

**STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT BOARD**

IN THE MATTER OF PROPOSED NEW REGULATION,
20.2.50 NMAC – Oil and Gas Sector – Ozone Precursor Pollutants

No. EIB 21-27 (R)

DIRECT TESTIMONY OF SUSAN DAY AND ELIZABETH BISBEY-KUEHN

Susan Day

My name is Susan Day, and I am the Senior Economist with ERG, Inc. I have been asked to provide testimony in support of the New Mexico Environment Department’s (“Department” or “NMED”) proposed new air quality regulations at 20.2.50 NMAC (“Part 50”). My testimony is set forth in Sections I.A and III below, and addresses the compilation of the data used to develop the proposed definition of “small business facility” in 20.2.50.7.OO.

Elizabeth Bisbey-Kuehn

My name is Elizabeth Bisbey-Kuehn. I am the Bureau Chief of the Department’s Air Quality Bureau (“Bureau”). My testimony is set forth in Sections I.B, II, and IV below, and addresses the basis for the proposed definition of “small business facility” in 20.2.50.7.OO, and the regulatory requirements for such facilities in Section 20.2.50.125.

I. QUALIFICATIONS

A. Susan Day

I hold a BA in Economics from Colby College and an MS in Resource Economics from the University of Rhode Island. I am an economist and project manager with 34 years of experience conducting and managing economic, regulatory, and data analyses that support environmental regulations under the Toxic Substances Control Act, Emergency Planning and Community Right-to-Know Act, Pollution Prevention Act, Clean Water Act, and the Safe Drinking Water Act. I have

1 also conducted benefit cost analyses in support of worker health and safety regulations for the U.S.
2 Occupational Safety and Health Administration. My work includes preparing pre-rulemaking
3 options analyses; estimating regulatory compliance costs; characterizing potential benefits
4 associated with regulatory and nonregulatory options; evaluating small business impacts in
5 accordance with Small Business Regulatory Enforcement Fairness Act requirements; tracking,
6 organizing, and summarizing public comments; and preparing information collection requests.

7 My full background and qualifications are set forth in my resume, which is marked as
8 NMED Exhibit 103.

9 **B. Elizabeth Bisbey-Kuehn**

10 A summary of my background and qualifications is provided in my other pre-filed
11 testimony at NMED Exhibit 5. My full background and qualifications are set forth in my resume,
12 which is marked as NMED Exhibit 6.

13 **II. SMALL BUSINESS FACILITY DEFINITION (Kuehn)**

14 Under the proposed rule, a small business facility is defined as a source that is
15 independently owned or operated by a company that is not a subsidiary or a division of another
16 business, that employs no more than 10 employees at any time during the calendar year, and that
17 has a gross annual revenue of less than \$250,000. Employees include part-time, temporary, or
18 limited-service workers.

19 **III. DATA ANALYSIS FOR SMALL BUSINESS FACILITY DEFINITION (Day)**

20 The small business definition proposed in 20.2.50.7.OO includes, among other factors, an
21 indication of the position of the facility (highest level) in the overall corporate hierarchy. For the
22 purposes of the analysis conducted by ERG, the term “global ultimate parent company” is used
23 to define the highest level in the corporate family tree. As discussed below, in conducting this

1 analysis ERG identified the global ultimate parent associated with a list of New Mexico Oil and
2 Gas well owners/operators potentially subject to the proposed rulemaking. Additionally, ERG
3 obtained information on the revenues and employment associated with these global ultimate
4 parent companies.

5 **A. Master List of Well Owners/Operators, and Other Affected Facilities**

6 NMED provided ERG with the names and addresses for well owners/operators and other
7 affected facilities compiled from the NMED Equipment Data and NM Oil Conservation Division
8 data.¹ Using this data, ERG created a master list of 535 well owners/operators and
9 owners/operators of other affected facilities (hereafter collectively referred to as
10 “owners/operators”) by combining the two lists and eliminating duplicate entries. *See* NMED
11 Exhibit. 104 – Owner Address List Final Spreadsheet.

