

**SOCIOECONOMIC IMPACT ASSESSMENT**

**PROPOSED AMENDED RULE 1210 –  
TOXIC AIR CONTAMINANT PUBLIC HEALTH RISKS-  
PUBLIC NOTIFICATION AND RISK REDUCTION**

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## EXECUTIVE SUMMARY

A Socioeconomic Impact Assessment (SIA) has been prepared to assess the impacts of proposed amended Rule 1210 –Toxic Air Contaminant Public Health Risks-Public Notification and Risk Reduction. A summary of the analysis and findings is presented below.

<p><b>Elements of Proposed Amended Rule</b></p>	<p>The purpose of proposed amended Rule 1210 is to protect public health by lowering the cancer risk reduction threshold from 100 in one million to 10 in one million and to align with the public notification threshold. In an effort to minimize the public’s exposure to potential toxic air contaminants, proposed amended Rule 1210 will require affected facilities to reduce their estimated cancer risk to below the proposed 10 in one million threshold within a 5-year timeframe. However, some facilities may need additional time to reduce the estimated cancer risk to below 10 in one million due to the need for future technological advancements. Thus, the proposed amended rule includes provisions for an extension period for situations when reducing the cancer risk is not technically feasible. A 3-year extension may be granted provided that the facility has installed Best Available Retrofit Control Technology for Toxics (T-BARCT) on all emission units within the stationary source contributing to the exceedance of the significant risk threshold(s). Subsequent extensions may be granted provided that the facility has further installed all technically feasible controls on all emission units within the stationary source contributing to the exceedance of the significant risk threshold(s).</p> <p>In addition, proposed amended Rule 1210 will make some changes to the provisions of Rule 1210 to: 1) require that all initial public notifications contain clear and readable maps with isopleths; 2) require proof of distribution of public notification materials by a certain timeframe; 3) require that a public meeting be conducted for all initial public notifications, and for subsequent biennial notifications as determined and requested by the Air Pollution Control Officer; 4) specify that the risk reduction requirements shall apply to health risk assessments conducted for emissions inventory years 2018 and later with an estimated cancer risk equal to or greater than 10 in one million; 5) specify that the risk reduction requirements shall apply to health risk assessments conducted for emissions inventory years prior to 2018 with an estimated cancer risk equal to or greater than 100 in one million; 6) require the Air Pollution Control Officer to provide a public notice within 30 days of receipt of risk reduction audit and plan and any extension request, and make each document available for public review with a 30-day public comment period; 7) include a provision for a 3-year extension to reduce the estimated cancer risks to below the proposed cancer risk reduction threshold provided that the facility has installed Best Available Retrofit Control Technology for Toxics (T-BARCT); 8) provide for additional 3-year extension options to reduce the estimated cancer risk to below the proposed cancer risk reduction threshold provided all further additional technically feasible controls besides T-BARCT have been implemented; and 9) require</p>
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	the Air Pollution Control Officer to conduct a public meeting to discuss any proposed extension requests and obtain input from the public.
<b>Affected Facilities and Industries</b>	Proposed amended Rule 1210 may potentially affect up to 26 facilities in San Diego County classified as being in various sectors, including shipbuilding, mineral processing, and landfills.
<b>Major Assumptions and Limitation of Analysis</b>	<p>The main requirements of proposed amended Rule 1210 that have major cost impacts would include the installation of emissions control equipment, e.g., baghouses and HEPA filters, and oxidation catalysts. While the proposed amended rule will require that estimated cancer risk be reduced to below 10 in one million, the rule does not prescribe which risk reduction measures are to be implemented. Affected facilities will be required to submit a risk reduction audit and plan for evaluation and approval by the Air Pollution Control Officer.</p> <p>To determine low-cost and high-cost scenarios, the District assumed each affected facility within an industry type will install the same type of emissions control equipment or implement the same control measure currently available. Based on the number of emission sources located at each facility, the total capital and annual operation and maintenance costs were estimated for each affected industry type.</p> <p>The total annualized cost estimates include annualized capital cost (4% interest, 10 years), and annual operating and maintenance costs (15% of total capital cost if annual cost estimates are not available). All costs are expressed in 2020 dollars.</p> <p>The annual compliance costs are assumed to start in 2022 after the adoption of proposed amended Rule 1210. However, due to the process of public notification, submission of a risk reduction audit and plan, public participation, evaluation and approval by the Air Pollution Control Officer, and implementation of the risk reduction measures outlined in the plan, annual compliance costs may occur after 2022.</p>
<b>Annualized Compliance Costs</b>	The average annual compliance costs for all affected sources due to proposed amended Rule 1210 is estimated to be \$10 to \$16 million for the low-cost and high-cost scenario, respectively. The sectors of shipbuilding and mineral processing will incur the majority share of the estimated total annualized cost.
<b>Quantifying Health Benefits</b>	The monetary benefits of decreased mortality risk and morbidity from reduced cancer incidence can potentially be calculated for populations impacted by air toxics. In terms of the reduction of mortalities, a measure such as the value of a statistical life (VSL) can be used to assign monetary values to reductions in the estimated cancer risk posed to a population. VSL is defined as the additional cost that individuals would be willing to bear for reductions in risk that, in the aggregate, reduce the expected number of fatalities by one.

