



## Duval County Petroleum Refinery: Phase 2 Input-Output Draft Analysis

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Duval County Population (2016)	11,303
Duval County Jobs (2016)	5,743
Duval County Average Earnings (2016)	\$40,123

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## Duval County Labor Force

There are over 5,700 jobs in Duval County based off recent annual estimates. Listed are the largest occupations within the county. This is just a sample of the 456 occupations in Duval County as of 2016 employment data.

Farmers, Ranchers, and Other Agricultural Managers	1,110
Personal Care Aides	199
Home Health Aides	189
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	139
Heavy and Tractor-Trailer Truck Drivers	134
Office Clerks, General	110
Managers, All Other	95
Correctional Officers and Jailers	92
Construction Laborers	83
Roustabouts, Oil and Gas	82
Cashiers	79
General and Operations Managers	78
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	75
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	74
Elementary School Teachers, Except Special Education	68
Industrial Machinery Mechanics	61
Detectives and Criminal Investigators	61
Childcare Workers	58
Combined Food Preparation and Serving Workers, Including Fast Food	57
Service Unit Operators, Oil, Gas, and Mining	56
Secondary School Teachers, Except Special and Career/Technical Education	53
Teacher Assistants	53
First-Line Supervisors of Construction Trades and Extraction Workers	51
Police and Sheriff's Patrol Officers	49
Bookkeeping, Accounting, and Auditing Clerks	47
Wellhead Pumpers	47
Licensed Practical and Licensed Vocational Nurses	46
Property, Real Estate, and Community Association Managers	45
First-Line Supervisors of Retail Sales Workers	44
Electricians	43
Middle School Teachers, Except Special and Career/Technical Education	41
Registered Nurses	40
Welders, Cutters, Solderers, and Brazers	39
Laborers and Freight, Stock, and Material Movers, Hand	38
Substitute Teachers	37
Maintenance and Repair Workers, General	37
Operating Engineers and Other Construction Equipment Operators	36
Retail Salespersons	34
Maids and Housekeeping Cleaners	33
Nursing Assistants	31
Carpenters	28
Chief Executives	25
Real Estate Sales Agents	25
Nonfarm Animal Caretakers	25
Accountants and Auditors	24
Sales Representatives, Services, All Other	24



The refinery project, which Raven Petroleum wants to start building in 2017 and open by the end of 2018, would create about 350 permanent jobs and 1,800 temporary construction positions.

## Petroleum Refineries

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### **Petroleum Refineries (NAICS 324110):**

This industry comprises establishments primarily engaged in refining crude petroleum into refined petroleum. Petroleum refining involves one or more of the following activities: (1) fractionation; (2) straight distillation of crude oil; and (3) cracking.

#### **Initial:**

This number represents the initial change in jobs as input by the user, and therefore does not include ripple effects. If a user has made the input in terms of jobs, this figure will match exactly what the user entered. If in terms of earnings or sales, this number will represent the conversion to jobs from those other terms.

#### **Direct:**

The effect of new input purchases by the initially changed industries. This is the first round of impacts (see "Indirect"). This change is due to inter-industry effects.

#### **Indirect:**

The subsequent ripple effect in further supply chains resulting from the direct change. In more awkward terms, this shows the sales change in the supply chains of the supply chain, as a result of the direct change. This is the sum of the second and subsequent rounds of impact (see "Direct"). This change is due to inter-industry effect.

#### **Induced:**

This change is due to the impact of the new earnings, investment, and government created by the initial, direct, and indirect changes. Induced effects enter the economy as employees spend their paychecks in the region, businesses invest to grow their operations, and government spends more to support the changes.