12 Global Ultimate Parent Data

13 As input to the determination of whether facilities can be classified as “small business
14 facilities” under Part 50, information on ownership by a global ultimate parent company and the
15 revenue and employment data linked to each global ultimate parent company is required. Using
16 information on industry classification signified by North American Industry Classification
17 System (“NAICS”) code, as well as name and address, facilities can be identified and linked to
18 global ultimate parent companies in commercially available business databases such as Dun and
19 Bradstreet (“D&B”). Information on revenues and employment for global ultimate parent
20 companies can also be obtained from D&B. D&B is a fee for service operation, typically dealing
21 in transactions for large scale queries (e.g., an entire industry sector). Due to the limited size of
22 the universe of facilities covered by Part 50, it was cost effective for ERG to purchase the needed

¹ http://gotech.nmt.edu/gotech/Petroleum_Data/allwells.aspx

D&B data from another vendor called NAICS Association, LLC (“NAICS Association”). This process involved the following steps:

Step 1 – Submit the master list of New Mexico owners/operators to NAICS Association.

Step 2 – NAICS Association links the master list of owners/operators to D&B data and develops a dataset of facility records.

Step 3 – Review the dataset returned by NAICS Association, which includes the following categories of data:

- Name and address of the owner/operator identified as matching each facility on the master list of New Mexico owners/operators.
- Match fields including match method, match grade and confidence code.
- Facility identification including D&B number, facility sales (which is used as a proxy for revenues) and employment, industry sector designation (NAICS and SIC codes), and organization type (e.g., subsidiary).
- Global ultimate parent company identification including name, location, D&B number, sales (which is used as a proxy for revenues) and employment, and industry sector designation (NAICS and SIC codes) for the global ultimate parent.

NAICS Association used a matching algorithm to identify each New Mexico owner/operator or other affected facility in their data. Standard Matches are based on company name, address, and phone number, while Company Name Only matching is based on company name and country (no address). Where a match was made, NAICS Association appended D&B numbers and confidence codes for each matched record showing the degree of confidence they have in that particular match. The confidence codes range from 10, which is a perfect match, down to 4, which is a loose match. Following NAICS Association recommendations, only

1 matches above 7 were retained for ERG's analysis. Of matches with a confidence code of 8, 9,
2 and 10, the matches were further categorized by match method (standard, name only) and match
3 grade (in the form of letter grades A, B, F, and Z). For both standard and name-only matches,
4 match grade can be interpreted in the following manner:

5 A - Same: ABC WIDGET MFG vs. ABC Widgeting MFG

6 B - Similar: ABC Widget MFG vs. ABC MFG

7 F - Different: ABC Widget MFG vs. XYZ MFG

8 Z - Null: One or Both are Null (Blank)

9 Match grade is shown in the NAICS Association dataset as a sequence in which the
10 match grade string reflects the following data elements:

11 1. Business Name

12 2. Street Address Number

13 3. Street Name

14 4. City

15 5. State

16 6. PO

17 7. Phone

18 For example, a match grade sequence could be AAAAAZA, with each letter representing the
19 match grade for each data element.

20 Of the 535 owners/operators ERG submitted to NAICS Association, 404 were identified
21 using a standard match with a confidence code of 8 or above; 80 were identified using a name-
22 only match (i.e., only the "business name" data element is the same between the NM facility and
23 the facility identified by NAICS Association), and 51 could not be matched at all. ERG reviewed

1 all 80 name-only matched facilities and accepted 56 matches where enough information could be
2 located through google searches on either the original name from NMED or the matched name
3 suggested by NAICS Association to confidently conclude that they were the same facility. The
4 remaining 24 matches were rejected where sufficient information could not be located.

5 For the 460 matched New Mexico facilities (404 standard matches plus 56 name-only
6 matches confirmed by further research), NAICS Association attempted to identify a global
7 ultimate parent company associated with the facility. Where a separate global ultimate parent
8 was not identified, the owner/operator or other affected facility was not a subsidiary of a
9 company and was considered to be the global ultimate parent for the purpose of this analysis
10 (e.g., the facility itself could own other locations but was not itself owned by another entity). Of
11 the 460 “matched” owners/operators, global ultimate parent companies were identified for 154
12 facilities. The remaining 306 facilities were considered to be their own global ultimate parent.