	<p>Currently, none of the California air districts have officially quantified the monetary benefits of reducing cancer risks from their toxic rules. The California Air Resources Board (CARB) has currently engaged in a contract with the University of California, Davis to develop such a methodology.</p>
<p><b>Regional Job Impacts</b></p>	<p>The total economic impacts resulting from proposed amended Rule 1210 were determined with an input-output model that estimates purchases and sales between the various sectors of the economy. The model incorporates multipliers and data tables specific to San Diego County (the latest San Diego County IMPLAN Model) and generates impact estimates for separate components of the quantified benefits in terms of employment, labor income, value added, and output.</p> <p>Proposed amended Rule 1210 is expected to result in approximately 61 jobs forgone annually between 2022 and 2032 when a 4% real interest rate is assumed. The projected job impacts represent about 0.003% of the total employment in San Diego County. The university, shipbuilding, and other concrete product manufacturing sectors are expected to lose about 25, 22, and 19 jobs annually, respectively. On the other hand, construction and air and gas manufacturing are expected to gain few jobs due to additional spending in these sectors.</p>

## **I. INTRODUCTION**

California law requires air pollution control districts (with populations of 500,000 people or higher) to perform a Socioeconomic Impact Assessment (SIA) when adopting, amending, or repealing rules and regulations that will significantly affect air quality and emissions limitations. While an SIA is not required for this proposal per State law because proposed amended Rule 1210 does not directly affect emissions limitations, this SIA has been prepared to provide additional analysis for the proposed amended rule.

The Health and Safety Code Section 40728.5 specifies the following elements to be included in the SIA:

1. The type of industry or business, including small business, affected by the rule or regulation.
2. The impact of the rule or regulation on employment and the economy of the region affected by the adoption of the rule or regulation.
3. The range of probable costs to industry or business, including small business, of the rule or regulation.
4. The availability and cost-effectiveness of alternatives to the rule or regulation.
5. The emission reduction potential of the rule or regulation.
6. The necessity of adopting, amending, or repealing the rule or regulation in order to attain state and federal ambient air quality standards.

## **II. NECESSITY OF PROPOSED AMENDED RULE 1210**

While the overall industrial toxic emissions have been regulated and/or incentives provided to result in their decline in San Diego County since existing Rule 1210 was adopted, there is still a public risk of developing cancer due to the total amount of toxic air contaminants emitted by these individual stationary sources. That is, certain facilities still pose an increased estimated cancer risk to the surrounding communities. The scientific knowledge and understanding continues to develop about the effects of toxic air contaminants on the human body. As such, in 2015, the State Office of Environmental Health Hazard Assessment (OEHHA) refined its methodology by incorporating the latest science in toxics exposure duration, age-based sensitivity factors, and the varying breathing rates of different age groups. These changes may result in estimates of higher risks for facilities than previously calculated, even if a facility's emissions and other conditions have remained unchanged, as the updated risk calculation methodologies consider the latest health science and aforementioned factors.

On May 22, 2019, in an effort to better protect and improve public health, the former San Diego County Air Pollution Control Board (Board) directed the District to evaluate the current cancer risk reduction threshold in Rule 1210 (100 in one million), implement a regulatory process to

analyze the cancer risk reduction threshold, including obtaining input from the public and affected businesses, and then return to the Board with a proposed rule.

The District is proposing to lower the cancer risk reduction threshold from 100 in one million to 10 in one million for the following reasons:

1. Establish a health protective limit. Given the scientific data established by OEHHA, which demonstrates the contaminants emitted by the facilities subject to this amendment create an increased cancer risk, the District has a responsibility to require cancer risk reductions to the extent it is feasible. The rule, as proposed, allows for extensions when it is not feasible to reduce the cancer risk to below the significant risk thresholds. The District must consider extensions because for some industries, technology is not feasible and is still advancing.
2. Align the cancer risk notification threshold, which is currently 10 in one million, with the cancer risk reduction threshold. It's unacceptable to provide notification to the public about elevated health risks and at the same time inform them that the facility is not required to reduce the health risk when feasible.
3. Make the cancer risk reduction threshold consistent with 11 other California air districts that have already implemented a 10 in one million cancer risk reduction threshold. California has a total of 35 local air districts and out of these 35, the top five largest districts include: San Diego County Air Pollution Control District (SDAPCD), San Joaquin Valley Air Pollution Control District (Valley Air District), South Coast Air Quality Management District (South Coast AQMD), Bay Area Air Quality Management District (BAAQMD), and Sacramento Metropolitan Air Quality Management District (Sac Air Quality). Out of the top 5 largest districts, SDAPCD and the Valley Air District are the only districts that have a 100 in one million cancer risk reduction threshold. South Coast AQMD has a 25 in one million cancer risk reduction threshold and Sac Air Quality and BAAQMD have a 10 in one million cancer risk reduction threshold.
4. The District has carefully evaluated the impact of this proposal on the facilities under its jurisdiction (in San Diego County). Specifically, the District has quantified the toxic air contaminant emissions from all facilities subject to the Air Toxics "Hot Spots" Program through the 2019 calendar year. The District has also identified the facilities that might create elevated health risks and required health risk assessments, which quantify the health risks. In accordance with State law, health risk assessments are conducted by the facilities, reviewed by OEHHA, and approved by the Air Pollution Control Officer. Under this evaluation, the District identified up to 26 facilities that may be subject to the proposed change in the cancer risk reduction threshold (see Appendix A – List of Facilities Potentially Affected by Proposed Amended Rule 1210).

For context, the District evaluated a total of approximately 400 facilities under its jurisdiction and, out of the 400 facilities evaluated, it identified up to 26 facilities that may be affected by this proposal. Based on the nature of the facilities identified, it is feasible for most of them to reduce estimated cancer risks to below the 10 in one million cancer risk threshold within a 5-year period. Some facilities might need additional time to reduce the estimated

cancer risk to below 10 in one million due to future technological advancements, which is why the proposed rule has provisions for extensions when reducing the cancer risk is not feasible. The proposed 10 in one million cancer risk reduction threshold is appropriate when compared to other potential cancer risk reduction thresholds (refer to Section VI - Availability and Cost-Effectiveness of Alternatives).

For the 5 health risk assessments for the 2013 calendar year, which have been approved by the Air Pollution Control Officer, to date there are over 5,000 residential and school addresses, schools, and other entities that will require public notification regarding a facility's estimated cancer risk. The number of addresses and other entities to be notified will likely increase as more health risk assessments are approved. The proposed amended rule will consequently require substantial public notification and provide corresponding public health benefits due to the requirement for facilities to further reduce their estimated cancer risk.