### Corpus Christi MSA adding 350 jobs to Petroleum Refineries Industry

<b>350</b> Initial 1.00 Multiplier	<b>919</b> Direct 2.63 Multiplier	<b>206</b> Indirect 0.59 Multiplier	<b>1,139</b> Induced 3.25 Multiplier
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### San Antonio MSA adding 350 jobs to Petroleum Refineries Industry

<b>350</b> Initial 1.00 Multiplier	<b>981</b> Direct 2.80 Multiplier	<b>271</b> Indirect 0.77 Multiplier	<b>1,705</b> Induced 4.87 Multiplier
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### Laredo MSA adding 350 jobs to Petroleum Refineries Industry

<b>350</b> Initial 1.00 Multiplier	<b>655</b> Direct 1.87 Multiplier	<b>110</b> Indirect 0.31 Multiplier	<b>1,016</b> Induced 2.90 Multiplier
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### Combined Effect on jobs from adding 350 jobs to Petroleum Refineries Industry \*

<b>350</b> Initial 1.00 Multiplier	<b>1,045</b> Direct 2.99 Multiplier	<b>301</b> Indirect 0.86 Multiplier	<b>2,070</b> Induced 5.91 Multiplier
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\*Combined regions of the Corpus Christi, San Antonio and Laredo MSA's

# 350 Initial Jobs

1.00 Multiplier

Name	Corpus Christi MSA	San Antonio MSA	Laredo MSA	Combined Regions
Petroleum Pump System Operators, Refinery Operators, and Gaugers	58	17	165	55
First-Line Supervisors of Production and Operating Workers	23	22	70	27
Industrial Machinery Mechanics	18	12	0	17
Chemical Engineers	14	3	0	14
Heavy and Tractor-Trailer Truck Drivers	10	11	0	10
Petroleum Engineers	9	6	27	8
Maintenance and Repair Workers, General	8	7	0	8
Inspectors, Testers, Sorters, Samplers, and Weighers	8	10	38	10
Chemical Equipment Operators and Tenders	7	6	0	8
Office Clerks, General	7	8	50	6
General and Operations Managers	7	8	0	6
Machinists	7	3	0	7
First-Line Supervisors of Mechanics, Installers, and Repairers	6	5	0	6
Chemical Plant and System Operators	6	1	0	5
Welders, Cutters, Solderers, and Brazers	5	2	0	6
Sales Representatives, Wholesale and Manufacturing	5	8	0	5
Helpers--Production Workers	5	6	0	5
Team Assemblers	4	5	0	4
Maintenance Workers, Machinery	4	5	0	4
Laborers and Freight, Stock, and Material Movers, Hand	4	4	0	4
Industrial Truck and Tractor Operators	4	5	0	6
Mixing and Blending Machine Setters, Operators, and Tenders	4	32	0	6
Packaging and Filling Machine Operators and Tenders	4	6	0	5
Production, Planning, and Expediting Clerks	4	5	0	5
Paving, Surfacing, and Tamping Equipment Operators	4	4	0	4
Industrial Engineers	3	2	0	4
Business Operations Specialists, All Other	3	5	0	3
Accountants and Auditors	3	4	0	3
Secretaries and Administrative Assistants	3	4	0	3
Bookkeeping, Accounting, and Auditing Clerks	3	3	0	3
Tank Car, Truck, and Ship Loaders	3	1	0	3
Chemical Technicians	3	3	0	4
Industrial Production Managers	3	5	0	3
Mechanical Engineers	3	2	0	3
Environmental Scientists and Specialists, Including Health	3	1	0	3
Construction Laborers	2	4	0	3
Occupational Health and Safety Specialists	2	2	0	3
Shipping, Receiving, and Traffic Clerks	2	4	0	2
Architectural and Engineering Managers	2	2	0	2
Customer Service Representatives	2	4	0	2
Geological and Petroleum Technicians	2	2	0	1
Electricians	2	5	0	2
Stock Clerks and Order Fillers	2	2	0	2
Operating Engineers and Other Construction Equipment Operators	2	4	0	2
Purchasing Agents, Except Wholesale, Retail, and Farm Products	2	3	0	1
Pump Operators, Except Wellhead Pumpers	2	0	0	2

Corpus Christi MSA	San Antonio MSA	Laredo MSA	Combined Regions
<b>919</b>	<b>981</b>	<b>655</b>	<b>1,045</b>
<b>Direct</b>	<b>Direct</b>	<b>Direct</b>	<b>Direct</b>
2.63 Multiplier	2.80 Multiplier	1.87 Multiplier	2.99 Multiplier