13 **B. U.S. Small Business Administration Definition of “Small Business”**

14 The U.S. Small Business Administration (“SBA”) is a federal government agency that
15 was created by federal legislation to support small businesses. SBA is responsible for defining
16 industry size standards that identify threshold values below which firms in individual industries
17 are classified as small businesses. These size standards are the basis for qualifying firms for
18 preference in government contracting, and define eligibility criteria for loans at attractive rates
19 under government lending programs.

20 SBA’s small business size standards vary by industry sector and are set by NAICS code.
21 In establishing size standards, SBA considers a number of economic and market characteristics
22 that may allow a business of concern to exercise dominance in an industry sector. Size standards
23 are based on criteria – such as annual receipts or number of employees – that represent a measure

1 of these characteristics. The standards define the largest size a for-profit enterprise (together with
2 its affiliates) can be and still qualify as a “small business.” As such, the size standard is
3 established at the parent company level, encompassing all identified sites under a common
4 ownership structure.

5 For context in this rulemaking, ERG included the SBA size standards for potentially
6 affected owners/operators and other facilities and, using global ultimate parent company
7 information identified for each facility, identified how that global ultimate parent would be
8 classified based on the SBA size definition. *See* NMED Exhibit 105 – Preliminary Results
9 NAICS.COM Updated Spreadsheet. Note that this analysis required NAICS code, revenue, and
10 employment data. Accounting for the 22 facilities that were linked to the same global ultimate
11 parent as at least one other affected facility, ERG counted 406 unique ultimate parents with
12 revenue and employment data, and 24 ultimate parents that did not have revenue or employment
13 data. The 406 unique global ultimate parent companies are associated with 436 owners/operators.

14 A comparison of these data to the SBA size definition (revenue or employment,
15 depending on the NAICS code) resulted in 355 (87%) global ultimate parent companies that
16 meet the SBA definition of “small business”, and 51 (13%) global ultimate parent companies
17 that do not meet that definition (i.e., “not small”), associated with 436 owners/operators and
18 other facilities with usable data (revenue and employment). The 355 small global ultimate parent
19 companies are associated with 359 small owners/operators, and the 51 not small global ultimate
20 parent companies are associated with 77 not small owners/operators.

1 **C. Estimation of Revenue Per Well and Total Gas/Oil Value Per Well**

2 ERG obtained oil and gas well production data for New Mexico owner/operators and
3 other affected facilities from the Go-Tech website.² The Go-Tech website presents historical oil
4 and gas production data, updated monthly for the state of New Mexico. The production data on
5 the website is obtained primarily from the New Mexico Oil Conservation Division, and the
6 website is sponsored by the State of New Mexico; the U.S. Department of Energy's Office of
7 Fossil Energy and the National Energy Technology Laboratory; and the New Mexico Petroleum
8 Recovery Research Center, a division of the New Mexico Institute of Mining and Technology.
9 These data include information on the number of stripper and non-stripper wells³ per
10 owner/operator, as well as the total MSCF of gas and BBLs of oil produced by the
11 owner/operator in the 18-month time period between January 2019 and June 2020. Production
12 data were available for 399 (75%) of the 535 owner/operators. ERG used these data to calculate
13 an estimate of "value" per well using two methods, as described below.

14 **Method 1:** ERG estimated average revenue per well for each owner/operator by dividing
15 the global ultimate parent revenues associated with the owner/operator by the total number of
16 wells reported in the GO-TECH data for that owner/operator. The distribution of average global

² Available at: http://gotech.nmt.edu/gotech/Petroleum_Data/allwells.aspx

³ Stripper wells are defined in the New Mexico Natural Gas and Crude Oil Incentive Act at NMSA 1978, § 7-29B-2(L), as follows:

"stripper well property" means a crude oil or natural gas producing property that is assigned a single production unit number by the department and:

- (1) if a crude oil producing property, produced an average daily production of less than ten barrels of oil per eligible well per day for the preceding calendar year;
- (2) if a natural gas producing property, produced an average daily production of less than sixty thousand cubic feet of natural gas per eligible well per day during the preceding calendar year; or
- (3) if a property with wells that produce both crude oil and natural gas, produced an average daily production of less than ten barrels of oil per eligible well per day for the preceding calendar year, as determined by converting the volume of natural gas produced by the well to barrels of oil by using a ratio of six thousand cubic feet to one barrel of oil.

ultimate parent revenue per well ranges from a low of \$38 per well to a high of \$3,314,250,000 per well. It should be noted that the global ultimate parent revenue for many ultimate parent companies can come from other sources besides oil and gas well production, including sources entirely outside the oil and gas production industry. Therefore, the global ultimate parent revenue per well can be highly variable.