Proposed amended Rule 1210 is designed to fulfill the former Board direction to evaluate the previous cancer risk reduction threshold, and to further reduce the health risk associated with public exposure to emissions of toxic air contaminants.

### **III. SUMMARY OF PROPOSED AMENDED RULE 1210**

In summary, the proposed amendments will make some changes to the provisions of Rule 1210 to:

- Lower the cancer risk reduction threshold to below 10 in one million.
- Require that all public notifications contain clear and readable maps with isopleths.
- Require proof of distribution of public notification materials by a certain timeframe.
- Require that a public meeting be conducted for all initial public notifications, and for subsequent biennial notifications as determined and requested by the Air Pollution Control Officer.
- Specify that the risk reduction requirements shall apply to health risk assessments conducted for emissions inventory years 2018 and later with an estimated cancer risk equal to or greater than 10 in one million.
- Specify that the risk reduction requirements shall apply to health risk assessments conducted for emissions inventory years prior to 2018 with an estimated cancer risk equal to or greater than 100 in one million.
- Require the Air Pollution Control Officer to provide a public notice within 30 days of receipt of risk reduction audit and plan and any extension request and make each document available for public review with a 30-day public comment period.
- Include a provision for a 3-year extension to reduce the estimated cancer risks to below the proposed cancer risk reduction threshold provided that the facility has installed Best Available Retrofit Control Technology for Toxics (T-BARCT).
- Provide for additional 3-year extension options to reduce the estimated cancer risk to below the proposed cancer risk reduction threshold provided all further additional technically feasible controls besides T-BARCT have been implemented.

- Require the Air Pollution Control Officer to conduct a public meeting to discuss any proposed extension requests and obtain input from the public.
- Update and remove outdated language.
- Include other minor edits for clarification.

#### IV. TYPE OF INDUSTRIES AFFECTED BY THE PROPOSED AMENDED RULE

Proposed amended Rule 1210 may affect various industrial sectors in San Diego County. As the proposed amended rule affects a wide spectrum of San Diego County’s local economy, this SIA groups the affected facilities into several industry categories. Table 1 - Summary of Industry Sources below lists potentially impacted industries with potential emissions control equipment or control measures, and primary risk drivers.

**Table 1 – Summary of Industry Sources**

Industry Type	Number of Facilities	Number of Emission Sources	Control Equipment or Control Measure	Primary Risk Driver(s)
Landfills	4	4	(More Frequent Watering, Soil Stabilizers) Paving Haul Roads <sup>1</sup>	Arsenic Diesel PM Benzene Acrylonitrile
Mineral Processing	9	9	Baghouse	Arsenic Diesel PM Hexavalent Chromium
Power Generation	4	15	Oxidation Catalyst Carbon Adsorption	Acrylonitrile Vinyl Chloride Formaldehyde
Shipbuilding	3	30 12	HEPA Filter System Replacement Crane Engine <sup>2</sup>	Diesel PM Hexavalent Chromium Ethylbenzene Cadmium
Sewage Treatment Facilities	1	1	Oxidation Catalyst Thermal Oxidizer	1,2-Dichloroethane PAH Diesel PM Formaldehyde
Turbine Repair and Testing	1	1	Oxidation Catalyst	Formaldehyde
Hospitals University Scientific Research (all with diesel engines)	2 1 1	9 18 4	Diesel Particulate Filter <sup>3</sup> Oxidation Catalyst	Diesel PM
<b>Total</b>	<b>26</b>			

<sup>1</sup> HomeAdvisor, Asphalt Driveway Cost, <https://www.homeadvisor.com/cost/outdoor-living/install-asphalt-paving/>

<sup>2</sup> California Air Resources Board, Amendments to the Regulation for Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards, Staff Report, Appendix C, August 2011

<sup>3</sup> Discussion with South Coast AQMD staff

## **V. RANGE OF PROBABLE COSTS TO INDUSTRY INCLUDING SMALL BUSINESSES**

The total costs of the proposed amended rule are uncertain because actions taken by affected facilities will depend on the risk reduction measures proposed by the facilities, e.g., facilities may propose to install control devices, implement alternative technologies and processes, relocate certain operations, increase release heights for better dispersion, or reduce operating hours or throughput.

To determine low-cost and high-cost scenarios, the District assumed each affected facility within an industry type will install the same type of emissions control equipment or implement the same control measure currently available. Based on the number of emission sources located at each facility, the total capital and annual operation and maintenance costs were estimated for each affected industry type.

The total annualized cost estimates include annualized capital cost (4% interest, 10 years), and annual operating and maintenance costs (15% of total capital cost if annual cost estimates are not available). All costs discussed in this section are expressed in 2020 dollars.

The annual compliance costs are assumed to start in 2022 after the adoption of proposed amended Rule 1210. However, due to the process of public notification, submission of a risk reduction audit and plan, public participation, evaluation and approval by the Air Pollution Control Officer, and implementation of the risk reduction measures outlined in the plan, annual compliance costs may occur after 2022.

Table 2 - Projected Compliance Costs by Industry Due to Additional Pollution Controls or Control Measures (2020 Dollars) presents the low-cost and high-cost scenario estimates by industry type. The sectors of shipbuilding and mineral processing will incur the majority share of the estimated total annualized cost. The District anticipates that some facilities may elect to implement no-cost or low-cost risk reduction measures such as more frequent watering or application of soil stabilizers to the haul roads, operating time restrictions, process improvements, relocation of the emission unit, or stack height increase.