Name	Corpus Christi MSA	San Antonio MSA	Laredo MSA	Combined Regions
Wellhead Pumpers	63	86	27	71
Managers, All Other	62	79	31	67
Property, Real Estate, and Community Association Managers	60	86	29	71
Heavy and Tractor-Trailer Truck Drivers	53	37	70	61
General and Operations Managers	30	33	17	32
Chief Executives	20	28	12	24
Office Clerks, General	20	19	19	23
Construction Laborers	18	14	24	23
Accountants and Auditors	17	22	10	20
Bookkeeping, Accounting, and Auditing Clerks	16	20	9	19
Sales Representatives, Wholesale and Manufacturing	16	13	15	17
Unclassified Occupation	15	21	8	16
Pump Operators, Except Wellhead Pumpers	14	19	6	16
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	14	9	9	14
Laborers and Freight, Stock, and Material Movers, Hand	13	10	17	14
Service Unit Operators, Oil, Gas, and Mining	13	18	5	15
Carpenters	12	10	18	15
Roustabouts, Oil and Gas	12	12	6	12
Secretaries and Administrative Assistants	10	11	7	12
Industrial Machinery Mechanics	10	9	4	10
First-Line Supervisors of Construction Trades and Extraction Workers	10	14	9	16
Financial Analysts	9	11	4	9
Customer Service Representatives	8	12	7	12
Painters, Construction and Maintenance	8	5	8	8
Petroleum Pump System Operators, Refinery Operators, and Gaugers	8	2	3	6
Electricians	8	6	7	11
Landscaping and Groundskeeping Workers	7	4	5	7
Maids and Housekeeping Cleaners	7	3	7	6
Lawyers	7	9	3	8
Sales Representatives, Services, All Other	7	4	4	6
Geoscientists, Except Hydrologists and Geographers	7	10	3	8
Light Truck or Delivery Services Drivers	7	4	6	6
Maintenance and Repair Workers, General	7	4	3	6
First-Line Supervisors of Non-Retail Sales Workers	6	5	9	6
Welders, Cutters, Solderers, and Brazers	6	2	2	4
Helpers--Extraction Workers	6	8	3	7
Real Estate Sales Agents	6	10	2	8
Receptionists and Information Clerks	5	7	3	6
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	5	3	4	5
Plumbers, Pipefitters, and Steamfitters	5	4	6	6

Corpus Christi MSA	San Antonio MSA	Laredo MSA	Combined Regions
<b>206</b>	<b>271</b>	<b>110</b>	<b>301</b>
Indirect	Indirect	Indirect	Indirect
0.59 Multiplier	0.77 Multiplier	0.31 Multiplier	0.86 Multiplier

Name	Corpus Christi MSA	San Antonio MSA	Laredo MSA	Combined Regions
Real Estate Sales Agents	6	7	4	8
Heavy and Tractor-Trailer Truck Drivers	6	6	4	9
Retail Salespersons	6	4	4	7
Office Clerks, General	5	7	4	8
Laborers and Freight, Stock, and Material Movers, Hand	5	5	5	7
Managers, All Other	4	5	2	6
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	4	5	2	6
Customer Service Representatives	4	8	2	8
General and Operations Managers	4	5	1	5
Accountants and Auditors	4	5	2	5
Property, Real Estate, and Community Association Managers	4	5	1	5
Lawyers	3	5	1	4
Sales Representatives, Services, All Other	3	3	1	3
Bookkeeping, Accounting, and Auditing Clerks	3	4	1	4
Secretaries and Administrative Assistants	3	4	1	4
Maids and Housekeeping Cleaners	3	2	2	3
Light Truck or Delivery Services Drivers	3	3	2	3
Waiters and Waitresses	2	2	1	3
Landscaping and Groundskeeping Workers	2	3	1	3
Maintenance and Repair Workers, General	2	2	1	3
Sales Representatives, Wholesale and Manufacturing	2	3	1	3
Security Guards	2	2	2	3
First-Line Supervisors of Retail Sales Workers	2	2	1	3
Personal Financial Advisors	2	3	1	3
Welders, Cutters, Solderers, and Brazers	2	1	0	2
Management Analysts	2	3	1	3
Cashiers	2	2	1	3
Construction Laborers	2	4	2	4
Real Estate Brokers	2	2	1	2
First-Line Supervisors of Non-Retail Sales Workers	2	2	1	2
Photographers	2	3	1	3
Tellers	2	1	1	1
Unclassified Occupation	2	5	0	4
Combined Food Preparation and Serving Workers, Including Fast Food	2	2	1	2
First-Line Supervisors of Office and Administrative Support Workers	2	3	1	3
Securities, Commodities, and Financial Services Sales Agents	2	2	1	2
Wellhead Pumpers	2	2	0	3
Stock Clerks and Order Fillers	2	2	1	2
Paralegals and Legal Assistants	1	2	0	2
Carpenters	1	2	1	2
Civil Engineers	1	0	0	1
Service Unit Operators, Oil, Gas, and Mining	1	1	0	1
Door-to-Door Sales Workers, News and Street Vendors	1	1	1	1