Note also that 22 global ultimate parent companies are associated with more than one well owner/operator. As such, the estimate of average revenue per well associated with the individual owner/operator is overstated in these 22 instances because the number of wells only includes those wells associated with the individual owner/operator, while the revenue is for the global ultimate parent, which is associated with multiple owner/operators.

Method 2: ERG estimated the average value of the oil and gas production per well for each owner/operator. Production data were available for an 18-month period including all of 2019 and the first 6 months of 2020. Using dollars per barrel (BBLs) for oil, and dollars per million BTU (MMBTU) for gas, ERG calculated the average value of the production from wells of each type per owner/operator. Production volumes were multiplied by 12/18ths to convert from 18 months to annual estimates. Price information was taken from the following:

- New Mexico Crude Oil First Purchase Price (Dollars per BBLs) – US Energy Information Administration⁴ 24-Month average (February 2019 - January 2021) = **\$45/BBLs**
- Henry Hub Natural Gas Spot Price (Dollars per MMBTU) - US Energy Information Administration⁵ 24-Month average (March 2019 - February 2021) = **\$2.39/MMBTU**

⁴Available at: https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=F003035__3&f=M

⁵ <http://www.eia.gov/dnav/ng/hist/rngwhhdm.htm>

1 See NMED Exhibit 105 – Preliminary Results NAICS.COM Updated Spreadsheet.

2 To estimate the average oil and gas value per well, ERG calculated the total production
3 value (oil and gas) for all wells owned by each owner/operator then divided that value by the
4 total number of wells per owner/operator as reported in the GO-TECH data. The distribution of
5 average oil and gas value per well ranges from a low of \$30 per well to a high of \$5,306,080 per
6 well.

7 **IV. BASIS FOR SMALL BUSINESS FACILITY DEFINITION AND REQUIREMENTS**
8 **OF SUBPART 125 (Kuehn)**

9 The Department structured the overall requirements of Part 50 such that there is a
10 baseline set of requirements applicable to all owners and operators, and a tiered set of
11 requirements that apply based upon the equipment or source type, the PTE of the equipment or
12 source, and whether a facility meets the definition of a small business facility as defined in this
13 rule. All owners and operators are required to calculate the PTE of equipment and have that
14 calculation certified by a professional engineer and conduct equipment leak monitoring and find
15 and repair leaking components by specified deadlines. The monitoring frequency is determined
16 by the facility PTE. An owner or operator of a facility that meets the definition of a small
17 business facility must comply with the requirements of Sections 20.2.50.111 and 125. If a facility
18 does not meet the definition of a small business facility, the owner or operator must comply with
19 the other sections of Part 50 applicable to the particular sources at the facility.

20 The Department developed the definition of a small business facility to recognize the
21 unique challenges smaller independent operators may face in determining applicability of
22 complex regulations and financing the initial and ongoing costs of compliance with Part 50. Both
23 the federal Clean Air Act and the Board's air quality construction permit fee regulations at
24 20.2.75 NMAC contain provisions to assist to small businesses by providing compliance

1 assistance and a tiered fee schedule that gives a 50% reduction in initial and annual permit fees.
2 These programs were developed because small businesses frequently lack the technical expertise
3 and financial resources necessary to evaluate complex regulations, to finance the initial and
4 ongoing compliance requirements, and to pay the full cost of recurring permitting fees.

5 **A. Use of Data Compiled by ERG**

6 In developing the definition of small business facility in Part 50, the Department
7 evaluated the report prepared by ERG and sorted the companies by the annual Global Ultimate
8 (GULT) Parent revenue and staffing levels. The thresholds established in the rule were chosen
9 because the data compiled by ERG indicated that those thresholds balanced the costs of
10 compliance with Part 50 against a company's ability to finance the costs of compliance, and
11 would not put the majority of companies at risk of becoming insolvent and therefore cause wells
12 to be abandoned without remediation.

