Tucson is the second-most populous city in Arizona after Phoenix. Tucson has a population density of 2,330 people per square mile.

Tucson has a strong temporary population, which grows and recedes seasonally. Much of the city's economy is centered on the University of Arizona, which is the city's second largest employer, as well as tourism, with over 3.5 million people visiting the city each year. Along with vacationers, there are a large number of winter residents (snowbirds) who come for the mild winters. Many own second homes in the area¹.

Demographics

The EPA's screening and demographic evaluation for potential environmental justice concerns focused on the primary populations that are geographically near the area of the facility. As noted above air quality impacts of the Project have been demonstrated to be below the applicable NESHAPs. The identified "Impact Area" for purposes of this Environmental Justice Analysis encompasses approximately 50 square miles and includes a population of 41,760. The Impact Area includes the area to the north of the proposed project to East Escalante Road, areas to the west to South Alvernon Way, areas east to South Houghton Road, a significant portion of Davis-Monthan Air Force Base and to the southern tip of the University of Arizona Technology Park.

To help formulate a plan for the outreach activities related to the Project, PDEQ reviewed the metrics for Pima County, the State of Arizona, and the United States. See Table 2 below.

Table 2: Average Demographic Information for Proposed Project Location and Surrounding Areas

City/Area	Population 2010 Census	Percent People of Color	Low Income Population	Percent Linguistically Isolated	Percent w/o High School Diploma	Percent under Age 5	Percent Over 64
Impact Area	41,760	49%	30%	3%	10%	8%	13%
City of Tucson	548,073	61%	51%	6%	17%	6%	14%
Pima County	1,047,279	53%	40%	4%	12%	5%	20%
Arizona	6,641,928	45%	36%	4%	13%	6%	17%
United States	328,239,523	39%	33%	4%	13%	6%	15%

Demographic information was obtained through the EPA's EJSCREEN mapping tool: Environmental Justice Screening and Mapping Tool. <https://ejscreen.epa.gov/mapper/> or the U.S. Census Bureau

¹ See <http://worldpopulationreview.com/us-cities/tucson-population/>

Minority and Low Income Populations – The percent minority populations within the Impact Area is below the City of Tucson and Pima County percentiles. The percentage of low income populations in the Impact Area is also lower than the City of Tucson, Pima County, Arizona and the U.S. averages.

Linguistic Isolation – Linguistic isolation limits a household’s capacity for civic engagement in the regulatory process.² Linguistic isolation in Pima County and the state of Arizona is equal to the national average of four percent. The Impact Area is even lower at three percent. Of those linguistically isolated, Spanish is the language predominantly spoken.

Education levels – Education level is another factor that may influence susceptibility and vulnerability to air pollution. Limited formal education is a barrier to employment, health care and social resources, and can increase the risk of poverty, stress, and impacts from environmental stressors. The Impact Area has a lower percentage of people without a high school diploma at ten percent than the City of Tucson, County, State, and U.S. averages with respect to this factor.

Environmental Public Health Data – The Center for Disease Control and Prevention (CDC) provides environmental health data for Pima County that is available here: <https://ephtracking.cdc.gov/InfoByLocation/>

In general, the demographic information provided in the CDC database for Pima County is consistent with the demographic information provided above. The database also provides other information such as asthma rates, population proximity to highways, access to parks, extreme heat days, number of high ozone days, and smoking rates. However, much of this data is not provided in a comparable format. We note that the CDC information does indicate that Pima County has current asthma rates higher than the national average, ten percent versus seven percent, respectively, as of 2018.

Air Quality in Pima County and Potential Project Impacts

Pima County is designated as in attainment or unclassifiable for the health-based national ambient air quality standards set for PM₁₀, PM_{2.5}, NO₂, CO, O₃, SO₂ and lead.

Impact of the Project’s Emissions

Although not required by PDEQ regulations, BD contracted with Trinity Consultants to perform a modeling analysis using AERMOD (v19191). The objective was to evaluate potential impacts of EO at the facility’s ambient air boundary (property line) and within a large modeling domain extending five kilometers from the facility in all directions. Discrete receptors were placed at the six nearest residential areas within the modeling domain to specifically identify modeled impacts at these locations. Controlled EO emissions from the processes identified in this application were

² A linguistically isolated household is defined by the U.S. Census Bureau as a household in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well." In other words, all members 14 years old and over have at least some difficulty with English.

modeled. The consultants provided [a report](#) summarizing the emissions modeled, the maximum predicted annual modeled impacts (at the facility ambient boundary), and impacts at the six nearest residential areas. The modeled risk at the identified residential receptors near the proposed facility does not exceed the EPA-derived 100-in-a-million risk threshold level for an individual if that person was exposed to that concentration level continuously for a lifetime. The 100-in-a million risk threshold level is the EPA-derived threshold level for determining an acceptable level of risk for annual EO exposure (0.02 µg/m³) as part of EPA's National Air Toxics Assessment.

This analysis was completed independently by BD and reviewed by EPA staff and is provided for informational purposes only as it is not required for a Class II permit application.

PDEQ has determined that the projected emissions from the Project will not result in disproportionately high and adverse human health or environmental effects on any population, including minority populations and low-income populations.

Outreach Activities for Pima County's Proposed Permit Decision

PDEQ is undertaking various actions to provide public participation opportunities to the local community for its proposed permit decision for the BD Project. On October 6, 2021, PDEQ will host a virtual public information (open house) meeting and an in-person meeting on October 27, 2021 in the vicinity of the proposed Project to provide interested community members the opportunity to learn about the Project and the PDEQ's permitting process and to informally discuss the potential air quality impacts of the Project. In light of the linguistically isolated Spanish-speaking population in the local community, English-Spanish translation services will be made available at the meetings.

PDEQ is issuing its public notice for the proposed permit in both English and Spanish. Both versions of the notice are being provided to the public in two local newspapers, through the PDEQ website, as well as through a media release that will be distributed directly to 4,500 people on our distribution list. In addition, notice of the comment period, open houses, and public hearing is being mailed to over 18,000 businesses and households located within the Impact Area.

PDEQ's proposed permit for the Project, the accompanying technical support documents, and the public notice will be available for review on the PDEQ website and at the PDEQ office located: 33 N Stone Ave, Suite 700, Tucson, Arizona, 85737.

PDEQ issued a news release to local TV, radio and print media including media. The main website for PDEQ includes a 'Featured News' section that provides a link to the news release.

PDEQ is providing a 90-day public comment period for its proposed permit decision for the BD project. We have also scheduled a virtual public hearing on November 3, 2021 to take oral and written comments on the Project.

All information in the administrative record related to our proposed permit decision for the Project can be found through this webpage:

<https://webcms.pima.gov/cms/One.aspx?portalId=169&pageId=740735>