Corpus Christi MSA	San Antonio MSA	Laredo MSA	Combined Regions
<b>1,139</b>	<b>1,705</b>	<b>1,016</b>	<b>2,070</b>
Induced	Induced	Induced	Induced
3.25 Multiplier	4.87 Multiplier	2.90 Multiplier	5.91 Multiplier

Name	Corpus Christi MSA	San Antonio MSA	Laredo MSA	Combined Regions
Retail Salespersons	43	61	50	76
Combined Food Preparation and Serving Workers, Incl Fast Food	26	37	21	44
Office Clerks, General	26	36	27	46
Real Estate Sales Agents	24	35	23	44
Waiters and Waitresses	23	30	23	37
Cashiers	23	35	24	43
Personal Care Aides	22	41	40	51
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	20	30	15	35
Construction Laborers	20	35	38	45
Registered Nurses	18	22	11	27
Maids and Housekeeping Cleaners	18	18	12	23
First-Line Supervisors of Retail Sales Workers	17	25	19	31
Elementary School Teachers, Except Special Education	16	23	9	24
Secretaries and Administrative Assistants	16	23	13	28
Teacher Assistants	16	15	9	17
Home Health Aides	15	7	4	11
Childcare Workers	15	18	15	23
Stock Clerks and Order Fillers	15	20	12	24
Carpenters	14	25	29	32
Maintenance and Repair Workers, General	12	14	6	18
General and Operations Managers	12	18	9	23
Heavy and Tractor-Trailer Truck Drivers	12	19	13	25
Secondary School Teachers, Except Special Career/Technical Education	12	15	6	16
Customer Service Representatives	12	31	11	35
Cooks, Restaurant	11	15	10	18
Bookkeeping, Accounting, and Auditing Clerks	11	16	8	20
Managers, All Other	10	15	14	20
Painters, Construction and Maintenance	9	12	14	17
Laborers and Freight, Stock, and Material Movers, Hand	9	15	10	19
Sales Representatives, Services, All Other	9	11	5	14
Substitute Teachers	9	5	6	7
Nursing Assistants	9	10	4	12
Property, Real Estate, and Community Association Managers	8	13	8	16
Medical Secretaries	8	11	7	13
Landscaping and Groundskeeping Workers	8	11	6	14
First-Line Supervisors of Food Preparation and Serving Workers	8	12	6	14
Personal Financial Advisors	7	15	4	17
Middle School Teachers, Except Special and Career/Technical Education	7	11	5	11
Accountants and Auditors	7	12	5	14
Security Guards	7	11	11	14
Electricians	7	13	10	16



# Appendix A - Data Sources and Calculations

## Input-Output Data

The input-output model in this report is Emsi's gravitational flows multi-regional social account matrix model (MR-SAM). It is based on data from the Census Bureau's Current Population Survey and American Community Survey; as well as the Bureau of Economic Analysis' National Income and Product Accounts, Input-Output Make and Use Tables, and Gross State Product data. In addition, several Emsi in-house data sets are used, as well as data from Oak Ridge National Labs on the cost of transportation between counties.

## Demographic Data

The demographic data in this report is compiled from several sources using a specialized process. Sources include annual population estimates and population projections from the US Census Bureau, birth and mortality rates from the US Health Department, and projected regional job growth.