13 The Department estimated the annual average cost of compliance for a representative
14 well site facility to determine the number of companies that could finance those compliance
15 costs. The representative facility was assumed to have facility-wide emissions greater than 5
16 TPY VOC, requiring quarterly LDAR monitoring under Section 20.2.50.116; a storage vessel
17 emitting greater than 2 TPY, requiring a control device, and an annual inspection of the storage
18 vessel under Section 20.2.50.123. The annual average cost of compliance for the representative
19 facility was estimated at \$37,945 (based on an average cost of \$32,400 to control a storage
20 vessel, \$4,385 for quarterly LDAR monitoring, and \$1,160 for an annual inspection). Because
21 the cost estimates are based on the average cost of compliance for companies operating
22 throughout the sector, the cost estimates are conservative and may overestimate the true cost of
23 compliance for an individual facility. The Department then ranked the companies by GULT

1 revenue from highest to lowest revenue and screened the companies that reported \$1,000,000 or
2 less and \$250,000 or less to determine how many of those companies had per well site revenue
3 less than the cost of compliance for the representative facility. Based on this review, the
4 Department determined that 96 companies reporting a GULT revenue of \$1,000,000 and less had
5 a calculated revenue per well less than \$37,945. These companies operate approximately 9,277
6 wells or 18% of the total wells (9,277/50,866). The Department determined that 54 companies
7 reporting a GULT revenue of \$250,000 and less had a calculated revenue per well less than
8 \$37,945. These companies operate approximately 4,638 wells or 9% of the total wells
9 (4,638/50,866).

10 The Department then determined the average annual cost of compliance for a facility
11 meeting the small business definition at \$4,385 (based on a conservative quarterly LDAR
12 monitoring requirement). According to the report, few companies have a revenue of less than
13 \$4,385 per well.

14 Based on the above, the Department established \$250,000 as the revenue threshold to
15 meet the small business definition. This is based on the need to require robust emission reduction
16 requirements for a majority of wells and facilities; to tailor the requirements for companies with
17 low annual revenue; and to reduce the potential early abandonment of wells that will result in
18 increased uncontrolled air emissions and significant public cost to remediate those wells.

19 Based on the ERG report and the proposed definition, a total of 82 companies that
20 operate 4,638 wells would qualify as small business facilities under the thresholds established in
21 the rule. Therefore, under the proposed definition, 15% of the total number of companies
22 (82/535) subject to Part 50 would be considered owners/operators of small business facilities,

1 and 9% of the total number of wells (4,638/50,866) would be considered small business
2 facilities.

3 The Department also estimated the revenue from a well producing 7.5 bbl of oil per day,
4 (7.5 bbl oil/day * 365 days/year * \$60.00/bbl of crude oil) as \$164,250 per year (or \$450 per
5 day). Comparing this estimated revenue with the estimated cost of complying with the small
6 business provisions of Part 50 (estimated at \$4,385), it would cost companies approximately
7 2.6% of total revenue to comply. The estimated cost of compliance for the representative facility
8 (estimated at \$37,945) as a percentage of the total estimated revenue is approximately 23% of
9 total revenue.

10 **B. Rationale for Proposed Small Business Facility Provisions**

11 As detailed above, Part 50 establishes a baseline set of requirements for all owners and
12 operators and then a tiered set of requirements depending on the PTE, type of equipment, and if a
13 facility meets the definition of a small business facility. The rationale for the definition of a small
14 business is provided below.

15 The proposed definition is based upon three principal criteria that help delineate between
16 small, independent businesses and large, vertically integrated companies. The first criterion is
17 ownership structure, which was used to distinguish companies that are independently owned and
18 operated and are not a subsidiary or division of another company from larger corporations. The
19 differences between small and large companies include the size of the business, number of
20 employees, revenue, legal structures, and financing and tax requirements. Small and large
21 companies may both operate within the same industrial sector, however, the differences in how
22 these companies operate, their ability to access and finance capital, and their overall size affect
23 their operations.

1 The second criterion is the total number of staff employed by the company, which is an
2 indication of the company's personnel and staff resource capacity to interpret and implement the
3 requirements of the rule. Larger companies have the financing capacity to employ dedicated
4 environmental, health, and safety specialists; these staff typically monitor the company's
5 compliance with numerous state and federal environmental regulations. Small companies
6 employing fewer numbers of employees typically do not have the staffing or funding capacity to
7 finance dedicated environmental compliance specialists.