**Table 2 - Projected Compliance Costs by Industry Due to Additional Pollution Controls or Control Measures (2020 Dollars)**

Industry Type	NAICS Codes	Number of Facilities	Projected Increase in Compliance Costs <sup>4, 5</sup>			
			Total Capital Cost Low-Cost Scenario	Total Capital Cost High-Cost Scenario	Total Annualized Cost (per year) Low-Cost Scenario	Total Annualized Cost (per year) High-Cost Scenario
Landfills	56222	4	\$443,520	\$823,680	\$54,682	\$101,552
Mineral Processing	327992	9	\$2,304,000	\$3,879,360	\$2,759,062	\$3,701,230
Power Generation	22111	4	\$10,619,400	\$17,880,415	\$1,599,736	\$2,582,730
Shipbuilding	336611	3	\$12,240,000	\$22,445,100	\$3,497,811	\$6,181,833
Sewage Treatment	221320	1	\$630,960	\$1,062,379	\$89,042	\$145,631
Turbine Repair	333611	1	\$514,360	\$866,054	\$63,416	\$106,777
Hospitals	622110	2	\$4,674,240	\$7,866,483	\$576,291	\$969,866
University	611310	1	\$9,348,480	\$15,732,966	\$1,152,583	\$1,939,732
Scientific Research	5417	1	\$2,077,440	\$3,496,215	\$256,130	\$431,052
<b>Total</b>		<b>26</b>	<b>\$42,852,400</b>	<b>\$74,052,650</b>	<b>\$10,048,753</b>	<b>\$16,160,402</b>

**Small Businesses**

Historically, for purposes of SIAs, the District has defined a small business as an entity that meets all of the following conditions:

1. The business is independently owned and operated. (California Government Code, Section 11342.610, Small Business definition)
2. The business is not dominant in its field of operation. (Same)

<sup>4</sup> South Coast AQMD, Socioeconomic Report, Rules 307.1, 1401, 1402, September 2016

<sup>5</sup> South Coast AQMD, Socioeconomic Report, Rule 1407 - Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations, September 2019

3. The business has gross annual receipts not more than \$500,000. (South Coast AQMD), Rule 102 – Definition of Terms)
4. The business employs ten persons or less. (South Coast AQMD Rule 102)
5. The business has total annual VOC emissions less than 10 tons. (Health and Safety Code, Section 42323, Small Stationary Source)

According to the District’s permit files and information obtained from the California Employment Development Department, none of the potential 26 facilities that may be affected by the proposed amended rule meet all the aforementioned conditions.<sup>6</sup> Therefore, proposed amended Rule 1210 will not have a negative economic impact on small businesses in San Diego County.

## **VI. AVAILABILITY OF ALTERNATIVES**

The District evaluated four potential options for determining the cancer risk reduction threshold in the proposed amended rule, which are presented below:

### **Option 1 - Lower threshold to 10 in one million**

Lowering the significant risk threshold to 10 in one million may apply to 26 facilities. The District is proposing a cancer risk reduction threshold of 10 in one million because it will reduce the estimated cancer risk to the greatest extent feasible, and for the reasons specified in Section II – Necessity of Proposed Amended Rule 1210 of this SIA.

### **Option 2 - Lower threshold to 25 in one million**

Lowering the significant risk threshold to 25 in one million would not bring significant benefits since it would only apply to 4 facilities, based on current data and assuming the health risk assessments submitted to the District are approved without revisions. Also, the District would miss an opportunity to reduce cancer risk as it is technically feasible for other facilities with an estimated cancer risk above 10 in one million and below 25 in one million to reduce their cancer risks.

### **Option 3 - Lower threshold to 50 in one million**

Lowering the significant risk threshold to 50 in one million would not bring significant benefits since it would only apply to 2 facilities, based on current data and assuming the health risk Assessments submitted to the District are approved without revisions. Also, the District would miss an opportunity to reduce estimated cancer risk as it is technically feasible for other facilities with an estimated cancer risk below 50 in one million to reduce their cancer risks.

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<sup>6</sup> California Employment Development Department, Labor Market Information, <http://www.labormarketinfo.edd.ca.gov>

#### **Option 4 - Retain existing threshold of 100 in one million**

The 100 in one million cancer risk reduction threshold for risk reduction requirements specified in existing Rule 1210 is ineffective since it does not apply to any facilities regulated by the District. No facilities in San Diego County currently exceed the 100 in one million cancer risk reduction threshold. If this existing threshold is retained, no facility will be subject to risk reduction requirements, and no additional public health protection will be provided by this cancer risk threshold. In fact, since Rule 1210 was adopted in 1996, only 2 facilities have been subject to risk reduction requirements based on elevated cancer risk (i.e., cancer risk equal to or above 100 in one million). Thus, the existing threshold has not resulted in substantial cancer risk reduction in the region in the 25 years since its adoption.

#### **VII. EMISSION REDUCTION POTENTIAL AND COST-EFFECTIVENESS OF THE PROPOSED AMENDED RULE**

The District cannot predetermine what risk reduction measures may be implemented at each facility that would potentially be affected by the proposed amended rule. Also, some risk reduction measures, such as increased stack height or relocating a point source further away from receptors, would not result in any emission reductions.

In addition, toxic emission rules, such as proposed amended Rule 1210, don't lend themselves to the typical cost-effectiveness analysis used for criteria pollutants such as ozone precursors because doing so would necessarily require the District to assign a dollar value to a potential health outcome avoided, e.g., cancer incidence or a developmental disability. Cost-effectiveness is not meaningful for risk-based regulations such as proposed amended Rule 1210 since many other factors besides the amount of pollution affect the risk such as the toxic potency and the location of receptors. Consequently, a calculation of emission reductions and cost-effectiveness, expressed in dollars per pound of emissions reduced, cannot be estimated.

The proposed amended rule will require affected facilities to reduce their potential estimated cancer risk. Facilities subject to risk reduction requirements will be required to submit an application to the Air Pollution Control Officer with a proposed plan to reduce their health risk. The proposed amended rule has provisions for an extension period provided that it is not feasible to further reduce the estimated cancer risk with current technologies. Costs associated with risk reduction measures will be considered for a 3-year extension beyond the required 5-year timeframe. Subsequent extensions may be granted provided that the risk reduction measures are not technically feasible.