## Industry Data

Emsi industry data have various sources depending on the class of worker. (1) For QCEW Employees, Emsi primarily uses the QCEW (Quarterly Census of Employment and Wages), with supplemental estimates from County Business Patterns. (2) Non-QCEW employees data are based on a number of sources including QCEW, Current Employment Statistics, County Business Patterns, BEA State and Local Personal Income reports, the National Industry-Occupation Employment Matrix (NIOEM), the American Community Survey, and Railroad Retirement Board statistics. (3) Self-Employed and Extended Proprietor classes of worker data are primarily based on the American Community Survey, Nonemployer Statistics, and BEA State and Local Personal Income Reports. Projections for QCEW and Non-QCEW Employees are informed by NIOEM and long-term industry projections published by individual states.

## Unemployment Data

The unemployment data in this report comes from the Bureau of Labor Statistics' Local Area Unemployment Statistics and is updated every two months.

## Occupation Data

Emsi occupation employment data are based on final Emsi industry data and final Emsi staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level Emsi earnings by industry.

## Educational Attainment Data

Emsi's educational attainment numbers are based on Emsi's demographic data and the American Community Survey. By combining these sources, Emsi interpolates for missing years and projects data at the county level. Educational attainment data cover only the population aged 25 years or more and indicate the highest level achieved.

## Infogroup Business-Level Data

Data for individual businesses is provided by Infogroup, which maintains a database of more than 16 million U.S. business entities. Note that in aggregate it will not be consistent with Emsi labor market data due to differences in definitions, methodology, coverage, and industry/geographic classification.

## State Data Sources

This report uses state data from the following agencies: Alabama Department of Industrial Relations; Alaska Department of Labor and Workforce Development; Arizona Department of Administration, Office of Employment and Population Statistics; Arkansas Department of Workforce Services; California Labor Market Information Department; Colorado Department of Labor and Employment; Connecticut did not provide us with a data source; Delaware Office of Occupational and Labor Market Information, Delaware Wages 2004; District of Columbia Department of Employment Services; Florida Department of Economic Opportunity; Georgia Department of Labor, Workforce Information and Analysis, Occupational Information Services Unit; Hawaii Department of Labor and Industrial Relations, Research and Statistics Office; Idaho Department of Labor; Illinois Department of Employment Security, Employment Projections; Indiana Department of Workforce Development; Iowa Workforce Development; Kansas Department of Labor, Labor Market Information Services, Kansas Wage Survey; Kentucky Office of Employment and Training; Louisiana Department of Labor; Maine did not provide us with a data source; Maryland Department of Labor, Licensing and Regulation, Office of Labor Market Analysis and Information; Massachusetts Executive Office of Labor and Workforce Development; Michigan Department of Labor and Economic Growth, Bureau of Labor Market Information and Strategic Initiatives; Minnesota Department of Employment and Economic Development; Mississippi Department of Employment Security; Missouri Department of Economic Development; Montana Department of Labor and Industry, Research and Analysis Bureau; Nebraska Workforce Development; Nevada Department of Employment, Training and Rehabilitation, Information Development and Processing Division, Research and Analysis Bureau; New Hampshire Department of Employment Security; New Jersey Department of Labor and Workforce Development; New Mexico Department of Labor, Bureau of Economic Research and Analysis; New York Department of Labor, Division of Research and Statistics; North Carolina Department of Commerce, Labor and Economic Analysis Division; North Dakota Job Service, Labor Market Information Center; Ohio Department of Job and Family Services, Labor Market Information Division; Oklahoma Employment Security Commission; Oregon Employment Department, Oregon Labor Market Information System; Pennsylvania Department of Labor and Industry, Center for Workforce Information and Analysis; Rhode Island did not provide us with a data source; South Carolina Employment Security Commission, Labor Market Information Department; South Dakota Department of Labor, Labor Market Information Division; Tennessee Department of Labor and Workforce Development, Research and Statistics Division; Texas Workforce Commission; Utah Department of Workforce Services; Vermont did not provide us with a data source; Virginia Employment Commission, Economic Information Services; Washington State Employment Security Department, Labor Market and Economic Analysis Branch; West Virginia Bureau of Employment Programs, Research Information & Analysis Division; Wisconsin Department of Workforce Development, Bureau of Workforce Information; Wyoming Department of Employment, Research and Planning

## Parameters

### Regions

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Code	Description
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### Timeframe

2015 - 2016

### Datarun

2017.1 – QCEW Employees, Non-QCEW Employees, Self-Employed, and Extended Proprietors