8 The third criterion is annual revenue. The Department recognizes that the cost of
9 complying with the requirements of Part 50 may disproportionately impact the smallest
10 companies and may result in early abandonment of small business-owned wells, which, in turn,
11 may result in increased uncontrolled air emissions from abandoned wells. Thus, by establishing a
12 definition for small business facility, the Department is rightsizing the rule to require robust
13 equipment and emission monitoring for smaller, independent operations, while simultaneously
14 balancing those requirements against the unintended negative environmental consequences
15 resulting from early abandonment.

16 **C. Proposed Requirements for Small Business Facilities**

17 The definition of small business facility in Part 50 distinguishes those companies that are
18 independently owned, have low annual revenues (less than \$250,000), and a small number of
19 employees (10 or fewer), from those companies with larger annual revenues (\$250,000 or
20 greater) and a greater number of employees (more than 10 employees). As discussed previously
21 in the testimony of Susan Day, the Department established the definition of small business
22 facility based on ownership, revenue, and staffing information obtained from NAICS
23 Association, LLC.

1 Sections 20.2.50.111 and 125 require the owner or operator of a small business facility to
2 comply with emission reduction, monitoring, and operational requirements. The requirements of
3 Section 20.2.50.111 include estimating the facility's PTE and having those emissions
4 calculations certified by a professional engineer.

5 The requirements of Section 20.2.50.125 include operating equipment in accordance with
6 manufacturer specifications and keeping those specifications on file; calculating the annual VOC
7 and NOx emissions from each facility using the actual production and processing rates;
8 maintaining a company-wide database of emission calculations for all subject facilities;
9 complying with third party verification requirements if requested by the Department; conducting
10 fugitive leak monitoring requirements as required in Subsections C and D of Section
11 20.2.50.116; repairing equipment leaks as required under Subsection E of Section 20.2.50.116;
12 submitting an initial certification certifying that the small business facility meets the definition of
13 small business facility in Part 50, and annual certifications thereafter.

14 Subsection G of Section 20.2.50.125 contains an important provision that triggers the
15 applicability of the remaining sections and requirements of Part 50 if the Secretary finds, based
16 on credible evidence, that the facility presents an imminent threat to public health or welfare or
17 to the environment; is not being operated in a manner that minimizes emissions of air
18 contaminants; or has violated another requirement of Section 20.2.50.125 NMAC. This provision
19 incentivizes owners and operators of small business facilities to fully comply with Section
20 20.2.50.125 providing for an applicability onramp for the other sections of Part 50 if they fail to
21 do so. The annual emissions data collected and reported to the Department will be used in air
22 quality planning projects, air dispersion modeling analyses, air emissions databases and
23 emissions inventories, and in other air quality related projects.

Susan Day

Economist



A seasoned economist and program manager with extensive experience in data collection and analysis supporting development of federal regulations

- Has extensive experience with all aspects of the regulatory development process and has estimated compliance costs/savings, characterized benefits, and evaluated the potential for small business impacts for more than 30 rulemakings related to worker safety, toxic chemicals, water quality standards, and government mandated electronic reporting.
- Has more than two decades of experience managing contracts and large and small projects, as well as coordinating the work of multiple subcontractors and consultants.
- Currently leading ERG's team providing a range of economic, engineering, and data analyses in support of the proposed Toxic Substances Control Act (TSCA) Chemical Data Reporting (CDR) Revisions Rule.

EMPLOYMENT

- 2017–present
Senior Economist, ERG, Lexington, MA
- 2014–2017
Principal Associate, Abt Associates Inc.
- 1987–2014
Various Positions, Abt Associates Inc.
- 1985–1987
Graduate Research Assistant, Department of Resource Economics, University of Rhode Island
- 1985–1986
Research Assistant, Economic Analysis Inc.
- 1985
Research Assistant, Coastal Resources Center

EDUCATION

M.S., Resource Economics, University of Rhode Island, 1987

B.A., Economics, Colby College, 1983

RELEVANT PROJECTS

Economic Support for TSCA CDR Revisions Rule

Client: U.S. EPA OCSPP. Currently leading ERG's team providing a range of economic, engineering, and data analyses in support of the proposed TSCA CDR Revisions Rule. Developed a model to estimate reporting burden and cost for multiple future CDR reporting scenarios and changes to reporting requirements. Prepared regulatory options for potential changes to small business definitions under section 8(a) of TSCA. Responsible for developing reporting burden estimates, modeling total burden, and preparing the full suite of regulatory documents for the proposed rule.