#### **Quantifying Health Benefits**

Mitigating levels of air toxics can serve to reduce the inhalation or non-inhalation dose a resident or worker experiences, thus reducing excess estimated cancer risk. The reduction in excess estimated cancer risk has potentially quantifiable monetary benefits from premature deaths avoided and reduced morbidity incidence of non-fatal cancer. The value of morbidity incidence results from four components: 1) costs to reduce the risk of illness, 2) costs for treatments such as

medical care and medication, 3) costs due to lost time from paid work or maintaining a home, and 4) costs resulting from pain and suffering.

The monetary benefits of decreased mortality risk and morbidity from reduced cancer incidence can potentially be calculated for populations impacted by air toxics. In terms of the reduction of mortalities, a measure such as the value of a statistical life (VSL) can be used to assign monetary values to reductions in the estimated cancer risk posed to a population. VSL is defined as the additional cost that individuals would be willing to bear for reductions in risk that, in the aggregate, reduce the expected number of fatalities by one.<sup>7</sup>

Currently, none of the California air districts have officially quantified the monetary benefits of reducing estimated cancer risks from their toxic rules. CARB has currently engaged in a contract with the University of California, Davis to develop such a methodology.

## **VIII. IMPACT OF THE PROPOSED AMENDED RULE ON EMPLOYMENT AND THE REGIONAL ECONOMY**

### **San Diego County Economy**

According to the latest Impact Analysis for Planning (IMPLAN) Model 2021, the total gross regional product (GRP) of San Diego County is estimated to be about \$264.6 billion. IMPLAN staff recommended the use of the 2019 IMPLAN baseline for this analysis because the economy of San Diego County is recovering from the impacts of the COVID-19 pandemic, and the 2019 baseline better represents the current state of the regional economy.

Table 3 - A Snapshot of the San Diego County Economy presents a snapshot of the county's economy. The total value added is the gross regional product derived from the income paid to the owners of the factors of production in the model year. The total final demand is gross regional product derived from the sale or production value of goods and services by final users about 67% of which came from household purchases in the model year.

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<sup>7</sup> U.S. Environmental Protection Agency, Guidelines for Preparing Economic Analyses, EPA 240-R-00-003, 2000

**Table 3 - A Snapshot of the San Diego County Economy**

<b>Industry Description</b>	<b>Value in 2019</b>
Gross Regional Product	\$264,614,057,523
Total Personal Income	\$220,866,983,625
Total Employment	2,213,030
Number of Industries	483
Land Area (Sq. Miles)	4,204
Population	3,338,330
Total Households	1,185,342
Average Household Income	\$186,332
<b>Final Demand</b>	<b>Value in 2019</b>
Households	\$177,560,821,638
State/Local Government	\$35,807,741,435
Federal Government	\$72,423,236,830
Capital	\$38,749,750,154
Exports	\$105,379,652,059
Imports	\$153,130,311,097
Institutional Sales	\$12,176,833,496
Total Final Demand	\$264,614,057,523
<b>Value Added</b>	<b>Value in 2019</b>
Employee Compensation	\$138,552,766,471
Proprietor Income	\$16,990,869,801
Other Property Type Income	\$93,847,997,608
Indirect Business Taxes	\$15,222,423,640
Total Value Added	\$264,614,057,523

\*IMPLAN Model 2021 (San Diego County)

Table 4 - San Diego County Top Ten Industries (2019) presents the top ten industries with their corresponding employment, labor income, and output within San Diego County. Scientific research and development services business sector has the highest output followed by the military, owner-occupied dwellings, and other real estate.

**Table 4 – San Diego County Top Ten Industries (2019)**

<b>Industry Description</b>	<b>Employment</b>	<b>Labor Income</b>	<b>Output</b>
Scientific research and development services	97,217	\$11,762,932,379	\$26,344,891,687
Employment and payroll of federal govt, military	110,277	\$10,510,391,164	\$24,000,900,815
Owner-occupied dwellings	0	\$0	\$23,821,951,863
Other real estate	93,372	\$3,756,678,895	\$21,811,125,228
Tenant-occupied housing	11,377	\$448,711,754	\$9,876,113,613
Employment and payroll of federal govt, non-military	40,140	\$5,562,149,336	\$8,861,540,314
Employment and payroll of local govt, education	76,124	\$6,570,789,335	\$7,150,961,832
Natural gas distribution	6,434	\$1,419,831,335	\$7,045,898,590
Other local government enterprises	21,447	\$2,056,252,505	\$6,430,237,417
Management of companies and enterprises	25,271	\$3,174,462,742	\$5,953,289,775

\*IMPLAN Model 2021 (San Diego County)

### **Study Approach and Model Assumptions**

IMPLAN is an economic impact assessment software system which combines a set of extensive databases concerning economic factors, multipliers and demographic statistics with a highly refined and detailed system of modeling software. IMPLAN allows the user to develop local-level input-output models that can estimate the economic impact of a policy change, in this case proposed amended Rule 1210.

For this SIA, the latest IMPLAN model built for San Diego County was used to measure the multiplier effect and determine induced impacts. This model is considered a standard method for evaluating the economic benefits of private and public facilities. The model contains a detailed database of economic multipliers used to estimate the induced impacts associated with the direct and indirect spending that occurs toward affected facilities’ operations. Economic leakage is when capital or income is used or spent outside the local area, and therefore is not included in the statewide multiplier.

The total economic impacts resulting from proposed amended Rule 1210 were determined with an input-output model that estimates purchases and sales between the various sectors of the economy. The model incorporates multipliers and data tables specific to San Diego County (IMPLAN Model 2021 San Diego County) and generates impact estimates for separate components of the quantified

benefits in terms of employment, labor income, value added, and output. Output represents the total money value of related activities supported by the base reuse spending. Value added represents money value of output minus the values of intermediate products.

Economists have developed methods to capture the interaction of an industry with the rest of the economy by quantifying its linkages to other sectors of the economy. These models attempt to determine how an expansion in one industry has ripple effects on other sectors of the economy by estimating the "direct," the "indirect," and the "induced" effects of an economic activity:

- **Direct effects** are the employment, output, and income directly lost and generated by the business activities. Direct effects of the proposed amended rule include additional costs to the affected entities and additional sales, by local vendors, of equipment, devices, or services that would meet the proposed requirements. In this analysis, these impacts are the additional compliance costs of proposed amended Rule 1210 and the benefits associated with additional capital and operating expenditures for the implementation of cancer risk reduction measures. The additional compliance costs would increase cost of doing business for the affected industries and would reduce output and employment in those sectors. On the other hand, there are benefits from additional expenditures which support employment and payroll in construction and service-related industries such as local contractor and installers of control equipment and wholesale, and retail sectors.
- **Indirect effects** are the result of the expansion of supplier industries whose products are used as inputs for the new businesses created around affected facilities. The additional cost of doing business and the contribution of the capital and operating spending for an economy goes beyond its primary direct activities; it interacts with other industries in generating products for sale or services for hire. In some cases, these secondary businesses may be direct suppliers; in others they may provide goods and services for those direct suppliers. For example, when a company orders pollution control equipment for its operations it would increase demand for local jobs and resources which helps support additional economic activity.
- **Induced effects** are the additional costs and benefits resulting from the recirculation of direct and indirect impacts within the economy. This spending multiplies until the benefits ultimately leak outside the region. These costs and spending multipliers were calculated using the IMPLAN multipliers that are specific to San Diego County. For example, as local government, new businesses, and employees experience an increase or decrease in their revenue/salary for housing, food, and services, those expenditures circulate through the economy resulting in increased or decreased spending, payroll, and employment throughout San Diego County.

The total economic impact is the sum of the direct, indirect, and induced effects. The quantitative benefits of affected facilities' spending are expressed as jobs, annual payroll, and annual output. Output can be thought of as a measure of annual economic activity or spending.

Secondary impacts are not as easily quantified as first-round impacts, so a reliable method of estimating the induced impacts must be applied. One economic impact modeling system, in use by over 1,500 public and private institutions, is the IMPLAN model and database. The IMPLAN model combines industry survey data collected periodically by the U.S. Bureau of Economic Analysis Input-Output benchmarks with other data to produce a balanced account format recommended by the United Nations. In this context, “balanced” accounts incorporate all goods and services transactions (including imports and exports) as well as all income flows, taxes, subsidies and expenditures by all economic agents (consumers, investors and the government). In a broad sense, it is an all-encompassing snapshot of the whole economy. County-wide data are obtained by disaggregating the balanced national accounts.<sup>8</sup>

### **Jobs and Other Socioeconomic Impacts**

The assessment herein was performed relative to a baseline (“business as usual”) where the proposed amendments would not be implemented. The proposed amendments to Rule 1210 would create a policy scenario under which 26 existing facilities may incur an average annual compliance cost totaling \$10 million to \$16 million to comply with the proposed requirements. The annual compliance costs are assumed to start in 2022. For the purpose of analyzing the impacts of the worse-case scenario, staff used the total annual high costs (\$16 million) within the IMPLAN input-output model.

Direct effects of the proposed amendments have to be estimated and used as inputs to the IMPLAN model in order for the model to assess secondary and induced impacts for all the actors in the San Diego County economy on an annual basis. Direct effects of the proposed amendments include additional costs to the affected entities and additional sales, by local vendors, of equipment, devices, or services that would meet the proposed requirements. Whereas all the compliance expenditures that are incurred by the affected facilities will increase their cost of doing business, the purchase of additional pollution control equipment or control measures will increase the sales of various sectors.

Table 5 - Industries Incurring vs. Benefitting from Compliance Costs/Spending lists the sectors modeled in IMPLAN that would either incur or benefit from the compliance expenditures. It should be noted that, although staff was able to make assumptions about the geographical location of directly affected facilities based on the review of District permits, the same could not be assumed for the businesses from whom the affected facilities would purchase control equipment and services. For the purpose of this analysis, staff assumed that all the installation and maintenance of the control equipment will incur in San Diego County.

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<sup>8</sup> Economic Impact Analysis of Alliance California and the San Bernardino International Airport (former Norton Air Force Base) Phase II (2011-2014), March 31, 2015

**Table 5 - Industries Incurring vs. Benefitting from Compliance Costs/Spending**

<b>Source of Compliance Costs</b>	<b>IMPLAN Industries Incurring Compliance Costs (3-digit NAICS)</b>	<b>IMPLAN Industries Benefitting from Compliance Spending (3-digit NAICS)</b>
Paving Haul Roads (Landfills)	Waste Management (562)  Ground or Treated Mineral and Earth Manufacturing (327)  Electric Power Generation (221)  Shipbuilding and Repairing (336)  Sewage Treatment Facilities (221)  Turbine and Turbine Generator Set Units Manufacturing (333)  Hospitals (622)  Universities (611)  Scientific Research (451)	<i>One-time-Capital:</i> Asphalt Paving (237)
Baghouses (Mineral Processing)		<i>One-time-Capital:</i> Industrial and Commercial Fans Manufacturing (333)
Carbon Adsorption Oxidation Catalyst (Power Generation)		<i>One-time-Capital:</i> Carbon and Graphite Product Manufacturing (335), Industrial Gas Manufacturing (325)
HEPA Filter Systems Replacement Cranes (Shipbuilding)		<i>One-time-Capital:</i> Industrial and Commercial Fans Manufacturing (333), Construction Machinery Manufacturing (333)
Oxidation Catalyst Thermal Oxidizer (Sewage Treatment)		<i>One-time-Capital:</i> Industrial Gas Manufacturing (325), Power Boiler and Heat Exchanger Manufacturing (332)
Oxidation Catalyst (Turbine Repair)		<i>One-time-Capital:</i> Industrial Gas Manufacturing (325)
Diesel Particulate Filter Oxidation Catalyst (Various with Diesel Engines)		<i>One-time-Capital:</i> Other Engine Equipment Manufacturing (333), Industrial Gas Manufacturing (325)
		<i>Installation Spending:</i> Construction (236)

As presented in Table 6 - Economic Impact of Proposed Amended Rule 1210, the proposed amended rule is expected to result in a total of 61 jobs forgone annually with a total reduction of \$3 million in annual labor income, and \$1.6 million reduction in annual output.