Economic and Regulatory Analyses of Toxics Release Inventory (TRI) Reporting Requirements

Client: U.S. EPA OPPT. For the TRI program, from 1990 to 2017, prepared more than 50 economic and regulatory analyses supporting options selection and rulemaking packages for several industry and chemicals expansion regulations. Prepared industry profiles, estimates of potentially affected universe, compliance cost estimates, characterization of small entities affected by rulemakings, benefits, sensitivity analyses, SBREFA analyses (using cost impact ratios compared to thresholds), and analyses of other statutory and EO requirements. Incorporated results from models such as RSEI to assess potential distributional impacts. Oversaw literature reviews related to topics

such as industry trends, specific industrial processes, and the value of information. Also developed a rapid, low-cost screening analysis approach that is appropriate for use when compliance costs are minor. For several rulemakings, also organized and tracked public comments, summarizing key themes and assisting in the preparation of responses to comments.

Regulatory Support for CAA Section 112(r) (RMP), CERCLA and EPCRA Regulations, Lists of Chemicals and Guidance Documents

Client: U.S. EPA OEM. Leading ERG's team to provide support for the development and modification of regulations, as well as the revision of lists of chemicals and reporting thresholds under CAA Section 112(r) ("RMP"), CERCLA, and EPCRA. Oversaw the update of existing EPA guidance on CERCLA Section 103 continuous release reporting. Prepared a regulatory impact analysis (RIA) in support of adjustments to reportable quantities (RQ) for ammonia and hydrogen sulfide continuous releases from animal farms under CERCLA and EPCRA. This task was a quick-turnaround engagement (two weeks) to prepare and deliver all analyses (and final RIA document), including estimation of the number of farms that would no longer report under the higher RQs, estimation of reporting burden and cost averted, agency burden and costs averted, benefits, and small entity impacts.

As part of the development of the economic analysis supporting this rulemaking, evaluated whether other statutory and executive order (EO) requirements needed to be addressed, including EO 12866, Regulatory Planning and Review; EO 13563, Improving Regulation and Regulatory Review; EO 13771, Reducing Regulations and Controlling Regulatory Costs, Paperwork Reduction Act (PRA), Regulatory Flexibility Act (RFA), Unfunded Mandates Reform Act (UMRA); EO 13132: Federalism; EO 13175, Consultation and Coordination with Indian Tribal Governments; EO 13045, Protection of Children from Environmental Health Risks and Safety Risks; EO 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use, National Technology Transfer and Advancement Act (NTTAA); and EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Developed language demonstrating how the rulemaking addressed each, using the economic analysis where appropriate.

Other tasks include 1) preparing an ICR Renewal for the Episodic Releases of Oil and Hazardous Substances data collection. Conducted informal interview of reporters to estimate their reporting burden; 2) responding to multiple quick turnaround requests for data mining (ERNS data) and economic analysis, 3) In support of the Amendment to Emergency Release Notification Regulations on Reporting Exemption for Air Emissions from Animal Waste at Farms; Emergency Planning and Community Right-to-Know Act, organized, tracked, and summarized 87,000 comments received on the proposed rule.

Telecommunications Structures Small Entity Representative (SER) Background Document

Client: OSHA. Led the development of SER background document for the Telecommunications Structures Standard covering both maintenance and construction activities. Estimated the number of antenna-supporting structures in the United States as well as the number of structures constructed and dismantled. Further, estimated the number of establishments and climbing employees potentially affected by the proposed standard. Estimated the number of entities and employees by NAICS code and size category for use in the estimation of small business impacts. Estimated unit compliance costs for components of the standard including rule familiarization, training, recordkeeping, job hazard analysis, rigging plans, weather monitoring, structural modifications, communication, fall protection and 100% tie-off, and inspections. Prepared unit labor costs (wage rates) for relevant labor categories (e.g., authorized climber, competent rigger) using BLSOES occupational costs and wage categories.