**Table 6 – Economic Impact of Proposed Amended Rule 1210**

<b>Impact Type</b>	<b>Employment</b>	<b>Labor Income</b>	<b>Value Added</b>	<b>Output</b>
Direct Effect	(42.86)	\$(2,175,689)	\$(1,300,486)	\$1,033,989
Indirect Effect	(7.41)	\$(330,385)	\$(456,108)	\$(855,866)
Induced Effect	(10.78)	\$(577,154)	\$(1,130,403)	\$(1,804,326)
<b>Total Effect</b>	<b>(61.06)</b>	<b>\$(3,083,229)</b>	<b>\$(2,886,998)</b>	<b>\$(1,626,203)</b>

\*IMPLAN Model 2021 (San Diego County)

\*\*Values in parentheses are negative (typical).

As presented in the Table 7 - Top Five Employment Industries below, the university, shipbuilding, and other concrete product manufacturing sectors are expected to lose about 25, 22, and 19 jobs annually, respectively. On the other hand, construction and air and gas manufacturing are expected to gain few jobs due to additional spending in these sectors.

**Table 7 – Top Five Employment Industries**

<b>Impact Industry</b>	<b>Direct Impact Employment</b>	<b>Indirect Impact Employment</b>	<b>Induced Impact Employment</b>	<b>Total Impact Employment</b>
Junior colleges, colleges, universities, and professional schools	(24.87)	(0.12)	(0.15)	(25.15)
Shipbuilding and repairing	(21.37)	(0.09)	(0.00)	(21.45)
Other concrete product manufacturing	(18.72)	(0.01)	(0.00)	(18.72)
Construction of new manufacturing structures	8.77	0.00	0.00	8.77
Air and gas compressor manufacturing	7.83	0.00	(0.00)	7.83

\*IMPLAN Model 2021 (San Diego County)

As presented in Table 8 - Top Five Output Industries, shipbuilding and other concrete product manufacturing sectors are expected to experience a reduction in the total annual value of economic output of \$6 and \$3.6 million, respectively. On the other hand, the industrial gas manufacturing, air and gas compressor manufacturing, and construction machinery manufacturing sectors are

expected to experience an increase in the total annual value of economic output of \$5, \$4.9, and \$4.8 million, respectively.

**Table 8 – Top Five Output Industries**

<b>Impact Industry</b>	<b>Direct Impact on Output</b>	<b>Indirect Impact on Output</b>	<b>Induced Impact on Output</b>	<b>Total Impact on Output</b>
Shipbuilding and repairing	\$(6,057,493)	\$(24,371)	\$(19)	\$(6,081,883)
Industrial gas manufacturing	\$5,005,358	\$14,897	\$(58)	\$5,020,198
Air and gas compressor manufacturing	\$4,874,950	\$69	\$(0.02)	\$4,875,018
Construction machinery manufacturing	\$4,821,573	\$209	\$(0.24)	\$4,821,782
Other concrete product manufacturing	\$(3,647,465)	\$(1,100)	\$(17)	\$(3,648,582)

\*IMPLAN Model 2021 (San Diego County)

## **IX. CONCLUSION**

The proposed amendments to Rule 1210 are necessary in order to establish a health protective threshold to the greatest extent feasible that brings benefits to the region, to align the risk reduction and public notification thresholds, for consistency with the cancer risk reduction thresholds implemented by other California air districts, to further protect public health from toxic air contaminants in accordance with the Air Toxics “Hot Spots” Program, and to fulfill the direction of the former Air Pollution Control Board.

The average annual compliance costs due to proposed amended Rule 1210 is estimated to be \$10 to \$16 million for the low-cost and high-cost scenario, respectively. The sectors of shipbuilding and mineral processing will incur the majority share of the estimated total annualized cost.

Proposed amended Rule 1210 is expected to result in some jobs forgone annually between 2022 and 2032 when a 4% real interest rate is assumed. The projected job impacts represent about 0.003% of the total employment in San Diego County. While the university, shipbuilding, and other concrete product manufacturing sectors are expected to lose some jobs annually, construction and air and gas manufacturing are expected to gain few jobs due to additional spending in these sectors.

On the other hand, mitigating levels of air toxics can serve to reduce the inhalation or non-inhalation dose a resident or worker experiences, thus reducing excess estimated cancer risk. Although monetary benefits of reducing estimated cancer risks have not been specifically quantified, the value of morbidity incidence results from four components: 1) costs to reduce the risk of illness, 2) costs for treatments such as medical care and medication, 3) costs due to lost time from paid work or maintaining a home, and 4) costs resulting from pain and suffering.

## APPENDICES

### Appendix A - List of Facilities Potentially Affected by Proposed Amended Rule 1210 (current as of 10/5/2021)

Emission Inventory Year	Facility Name	Facility ZIP Code	Estimated cancer risk Reported by Health Risk Assessment Conducted by Facility
2013	BAE Systems	92113	<b>11.8<sup>a</sup></b>
2017	BAE Systems	92113	<b>10.5</b>
2018	CA Commercial Asphalt Enterprises	92145	Pending
2019	CA Commercial Asphalt Enterprises	92040	Pending
2013	Canyon Rock	92120	<b>12.4<sup>a</sup></b>
2017	Canyon Rock	92120	Pending
2016	Chromalloy - San Diego	92121	0.08
2016	City of San Diego -Public Utilities Department	92121	5.25
2017	City of San Diego/Miramar Landfill	92111	<b>19.5<sup>b</sup></b>
2017	Encina Wastewater Authority	92011	4.16
2013	General Dynamics NASSCO	92113	<b>53<sup>a</sup></b>
2017	General Dynamics NASSCO	92113	<b>53<sup>a</sup></b>
2018	Grossmont District Hospital	91942	Pending
2017	Hanson Aggregates	92145	3.30
2019	Hanson Aggregates Pacific Southwest Region	92071	1.69
2018	Kaiser Foundation Hospitals	92120	0.69
2018	Minnesota Methane LLC San Diego Miramar Facility	92111	0.22
2013	Otay Landfill Inc	91911	<b>32.95<sup>a</sup></b>
2017	Otay Landfill Inc	91911	7.6
2019	Pacific Ship Repair & Fabrication Inc	92113	<b>63.4</b>
2019	Robertsons	92154	1.7
2019	Robertsons	92121	3.8
2015	Salk Institute	92037	7.86
2019	Salk Institute	92037	7.86
2017	San Diego County – Pub Wks San Marcos Landfill	92078	7.00 <sup>a</sup>
2017	San Diego State University	92182	9.4
2018	San Marcos Energy LLC	92078	0.11
2019	Superior Ready Mix LP	92025	2.3
2016	Sycamore Energy LLC	92071	0.02
2019	Sycamore Energy LLC	92071	0.02
2013	Sycamore Landfill Inc	92071	<b>38.3<sup>a</sup></b>
2017	Sycamore Landfill Inc	92071	<b>11.3</b>
2017	Vulcan Materials Western Division	92126	0.4

#### Notes

1. This list includes all facilities that were required to conduct a health risk assessment based on their potential estimated cancer risk and may be affected by revisions to cancer risk reductions thresholds under Rule 1210.
2. This list includes the potential estimated cancer risks that were reported by the health risk assessment conducted by the facility. Per state law, all health risk assessments must be reviewed and approved by the Air Pollution Control Officer.
3. Calculated estimated cancer risks with (a) have been reviewed and approved by the Air Pollution Control Officer.
4. Potential estimated cancer risks in **bold** are greater than 10, based on information currently available.
5. Facilities that have "pending" under the "estimated cancer risk" have a future deadline to submit the health risk assessment or are subject to enforcement actions for not submitting a health risk assessment to the Air Pollution Control Officer in accordance with State law.
6. (b) Based on revised health risk assessment.
7. This list of potentially affected facilities is subject to change as more recent health risk assessments are evaluated and approved by the Air Pollution Control Officer.

## Appendix B - Other Socioeconomic Impacts in San Diego County

### Table B.1 - Top 5 Value Added Industries

Impact Industry	Impact Total Value Added			
Industrial gas manufacturing	\$2,448,859	\$7,288	\$(28.26)	\$2,456,119
Shipbuilding and repairing	\$(2,443,228)	\$(9,829)	\$(7.46)	\$(2,453,066)
Air and gas compressor manufacturing	\$1,460,863	\$20.58	\$(0.01)	\$1,460,884
Junior colleges, colleges, universities, and professional schools	\$(1,386,276)	\$(6,851)	\$(8,278)	\$(1,401,406)
Electric power generation - Fossil fuel	\$(1,364,092)	\$676.01	\$(64.73)	\$(1,363,481)
<b>Total</b>	\$(1,300,486)	\$(456,108)	\$(1,130,403)	\$(2,886,998)

**Table B.2 - Top 15 Industries by Estimated Growth Percentage**

<b>No.</b>	<b>Impact Industry</b>	<b>Industry Total Output</b>	<b>Impact Output</b>
1	Air and gas compressor manufacturing	\$4,305,674	\$4,875,018
2	Other concrete product manufacturing	\$10,791,081	\$(3,648,581)
3	Construction machinery manufacturing	\$25,391,506	\$4,821,781
4	Industrial gas manufacturing	\$42,618,035	\$5,020,197
5	Electric power generation - Fossil fuel	\$75,364,284	\$(2,528,630)
6	Carbon and graphite product manufacturing	\$52,184,380	\$963,507
7	Shipbuilding and repairing	\$1,952,295,480	\$(6,081,882)
8	Cement manufacturing	\$39,824,832	\$(86,278)
9	Junior colleges, colleges, universities, and professional schools	\$1,071,491,342	\$(1,933,612)
10	Other engine equipment manufacturing	\$17,706,899	\$30,047
11	Water, sewage and other systems	\$99,407,460	\$(146,831)
12	Construction of new manufacturing structures	\$782,612,056	\$1,120,334
13	Ground or treated mineral and earth manufacturing	\$17,002,387	\$14,655
14	All other petroleum and coal products manufacturing	\$38,022,433	\$31,102
15	Sand and gravel mining	\$88,032,172	\$(53,172)

**Table B.3 - Tax Results**

<b>Impact Type</b>	<b>Sub County General</b>	<b>Sub County Special Districts</b>	<b>County</b>	<b>State</b>	<b>Federal</b>	<b>Total</b>
Direct Effect	\$(62,791)	\$(75,739)	\$(31,968)	\$(195,229)	\$(405,742)	\$(771,470)
Indirect Effect	\$18,376	\$21,983	\$9,276	\$21,961	\$(59,340)	\$12,258
Induced Effect	\$(21,697)	\$(26,139)	\$(11,032)	\$(72,911)	\$(129,602)	\$(261,384)
<b>Total</b>	\$(66,112)	\$(79,895)	\$(33,724)	\$(246,179)	\$(594,685)	\$(1,020,597)